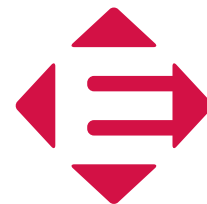


E SWITCH®



PRODUCT CATALOG

PC318

LITTLE DETAILS. BIG QUALITY. ▶▶▶

New Products.



TL 3340

SMT SUBMINIATURE TACT SWITCH

Page 21



TL 6190

SEALED, THRU-HOLE RIGHT ANGLE TACT SWITCH

Page 39



ULP

ILLUMINATED PUSHBUTTON SWITCH

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MDP-16

MODULAR ILLUMINATED PUSHBUTTON SWITCH

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RL 8100

ROUND, ILLUMINATED PUSHBUTTON SWITCH

Page 104



SS SERIES

SUBMINIATURE SNAP-ACTION SWITCH

Page 207



TS SERIES

SUBMINIATURE SNAP-ACTION SWITCH

Page 209



The E-Switch Promise.

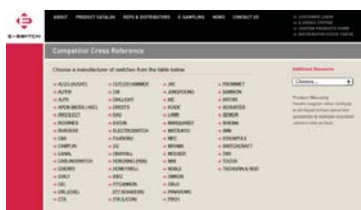
We've Got the Details Covered. Actuators. Housings. Contacts. Details. Quality lives in the little things. You can feel it in the flip of a switch. Or in the assured tone of a familiar voice. At E-Switch, we take tiny details very seriously. Because ultimately, it's the small things that determine the success of your business. Our commitment to quality begins with our design engineers. Our engineering team will work closely with your organization to take the project from the initial design stage to manufacturing. We can identify the most efficient tooling and manufacturing for a cost effective solution. Our rigid quality control measures and on-going testing will ensure a consistent product. We are committed to total customer satisfaction.

Our Capabilities range from design and prototyping, to manufacturing. We have driven excess cost out of the manufacturing process by utilizing years of engineering and manufacturing knowledge. E-Switch is ready to step

forward and assist you in designing a switch to fit your application.

E-Switch supplies quality services and products to key markets around the globe.

- ▶ Electronics
- ▶ Telecommunications
- ▶ Computers & Peripherals
- ▶ Medical/Dental Equipment
- ▶ Office Automation
- ▶ Scientific Instrumentation
- ▶ Factory Automation
- ▶ Audio & A/V Equipment
- ▶ Appliances
- ▶ Vending Machines
- ▶ Consumer Products



E-Cross System. Our cross-referencing program is one of the nation's most comprehensive! It offers industry cross referencing for all the major market players. Visit www.e-switch.com and go to our E-Cross system, or call us at 800-867-2717 and have one of our friendly customer service agents cross your parts over the phone.



Request Samples. Currently industry standards set sample shipment time at three to four weeks. Our state-of-the-art technology and our dedicated sampling inventory, covering 3,000 discrete part numbers, allow us to get most samples out the door within 24 hours. Call us at 800-867-2717 to request a sample or use our online sample request form at www.e-switch.com



Service. Our worldwide team of experts provides round-the-clock attention. No matter the time or place, you're seconds away from a qualified answer. No voicemail during business hours unless you choose to access our messaging service. No waiting. Just friendly solutions and fast advice. Request quotes over the phone and receive a response within 24 hours. Call us at 800-867-2717.



Quality. We emphasize quality through efficiency in our design and manufacturing processes. That's why we can offer exceptional quality at competitive prices. And, in terms of service, our quality management has fueled the best success rate in the industry.

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TACT
SWITCHES

TACTILES



E-Switch offers a wide variety of high quality, long life Tactile Switches. Our tact series is available in a large variety of styles, sizes and packaging options. This fast growing line is used in a large number of applications including computer peripherals and medical equipment. More surface-mount versions are on the drawing board.

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NAVIGATION
SWITCHES

NAVIGATION



E-Switch Navigational Switches are used in applications that have a user interface that requires multi-position functionality, such as handheld devices, consumer electronics, and more.

JS1200	48
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PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

PUSHBUTTONS



E-Switch offers a broad line of Pushbutton Switches. Available in illuminated, power, process-sealed, miniature and sub-miniature, E-Switch Pushbutton Switches are used in a great number of applications including telecommunications, consumer appliances, professional audio gear, and instrumentation.

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ROCKER
SWITCHES

SLIDE
SWITCHES

TOGGLES



E-Switch Toggle Switches are available in miniature, sub-miniature, process sealed and surface mount versions. Toggle Switches are used in such varied applications as automotive and transportation to test and measurement, and medical instrumentation to computer peripherals.

Series 100 Miniature	112-121
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SNAP-ACTION
SWITCHES

DIP
SWITCHES

ROCKERS



The Rocker Switches offered by E-Switch are numerous and varied and are used in computer peripherals, test & measurement, medical instrumentation as well as transportation. Available in standard, miniature and sub-miniature sizes, our rocker switches can be printed with a variety of markings. They are also available in process-sealed and illuminated versions.

Series 300 Miniature Rocker & Paddle	137-145
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KEYLOCK
SWITCHES

ROTARY
SWITCHES

SLIDES



Available in miniature, sub-miniature, as well as industry standard sizes, E-Switch's Slide Switches are used where p.c. board space is at a premium. The wide variety of options are well suited for applications ranging from high tech to consumer products.

Series 500	178-181
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DETECTOR
SWITCHES

CAP
OPTIONS



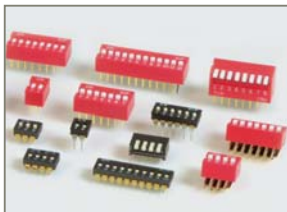
SNAP-ACTIONS



E-Switch Snap-Action Switches are available in three series: standard, miniature and sub-miniature. All series offer multiple actuator options. Applications for these precision switches range from office equipment to the highly critical control functions in industrial test and measurement uses.

Series LS	201-203
Series MS Miniature	204-206
Series SS and TS Sub-miniature	207-210

DIPS



E-Switch DIP Switches are available with gold plated, bifurcated wiping contacts to ensure stable contact and low resistance. Available with a variety of terminal options for automatic insertion or surface-mount applications, our DIP Switches offer top tape sealing that is designed to withstand wave soldering and board washing.

Series KAN Half-pitch Low Profile	211-212
Series KAJ Low Profile	213-215
Series KAS Slide	216-217
Series KAP Piano	218-219

KEYLOCKS



The E-Switch KO Series of Keylock Switches have zinc alloy die cast housing and cylinders. Some versions are also available with chrome plating. We offer these switches with tubular and reversible double cut keys.

Series KO	220-230
Series KO Covers	231

ROTARYS



E-Switch Rotary Switches combine a proven reliable design with industry standard packaging at very competitive pricing. In applications ranging from test & measurement equipment to telephone base stations to hospital equipment, our KC Series Rotary Switches have performed exceptionally well and solved many design challenges.

Series KC	232-234
Series KC1901	235

DETECTORS



Detector switches are used in a wide variety of applications and are designed to determine the condition or location of an object, cam mechanism, door, lid or product housing. They are characterized by the absence of any tactile feedback or "click" during the operation of the switch and have a longer travel than tactile switches of comparable size.

Series TD	236-237
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CAP OPTIONS



E-Switch offers a multitude of cap options in many formats and colors, designs and shapes.

All Series Cap Options	239-243
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TACT
SWITCHESNAVIGATION
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SWITCHESKEYLOCK
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SWITCHESDETECTOR
SWITCHESCAP
OPTIONS



The E-Switch Product Warranty.

E-Switch warrants its products to be free from defects in materials and workmanship under normal use and service and to be in accordance with E-Switch specifications and drawings for a period of one year after date of shipment by E-Switch. Buyers must within this warranty period give E-Switch written notice of any defect claim and promptly return the product prepaid upon first receiving E-Switch authorization to return. E-Switch will, at its sole discretion, thereafter either repair or replace such product found to be defective herein. This warranty does not include, nor does E-Switch assume responsibility for, defects or damage caused by misuse, abuse, service, repair by others, or normal wear and tear. This warranty

is given in lieu of and excluding all other warranties, express or implied, including those of merchantability or fitness for a particular purpose. The remedies stated herein are exclusive remedies and E-Switch shall not be responsible or liable for any indirect, consequential, or incidental damages, or further loss of any kind whatsoever. While we provide application assistance on E-Switch products, it is the responsibility of the customer to determine the suitability of the product for the intended use. Dimensions, operating characteristics, specifications, materials, finishes, and component parts are subject to change without notice.

RoHS and WEEE Regulatory Compliance Process and Warranty Statement.

E-Switch is compliant with environmental protection initiatives adopted by the European Union, known in the industry as RoHS and WEEE. E-Switch believes it is important to provide our customers and distribution partners with switch products that meet the requirements of these environmental regulations. This statement outlines our RoHS and WEEE compliance process and warranty statement.

Terms:

Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (2002/95/EC): RoHS:

This is a directive put forth by the European Union which states that from July 1, 2006 new electrical and electronic equipment put on the market do not contain each of the 6 substances above the RoHS thresholds:

Lead < 1000PPM	Mercury < 1000PPM
Hexavalent Chromium < 1000PPM	PBB < 1000PPM
PBDE < 1000PPM	Cadmium < 100PPM

Directive on Waste Electrical and Electronic Equipment (2002/96/EC), WEEE:

WEEE defines the recovery of waste electrical and electronic equipment and compliments the RoHS directive:

Compliance process:

E-Switch will endeavor to help our customers as well as our distributor partners manage the RoHS compliance process for E-Switch products. Included in this management process are the following:

- ▶ Status of RoHS compliance information: E-Switch will inform customers as to switch series RoHS compliance, on an E-Switch certification document. E-Switch certification documents will be posted on our Internet website located at www.e-switch.com.
- ▶ E-Switch will provide additional information when requested by customers or distribution partners, on a cost/quote basis: Examples of information that may be requested and provided by E-Switch for a fee include:
 - Detailed PPM lab reports regarding each of the 6 RoHS substances per homogenous materials, and
 - Customer-specified spreadsheets and/or formats.

- ▶ E-Switch part numbers that meet RoHS compliance will receive a packaging label with an attached green sticker indicating RoHS compliance.
- ▶ Distributor inventory: there are many part numbers in the E-Switch product line which, to our knowledge, required no material and/or process changes in order to meet RoHS directives and become RoHS compliant at the time of certification testing. However, E-Switch cannot "pre" certify switch products to a date that is prior to a verifiable certification test date as posted on our web site.
 - However, those part numbers that did not (to our knowledge) require changes to meet RoHS directives and become RoHS compliant, could be categorized as in compliance if that determination and associated liability is made by the distributor and/or other associated companies.
- ▶ E-Switch will not authorize product returns solely for RoHS compliance related issues.

General RoHS Warranty Statement

To our knowledge E-Switch is not using those substances identified in the European Union's Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (2002/95/EC) RoHS, including lead, cadmium, hexavalent chromium and mercury, as well as polybrominated biphenyls and polybrominated diphenylethers in amounts in excess of RoHS thresholds, in the manufacture of our switch products listed in the E-Switch RoHS-certified products list.

Please be advised however, that we do not analyze our products for chemical content on a regular basis. While E-Switch supports the European Union's initiative to improve the safety of our products and to meet the latest global environmental standards, **WE MAKE NO WARRANTY, EXPRESS OR IMPLIED, BEYOND OUR STANDARD WARRANTY STATEMENT WITH RESPECT TO OUR PRODUCTS.**



Recommended Soldering Guidelines.

Most contamination problems can be prevented by exercising care during the cleaning and soldering process. Care should be taken not to immerse or spray unsealed switches during flux

removal. Contact E-Switch for specific soldering recommendations and specifications not found in this catalog. Generalized soldering procedures are outlined below.

HAND SOLDERING AND TEMPERATURES

Recommend soldering irons of 30 watt maximum with a tip temperature of 345°C (650°F) for 2-3 seconds and solder of 0.030 - 0.040 diameter.

WAVE SOLDER TIME AND TEMPERATURES

When wave soldering, we recommend using a no-clean flux soldering process, rather than a process that requires washing. The fluxing process must be controlled so as not to have flux migrate inside the switch.

WAVE SOLDER

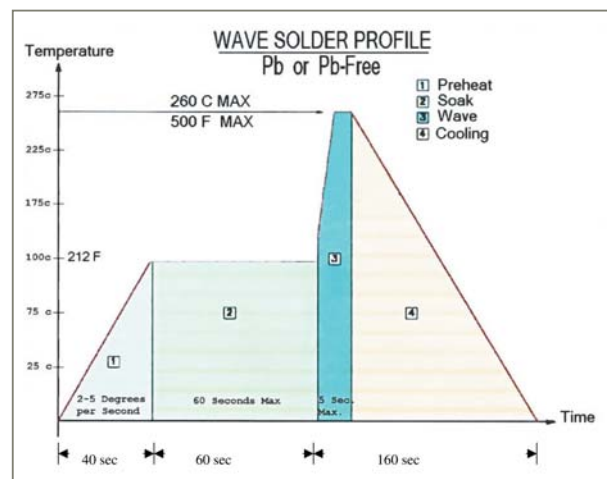
(Includes Pb-Free, max component side preheat temp-130°C)

SMT REFLOW (LEAD AND LEAD-FREE)

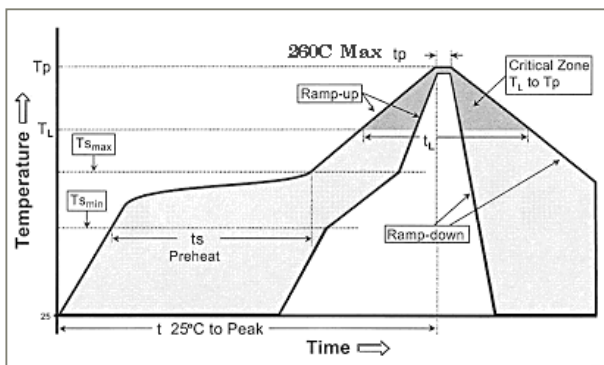
"TYPICAL" SMT REFLOW (Pb and Pb-Free)

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average Ramp-Up Rate (T _{Smax} to T _p)	3 °C/second max.	3 °C/second max.
Preheat		
-Temperature Min (T _{Smin})	100 °C	150 °C
-Temperature Max (T _{Smax})	150 °C	200 °C
-Time (t _{Smin} to t _{Smax})	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T _L)	183 °C	217 °C
-Time (t _L)	60-150 seconds	60-150 seconds
Time within 5 °C of actual Peak Temperature (t _p)	10-30 seconds	20-40 seconds
Ramp-Down Rate	6 °C/second max.	6 °C/second max.
Time 25 °C to Peak Temperature	6 minutes max.	8 minutes max.

Note 1: All temperatures refer to topside of the package, measured on the package body surface.



Classification Reflow Profile



Good venting is required. No-clean flux vapors can enter the switch if adequate venting is not available. The vapors will condense on the internal contacts and become an insulator when they solidify.

- Preheat temperature/time: Circumferential temperature of the p.c. board not to exceed 100°C (212°F) for 60 seconds.
- Soldering temperature/time: not to exceed 260°C (500°F) for 5 seconds.

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SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES TL 6700 SWITCHES

SEALED SMT TACT SWITCHES



FEATURES & BENEFITS

- ▶ Process Sealed SMT Tact Switch
- ▶ Improved Seal Design
- ▶ Protected against more aggressive wash processes

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC
Life Expectancy:	100,000 cycles typical
Contact Resistance:	100mΩ max. initial @ 2-4 VDC
Insulation Resistance:	100mΩ min.
Dielectric Strength:	250 VAC
Actuation Force:	160 ± 50 gf, 260 ± 50 gf
Operating Temperature:	-20°C to 70°C
Travel:	0.35mm ±0.2

MATERIALS

Actuator:	Silicone Rubber
Base:	Nylon
Cover:	Stainless Steel
Terminals:	Copper alloy, plated



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL	TERMINATION
TL	6700	(None) = Flush A = 3.40mm	F160 F260	Q = Silver	G = Gull Wing J = J Lead



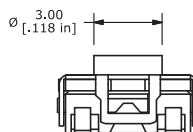
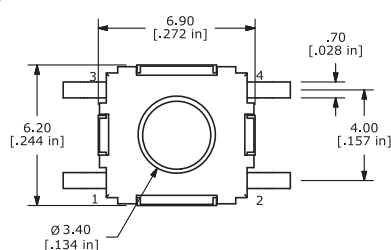
Example Ordering Number

TL-6700-F160-Q-G

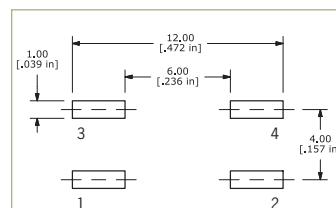
Specifications subject to change without notice.

TL 6700

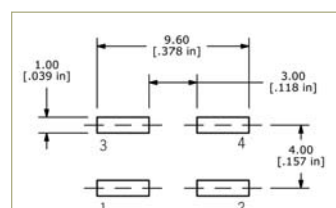
GULL WING TERMINATION



SCHEMATIC



GULL WING - P.C. MOUNTING



J LEAD - P.C. MOUNTING



E-SWITCH®

SERIES TL 1014 SWITCHES

TACT SWITCHES SMT - SIDE MOUNT ACTUATED



FEATURES & BENEFITS

- ▶ Subminiature design
- ▶ Right Angle SMT
- ▶ Tape & Reel

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	12VDC, 50mA
Life Expectancy:	100,000 cycles minimum
Contact Resistance:	100mΩ max.
Insulation Resistance:	100MΩ min.
Dielectric Strength:	250 VAC
Actuator Force:	180 ± 50 gf min.
Operating Temperature:	-20°C to +70°C
Travel:	0.30 Typ

MATERIALS

Housing:	Nylon 46
Actuator:	Nylon 46
Cover:	Stainless Steel
Contact Dome:	Stainless Steel
Terminals:	Brass
Tape & Reel:	3000 pieces per reel



HOW TO ORDER

SERIES	MODEL NO.	BOSS	OPERATING FORCE	CONTACT MATERIAL	TERMINATION
TL	1014	A = no boss B = boss	F180	Q = Silver	G = Gull

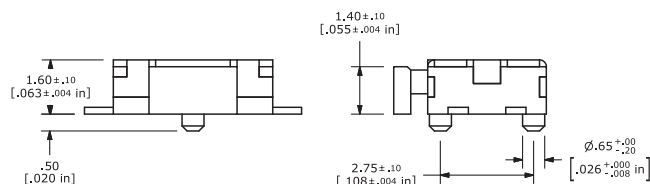
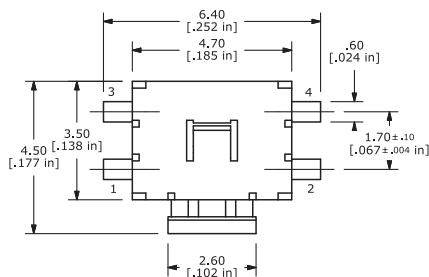


Example Ordering Number

TL-1014-A-F180-Q-G

Specifications subject to change without notice.

TL 1014





SERIES TL 1015 SWITCHES

TACT SWITCHES SMT - TOP ACTUATED



SPECIFICATIONS

Contact Rating:	12VDC, 50mA
Life Expectancy:	50,000 cycles minimum
Contact Resistance:	100mΩ max.
Insulation Resistance:	100MΩ min.
Dielectric Strength:	250 VAC
Actuator Force:	160 ± 50 gf min.
Operating Temperature:	-20°C to +70°C
Travel:	0.20 Typ

MATERIALS

Housing:	Nylon 46
Actuator:	Nylon 46
Cover:	Stainless Steel
Contact Dome:	Stainless Steel
Terminals:	Brass
Tape & Reel:	2500 pieces per reel

FEATURES & BENEFITS

- ▶ Ultra-miniature design
- ▶ SMT Technology
- ▶ Tape & Reel

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

HOW TO ORDER

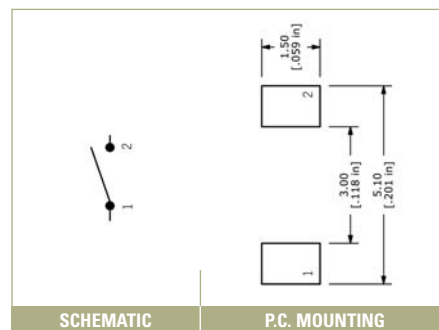
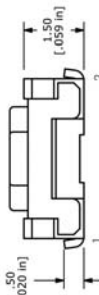
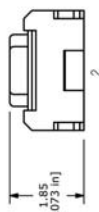
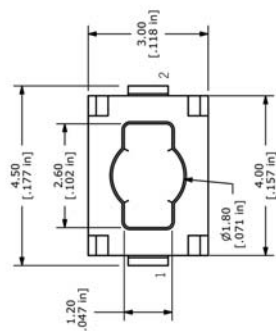
SERIES	MODEL NO.	BOSS	OPERATING FORCE	CONTACT MATERIAL	TERMINATION
TL	1015	A = no boss B = boss	F160	Q = Silver	G = Gull

Example Ordering Number

TL-1015-A-F160-Q-G

Specifications subject to change without notice.

TL 1015



SCHEMATIC

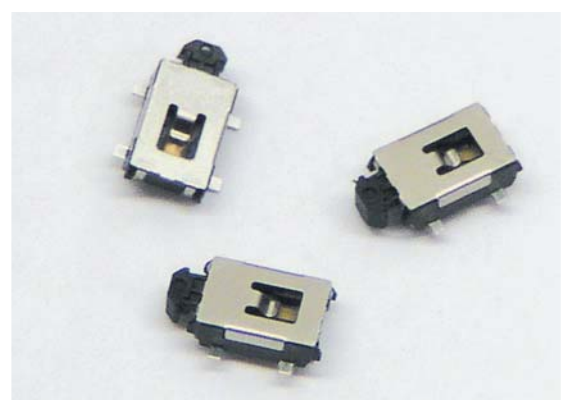
P.C. MOUNTING

SERIES 901 SWITCHES

TACT SWITCHES SMT



E-SWITCH®



SPECIFICATIONS

Contact Rating:	12 VDC, 50mA
Life Expectancy:	50,000 cycles
Contact Resistance:	100mΩ max. (initial)
Insulation Resistance:	100MΩ min. @ 100 VDC
Dielectric Strength:	250 VAC
Actuator Force:	180 ± 50 gf min.
Operating Temperature:	-20°C to +70°C
Travel:	0.30 ± 0.1mm

FEATURES & BENEFITS

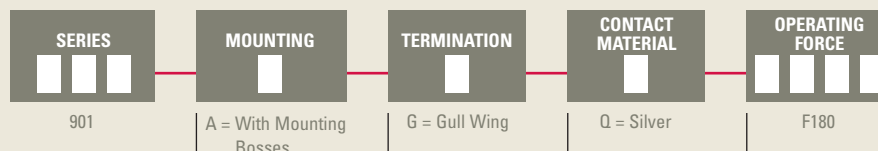
- ▶ Right Angle SMT
- ▶ Unique design allows PC board edge mounting
- ▶ Subminiature package size

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals



HOW TO ORDER

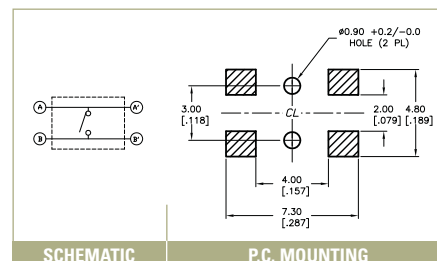
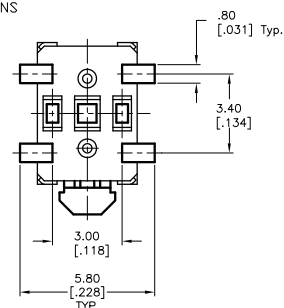
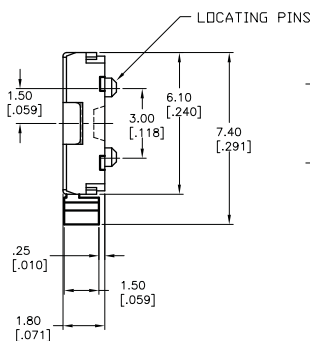
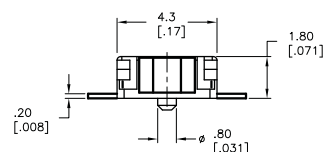
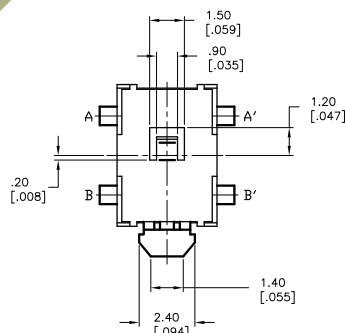


Example Ordering Number

901-A-G-Q-F180

Specifications subject to change without notice.

901





SERIES TL 3200 SWITCHES

TACT SWITCHES SMT, LED - 4.5mm x 6.8mm



FEATURES & BENEFITS

- ▶ Dual LED, SMT Design
- ▶ Ultra miniature design (only 4.5mm x 6.8mm x 2mm)
- ▶ Single or dual color option

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC
Life Expectancy:	30,000 cycles
Contact Resistance:	500mΩ
Insulation Resistance:	100MΩ min.
Dielectric Strength:	250 VAC
Actuation Force:	160 +75/-30 grams
Operating Temperature:	-25°C to 85°C
Travel:	0.25mm +0.2/-0.1 mm

MATERIALS

Cover:	Nylon
Actuator:	LCP
Base:	LCP
Terminals:	Copper alloy, silver plated



HOW TO ORDER

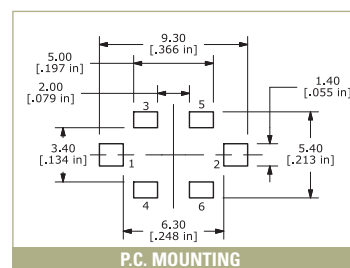
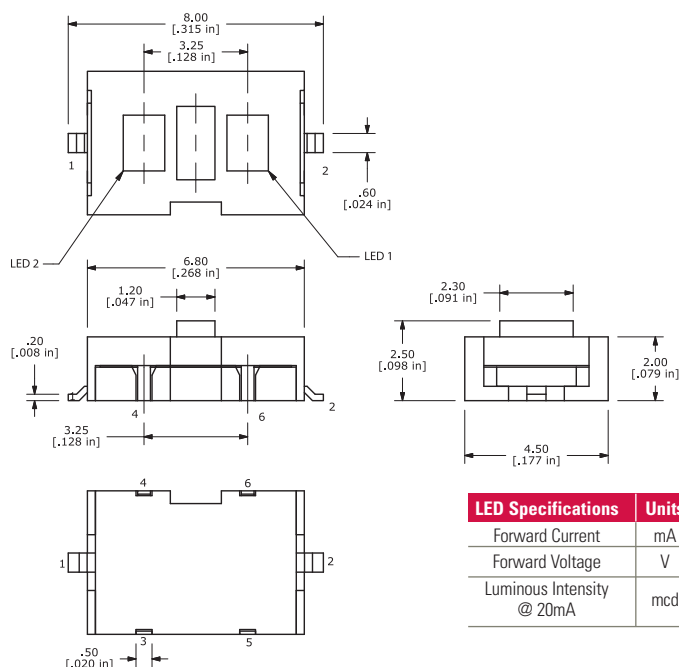
SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	LED #1	LED #2	CONTACT MATERIAL
TL	3200	A = 2.5mm	F160	R = Red G = Green Y = Yellow B = Blue W = White N = None	R = Red G = Green Y = Yellow B = Blue W = White N = None	Q = Silver



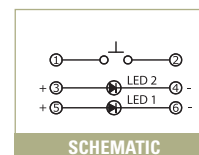
Example Ordering Number
TL-3200-A-F160-R-N-Q

Specifications subject to change without notice.

TL 3200



P.C. MOUNTING



SCHEMATIC

LED Specifications	Units	Green	Red	Yellow	Blue	White
Forward Current	mA	30	15	20	15	30
Forward Voltage	V	1.7-2.6	1.7-2.6	1.7-2.6	3.5-3.8	3.5-4.0
Luminous Intensity @ 20mA	mcd	6	4	5	45	180



E-SWITCH®

SERIES TL 3301 SWITCHES

TACT SWITCHES SMT - 6mm x 6mm



FEATURES & BENEFITS

- ▶ SMT Design
- ▶ Compatible with lead-free soldering

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC
Life Expectancy:	100,000 cycles typical
Contact Resistance:	100mΩ max. initial @ 2-4 VDC 100mA for both silver and gold plated contacts
Insulation Resistance:	100MΩ min.
Dielectric Strength:	250 VAC
Actuation Force:	100 ± 50 gf, 160 ± 50 gf, 260 ± 50 gf
Operating Temperature:	-20°C to 70°C
Travel:	0.25 Typ

MATERIALS

Housing:	PPS or Nylon
Actuator:	PPS or Nylon
Bracket/Cover:	Tin plated steel
Contacts:	Gold or silver plated phosphor bronze
Terminals:	Gold or silver plated brass



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR* ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL	TERMINATION
TL LL	3301	T = 2.4mm ☐ SP = 2.8mm ☐ N = 4.3mm A = 5.0mm E = 7.3mm F = 7.0mm C = 8.0mm P = 8.5mm B = 9.5mm D = 13.0mm	F100 F160 F260	Q = Silver R = Gold	G = Gull Wing J = J-Lead

☐ – Square Snap-on Actuator Head
"L" Dimension is 7.5mm



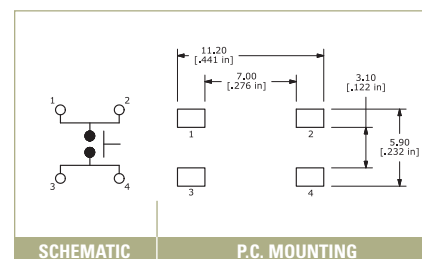
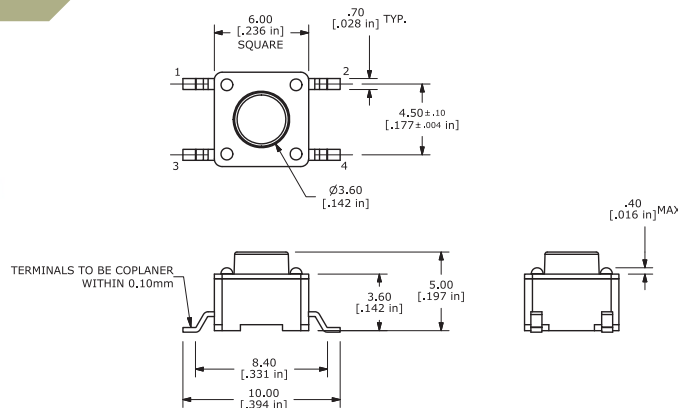
Example Ordering Number

TL-3301-N-F160-Q-J

Specifications subject to change without notice.

LL 3301

LONG LIFE





SERIES TL 3301 SWITCHES

TACT SWITCHES SMT - 6mm x 6mm

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

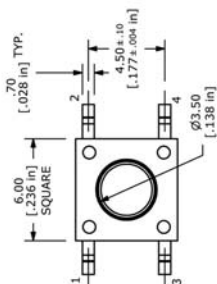
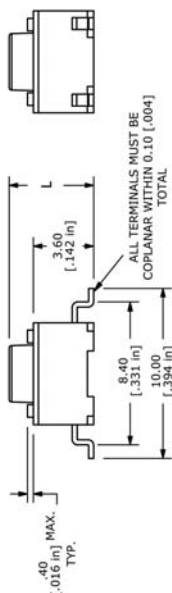
ROTARY
SWITCHES

DETECTOR
SWITCHES

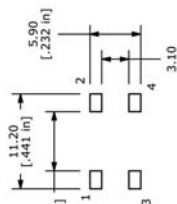
CAP
OPTIONS

TL 3301

GULL WING
TERMINATION



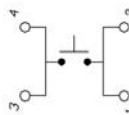
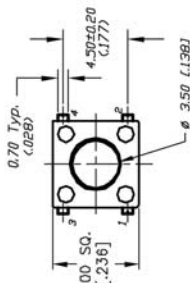
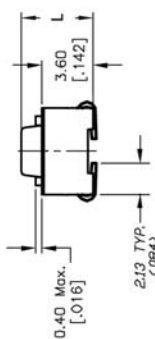
SCHEMATIC



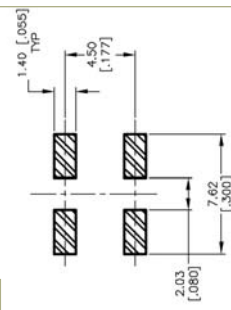
P.C. MOUNTING

TL 3301

J-LEAD
TERMINATION

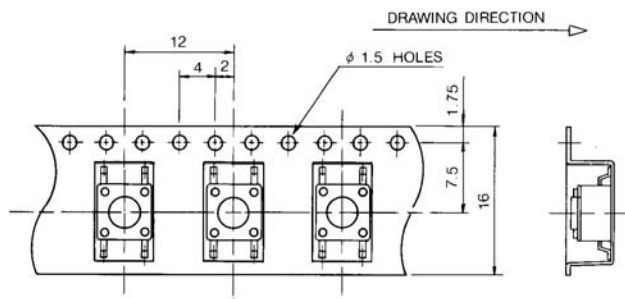
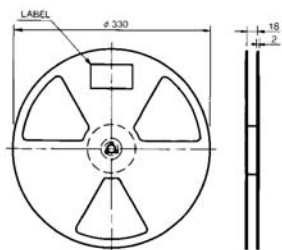


SCHEMATIC



P.C. MOUNTING

TL 3301 STANDARD REEL



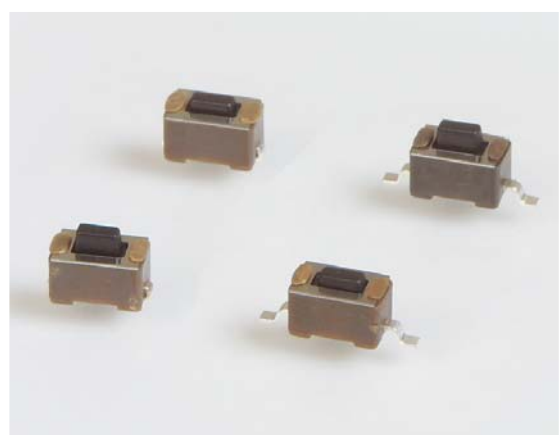
Note: Contact E-Switch for additional packaging options.

SERIES TL 3302 SWITCHES

TACT SWITCHES SMT - RECTANGULAR



E-SWITCH®



FEATURES & BENEFITS

- ▶ 3.5 x 6mm packaged design
- ▶ Reliable dome contact technology
- ▶ Strong tactile/audible feedback

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC
Life Expectancy:	20,000 - 50,000 cycles, depending on model
Contact Resistance:	100mΩ max., typical @ 2-4 VDC 100mA for both silver and gold plated contacts
Insulation Resistance:	100MΩ min.
Dielectric Strength:	250 VAC
Actuation Force:	130 ± 50 gf, 180 ± 50 gf, 260 ± 50 gf
Operating Temperature:	-20°C to 70°C
Travel:	0.25 Typ.

MATERIALS

Housing:	PPS
Actuator:	PPS
Cover:	Tin plated steel
Contacts:	Silver plated phosphor bronze
Terminals:	Silver plated brass



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL	TERMINATION
TL	3302	A = 4.3mm B = 5.0mm	F130 F180 F260	Q = Silver	G = Gull Wing J = J-Lead



Example Ordering Number

TL-3302-A-F180-Q-G

Specifications subject to change without notice.

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS



SERIES TL 3302 SWITCHES

TACT SWITCHES SMT - RECTANGULAR

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

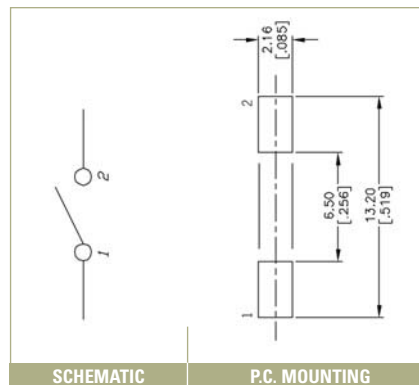
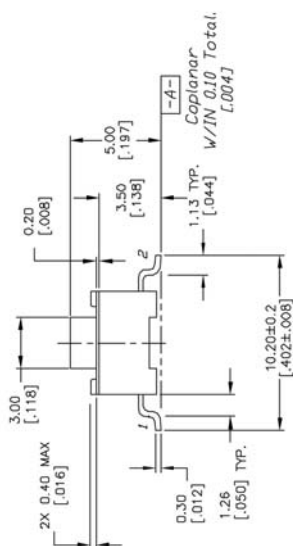
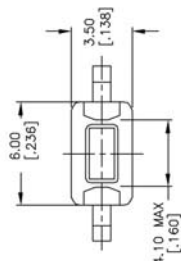
ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS

TL 3302

GULL WING
TERMINATION

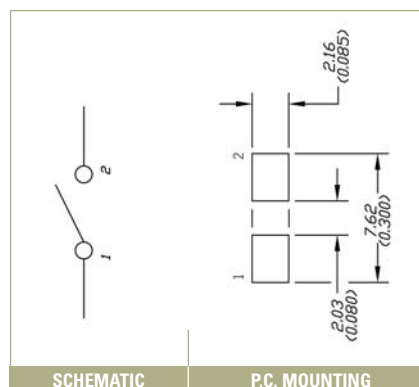
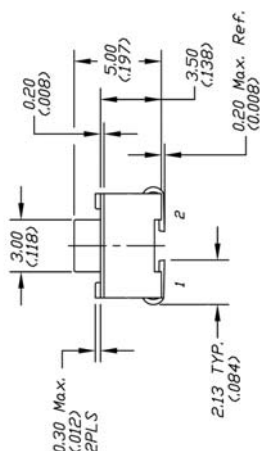
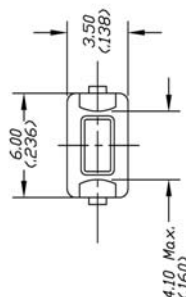


SCHEMATIC

P.C. MOUNTING

TL 3302

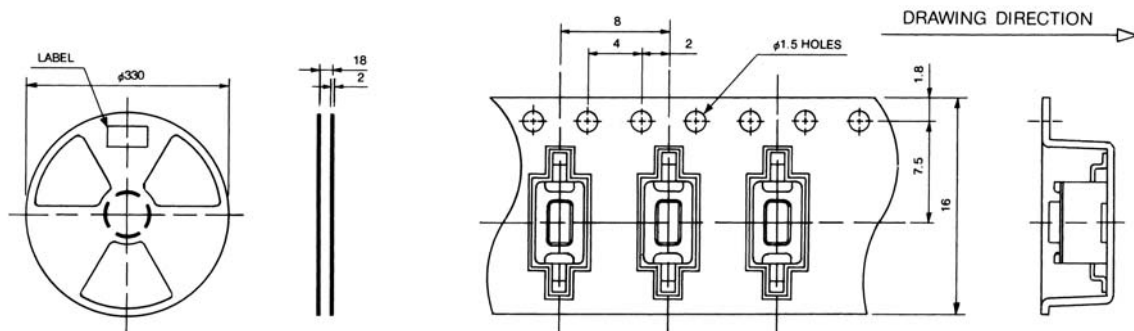
J-LEAD
TERMINATION



SCHEMATIC

P.C. MOUNTING

TL 3302 STANDARD REEL





E-SWITCH®

SERIES TL 3303 SWITCHES

TACT SWITCHES SMT - 6mm x 6mm



FEATURES & BENEFITS

- ▶ Earth ground terminal options
- ▶ Reliable dome contact technology
- ▶ Strong tactile/audible feedback

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC
Life Expectancy:	100,000 cycles typical
Contact Resistance:	100mΩ max. initial @ 2-4 VDC
Insulation Resistance:	100MΩ min.
Dielectric Strength:	250 VAC
Actuation Force:	100 ± 50 gf, 160 ± 50 gf, 260 ± 50 gf
Operating Temperature:	-20°C to 70°C
Travel:	0.25mm Typ

MATERIALS

Housing:	PPS
Actuator:	PPS
Bracket/Cover:	Tin plated steel
Contacts:	Silver plated phosphor bronze
Terminals:	Silver plated brass

HOW TO ORDER

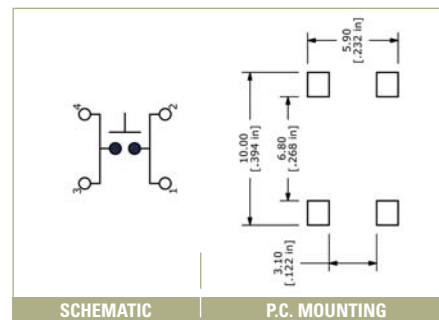
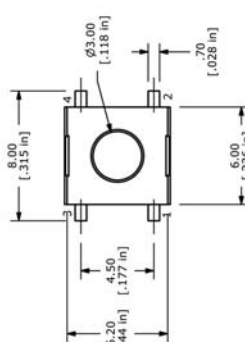
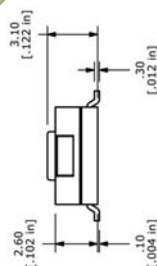
SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL	TERMINATION
TL TLE = Earth Ground LL = Long Life	3303	(None) = 3.1mm A = 4.3mm	F100 F160 F260	Q = Silver	G = Gull Wing

Example Ordering Number

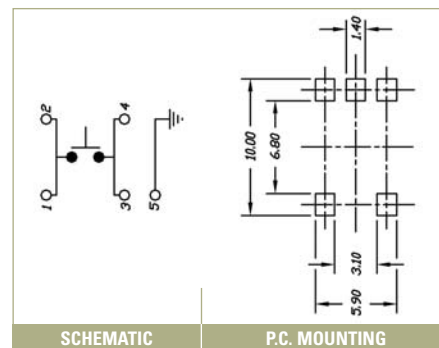
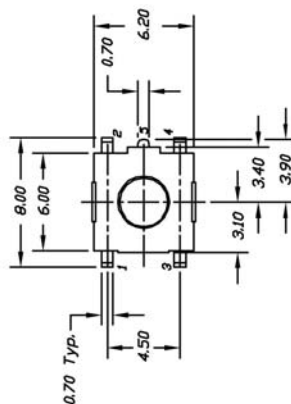
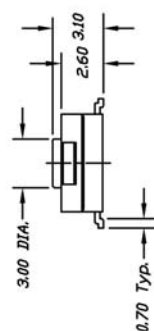
TL-3303-F160-Q-G

Specifications subject to change without notice.

TL 3303/LL 3303



TLE 3303



TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES TL 3310 SWITCHES

TACT SWITCHES SMT - NORMALLY CLOSED



FEATURES & BENEFITS

- ▶ SMT tact
- ▶ Normally closed tact switch

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 50 VDC
Life Expectancy:	100,000 cycles-F100 50,000 cycles-F200
Contact Resistance:	100mΩ max., typical @ 2-4 VDC
Insulation Resistance:	1000MΩ
Dielectric Strength:	250 VAC
Actuation Force:	100± 40 gf, 200± 50 gf
Operating Temperature:	-20°C to 70°C -30°C to 80°C
Travel:	0.3mm ± 0.15mm (100gf) 0.5mm ± 0.2mm (200gf)

MATERIALS

Housing:	Polyphenylene Sulfide (PPS)
Actuator:	Silicon Rubber
Cover:	Stainless Steel
Contacts:	Silver plated phosphor bronze
Terminals:	Silver plated brass strip



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL	TERMINATION
TL	3310	A = 2.5mm	F100 - white F200 - black	Q = Silver	G = Gull Wing

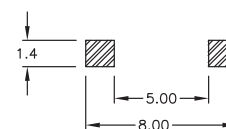
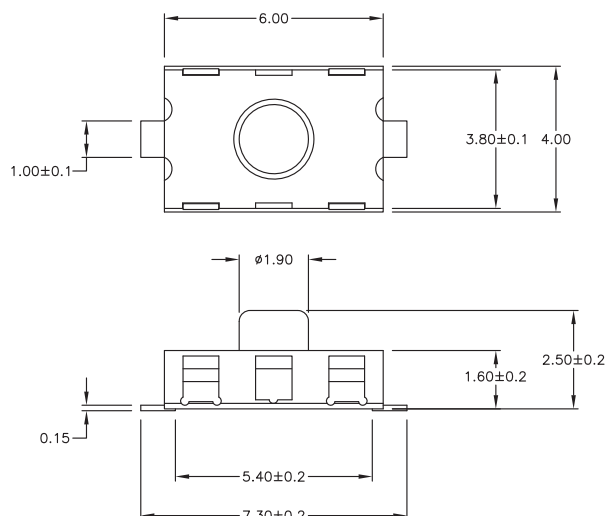


Example Ordering Number

TL-3310-A-F100-Q-G

Specifications subject to change without notice.

TL 3310



P.C. MOUNTING



SCHEMATIC



E-SWITCH®

SERIES TL 3320 SWITCHES

TACT SWITCHES SMT - RIGHT ANGLE



FEATURES & BENEFITS

- ▶ Multiple gram force options
- ▶ Right Angle SMT tact
- ▶ Unique design allows PC board edge mounting

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC
Life Expectancy:	80,000 cycles (50,000 for 250 gf)
Contact Resistance:	100mΩ @ 5 VDC
Insulation Resistance:	100MΩ min.
Dielectric Strength:	250 VAC
Operating Temperature:	-20°C to 70°C
Travel:	.25mm ±0.15

MATERIALS

Actuator:	Nylon
Base:	Nylon
Cover:	Tin Plate
Terminals:	Copper alloy, plated



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL	TERMINATION
TL	3320	A = 3.15mm B = 3.85mm	F100 F130 F160 F250	Q = Silver	G = Gull Wing

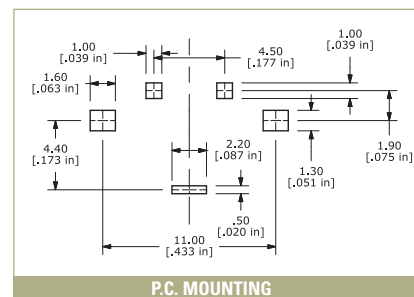
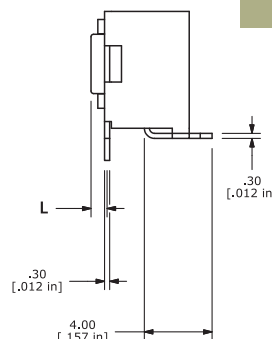
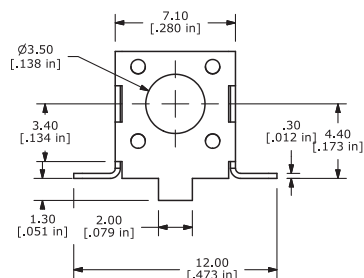
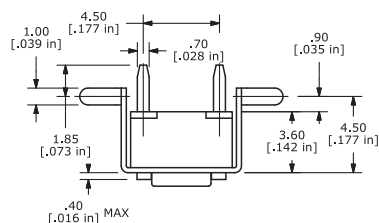


Example Ordering Number

TL-3320-B-F160-Q-G

Specifications subject to change without notice.

TL 3320

**P.C. MOUNTING****SCHEMATIC**

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES TL 3330 SWITCHES

TACT SWITCHES SMT - RIGHT ANGLE



FEATURES & BENEFITS

- ▶ Multiple gram force options
- ▶ Small profile works great for many consumer electronic applications

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC
Life Expectancy:	50,000 cycles-F130 30,000 cycles-F260
Contact Resistance:	100mΩ
Insulation Resistance:	100MΩ
Dielectric Strength:	250 VAC
Actuation Force:	130± 40 gf, 260± 50 gf
Operating Temperature:	-20°C to 70°C
Travel:	0.25mm ± 0.15mm

MATERIALS

Actuator:	Nylon
Base:	Nylon
Cover:	Tin Plate
Terminals:	Copper alloy, plated

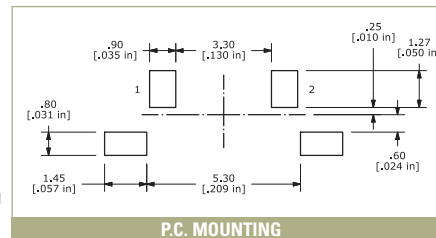
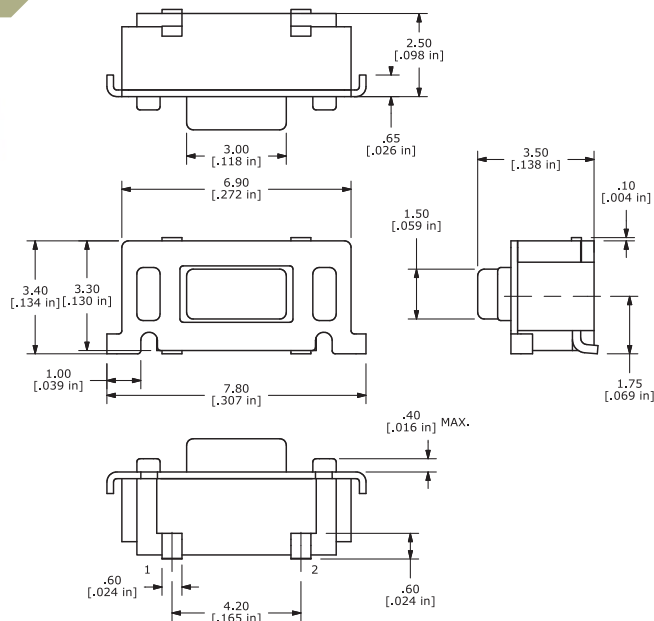
HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL	TERMINATION
TL	3330	A = 3.50mm	F130 F260	Q = Silver	G = Gull Wing

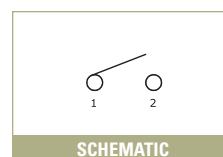
Example Ordering Number
TL-3330-A-F260-Q-G

Specifications subject to change without notice.

TL 3330



P.C. MOUNTING





E-SWITCH®

SERIES TL 3340 SWITCHES

TACT SWITCHES SMT - SUBMINIATURE



FEATURES & BENEFITS

- ▶ Reliable dome technology
- ▶ Strong tactile force
- ▶ Subminiature design
- ▶ SMT

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical equipment
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC
Life Expectancy (Mechanical):	100,000 cycles
Life Expectancy (Electrical):	100,000 cycles
Contact Resistance:	500mΩ max. initial
Insulation Resistance:	100MΩ (Min@ 100V)
Dielectric Strength:	500 VDC
Actuation Force:	160± 50 gf
Operating Temperature:	-35°C to +85°C
Travel:	0.20 ± 0.10 mm

MATERIALS

Housing:	PPA
Bracket:	Tin plate
Actuator:	PPA
Terminals:	Copper alloy, plated
Contact:	Stainless Steel, plated



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR	OPERATING FORCE	PLATING	TERMINATION
TL	3340	A = 3.40 mm	F160	Q = Silver	G = Gull Wing

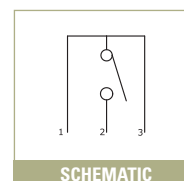
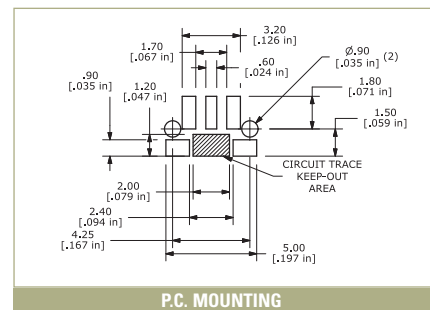
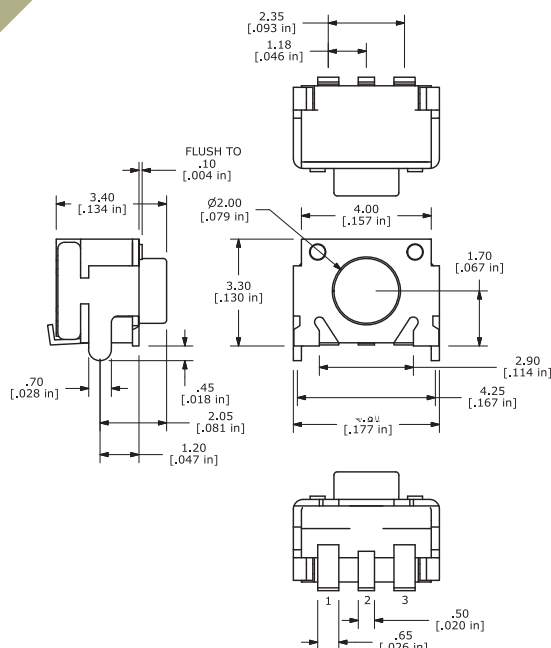


Example Ordering Number

TL-3340-A-F160-Q-G

Specifications subject to change without notice.

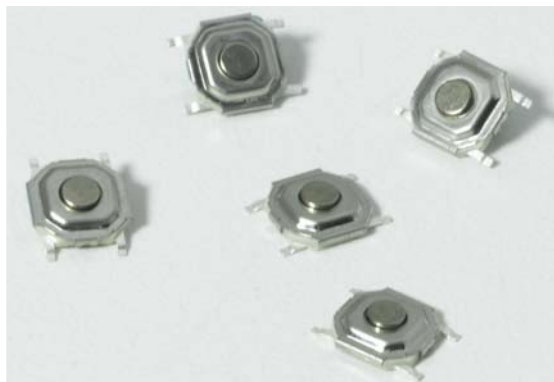
TL 3340





SERIES TL 3342 SWITCHES

TACT SWITCHES SMT



FEATURES & BENEFITS

- ▶ Low profile design
- ▶ Positive tactile response

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC
Life Expectancy:	100,000 cycles typical
Contact Resistance:	20mΩ max. initial @ 2-4 VDC, 100mA
Insulation Resistance:	100MΩ
Dielectric Strength:	1,000 Vrms at sea level
Actuation Force:	160± 50 gf, 260± 50 gf

MATERIALS

Housing:	Polyphenylene Sulfide (PPS) or 4/6 Nylon
Actuator:	Polyphenylene Sulfide (PPS) or 4/6 Nylon
Cover:	Tin plated steel
Contacts:	Silver-clad phosphor bronze
Terminals:	Silver-clad brass



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL	TERMINATION
TL	3342	(None) = Std.	F160 F260	Q = Silver	G = Gull Wing

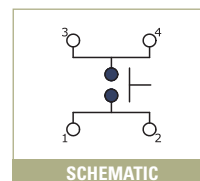
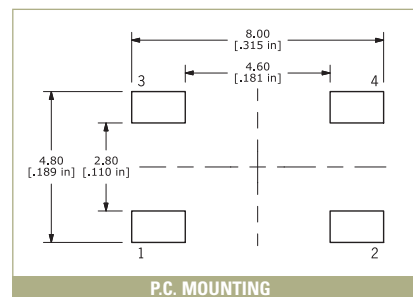
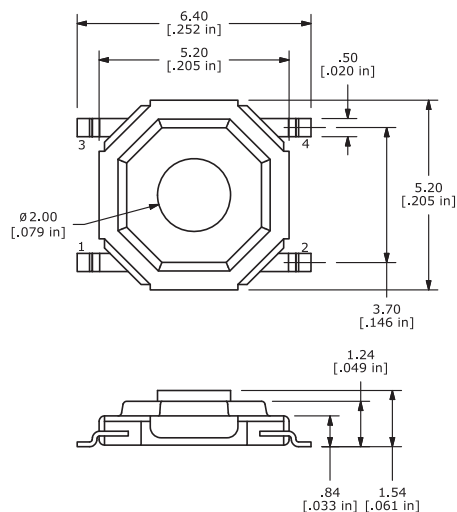


Example Ordering Number

TL-3342-F160-Q-G

Specifications subject to change without notice.

TL 3342



SERIES TL 3350 SWITCHES

TACT SWITCHES SMT - DUAL ACTION



E-SWITCH®



FEATURES & BENEFITS

- ▶ Dual Action Tact Switch
- ▶ Positive tactile feedback in 2 distinct positions
- ▶ Low profile, SMT design
- ▶ With or without actuator

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	20mA @ 30 VDC
Life Expectancy:	10,000 cycles
Contact Resistance:	200mΩ
Insulation Resistance:	50MΩ min.
Dielectric Strength:	250 VAC
Actuation Force:	100± 40g 1st circuit 250± 80g 2nd circuit
Operating Temperature:	-20°C to 70°C
Travel:	0.30+/-0.10mm 1st circuit 0.55+/-0.15mm 2nd circuit

MATERIALS

Actuator:	Nylon
Base:	Nylon
Cover:	Stainless Steel
Terminals:	Copper alloy, plated



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL
TL	3350	A = 2.0mm B = 3.8mm	F100	Q = Silver

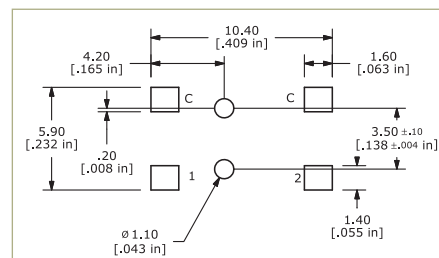
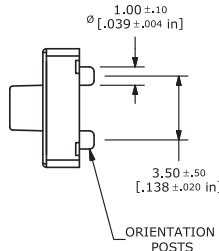
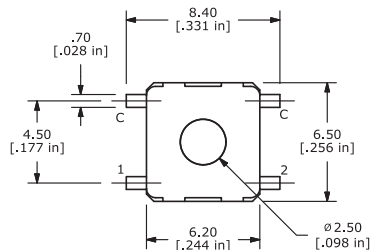
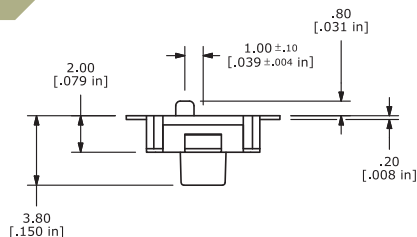


Example Ordering Number

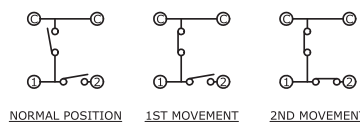
TL-3350-A-F100-Q

Specifications subject to change without notice.

TL 3350



P.C. MOUNTING



SCHEMATIC



SERIES TL1105 SWITCHES

TACT SWITCHES - 6mm x 6mm

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS



FEATURES & BENEFITS

- ▶ Reliable dome contact technology
- ▶ Strong tactile/audible feedback
- ▶ Multiple operating force options

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC (50mA @ 50VDC-gold)
Life Expectancy:	100,000 cycles
Contact Resistance:	100mΩ max., typical @ 2-4 VDC 100mA for both silver and gold plated contacts
Insulation Resistance:	100MΩ min.
Dielectric Strength:	250 VAC
Actuation Force:	100 ± 50 gf, 160 ± 50 gf, 250 ± 50 gf
Operating Temperature:	-20°C to 70°C
Travel:	0.25 Typ

MATERIALS

Housing:	Nylon or PBT
Actuator:	Nylon, Acetal or PBT
Cover:	Polyester
Contacts:	Gold or silver plated
Terminals:	Silver plated brass



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MTL/ TERMINATION	CAP (Where Avail.)	CAP COLOR
TL TLE = Earth Ground LL = Long Life	1105	(None) = 4.3mm A = 5.0mm B = 9.5mm C = 8.0mm D = 13.0mm E = 7.3mm F = 7.0mm G = 9.7mm H = 12.5mm K = 13.5mm (Not available for LL Series) L = 17.0mm P = 8.5mm Y = 16.3mm T = 2.4mm ☐ SP = 2.8mm ☐	F100 F160 F250	Q = Silver R = Gold	See Cap Options Caps available for SP option only.	

☐ – Square Snap-on Actuator Head
"L" Dimension is 7.5mm

**Note: Contact E-Switch for additional
Operating Force Options.**

TL LL = Long Life	1105 (Rt. Angle)	V = 3.85mm W = 3.15mm X = 5.85mm R = 6.15mm M = 6.85mm S = 8.35mm N = 11.85mm Q = 15.85mm J = 2.4mm ☐ JA = 2.8mm ☐	F100 F160 F250	Q = Silver R = Gold	See Cap Options Caps available for JA option only.	
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Example Ordering Number

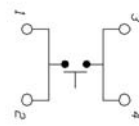
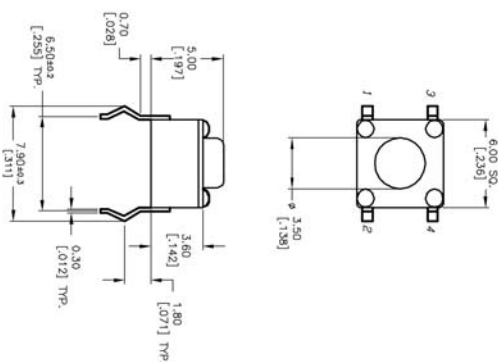
TL-1105-SP-F160-Q-1R RED

☐ – Square Snap-on Actuator Head
"L" Dimension is 6.35mm

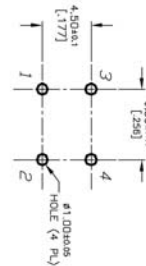
Specifications subject to change without notice.



TL 1105/LL 1105



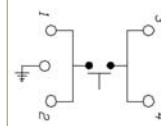
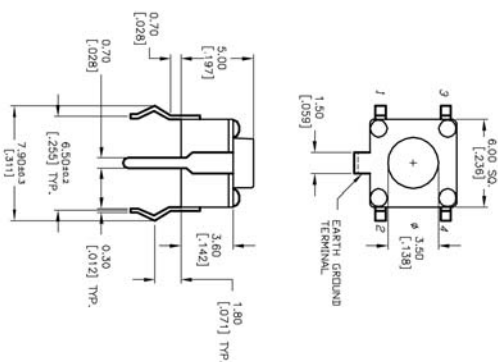
SCHEMATIC



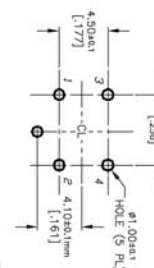
P.C. MOUNTING

TLE 1105

TLE (EARTH TERMINAL)



SCHEMATIC

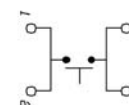
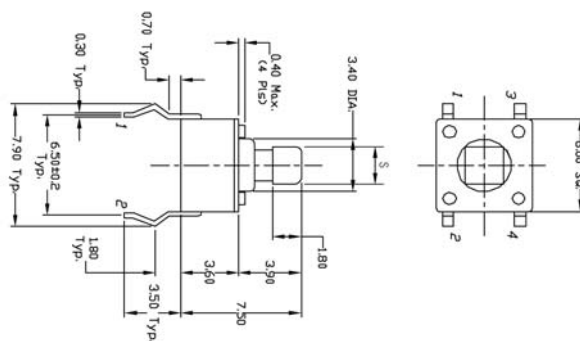


P.C. MOUNTING

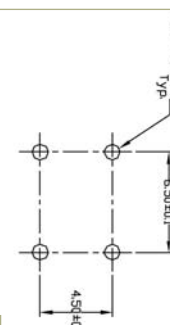
TL 1105 T



Model No.	'S' Dim.
TL1105T	2.4 mm
TL1105SP	2.8 mm



SCHEMATIC



P.C. MOUNTING

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS



SERIES TL1105 SWITCHES

TACT SWITCHES - 6mm x 6mm

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

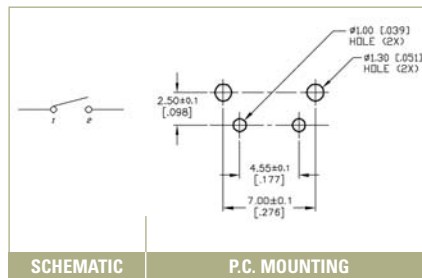
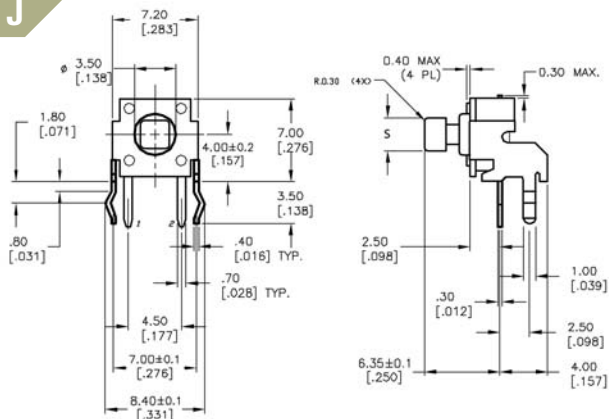
DETECTOR
SWITCHES

CAP
OPTIONS

TL 1105 J/LL 1105 J



Model No.	'S' Dim.
TL1105J	2.4 mm
TL1105JA	2.8 mm

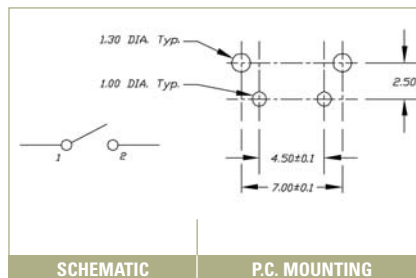
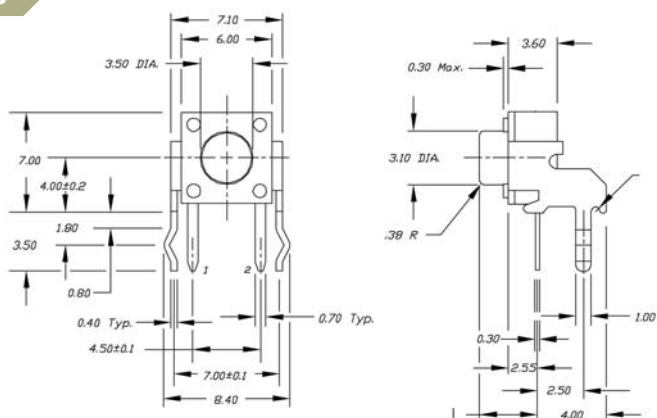


SCHEMATIC

P.C. MOUNTING

TL 1105/LL 1105

RIGHT ANGLE



SCHEMATIC

P.C. MOUNTING

SERIES TL 1150 SWITCHES

TACT SWITCHES



E-SWITCH®



SPECIFICATIONS

Contact Rating:	50mA @ 30 VDC
Life Expectancy:	1,000,000 cycles
Contact Resistance:	100mΩ @ 5 VDC
Insulation Resistance:	100MΩ min.
Dielectric Strength:	600 VAC
Actuation Force:	70 ± 20 gf
Operating Temperature:	-25°C to 85°C
Travel:	0.35mm ±0.2mm

FEATURES & BENEFITS

- ▶ Long operating life (1,000,000 cycles)
- ▶ 2-lead 6mm x 6mm design

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

MATERIALS

Actuator:	Nylon
Base:	Nylon
Cover:	Nylon
Terminals:	Copper alloy, silver plated



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL
TL	1150	A = 5.75mm	F070	Q = Silver

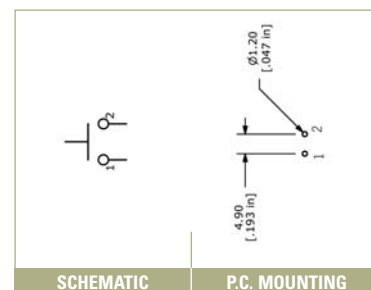
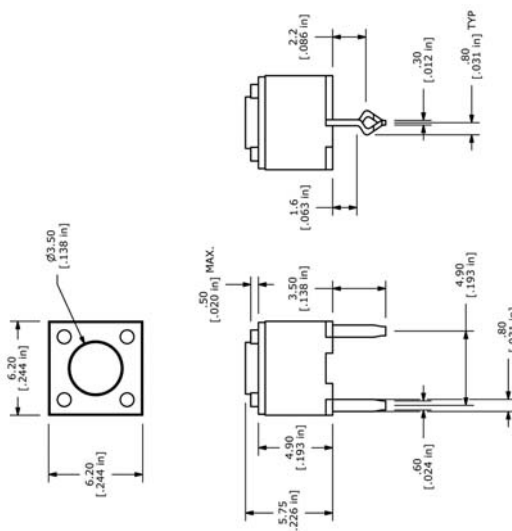


Example Ordering Number

TL-1150-A-F070-Q

Specifications subject to change without notice.

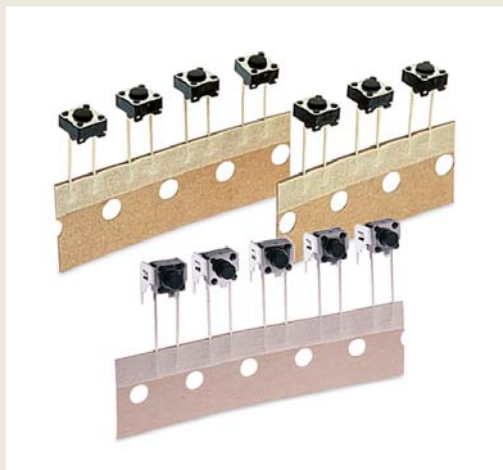
TL 1150





SERIES TL59/TL58 SWITCHES

TACT SWITCHES RADIAL LEAD



FEATURES & BENEFITS

- Designed for automatic feed
- Radial lead packaging

APPLICATIONS/MARKETS

- Telecommunications
- Consumer Electronics
- Audio/visual
- Medical
- Testing/instrumentation
- Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC
Life Expectancy:	100,000 cycles
Contact Resistance:	100mΩ max., typical @ 2-4 VDC 100mA for both silver plated contacts
Insulation Resistance:	100MΩ min.
Dielectric Strength:	250 VAC
Actuation Force:	100 ± 50 gf, 160 ± 50 gf, 260 ± 50 gf
Operating Temperature:	-20°C to 70°C
Travel:	0.25 Typ

MATERIALS

Housing:	Polybutylene Terephthalate (PBT) or 6/6 Nylon
Actuator:	Polybutylene Terephthalate (PBT) or 6/6 Nylon
Bracket/Cover:	Tin plated steel
Contacts:	Silver plated phosphor bronze
Terminals:	Silver plated brass



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL
TL	59	N = 4.3mm A = 5.0mm B = 9.5mm C = 8.0mm F = 7.0mm E = 7.3mm P = 8.5mm SP = 2.8mm	F100 F160 F260	Q = Silver

– Square Snap-on Actuator Head
"L" Dimension is 7.5mm

TL	58 Right Angle	V = 3.85mm W = 3.15mm X = 4.75mm	F100 F160 F260	Q = Silver
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Example Ordering Number

TL-59-N-F160-Q

Specifications subject to change without notice.

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

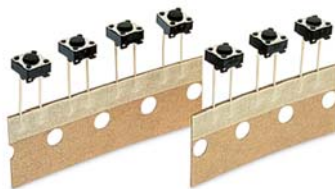
ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS



TL 59

STANDARD
RADIAL LEAD

Actuator Length (L) in mm

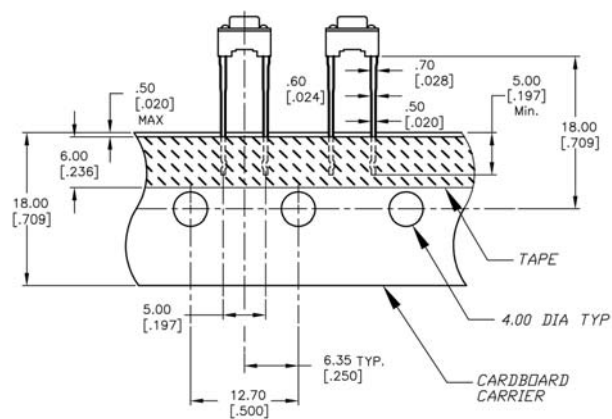
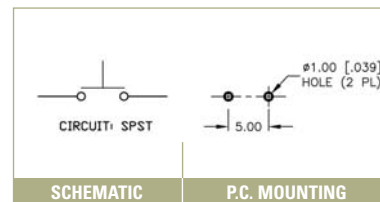
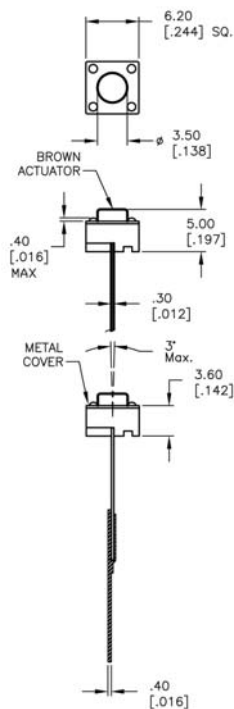
N = 4.3	C = 8.0	P = 8.5
A = 5.0	F = 7.0	SP = 2.8
B = 9.5	E = 7.3	

Operating Force

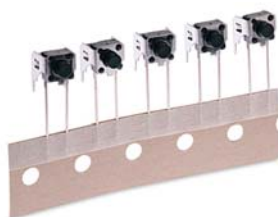
F100 = 100 ± 50gf

F160 = 160 ± 50gf

F260 = 260 ± 50gf



TL 58

RIGHT ANGLE
RADIAL LEAD

Actuator Length (L) in mm

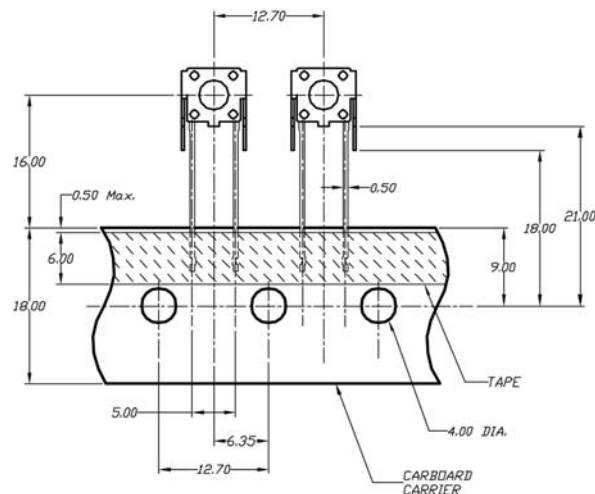
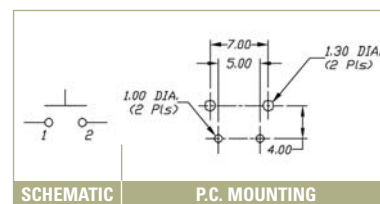
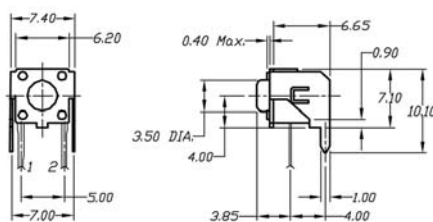
V = 3.85
W = 3.15
X = 4.75

Operating Force

F100 = 100 ± 50gf

F160 = 160 ± 50gf

F260 = 260 ± 50gf

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS



SERIES TL 1100 SWITCHES

TACT SWITCHES - 12mm x 12mm

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS



FEATURES & BENEFITS

- ▶ Reliable dome contact technology
- ▶ Strong tactile/audible feedback
- ▶ Multiple operating force options

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC
Life Expectancy:	100,000 cycles
Contact Resistance:	100mΩ max., typical @ 2-4 VDC 100mA for both silver and gold plated contacts
Insulation Resistance:	100MΩ min.
Dielectric Strength:	250VAC
Actuation Force:	160± 50 gf, 260± 50 gf
Operating Temperature:	-20°C to 70°C
Travel:	0.3 Typ.

MATERIALS

Housing:	Polyester
Actuator:	Polyester
Cover:	Polyester
Contacts:	Silver plated phosphor bronze
Terminals:	Silver plated copper alloy



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL	CAP (Where Avail.)	CAP COLOR
TL	1100	(None)* = 3.3mm ☐ A = 3.8mm ☐ B = 4.554mm D = 4.3mm E = 7.5mm F = 12mm Right Angle Options C* = 6.45mm ☐ G = 11.2mm	F160 F260	Q = Silver R = Gold	See Cap Options *Caps available for these options only	



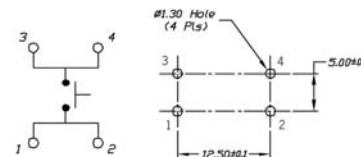
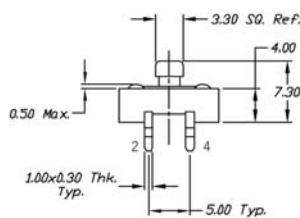
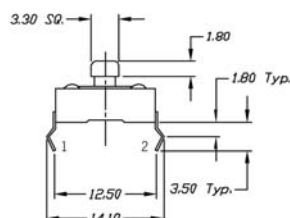
Example Ordering Number

TL-1100-C-F260-Q-TAK-GRY

☐ – Square Snap-on Actuator Head
"L" Dimension is 7.5mm

Specifications subject to change without notice.

TL 1100

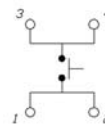
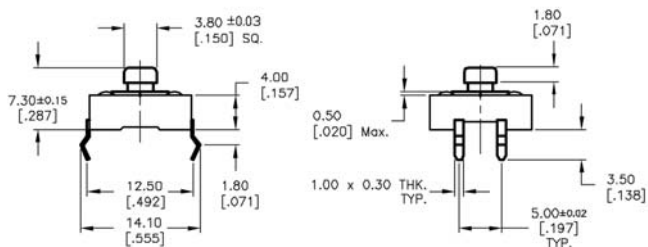


SCHEMATIC

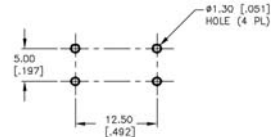
P.C. MOUNTING



TL 1100 A

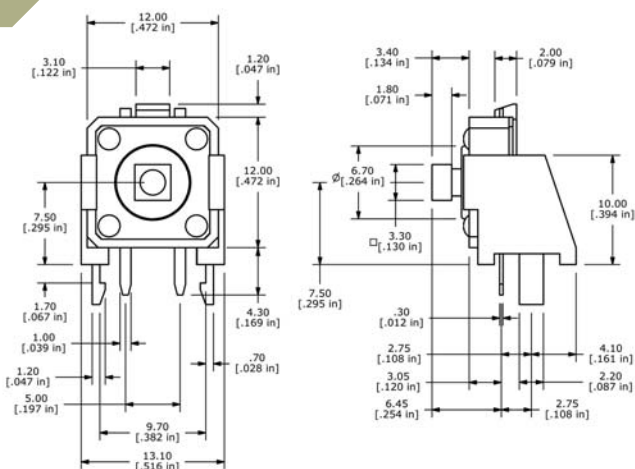


SCHEMATIC

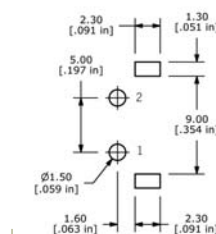


P.C. MOUNTING

TL 1100 C

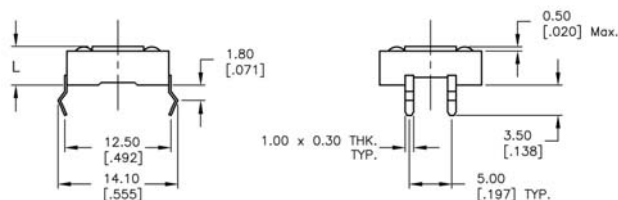


SCHEMATIC



P.C. MOUNTING

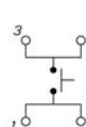
TL 1100 B & D



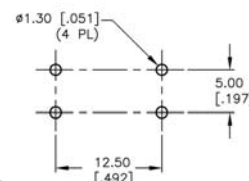
Actuator Length
(L) in mm

B = 4.55mm

D = 4.3mm

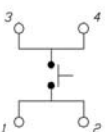
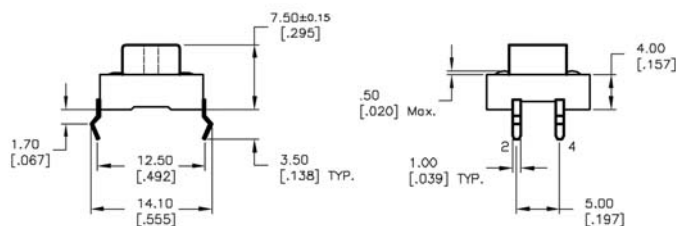


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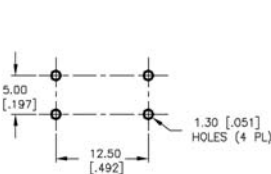


P.C. MOUNTING

TL 1100 E



SCHEMATIC



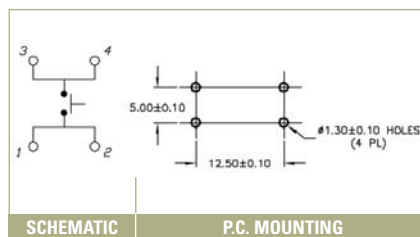
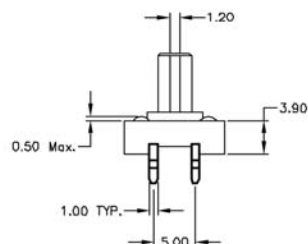
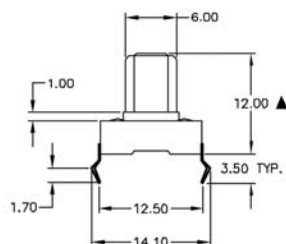
P.C. MOUNTING

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

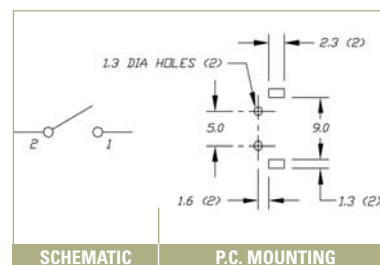
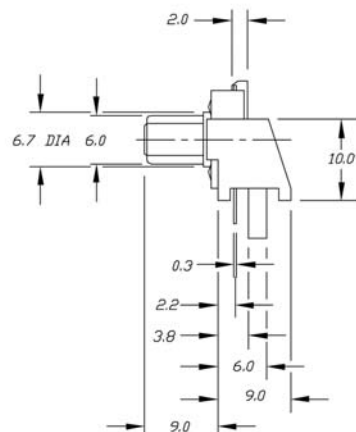
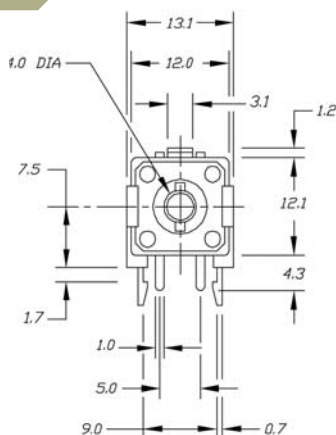
SERIES TL1100 SWITCHES

TACT SWITCHES - 12mm x 12mm

TL 1100 F



TL 1100 G





E-SWITCH®

SERIES TL 1107 SWITCHES

TACT SWITCHES - Rectangular



SPECIFICATIONS

Rating:	50mA @ 12 VDC
Life Expectancy:	50,000 to 100,000 Depending on model
Contact Resistance:	100mΩ max., typical @ 2-4 VDC 100mA for both silver and gold plated contacts
Insulation Resistance:	100mΩ min.
Dielectric Strength:	250 VAC
Operating Force:	130 ± 50 gf, 180 ± 50 gf, 260 ± 50 gf
Operating Temperature:	-20°C to 70°C
Travel:	.025 Typ

FEATURES & BENEFITS

- ▶ Reliable dome contact technology
- ▶ Strong tactile/audible feedback
- ▶ Multiple operating force options

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

MATERIALS

Housing:	4/6 Nylon
Actuator:	4/6 Nylon
Cover:	Stainless steel
Contacts:	Silver plated
Terminals:	Silver plated



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	TERMINATION	CONTACT MATERIAL
TL	1107	A = 4.3mm B = 5.0mm	F130 F180 F260	B = Straight lead E = Reverse lead W = Side retention lead	Q-Silver

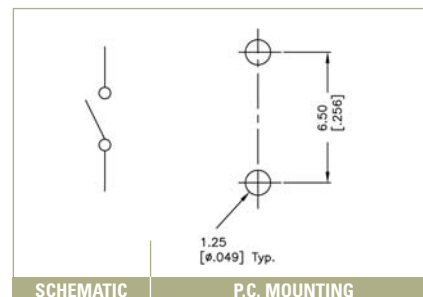
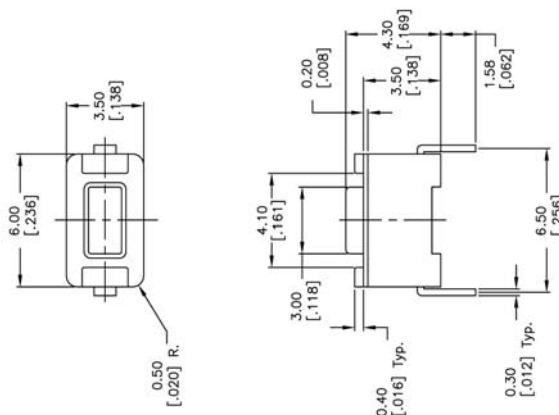


Example Ordering Number

TL-1107-A-F130-E-Q

Specifications subject to change without notice.

TL 1107

**B TERMINATION
(STRAIGHT LEAD)**



SERIES TL 1107 SWITCHES

TACT SWITCHES - Rectangular

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

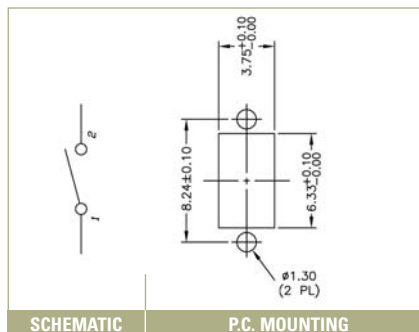
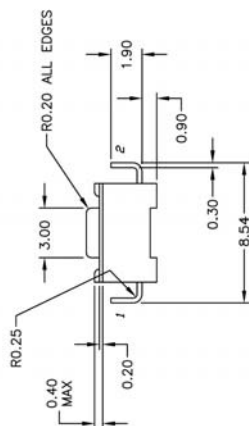
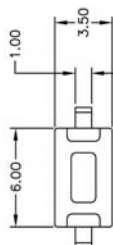
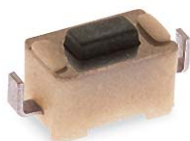
ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS

TL 1107

E TERMINATION
(REVERSE LEAD)

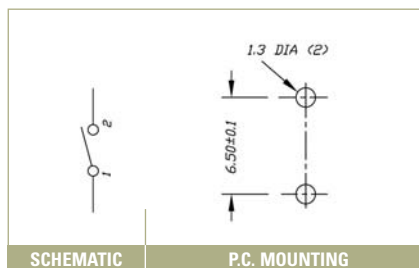
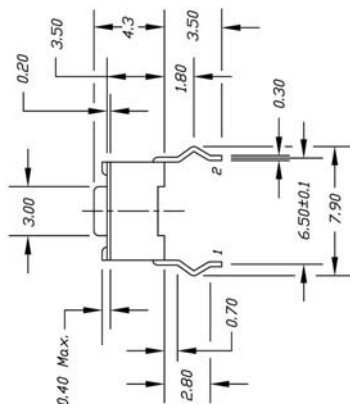
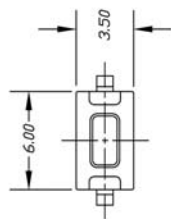


SCHEMATIC

P.C. MOUNTING

TL 1107

W TERMINATION
(SIDE RETENTION
LEAD)



SCHEMATIC

P.C. MOUNTING

SERIES TL 53 SWITCHES

TACT SWITCHES - Dual



E-SWITCH®



FEATURES & BENEFITS

- ▶ Two independent switches in a single package
- ▶ Stacked design
- ▶ Reliable dome contact technology

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC
Life Expectancy:	100,000 cycles
Contact Resistance:	100mΩ max., typical @ 2-4 VDC 100mA for both silver and gold plated contacts
Insulation Resistance:	100MΩ min.
Dielectric Strength:	250VAC
Actuation Force:	100 ± 50 gf, 160 ± 50 gf, 250 ± 50 gf
Operating Temperature:	-20°C to 70°C
Travel:	0.25 Typ

MATERIALS

Housing:	Polyester
Actuator:	Acetal
Cover:	Tin plated steel
Contacts:	Silver plated phosphor bronze
Terminals:	Silver plated brass



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL
TL	53	(None) = 3.15 mm A = 3.85 mm B = 5.85 mm C = 6.15 mm D = 6.85 mm E = 7.35 mm G = 8.35 mm H = 11.85 mm	F100 F160 F260	Q = Silver

Operating Force

F100 = 100 ± 50gf
F160 = 160 ± 50gf
F260 = 260 ± 50gf

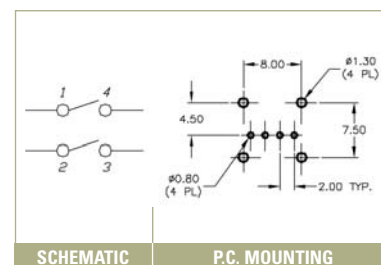
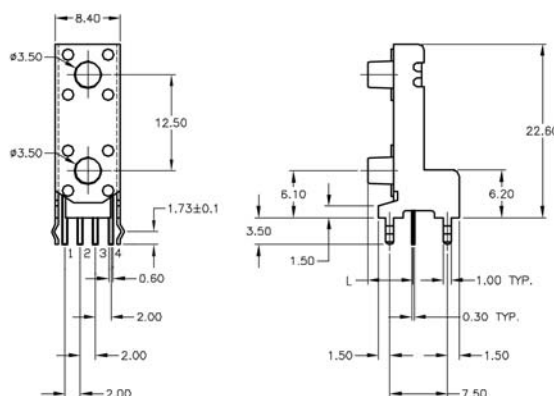


Example Ordering Number

TL-53-B-F100-Q

Specifications subject to change without notice.

TL 53



TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES TL 2243 SWITCHES

TACT SWITCHES - Dual



FEATURES & BENEFITS

- ▶ Low profile
- ▶ Tactile feel
- ▶ Saves space on the PC Board

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals



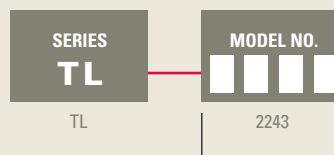
SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC
Life Expectancy:	50,000 cycles
Contact Resistance:	100mΩ max., typical @ 2-4 VDC 100mA for both silver and gold plated contacts
Insulation Resistance:	100MΩ min.
Dielectric Strength:	250VAC
Actuation Force:	180 ±50 gf
Operating Temperature:	-20°C to 70°C
Travel:	0.25 Typ

MATERIALS

Housing:	UL94-V0
Actuator:	UL94-V0
Bracket:	Steel tin plated
Terminals:	Copper alloy, silver plated

HOW TO ORDER

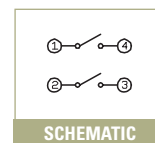
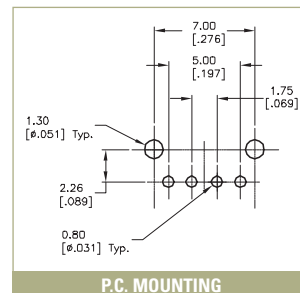
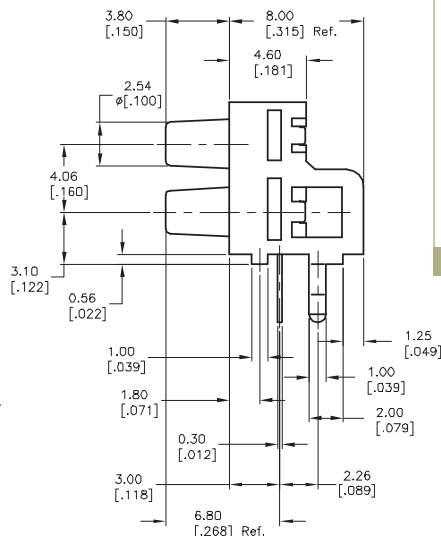
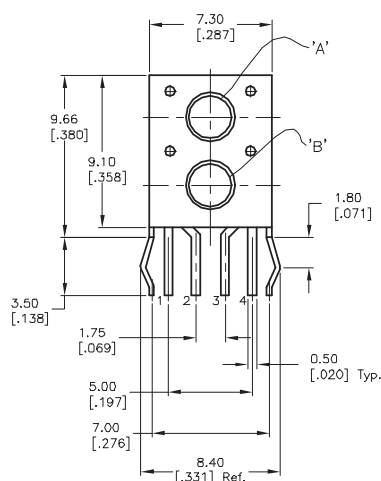


Example Ordering Number

TL-2243

Specifications subject to change without notice.

TL 2243





E-SWITCH®

SERIES TL 6100 SWITCHES

TACT SWITCHES - SEALED THRU-HOLE



FEATURES & BENEFITS

- ▶ Multiple gram force options
- ▶ Multiple actuator lengths
- ▶ Process Sealed

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA@50 VDC
Life Expectancy:	50,000 cycles
Contact Resistance:	50mΩ max., typical @ 5 VDC 100mA for both silver and gold plated contacts
Insulation Resistance:	10000MΩ min.
Dielectric Strength:	300 VAC
Actuation Force:	130± 50 gf, 160± 50 gf, 300± 50 gf, 500± 100 gf
Operating Temperature:	-40°C to 85°C

MATERIALS

Housing:	Nylon
Frame:	Copper alloy, tin plated
Actuator:	Nylon
Moving Contact:	Phoz. Bronze, plated
Terminals:	Copper alloy, plated



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL	TERMINATION
TL	6100	A = 4.70mm B = 5.20mm C = 6.90mm D = 10.0mm	F130 F160 F300 F500	Q = Silver R = Gold	P = PC Pin
	6105 = Earth Ground				



Example Ordering Number

TL-6100-A-F130-Q-P

TL	6110 Right Angle	A = 3.50mm B = 4.00mm C = 5.70mm D = 8.70mm	F130 F160 F300 F500	Q = Silver R = Gold	P = PC Pin
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Example Ordering Number

TL-6110-C-F300-R-P

TL	6120 Surface Mount	A = 4.70mm B = 5.20mm C = 6.90mm D = 10.00mm	F130 F160 F300 F500	Q = Silver R = Gold	G = Gullwing
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Example Ordering Number

TL-6120-B-F160-Q-G

Specifications subject to change without notice.

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS



SERIES TL 6100 SWITCHES

TACT SWITCHES - SEALED THRU-HOLE

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

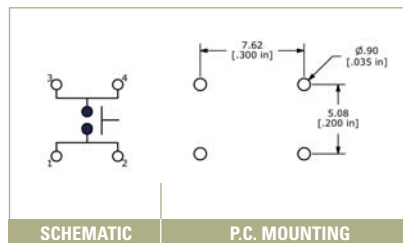
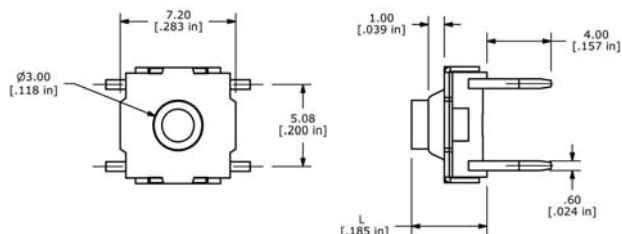
KEYLOCK
SWITCHES

ROTARY
SWITCHES

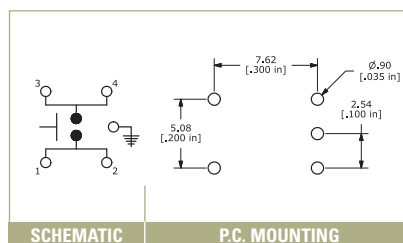
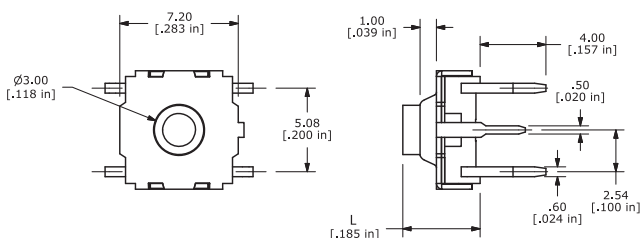
DETECTOR
SWITCHES

CAP
OPTIONS

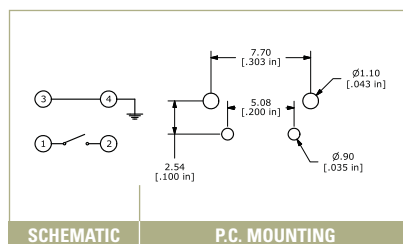
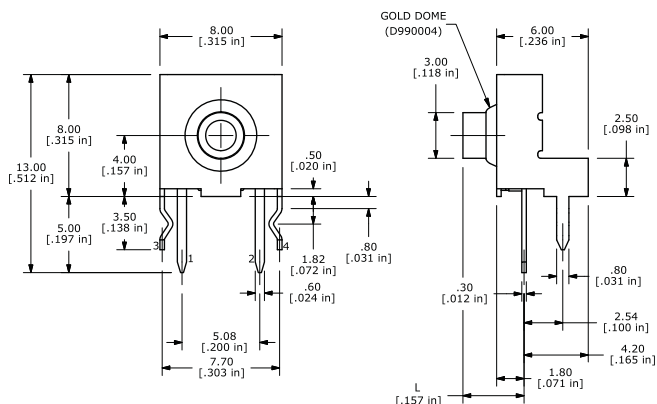
TL 6100



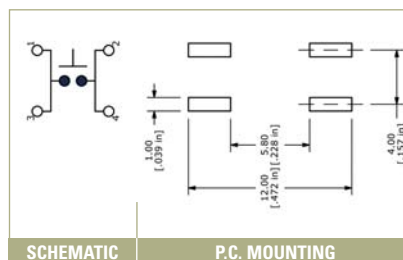
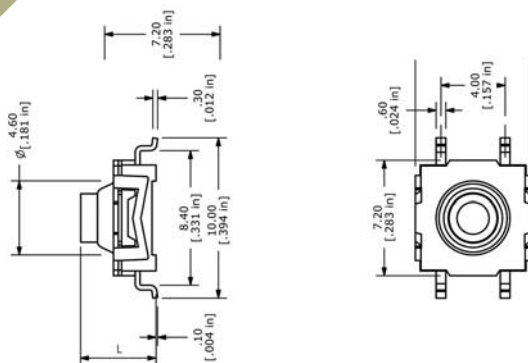
TL 6105



TL 6110



TL 6120

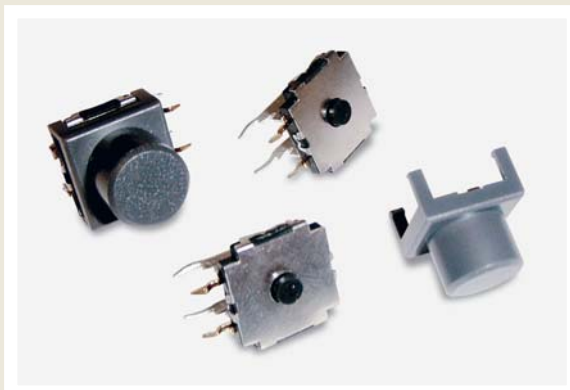




E-SWITCH®

SERIES TL 6190 SWITCHES

TACT SWITCHES - SEALED RIGHT ANGLE



FEATURES & BENEFITS

- ▶ Reliable dome technology
- ▶ Strong tactile force
- ▶ Multiple operating force
- ▶ Process sealed
- ▶ Right angle

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer electronics
- ▶ Audio/visual
- ▶ Medical equipment
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA@12 VDC
Life Expectancy (Mechanical):	100,000 cycles
Life Expectancy (Electrical):	100,000 cycles
Contact Resistance:	100mΩ max. initial
Insulation Resistance:	100MΩ (Min@ 100V)
Dielectric Strength:	500 VDC
Actuation Force:	220 ± 60 gf
Operating Temperature (Switch):	-40°C to +105°C
Operating Temperature (Button):	-40°C to +85°C
Travel:	0.50 ± 0.20mm

MATERIALS

Housing:	Nylon
Cover:	Stainless Steel
Actuator:	Silicone rubber
Bracket:	Tin, plated
Terminals:	Copper alloy, plated
Contact:	Copper alloy, plated



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	PLATING	BUTTON	BUTTON COLOR
TL	6190	A = 2.90mm	F160 F220 F320	Q = Silver R = Gold	R = Round	GRY = Gray BLK = Black WHT = White RED = Red

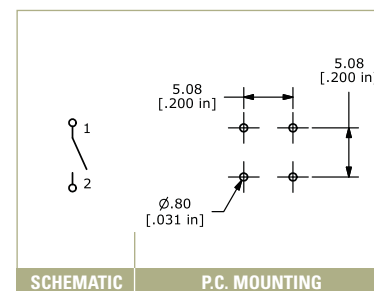
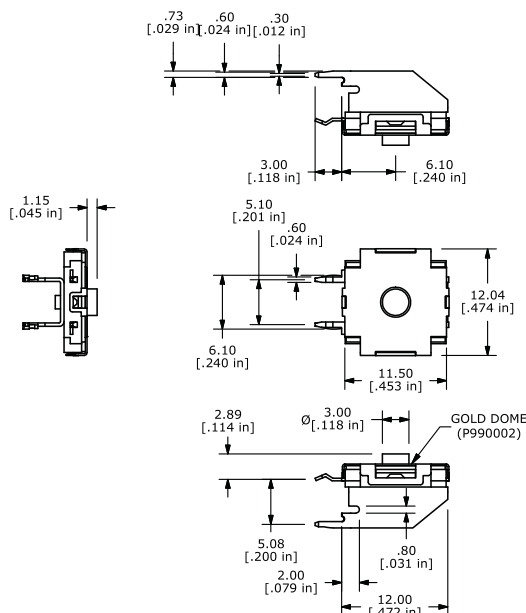


Example Ordering Number

TL-6190-A-F220-Q-R-GRY

Specifications subject to change without notice.

TL 6190





SERIES TL 9000 SWITCHES

TACT SWITCHES - SOFT TOUCH

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS



SPECIFICATIONS

Contact Rating:	50 mA @ 12 VDC
Life Expectancy:	100,000 cycles minimum
Contact Resistance:	1000mΩ
Insulation Resistance:	100MΩ min.
Dielectric Strength:	250 VAC
Actuator Force:	120 ± 50 gf min.
Operating Temperature:	-20°C to +70°C
Travel:	1.0mm Typ

MATERIALS

Stationary Contact:	Silver over Nickel
Moving Contact:	Conductive Rubber
Terminals:	Brass

FEATURES & BENEFITS

- ▶ Long travel (1.5mm)
- ▶ Light force
- ▶ Carbon pill contact design

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals



HOW TO ORDER

SERIES	MODEL NO.	OPERATING FORCE	CONTACT MATERIAL
TL	9000	F120	Q = Silver

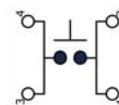
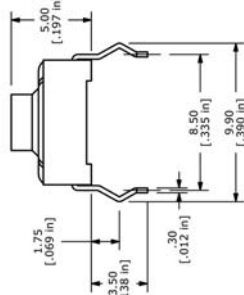
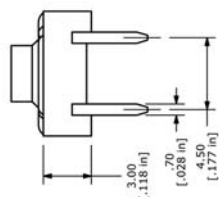
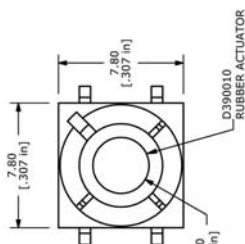


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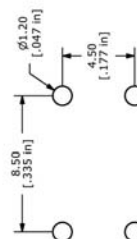
TL-9000-F120-Q

Specifications subject to change without notice.

TL 9000



SCHEMATIC



P.C. MOUNTING

SERIES TL 1140 SWITCHES

TACT SWITCHES



E-SWITCH®



FEATURES & BENEFITS

- ▶ Long operating life (1,000,000 cycles)
- ▶ 2 lead design

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA@30 VDC
Life Expectancy:	1,000,000 cycles
Contact Resistance:	100mΩ @ 5 VDC
Insulation Resistance:	100MΩ min.
Dielectric Strength:	600 VAC
Actuation Force:	70 ± 20 gf
Operating Temperature:	-25°C to 85°C
Travel:	0.35mm ±0.2mm

MATERIALS

Actuator:	Nylon
Base:	Nylon
Cover:	Nylon
Terminals:	Copper alloy, silver plated



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	OPERATING FORCE	CONTACT MATERIAL
TL	1140	A = 7.25mm	F070	Q = Silver

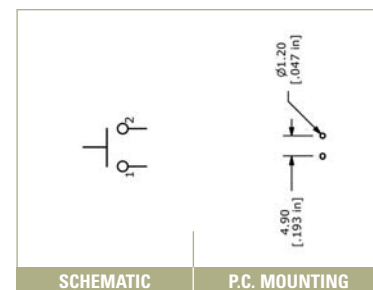
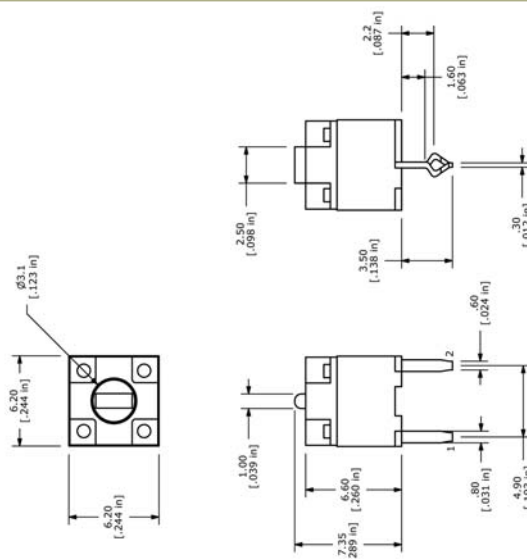


Example Ordering Number

TL-1140-A-F070-Q

Specifications subject to change without notice.

TL 1140





SERIES TL 1240 SWITCHES

TACT SWITCHES ILLUMINATED

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

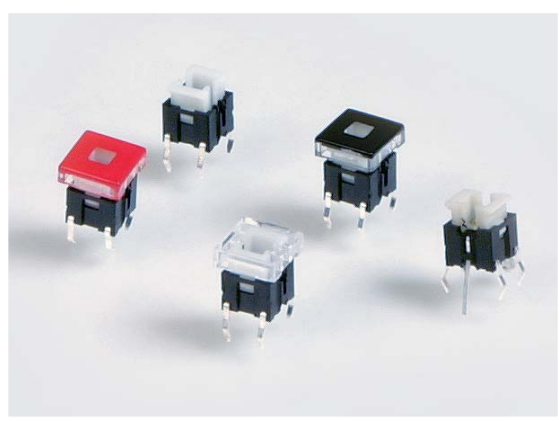
DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS



FEATURES & BENEFITS

- ▶ Multiple LED color options
- ▶ Reliable dome technology
- ▶ Independent LED leads
- ▶ LED color matching upon request
- ▶ Multiple cap options

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	50mA @ 12 VDC
Life Expectancy:	100,000 cycles
Contact Resistance:	100mΩ (max.) typical, initial @ 2-4 VDC 100mΩ for both silver and gold plated contacts
Insulation Resistance:	100MΩ (min.)
Dielectric Strength:	250 VAC
Actuation Force:	160 gf ± 50 gf
Operating Temperature:	-20°C to 70°C
Travel:	0.25 Typ

MATERIALS

Housing:	POM
Actuator:	PBT
Button:	Nylon
Moving Contact:	Stainless steel, silver plated
Terminals:	Brass, silver plated



HOW TO ORDER

SERIES	MODEL NO.	LED	CONTACT MATERIAL	CAP	CAP COLOR
TL	1240	Y = Yellow R = Red G = Green B = Blue W = White N = No LED	Q = Silver	1J 2J	BLK, WHT, CLR BLK, RED

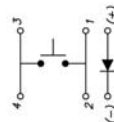
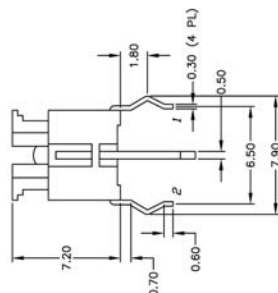
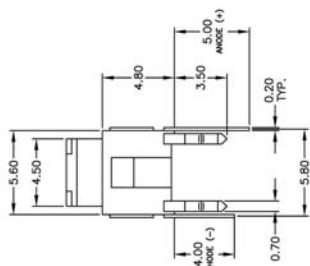
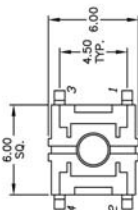


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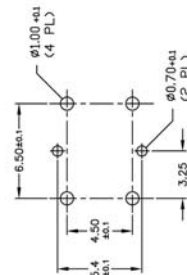
TL-1240-R-Q-2J-RED

Specifications subject to change without notice.

TL 1240



SCHEMATIC



P.C. MOUNTING



LED CHARACTERISTICS

		YELLOW LED		RED LED		GREEN LED		BLUE LED		WHITE LED		
PARAMETERS	SYMBOL	MAX.	TYP.	MAX.	TYP.	MAX.	TYP.	MAX.	TYP.	MAX.	TYP.	UNITS
POWER DISSIPATION	P _D	100	—	100	—	100	—	102	—	111	—	mW
REVERSE VOLTAGE	V _R	4	10	4	—	4	—	5	—	5	10	V
PEAK FORWARD CURRENT	I _{PF}	20	—	30	—	25	—	30	—	30	—	mA
REVERSE CURRENT	I _R	10	—	10	—	10	—	10	—	10	—	mA
FORWARD VOLTAGE	V _F	2.8	1.8	2.3	—	2.8	—	4.2	—	3.7	3.5	v
LUMINOUS INTENSITY	I _V	--	9	--	25	--	3	--	250	--	80	mcd
EMISSION WAVELENGTH	λ _P	--	585	--	660	--	557	--	468	--	--	nm
OPERATING TEMPERATURE	T _{OP}	-25C TO +85C		-25C TO +85C		-20C TO +85C		-20C TO +80C		-40C TO +85C		C
STORAGE TEMPERATURE	T _{ST}	-25C TO +80C		-25C TO +85C		-20C TO +85C		-30C TO +85C		-40C TO +85C		C
LEAD SOLDERING TEMPERATURE, (12.0mm (0.063 inch) FROM BODY) 260C FOR 5 SECONDS												
ELECTRICAL CHARACTERISTICS (= 25C)				T _A								

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES TL 1260 SWITCHES

TACT SWITCHES - ILLUMINATED RIGHT ANGLE



FEATURES & BENEFITS

- ▶ Illuminated
- ▶ Right angle thru-hole tact switch
- ▶ Multiple colors available

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Consumer Electronics
- ▶ Audio/visual
- ▶ Medical
- ▶ Testing/instrumentation
- ▶ Computer/servers/peripherals

SPECIFICATIONS

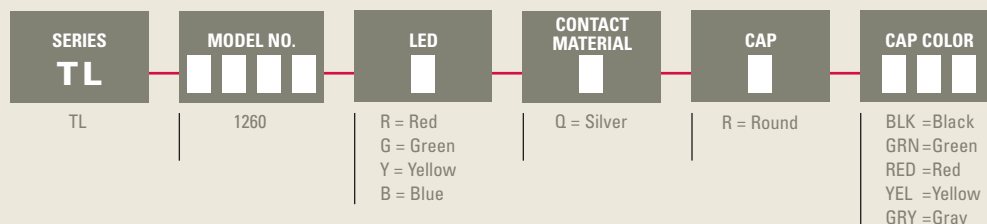
Contact Rating:	50mA @ 12 VDC
Life Expectancy:	50,000 cycles
Contact Resistance:	100mΩ
Insulation Resistance:	100MΩ
Dielectric Strength:	500 VAC
Actuation Force:	160 gf ± 50 gf
Operating Temperature:	-20°C to 70°C
Travel:	0.20 ±.01mm

MATERIALS

Actuator:	PBT
Housing:	POM
Terminals:	Brass, silver plated
Moving Contact:	Stainless Steel, silver plated
Button:	Nylon



HOW TO ORDER

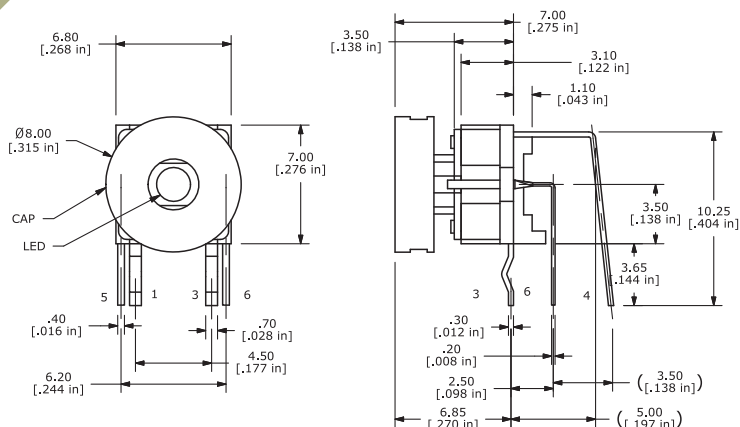


Example Ordering Number

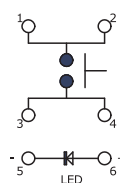
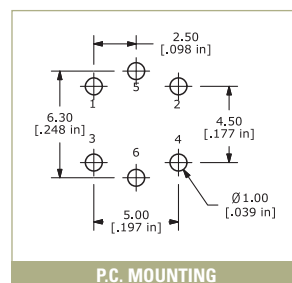
TL-1260-G-Q-R-BLK

Specifications subject to change without notice.

TL 1260



LED Specifications	Units	Blue	Green	Red	Yellow
Forward Current	mA	30	30	30	30
Forward Voltage	V	3.5-4.0	2.0-2.5	3.3-3.8	2.0-2.5
Luminous Intensity @ 20mA	mcd	230	120	50	200

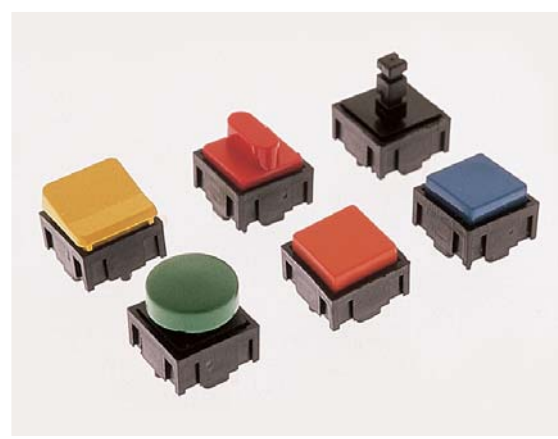


SERIES 320 SWITCHES

TACT SWITCHES



E-SWITCH®



FEATURES & BENEFITS

- ▶ Multiple cap & color options
- ▶ High reliability dome technology
- ▶ Excellent tactile feedback

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Contact Rating:	25mA @ 50 VDC
Life Expectancy:	1,000,000 cycles min.
Contact Resistance:	50mΩ, max. initial @ 2-4 VDC, 100mA
Insulation Resistance:	1,000MΩ min.
Dielectric Strength:	>500 VAC rms at sea level
Actuation Force:	135 ± 50 gf
Operating Temperature:	-20°C to 70°C
Travel:	.6mm Typ.

MATERIALS

Housing:	Nylon 4/6
Cover/Cap:	ABS or Polycarbonate
Dome Contact:	Gold over stainless steel
Terminals/Contacts:	Silver plated copper alloy



HOW TO ORDER

CAP STYLE	CIRCUIT	CAP COLOR	ADDITIONAL CAP (Fits over cap styles 320.02 & 320.03 only.)	CAP COLOR
320 320.01 320.02 320.03 320.04 320.22 320.08* 320.09* 320.094* 320.2 320.21	E11 (SPST)	BLK = Black GRY = Grey YEL = Yellow BLU = Blue GRN = Green WHT = White RED = Red	See Cap Section	



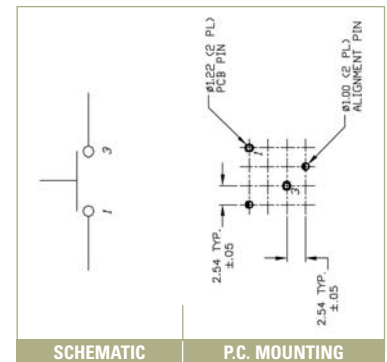
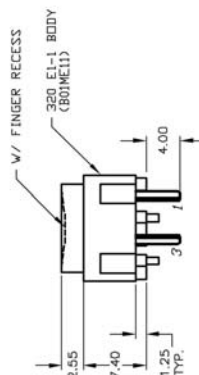
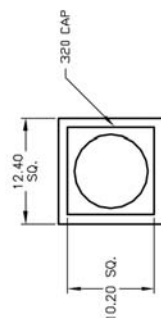
Example Ordering Number

320.08-E1-1-YEL

*Note: Assembled using the 320.02 plungered cap.

Specifications subject to change without notice.

320





SERIES 320 SWITCHES

TACT SWITCHES

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

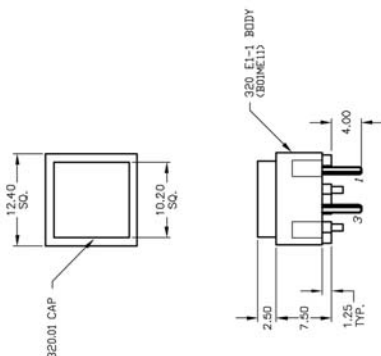
KEYLOCK
SWITCHES

ROTARY
SWITCHES

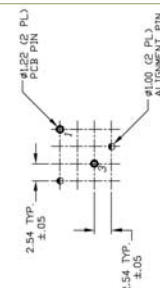
DETECTOR
SWITCHES

CAP
OPTIONS

320.01

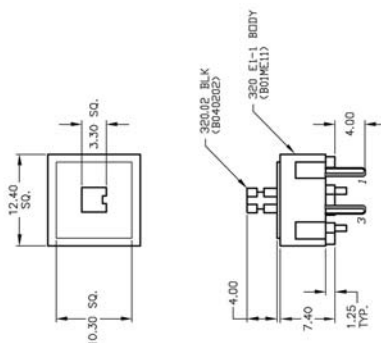


SCHEMATIC

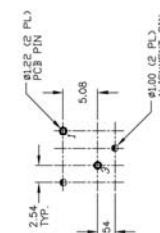


P.C. MOUNTING

320.02

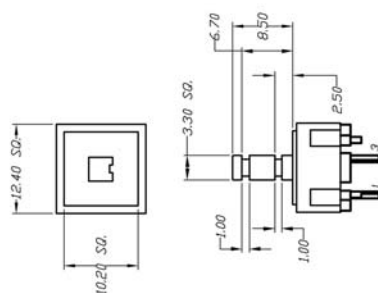


SCHEMATIC

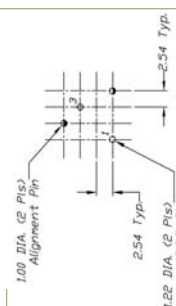


P.C. MOUNTING

320.03

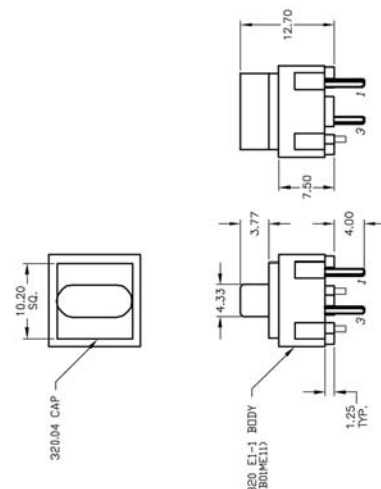


SCHEMATIC

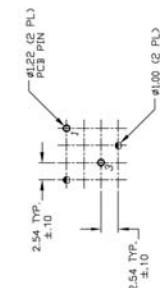


P.C. MOUNTING

320.04



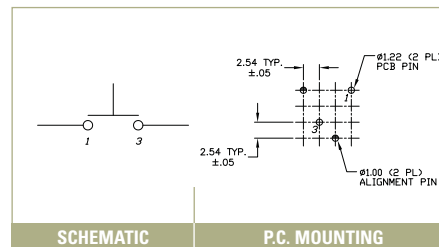
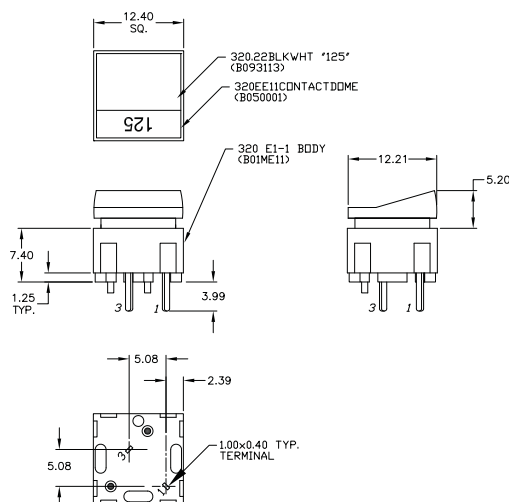
SCHEMATIC



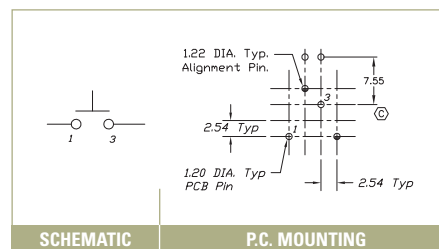
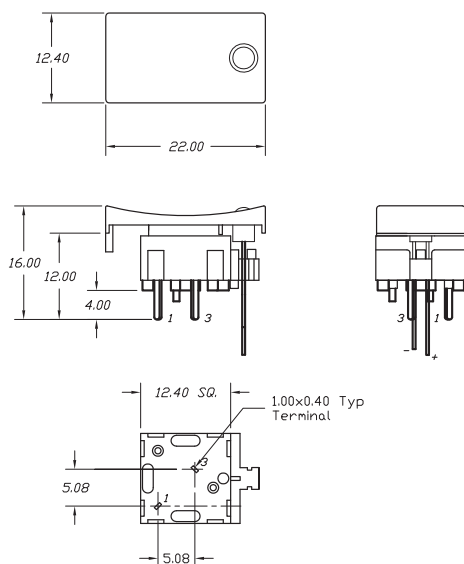
P.C. MOUNTING



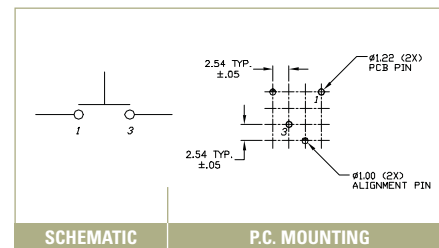
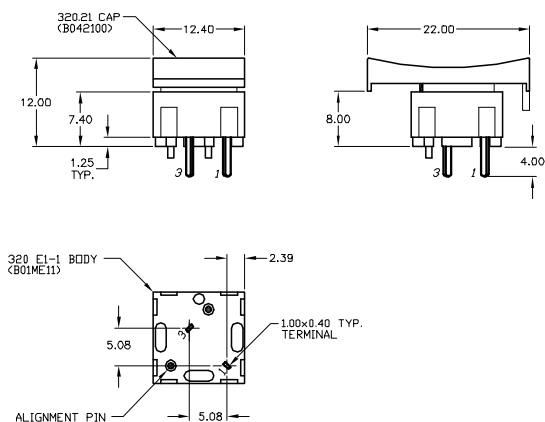
320.22



320.2



320.21



SERIES JS 1200 SWITCHES

NAVIGATION SWITCHES - MULTI-DIRECTIONAL



FEATURES & BENEFITS

- ▶ 5-position joystick switch
- ▶ Available with or without mounting bosses
- ▶ Designed for SMT applications that require navigation

APPLICATIONS/MARKETS

- ▶ Consumer electronics where user interface is needed
- ▶ Handheld instrumentation
- ▶ Navigation
- ▶ Telecommunication

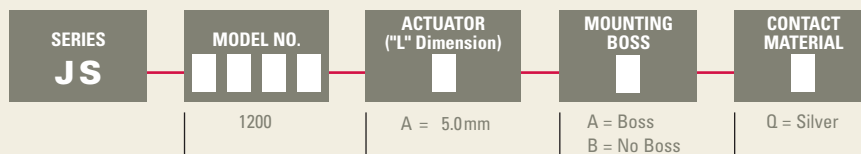
SPECIFICATIONS

Contact Rating:	20mA @ 12 VDC
Life Expectancy:	200,000 actuations in any direction (X, Y, or Z)
Contact Resistance:	500mΩ
Insulation Resistance:	100MΩ
Dielectric Strength:	100 VAC
Operating Temperature:	-25°C to 70°C
Travel:	Push: 0.15 ±.01mm Tilt: .20 ±.01, (3.5+5/-1°)

MATERIALS

Actuator:	Plastic
Base:	Nylon
Cover:	Metal
Terminals:	Copper alloy, plated

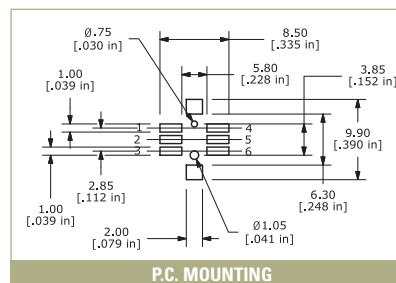
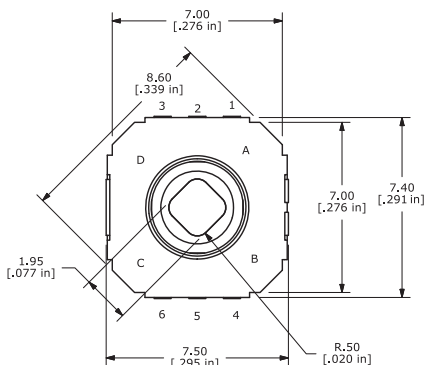
HOW TO ORDER



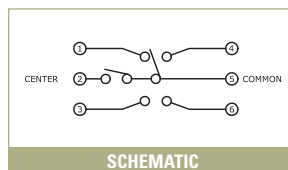
Example Ordering Number
JS-1200-A-A-Q

Specifications subject to change without notice.

JS 1200

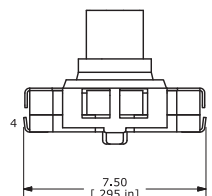
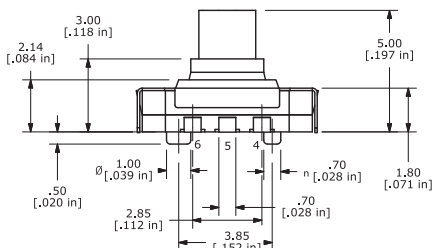


P.C. MOUNTING



SCHEMATIC

Operating Position	Circuit
A	5 = 1
B	5 = 4
C	5 = 6
D	5 = 3
Center Push	5 = 2



NAVIGATION SWITCHES



- ▶ 5-position navigation
- ▶ Very low profile SMT design
- ▶ Unique design

APPLICATIONS/MARKETS

- ▶ Consumer electronics where user interface is needed
- ▶ Handheld instrumentation
- ▶ Navigation
- ▶ Telecommunication

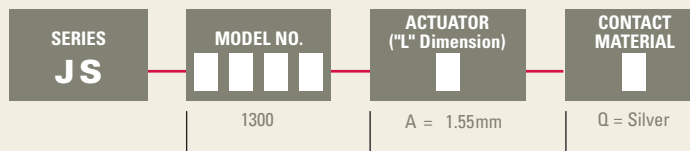
SPECIFICATIONS

Contact Rating:	20mA @ 12 VDC
Life Expectancy:	200,000 actuations in any direction (X, Y, or Z)
Contact Resistance:	500mΩ
Insulation Resistance:	100MΩ
Dielectric Strength:	100 VAC
Operating Temperature:	-25°C to 70°C
Travel:	Push: 0.15 ±.01mm Tilt: .20 ±.01, (3.5+5/-1°)

MATERIALS

Cover:	Nickel silver
Base:	Nylon
Actuator:	Nylon
Terminals:	Copper alloy, silver plated
Moving Contact:	Stainless steel, silver plated
Tape:	Teflon

HOW TO ORDER

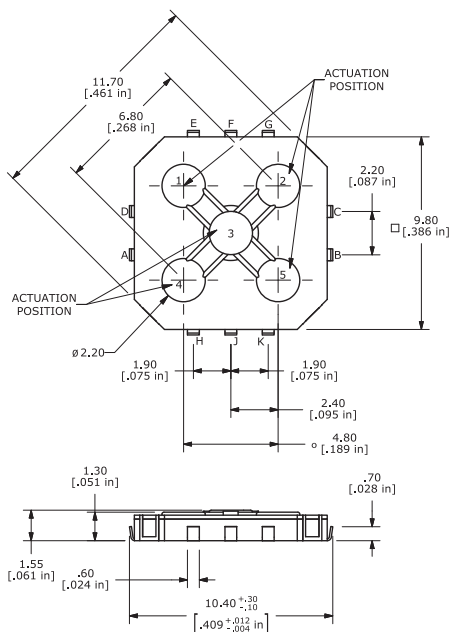


Example Ordering Number

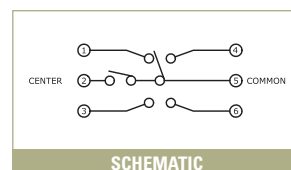
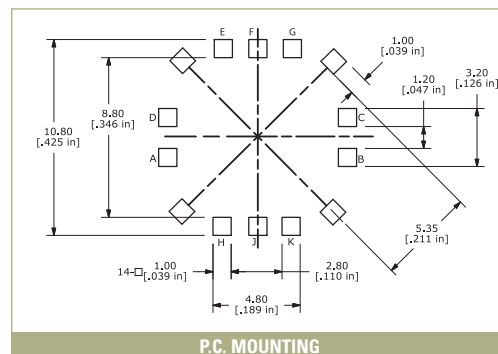
JS-1300-A-Q

Specifications subject to change without notice.

JS 1300



Actuation Position	Circuit
1	D - E
2	C - G
3 (Push)	F - J
4	A - H
5	B - K



SERIES JS 5208 SWITCHES

NAVIGATION SWITCHES



SPECIFICATIONS

Contact Rating:	20mA, 15VDC
Life Expectancy:	100,000 Cycles
Contact Resistance:	100m Ohms Max (initial)
Operating Force:	Tilt-280+/-100 grams Push-500 +/-150 grams
Dielectric Strength:	250VAC
Operating Temp:	-20C to +70C
Travel:	Tilt 8 degrees, Push 1.0 +/-0.2mm's

FEATURES & BENEFITS

- ▶ 5-position navigation
- ▶ Designed for SMT applications that require navigation

APPLICATIONS/MARKETS

- ▶ Consumer electronics where user interface is needed
- ▶ Handheld instrumentation
- ▶ Navigation
- ▶ Telecommunication

HOW TO ORDER

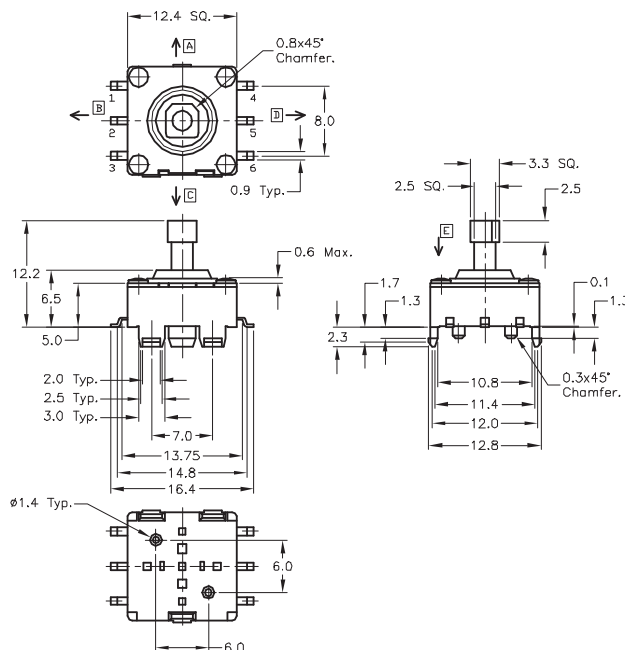
SERIES	MODEL NO.	ACTUATOR ("L" Dimension)	CONTACT MATERIAL
JS	5208	A = 1.55mm	Q = Silver

Example Ordering Number

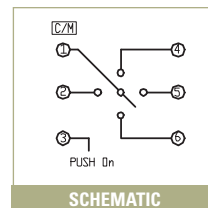
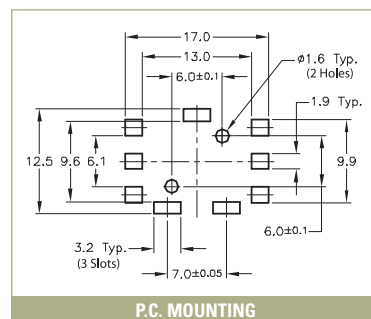
JS-5208-A-Q

Specifications subject to change without notice.

JS 5208



Position	Connected Term. #
A	1 - 4
B	1 - 2
C	1 - 6
D	1 - 5
E (Push)	1 - 3

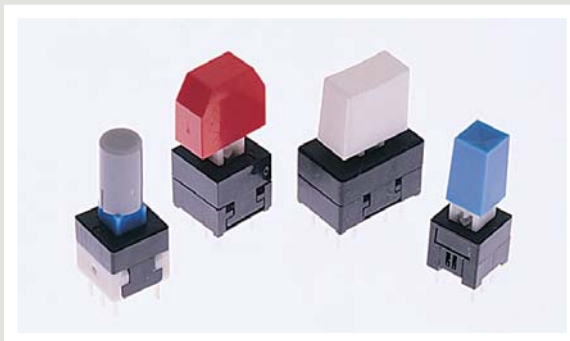




E-SWITCH®

SERIES TL 2201 SWITCHES

PUSHBUTTON SWITCHES - SUB MINIATURE



FEATURES & BENEFITS

- ▶ Momentary & latching designs
- ▶ Long travel

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Contact Rating:	100mA@30 VDC
Life Expectancy:	10,000 cycles
Contact Resistance:	100mΩ max.
Insulation Resistance:	100MΩ min.
Dielectric Strength:	500 VAC
Actuation Force:	See individual model
Travel:	See individual model

MATERIALS

Housing:	PBT
Actuator:	Acetal
Cover:	Acetal
Contacts:	Silver plated phosphor bronze
Terminals:	Silver plated copper alloy
Spring:	Stainless steel
Latching Pin:	Stainless steel



HOW TO ORDER

SERIES TL	MODEL NO.	MECHANICAL CONFIGURATION	ACTUATOR ("L" Dimension)	TERMINATION	CAP (Where Avail.)	CAP COLOR
TL	2230 2285	EE = Latching OA = Momentary	(None) = Std.	(None) = Std.	See Cap Section	
TL	2201 = DPDT 4201 = 4PDT	EE = Latching OA = Momentary	X Y Z	A B	See Cap Section	
	2202* 2203	EE = Latching OA = Momentary				



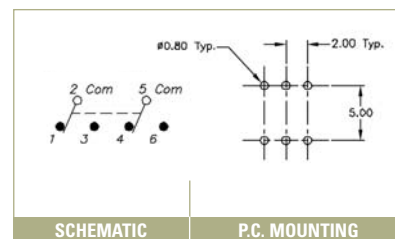
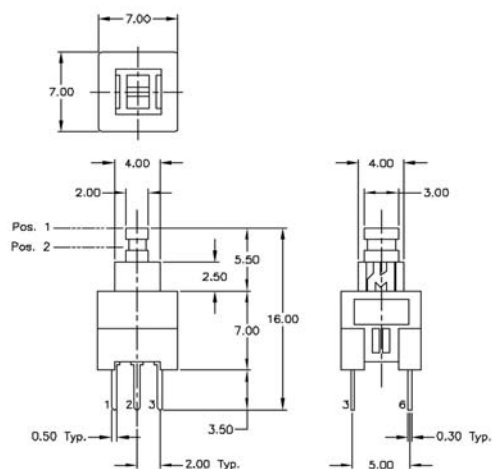
Example Ordering Number

TL-2201-EE-Y-B-.09-BLK

*Note: TL 2202 is an MBB (shorting) version.

Specifications subject to change without notice.

TL 2230

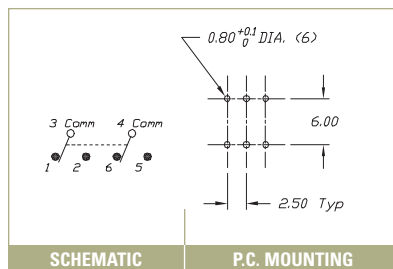
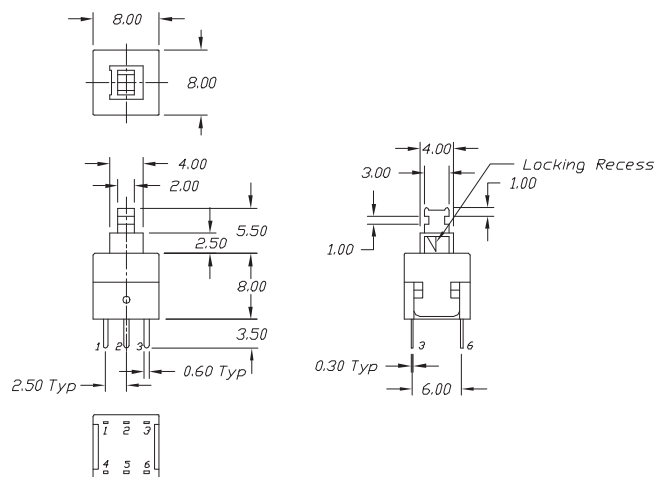


TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES TL 2201 SWITCHES

PUSHBUTTON SWITCHES - SUB MINIATURE

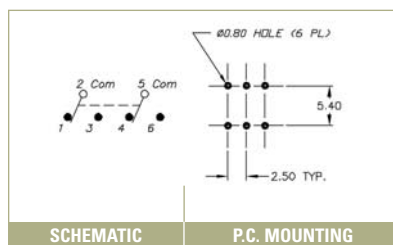
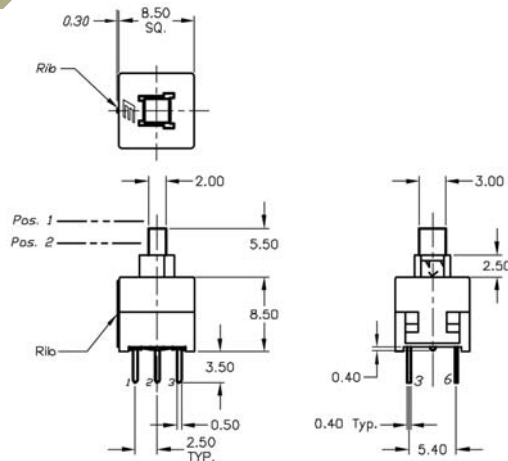
TL 2285



SCHEMATIC

P.C. MOUNTING

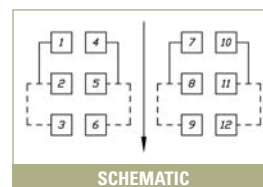
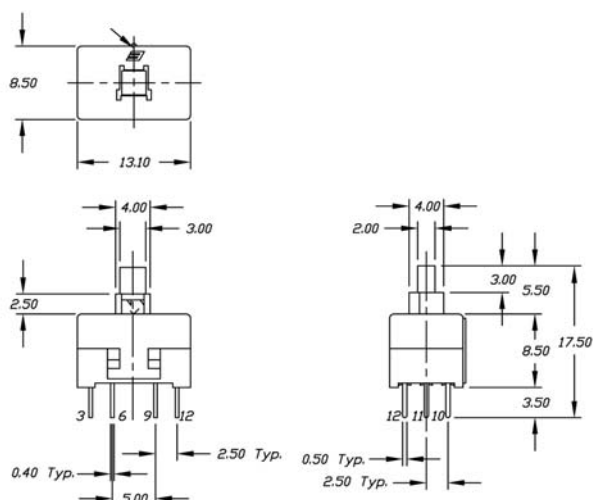
TL 2201



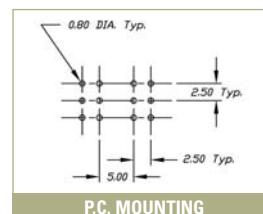
SCHEMATIC

P.C. MOUNTING

TL 4201



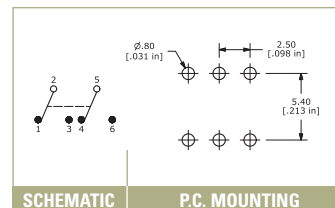
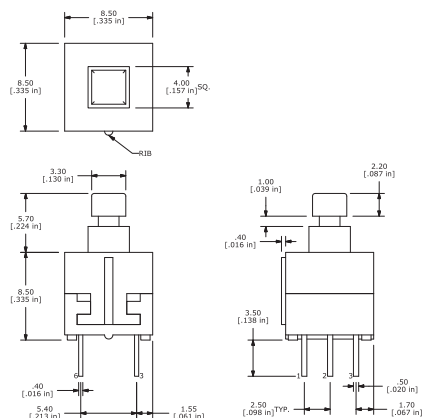
SCHEMATIC



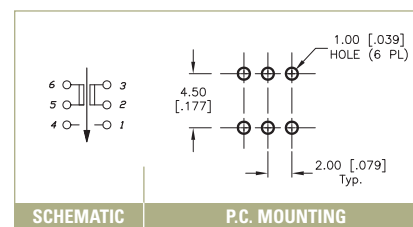
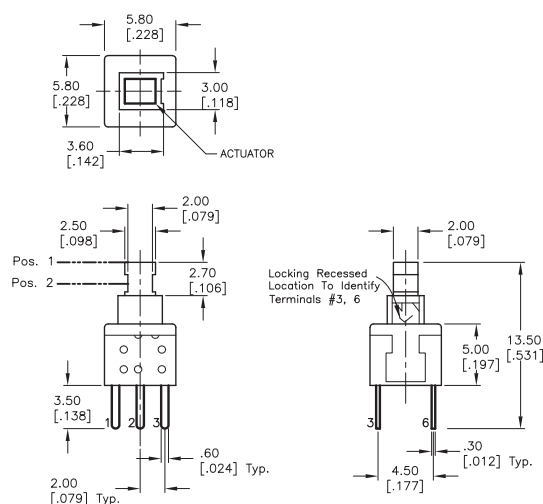
P.C. MOUNTING



TL 2202

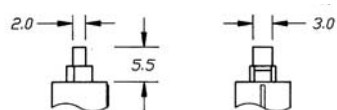


TL 2203



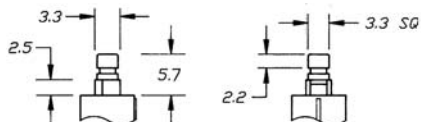
ACTUATOR OPTIONS – TL 2201 & TL 4201

X



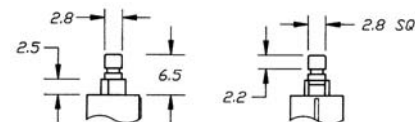
See Cap Section

Y



See Cap Section

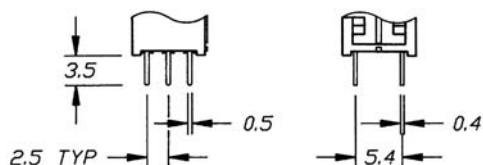
Z



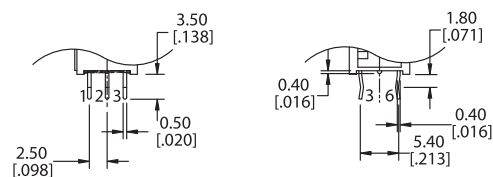
See Cap Section

TERMINATION OPTIONS – TL 2201 & TL 4201

A



B



TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES LC SWITCHES

PUSHBUTTON SWITCHES



FEATURES & BENEFITS

- ▶ Latching & momentary functions
- ▶ Shorting or non-shorting versions
- ▶ Variety of housing styles available

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

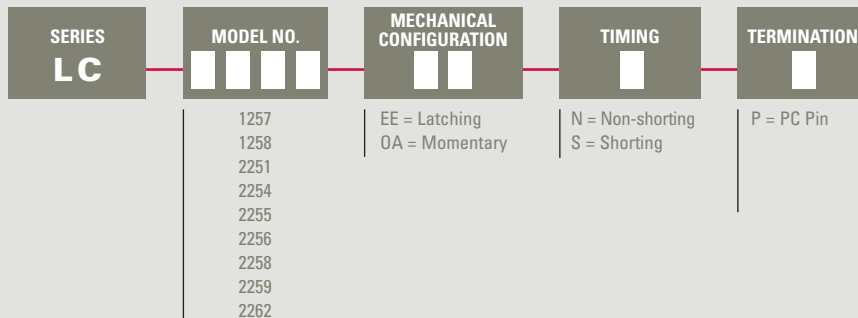
Contact Rating:	300mA @ 30 VDC
Life Expectancy:	10,000 cycles typical
Contact Resistance:	20mΩ max. initial @ 2-4 VDC, 100mA
Insulation Resistance:	100MΩ min.
Dielectric Strength:	1,000 V rms @ sea level
Actuation Force:	Dependent upon model number
Operating Temperature:	-20° to + 85°C

MATERIALS

Housing:	Tin over Steel
Actuator:	Acetal
Terminal Base:	Phenolic
Spring:	Spring steel
Terminals:	Silver over brass
Contacts:	Silver over phosphor bronze



HOW TO ORDER



Example Ordering Number

LC-1257-EE-N-P

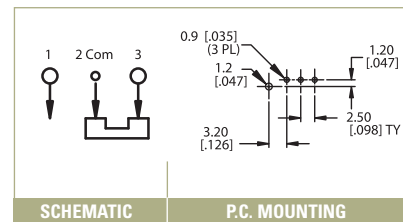
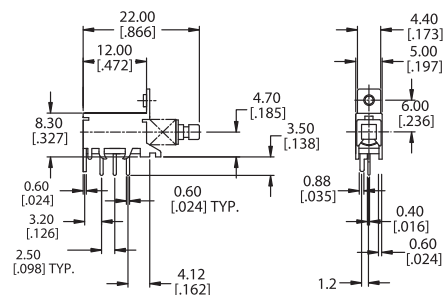
Specifications subject to change without notice.

ACTUATION OPTIONS

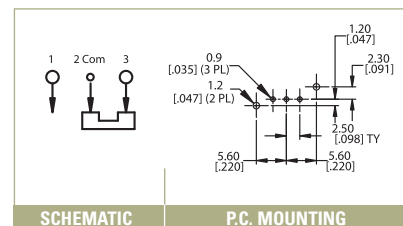
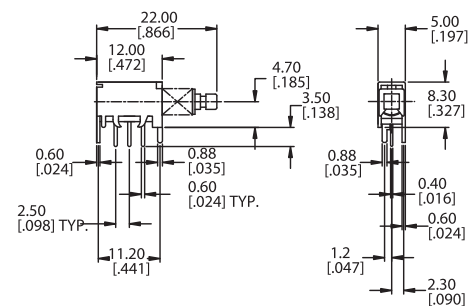
Model No.	Actuation Force
1257	230 ± 100 gf
1258	230 ± 100 gf
2251	330 ± 100 gf
2254	300 ± 150 gf
2255	300 ± 150 gf
2256	300 ± 150 gf
2258	330 ± 100 gf
2259	330 ± 100 gf
2262	200 ± 100 gf

**LC 1257**

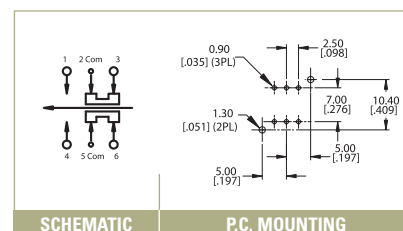
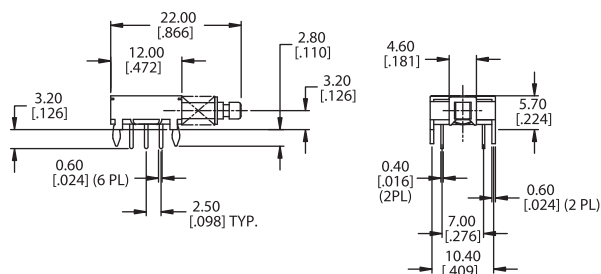
Shaft End Style A

**LC 1258**

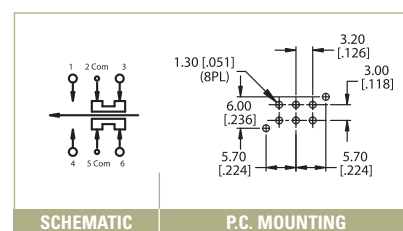
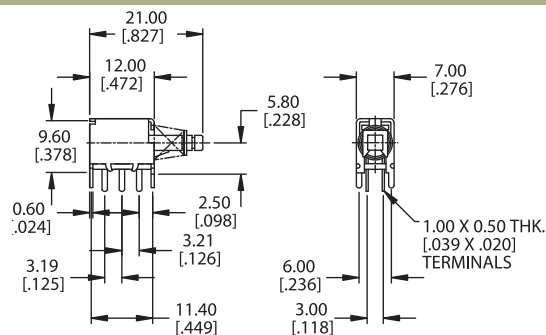
Shaft End Style A

**LC 2251**

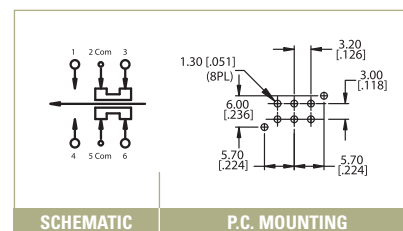
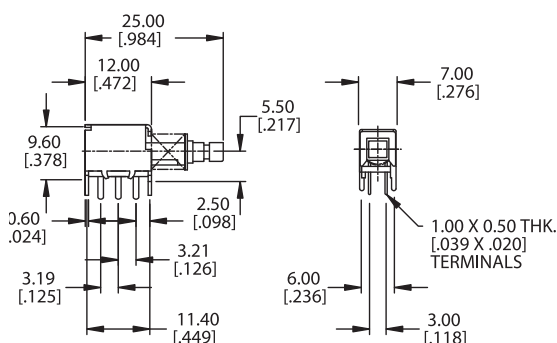
Shaft End Style A

**LC 2254**

Shaft End Style □2.7mm

**LC 2255**

Shaft End Style B



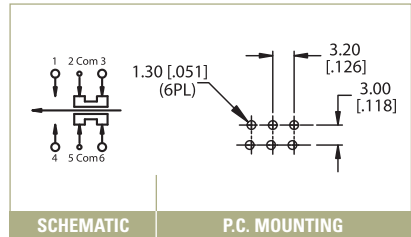
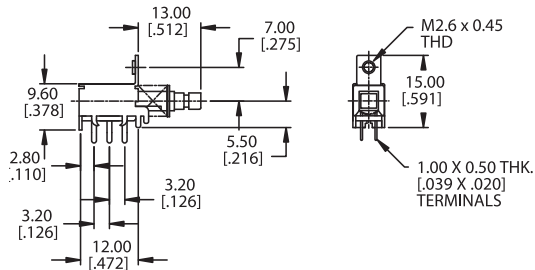
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES LC SWITCHES

PUSHBUTTON SWITCHES

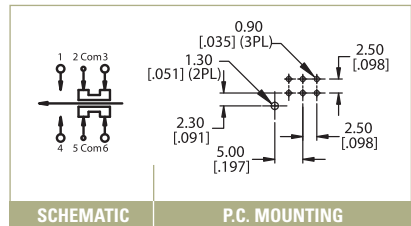
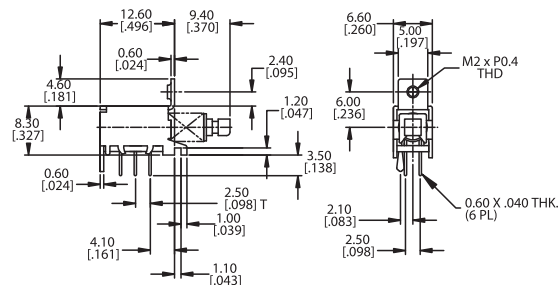
LC 2256

Shaft End Style B



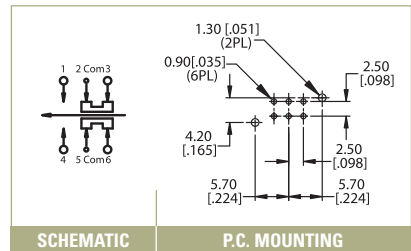
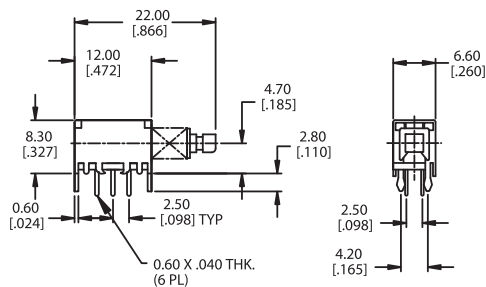
LC 2258

Shaft End Style A



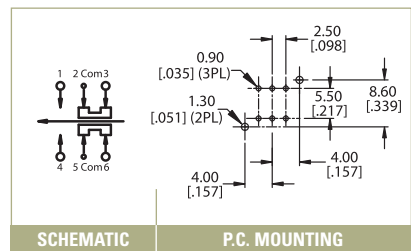
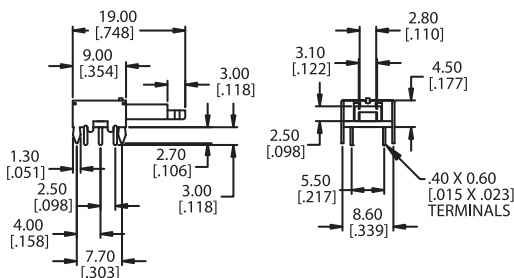
LC 2259

Shaft End Style A



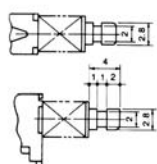
LC 2262

Shaft End Style Special - See Drawing

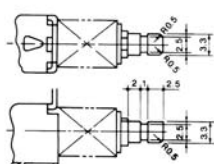


SHAFT END STYLES

A

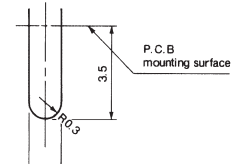


B



P

PC PIN



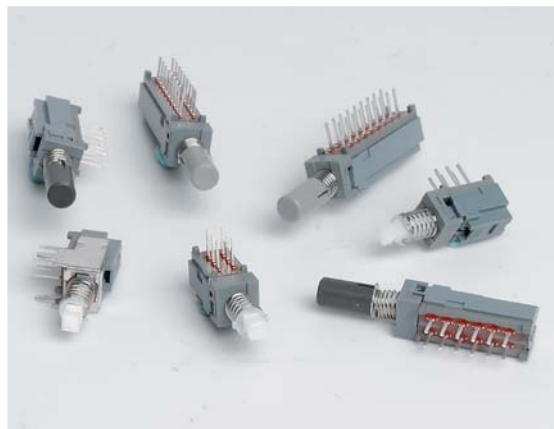
TERMINATION OPTIONS

SERIES PBH SWITCHES

PUSHBUTTON SWITCHES



E-SWITCH®



FEATURES & BENEFITS

- ▶ Up to 6 poles available
- ▶ Latching & momentary functions
- ▶ UL 94V0 material option available

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Contact Rating:	100mA @ 30 VDC
Life Expectancy (Mechanical):	30,000 cycles min.
Life Expectancy (Electrical):	10,000 cycles min.
Contact Resistance:	100mΩ max.
Insulation Resistance:	100MΩ min.
Dielectric Strength:	250 VAC for 60 seconds
Actuation Force:	2 Pole: 230 ± 50 g 4 Pole: 280 ± 50 g 6 Pole: 380 ± 50 g
Operating Temperature:	-20° to + 70°C

MATERIALS

Housing:	PBT (UL94-HB) Standard or (UL94-V0)
Actuator:	POM Standard or PA66 (UL94-V0)
Terminal Base:	PA66 (UL94-HB) Standard or (UL94-V0)
Moving Contacts:	Silver (std) or Gold Copper alloy
Terminals:	Silver over Brass



HOW TO ORDER

SERIES PBH	POLE □ □	MECHANICAL CONFIGURATION □ □	BRACKET/ TERMINATION □ □ □	TIMING □	CONTACT MATERIAL □ □	HOUSING/ ACTUATOR MTL □ □	CAP □ □	CAP COLOR □ □ □
	2U 4U 6U	EE = Latching OA = Momentary	(None) = Std. PC Pin SNP = Snap-In PC Pin KZX = Mounting Bracket	N = Non-shorting	AG = Silver	V = UL94-V0	X = No Cap See Cap Options	



Example Ordering Number

PBH-6U-EE-SNP-N-AG-V-1R-LGR

Specifications subject to change without notice.

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS

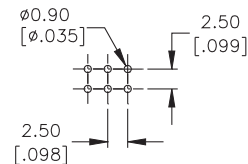
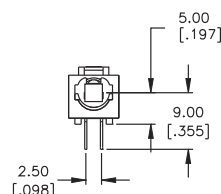
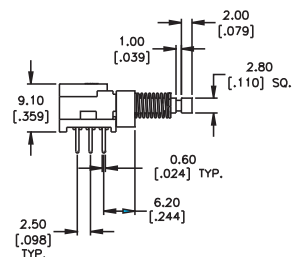
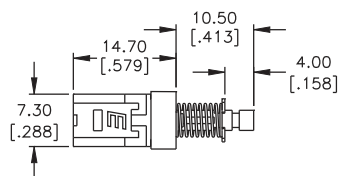
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES PBH SWITCHES

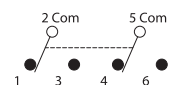
PUSHBUTTON SWITCHES

OPTIONS

2U

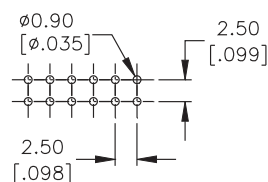
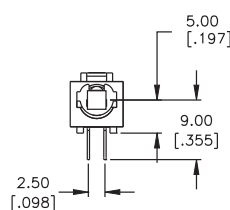
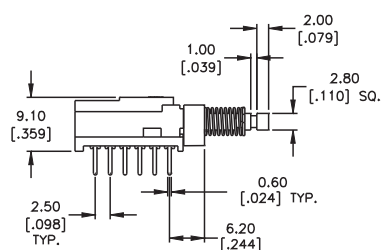
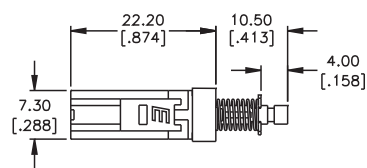


P.C. MOUNTING

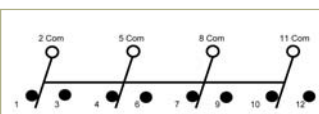


SCHEMATIC

4U

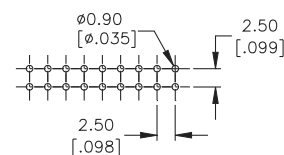
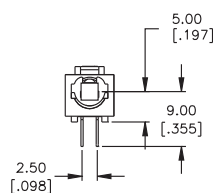
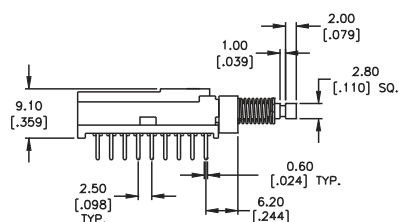
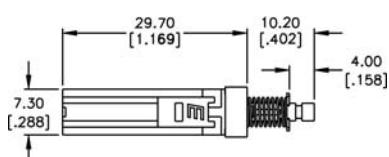


P.C. MOUNTING

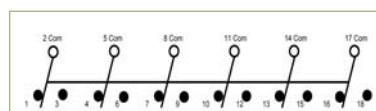


SCHEMATIC

6U



P.C. MOUNTING



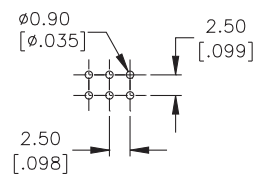
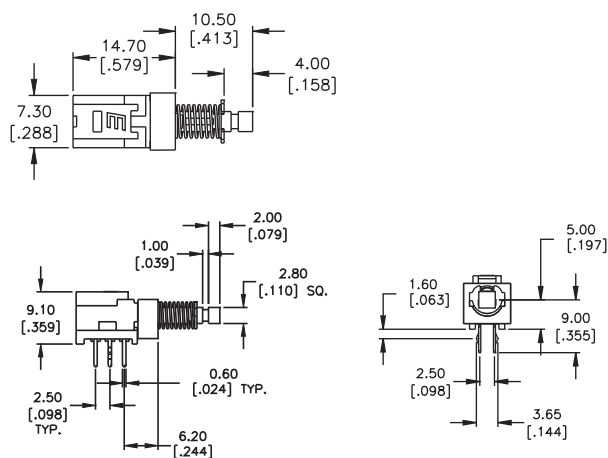
SCHEMATIC



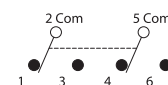
BRACKET/TERMINATION OPTIONS

SNP

SNAP-IN



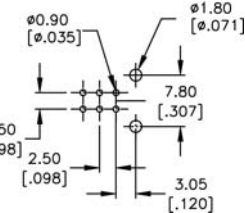
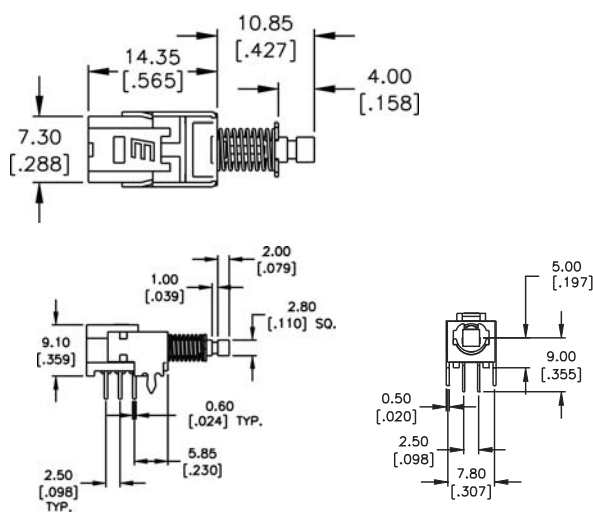
P.C. MOUNTING



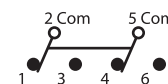
SCHEMATIC

KZX

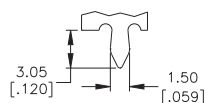
MOUNTING BRACKET



P.C. MOUNTING



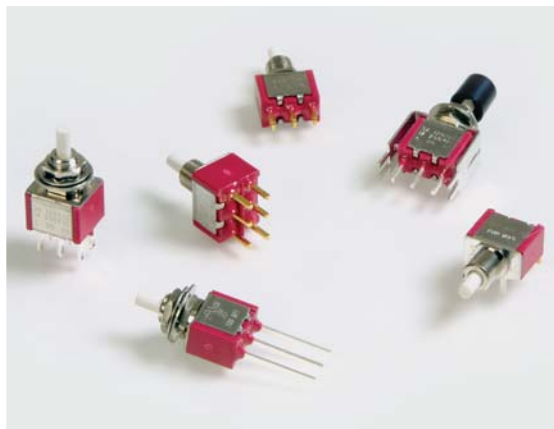
SCHEMATIC



BRACKET LEG

SERIES 700 SWITCHES

PUSHBUTTON SWITCHES - SNAP-ACTING



SPECIFICATIONS

Contact Ratings:	1A @ 250 VAC 3A @ 120 VAC or 28 VDC
Life Expectancy:	50,000 cycles typical
Contact Resistance:	20mΩ max. typical @ 2-4 VDC 100mA for both silver and gold plated contacts
Insulation Resistance:	1,000 MΩ min.
Dielectric Strength:	1,000 V RMS @ sea level
Actuation Force:	200 ± 50 gf
Operating Temperature:	-30°C to +85°C
Travel:	1.20mm Typ

MATERIALS

Case:	DAP
Plunger:	Glass filled nylon or glass filled polyester
Bushing:	Nickel plated brass
Frame:	Stainless steel
Contacts:	Silver or Gold plated copper alloy

FEATURES & BENEFITS

- ▶ Snap acting contact design
- ▶ Gold & silver contact options
- ▶ Multiple termination options
- ▶ Snap-in panel mount option

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

HOW TO ORDER

SERIES	MODEL NO.	BUSHING	TERMINATION	CONTACT MATERIAL	SEAL	HARDWARE	CAP	CAP COLOR
700	SP7 DP7	B10 B11 B20 B21	M1 VS2 M2 VS3 M51 VS4 M52 VS5 M53 M6 M7	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal	H = Hardware	See Cap Options	

Example Ordering Number
700-DP7-B10-M1-Q-E-H-C1-BLK

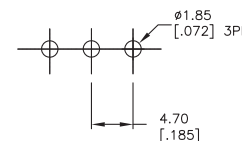
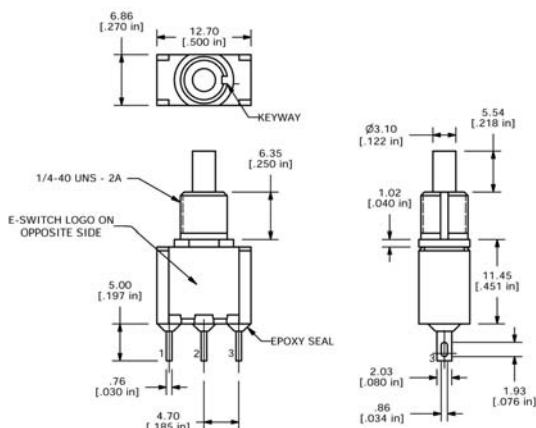
Specifications subject to change without notice.

SPDT



Model No.	Type
SP-7	ON (ON)
Term. Comm	1-3 1-2

() = Momentary



P.C. MOUNTING



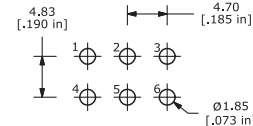
SCHEMATIC

Technical drawings of the 1/4-40 UNS-2A threaded hole and the E-switch marking on the opposite side of the component.

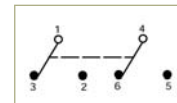
Top View: Shows the square base with a central circular feature. Dimensions include 12.70 [500 in] for the width and 11.43 [450 in] for the height. A KEYWAY is indicated.

Side View (Left): Shows the 1/4-40 UNS-2A threaded hole. Dimensions include 1.30 [051 in] for the height of the hole, 9.93 [391 in] for the total height, and 76 [030 in] for the width of the base. The E-SWITCH MARKING ON OPPOSITE SIDE is indicated.

Side View (Right): Shows the component with dimensions 5.54 [218 in] for the height of the hole, 1.02 [040 in] for the height of the base, 6.35 [250 in] for the total height, 2.03 [080 in] for the width of the base, and 4.83 [190 in] for the width of the base. An EPOXY SEAL is indicated.



P.C. MOUNTING

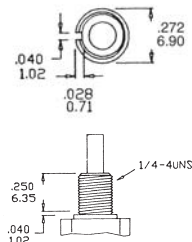


SCHEMATIC

BUSHING OPTIONS FOR P.C. MOUNTING

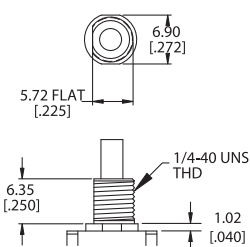
B10 THD STD

B20 NON-THD



B11 THD STD

B21 NON-THD



TERMINATION OPTIONS

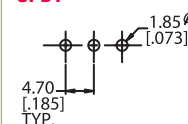
SOLDER LUG



P. C. MOUNT



SPDT

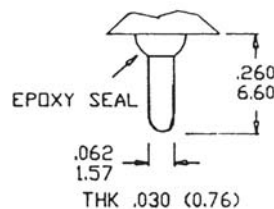
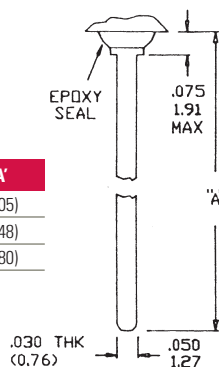


P.C. MOUNTING

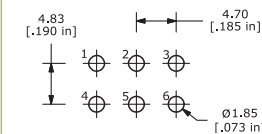
WIRE WRAP



Option Code	Dim. 'A'
M51	.750 (19.05)
M52	.964 (24.48)
M53	.425 (10.80)



DPDT



P.C. MOUNTING

CAP
OPTIONS

SCHEMATIC

P.C. MOUNTING



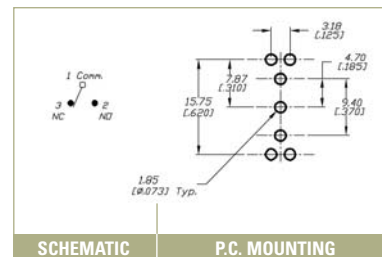
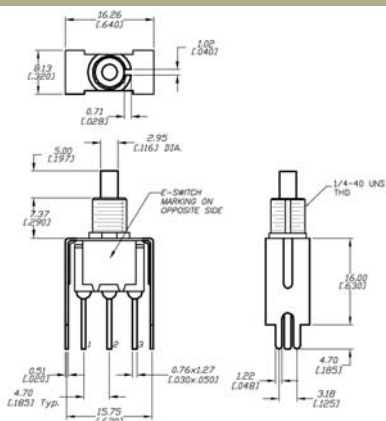
E-SWITCH®

VS2 or VS3

SPDT



Option Code	Dim. 'A'
VS2	.460 (11.68)
VS3	.630 (16.00)

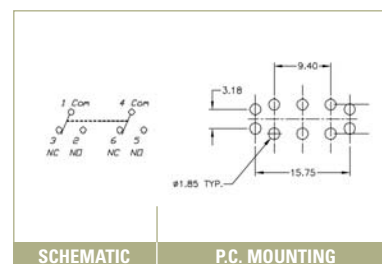
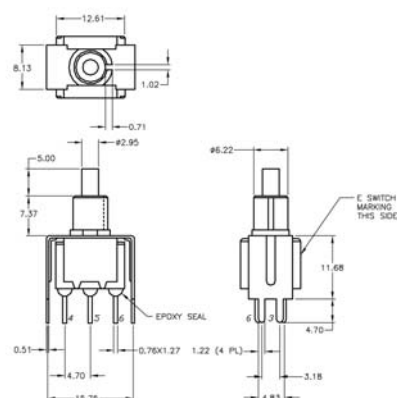


VS2 or VS3

DPDT



Option Code	Dim. 'A'
VS2	.460 (11.68)
VS3	.630 (16.00)

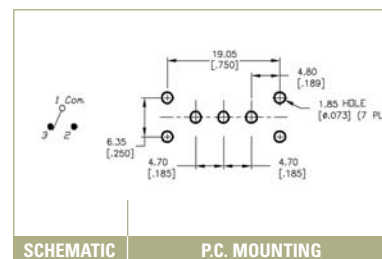
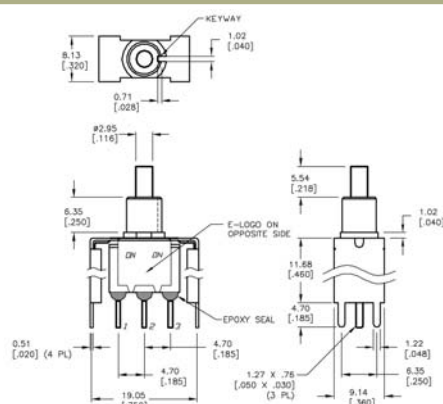


VS4 or VS5

SPDT



Option Code	Dim. 'A'
VS4	.460 (11.68)
VS5	.630 (16.00)

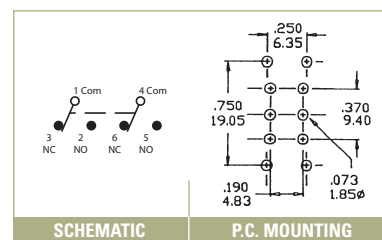
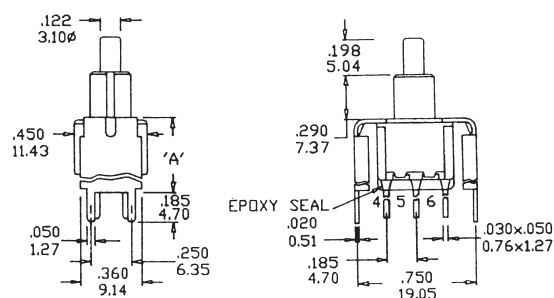


VS4 or VS5

DPDT



Option Code	Dim. 'A'
VS4	.460 (11.68)
VS5	.630 (16.00)



TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

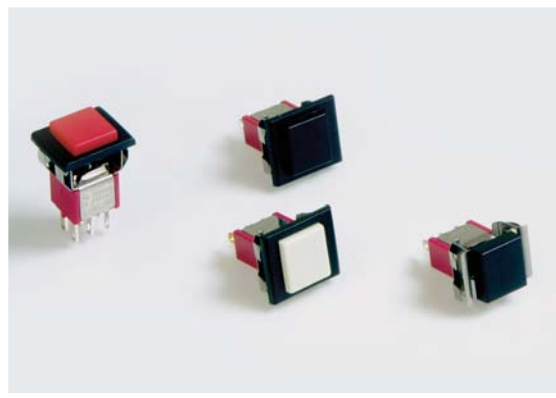
ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS

SERIES 700 SWITCHES

PUSHBUTTON SWITCHES - SNAP-ACTING PANEL MOUNTED



FEATURES & BENEFITS

- ▶ Snap acting contact design
- ▶ Gold & silver contact options
- ▶ Multiple termination options
- ▶ Snap-in panel mount option

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Contact Rating:	1A @ 250 VDC 3A @ 120 VDC or 28VDC
Life Expectancy:	50,000 cycles typical
Contact Resistance:	10mΩ max., typical @ 2-4 VDC, 100mA for both silver and gold plated contacts
Insulation Resistance:	1,000 MΩ min.
Dielectric Strength:	1,000 V rms at sea level
Actuation Force:	200 ± 50 gf
Operating Temperature:	-30°C to +85°C

MATERIALS

Case:	Diallyl Phthalate (DAP)
Plunger:	Glass filled nylon or glass filled polyester
Bushing:	Nickel plated brass
Housing:	Stainless steel
Contacts:	Silver or Gold plated copper alloy

HOW TO ORDER

SERIES	MODEL NO.	TERMINATION	CONTACT MATERIAL	SEAL	CAP/FRAME	CAP COLOR	FRAME COLOR
700	SP7 DP7	M1 M3	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal	AP1 AP2	BLK = Black RED = Red GRY = Grey WHT = White	BLK = Black RED = Red GRY = Grey WHT = White

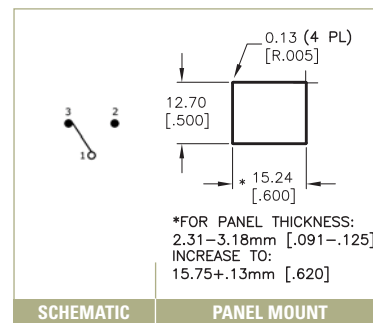
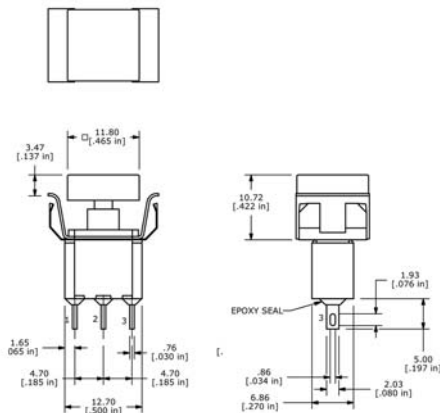
Example Ordering Number

700-DP7-M1-Q-E-AP1-RED-RED

Specifications subject to change without notice.

AP1

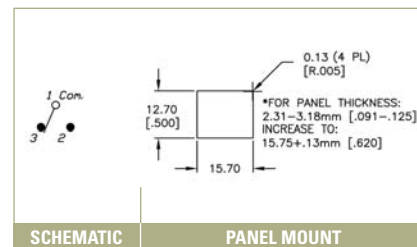
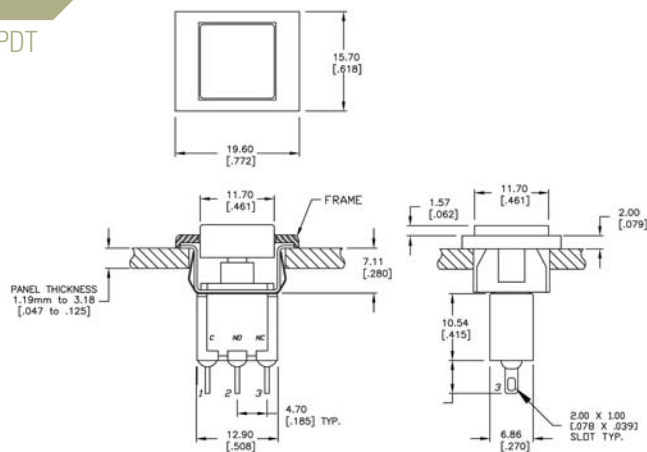
CAP/FRAME SPDT





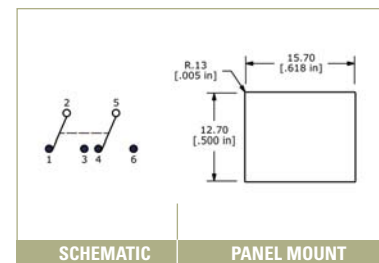
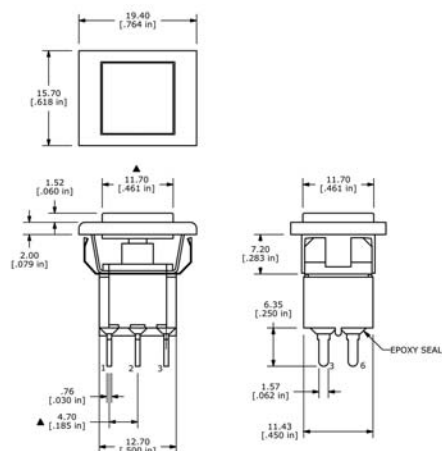
AP2

CAP/FRAME SPDT



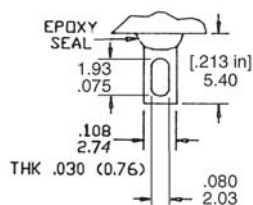
AP2

CAP/FRAME DPDT

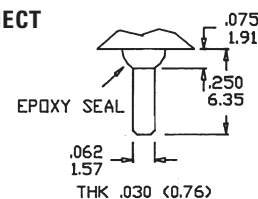


TERMINATION OPTIONS FOR PANEL MOUNT

M1 SOLDER LUG



M3 QUICK CONNECT



CONTACT MATERIAL OPTIONS

Q

Fixed Terminal:	Silver plated copper alloy
Moving Contact:	Silver plated copper alloy
Rating:	1 AMP @ 250 VAC 3 AMP @ 125 VAC or 28 VDC

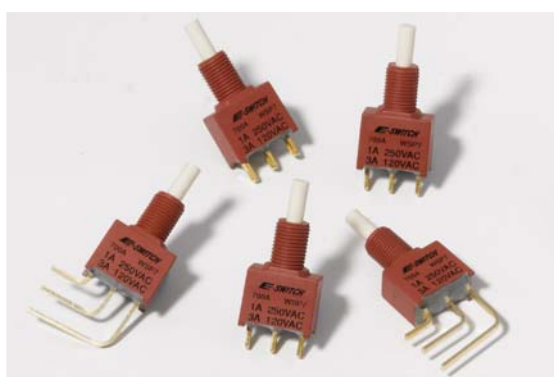
R

Fixed Terminal:	Copper alloy with gold plate over nickel plate
Moving Contact:	Copper alloy with gold plate over nickel plate
Rating:	0.4 VA max. @ 20 VAC

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 700A SWITCHES

PUSHBUTTON SWITCHES - SEALED



FEATURES & BENEFITS

- ▶ Snap acting contact design
- ▶ Gold & silver contact options
- ▶ Multiple termination options
- ▶ IP-67 sealed design

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Contact Rating:	Gold, 0.4 VA Max @ 20V (AC or DC) Max Silver, 3A @ 120 VAC or 28 VDC, 1A @ 250 VAC
Life Expectancy:	50,000 cycles
Contact Resistance:	20mΩ
Insulation Resistance:	1000MΩ
Dielectric Strength:	1500V RMS
Operating Temperature:	-30°C to 85°C

MATERIALS

Housing:	Nylon, UL94V0
Actuator:	Nylon, UL94V0
Contacts:	Brass, silver or gold plated
Terminals:	Silver or gold plated copper alloy

HOW TO ORDER

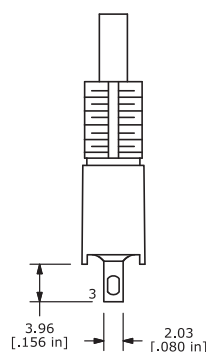
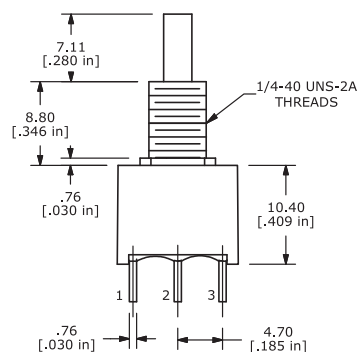
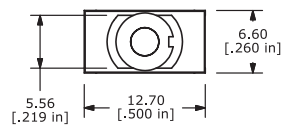
SERIES	MODEL NO.	BUSHING	TERMINATION	CONTACT MATERIAL	SEAL	HARDWARE
700A						
	SP7 DP7	B10 B21	M1 M2 M6 M7 VS2 VS3	Q = Silver R = Gold	E = Epoxy seal on terminals (standard)	H = Hardware included w/threaded bushing (standard)

Example Ordering Number
700A-SP7-B10-M2-Q-E-H

Specifications subject to change without notice.

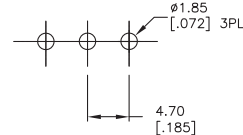
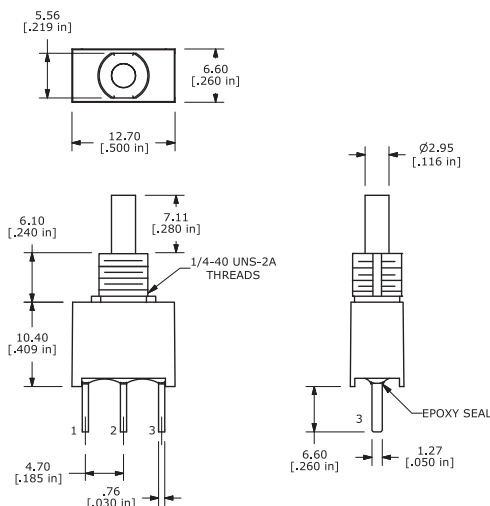
M1

SOLDER



SCHEMATIC

PC

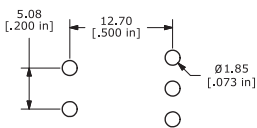
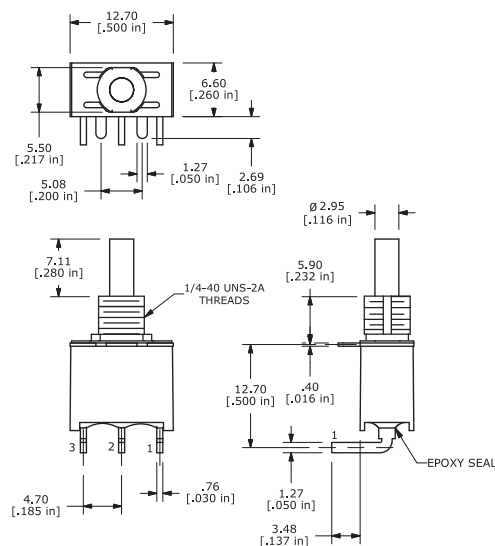


P.C. MOUNTING



SCHEMATIC

RIGHT ANGLE

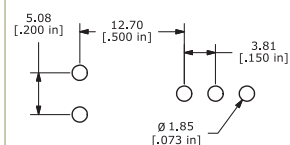
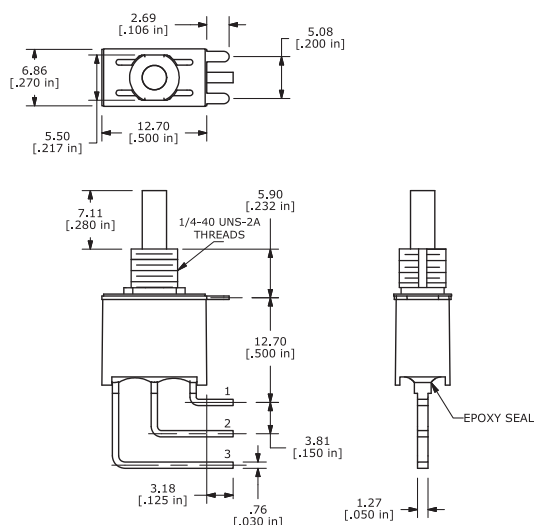


P.C. MOUNTING



SCHEMATIC

VERTICAL RIGHT ANGLE



P.C. MOUNTING



SCHEMATIC

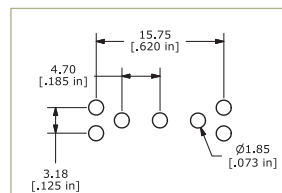
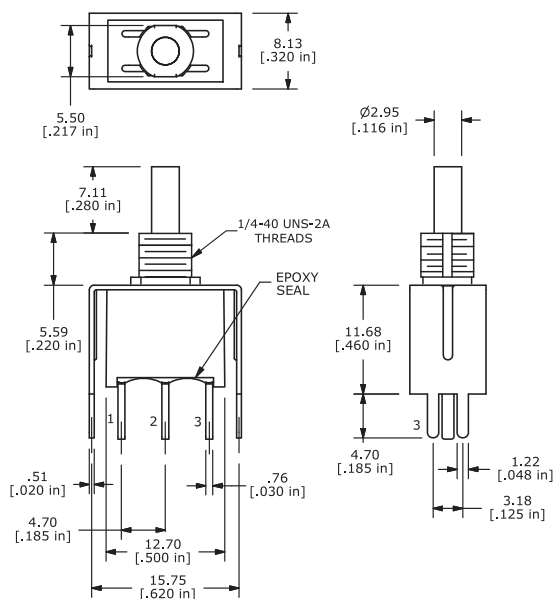
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 700A SWITCHES

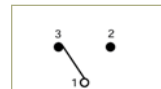
PUSHBUTTON SWITCHES - SEALED

VS2

460 SUPPORT BRACKET



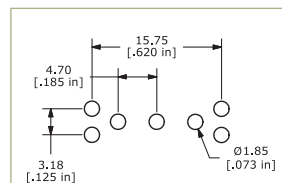
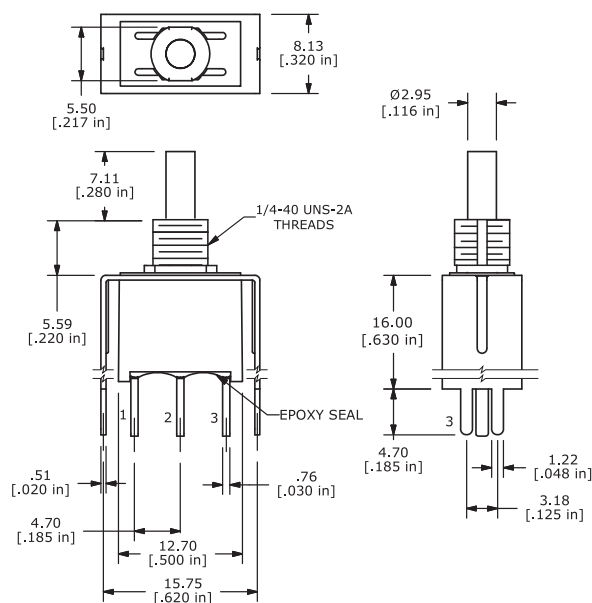
P.C. MOUNTING



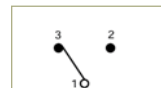
SCHEMATIC

VS3

630 SUPPORT BRACKET



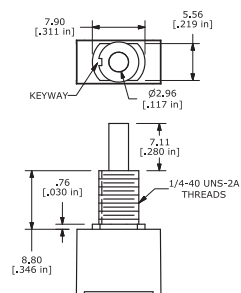
P.C. MOUNTING



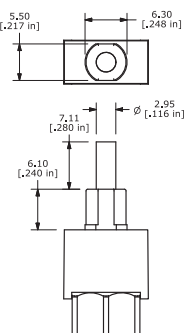
SCHEMATIC

BUSHING OPTIONS

B10 THD



B21 NON-THD

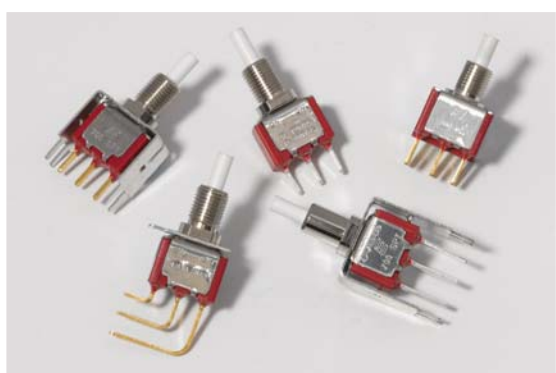


SERIES 700C SWITCHES

PUSHBUTTON SWITCHES - LATCHING



E-SWITCH®



FEATURES & BENEFITS

- ▶ Snap acting contact design
- ▶ Gold & silver contact options
- ▶ Multiple termination options
- ▶ Snap-in panel mount option
- ▶ Alternative action design

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Contact Rating:	Gold, 0.4 VA Max @ 20V (AC or DC) Max Silver, 3A @ 120 VAC or 28 VDC, 1A @ 250 VAC
Life Expectancy:	50,000 cycles
Contact Resistance:	20mΩ
Insulation Resistance:	1000MΩ
Dielectric Strength:	1000V RMS
Actuation Force:	SP7, 400 ±150 grams DP7, 600 ±150 grams
Operating Temperature:	-30°C to 85°C
Travel:	3.0 mm

MATERIALS

Case:	DAP, UL94V0
Actuator:	Nylon, UL94V0
Frame:	Stainless steel
Contacts:	Brass, silver or gold plated
Terminals:	Silver or gold plated copper alloy

HOW TO ORDER

SERIES	MODEL NO.	BUSHING	TERMINATION	CONTACT MATERIAL	SEAL	HARDWARE
700C	SP7	B60 B70 B61 B71	M1 M2 M6 M7 VS2 VS3	Q = Silver R = Gold	E = Epoxy seal on terminals (standard)	H = Hardware included w/threaded bushing (standard)

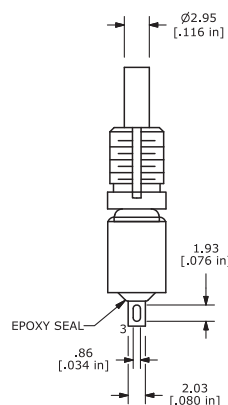
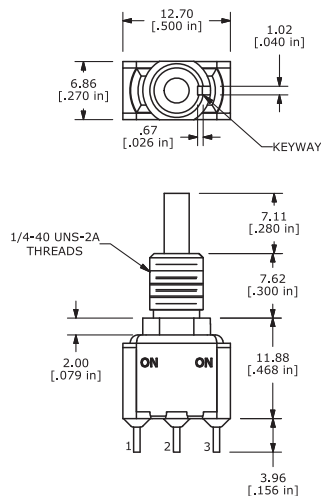
Example Ordering Number

700C-SP7-B60-M1-Q-E-H

Specifications subject to change without notice.

M1

SOLDER



SCHEMATIC

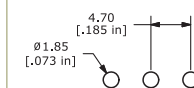
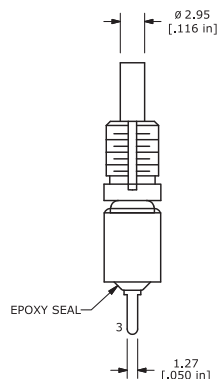
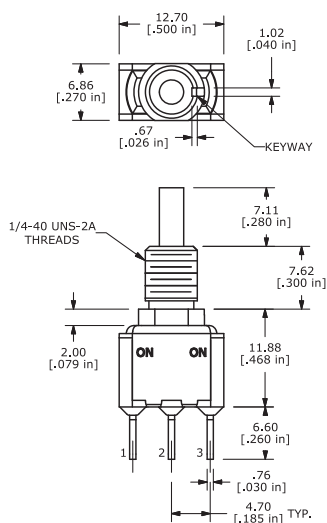
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 700C SWITCHES

PUSHBUTTON SWITCHES - LATCHING

M2

PC



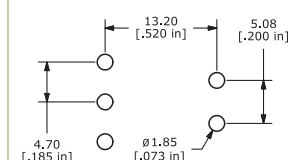
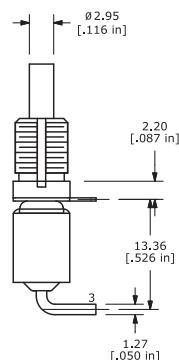
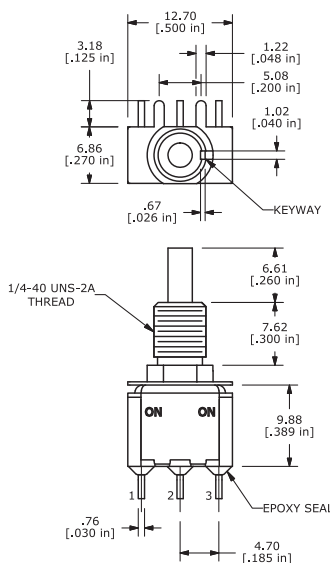
P.C. MOUNTING



SCHEMATIC

M6

RIGHT ANGLE



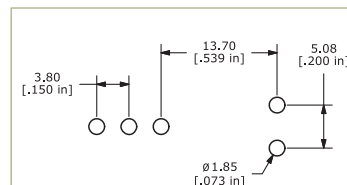
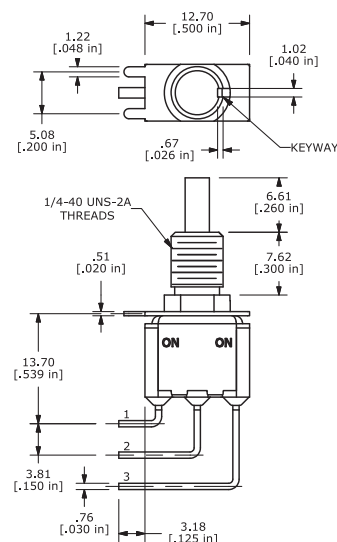
P.C. MOUNTING



SCHEMATIC

M7

VERTICAL RIGHT ANGLE



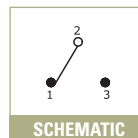
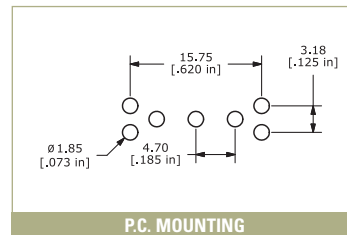
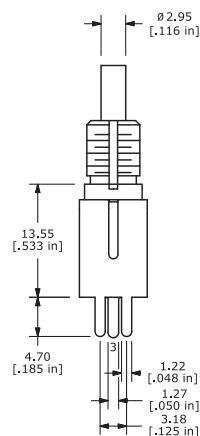
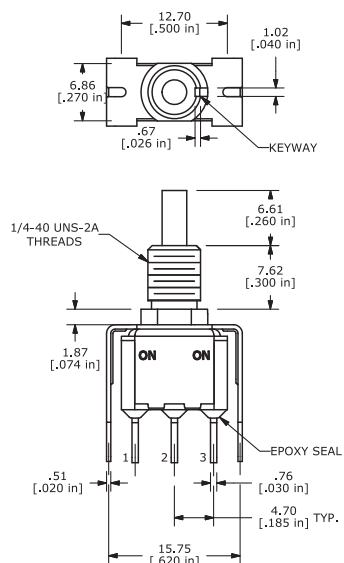
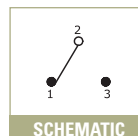
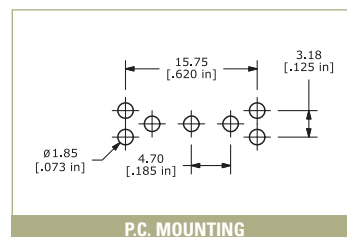
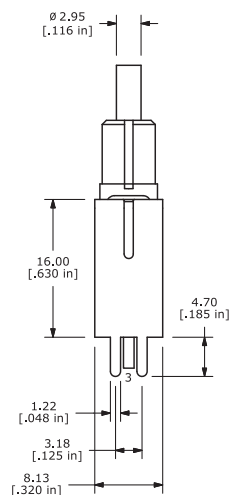
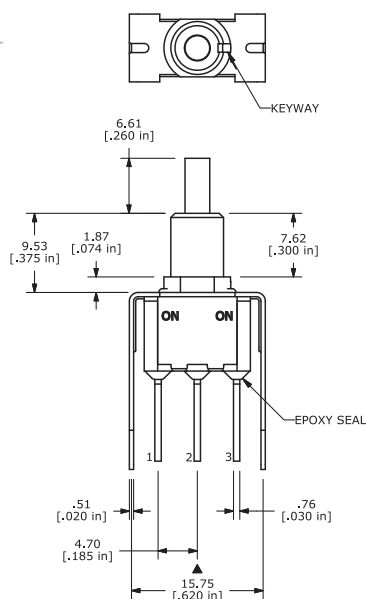
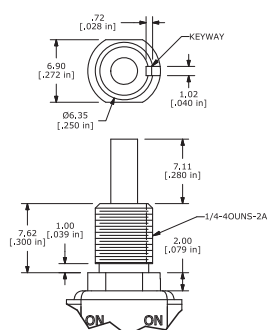
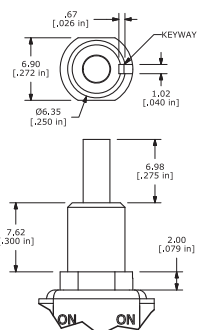
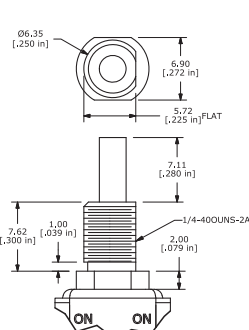
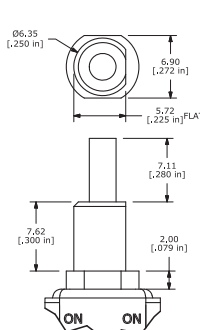
P.C. MOUNTING



SCHEMATIC



E-SWITCH®

VS2**460 SUPPORT BRACKET****VS3****630 SUPPORT BRACKET****BUSHING OPTIONS****B60 THD****B70 NON-THD****B61 THD****B71 NON-THD**

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 800 SWITCHES

PUSHBUTTON SWITCHES - SUB-MINIATURE



FEATURES & BENEFITS

- ▶ Subminiature design
- ▶ Butt contact design
- ▶ Snap-in panel mount option

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Contact Rating:	1A @ 250 VAC 3A @ 120 VAC or 28 VDC
Life Expectancy:	50,000 cycles typical
Contact Resistance:	10mΩ max. typical @ 2-4 VDC 100mA for both silver and gold plated contacts
Insulation Resistance:	1,000MΩ min.
Dielectric Strength:	1,000 V rms @ sea level
Actuation Force:	200 ± 50 gf
Operating Temperature:	-30°C to +85°C

MATERIALS

Case:	DAP
Plunger:	Glass filled nylon or glass filled polyester
Bushing:	Nickel plated brass
Housing:	Stainless steel
Contacts:	Silver or Gold plated copper alloy



HOW TO ORDER

SERIES 800	MODEL NO.	BUSHING	TERMINATION	CONTACT MATERIAL	SEAL	HARDWARE	CAP	CAP COLOR
	SP9 SP8	B5 B6 B7 B8* B9* B10	M1 M2 M6 M61 M7 VS2	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal	H = Hardware	See Cap Options	



Example Ordering Number
800-SP9-B5-M1-Q-E-H

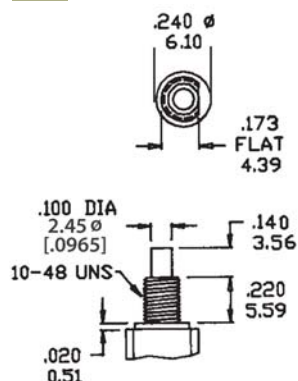
*Note: C2 cap not available on
B8 or B9 bushing.

Specifications subject to change without notice.

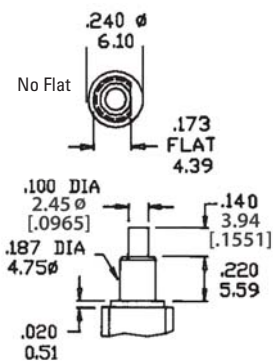
BUSHING OPTIONS

B5 THD

B6 NON-THD

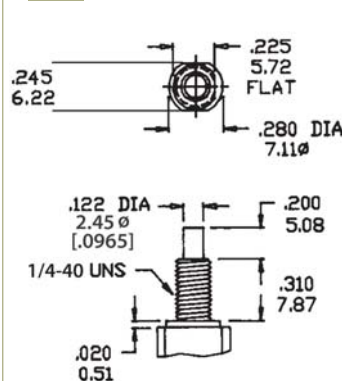


B7 NON-THD

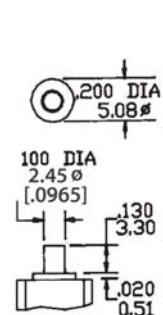


B8 NON-THD

B9 THD



B7 NON-THD



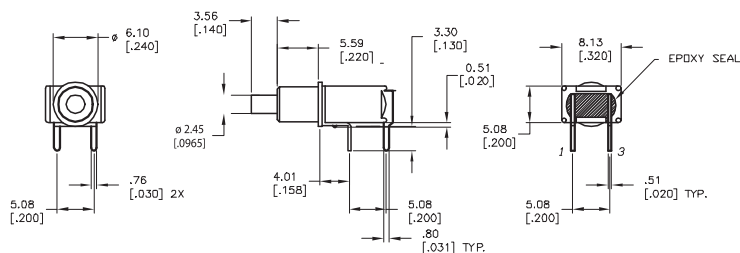
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 800 SWITCHES

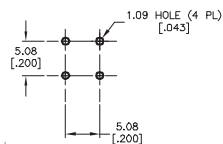
PUSHBUTTON SWITCHES - SUB-MINIATURE

M6

SPST



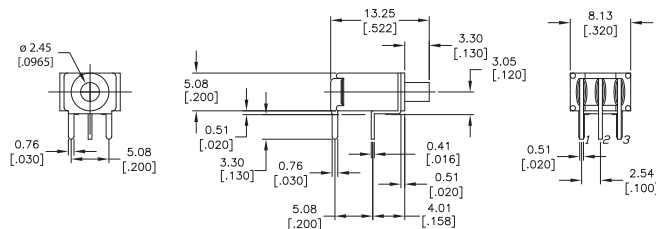
SCHEMATIC



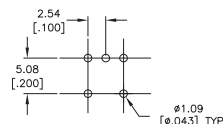
P.C. MOUNTING

M6

SPDT

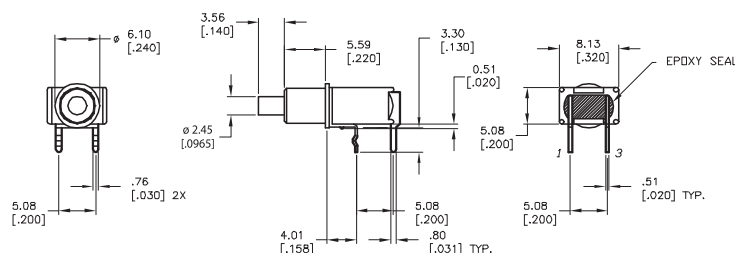


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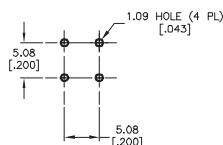


P.C. MOUNTING

M61



SCHEMATIC

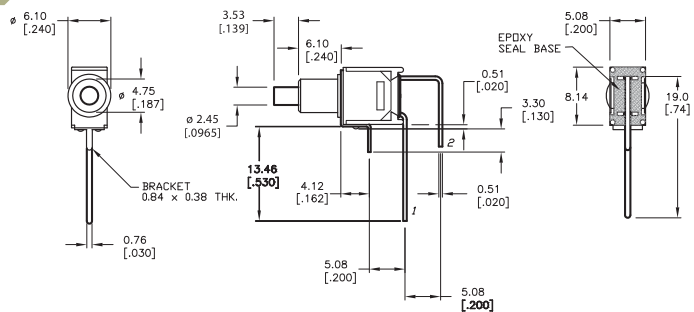


P.C. MOUNTING



M7

SPST

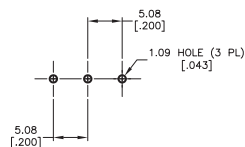


1

3

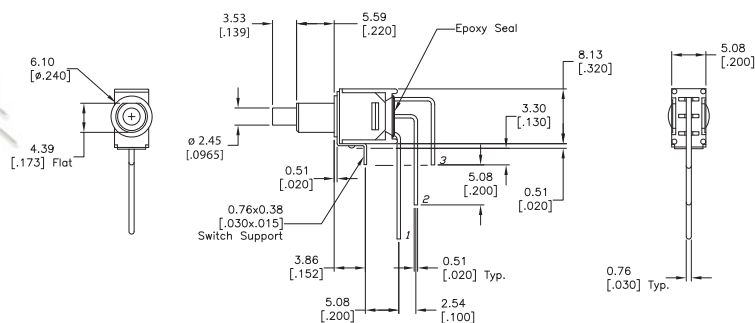
SCHEMATIC

P.C. MOUNTING



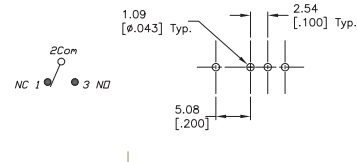
M7

SPDT



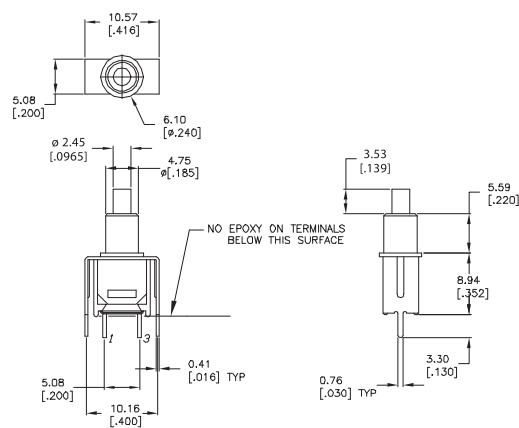
SCHEMATIC

P.C. MOUNTING



VS2

SPST

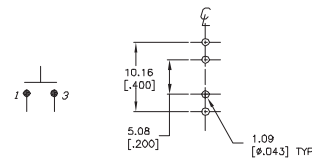


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3

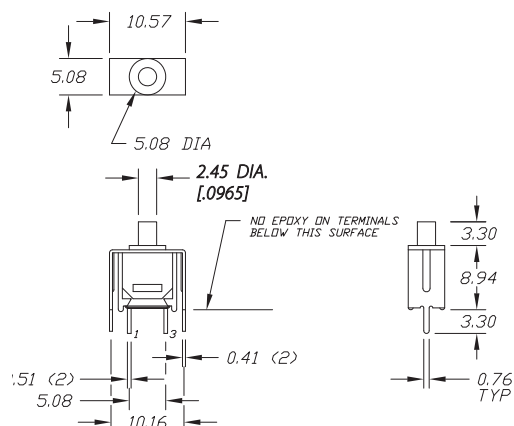
SCHEMATIC

P.C. MOUNTING



VS2

SPDT

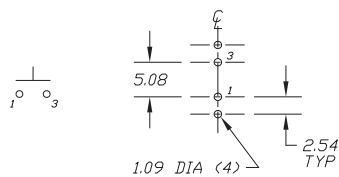


1

3

SCHEMATIC

P.C. MOUNTING

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

TACT SWITCHES

NAVIGATION SWITCHES

PUSHBUTTON SWITCHES

TOGGLE SWITCHES

ROCKER SWITCHES

SLIDE SWITCHES

SNAP-ACTION SWITCHES

DIP SWITCHES

KEYLOCK SWITCHES

ROTARY SWITCHES

DETECTOR SWITCHES

CAP OPTIONS

SERIES 800 SWITCHES

PUSHBUTTON SWITCHES - SUB-MINIATURE PANEL MOUNT



HOW TO ORDER

SERIES	MODEL NO.	TERMINATION	CONTACT MATERIAL	SEAL	CAP	CAP COLOR	FRAME COLOR
800	SP9 DP8	M1	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal	OP1	BLK = Black RED = Red WHT = White	BLK = Black RED = Red WHT = White



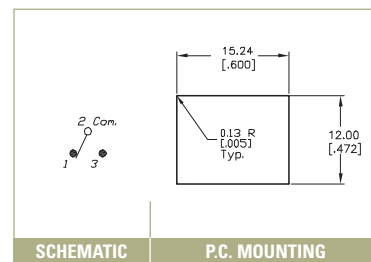
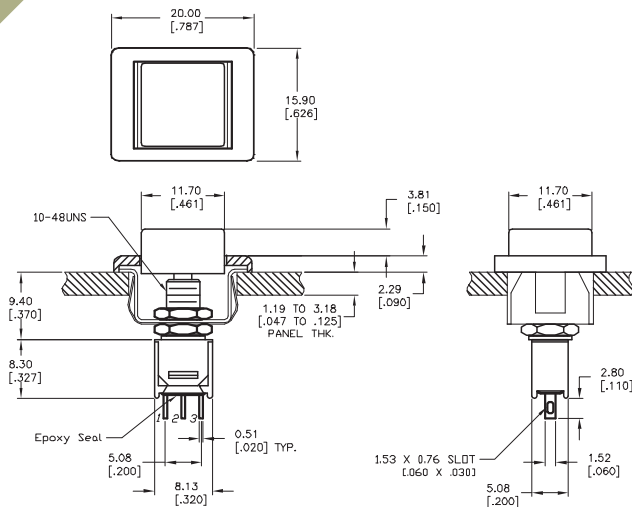
Example Ordering Number

800-SP9-M1-Q-E-OP1-BLK-BLK

Specifications subject to change without notice.

OP1

PANEL MOUNT



CONTACT MATERIAL OPTIONS

Q

Fixed Terminal:	Silver plated copper alloy
Moving Contact:	Silver plated copper alloy
Rating:	3 AMPS @ 120 VAC; 1 AMP @ 250VAC

R

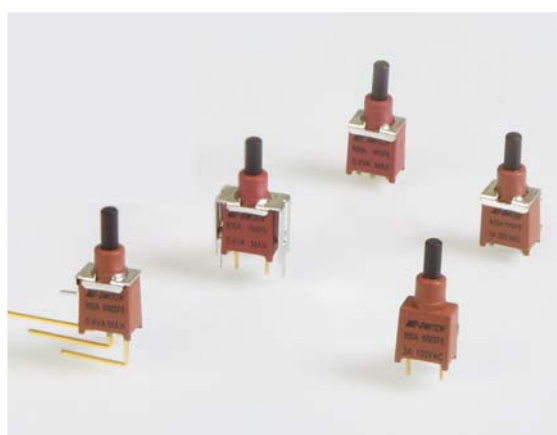
Fixed Terminal:	Copper alloy with gold plate over nickel plate
Moving Contact:	Copper alloy with gold plate over nickel plate
Rating:	0.4 VA max. @ 20 VAC or DC max.



E-SWITCH®

SERIES 800A SWITCHES

PUSHBUTTON SWITCHES - SEALED SUB-MINIATURE



FEATURES & BENEFITS

- ▶ Subminiature design
- ▶ Butt contact design
- ▶ IP-67 sealed option

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Contact Rating:	1A @ 120 VAC
Life Expectancy:	50,000 cycles typical
Contact Resistance:	10mΩ max. typical @ 2-4 VDC 100mA for both silver and gold plated contacts
Insulation Resistance:	1,000MΩ min.
Dielectric Strength:	1,000 V rms @ sea level
Actuation Force:	200 ± 50 gf
Operating Temperature:	-30°C to +85°C

MATERIALS

Case:	Diallyl Phthalate (DAP)
Plunger:	Glass filled nylon or glass filled polyester
Bushing:	Diallyl Phthalate (DAP)
Housing:	Stainless steel
Contacts:	Silver or Gold plated copper alloy



HOW TO ORDER

SERIES	MODEL NO.	TERMINATION	CONTACT MATERIAL	SEAL	CAP	CAP COLOR
800A	WSP8 WSP9	M2 M6 M61 M7 VS2	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal	See Cap Options	



Example Ordering Number

800A-WSP9-M7-R-E

Specifications subject to change without notice.

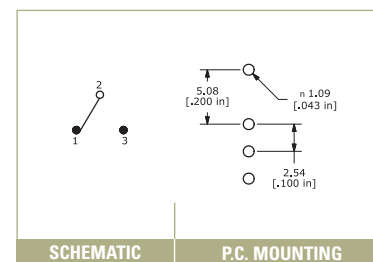
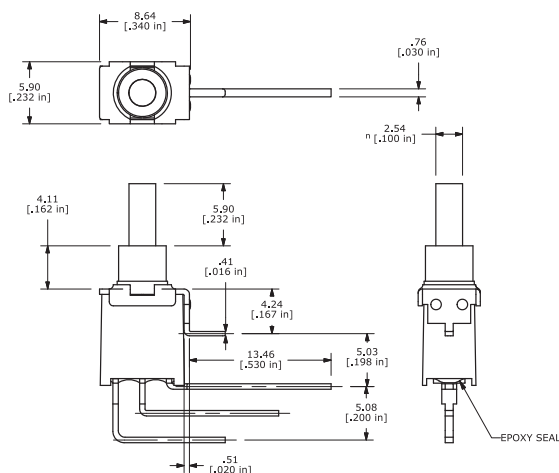
SPDT

WSP8



Model No.	Type
WSP8	ON (ON)
WSP9	OFF (ON)

() = Momentary



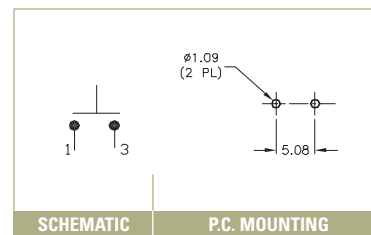
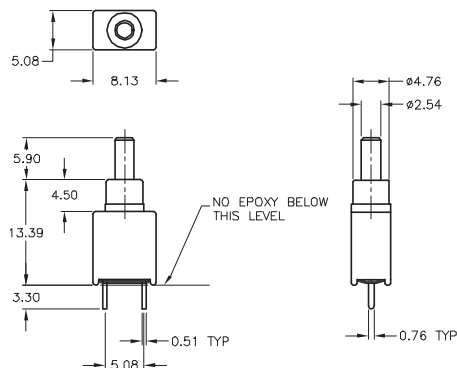
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 800A SWITCHES

PUSHBUTTON SWITCHES - SEALED SUB-MINIATURE

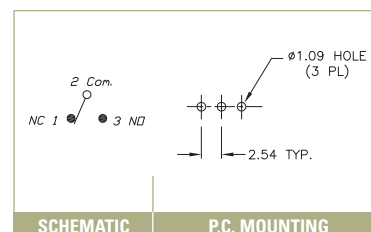
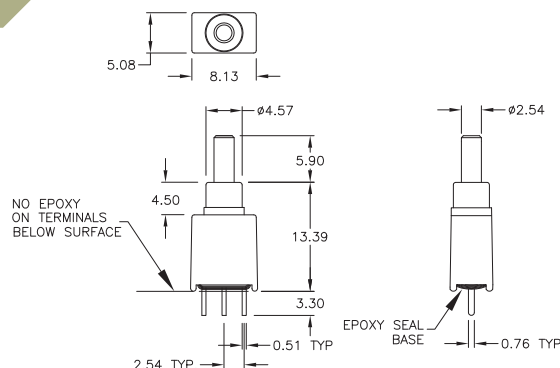
SPST

WSP9



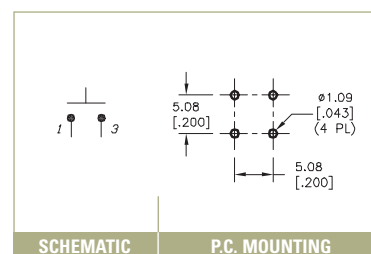
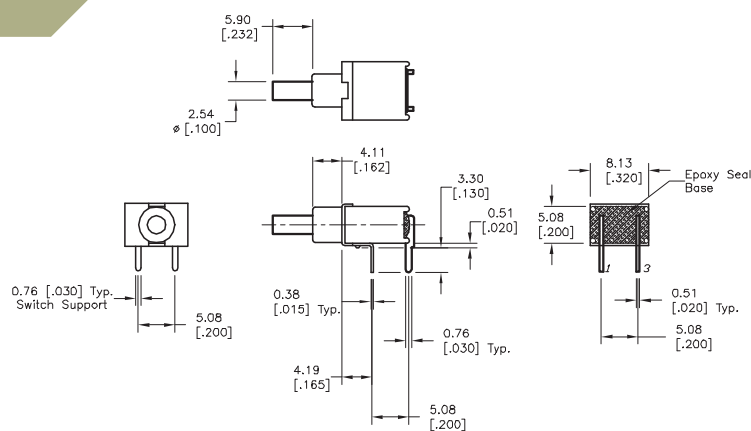
M2

SPST



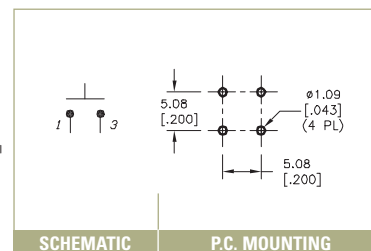
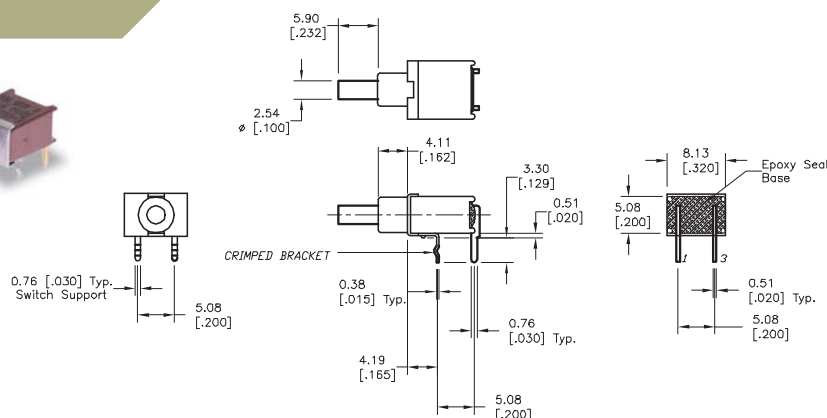
M6

SPST



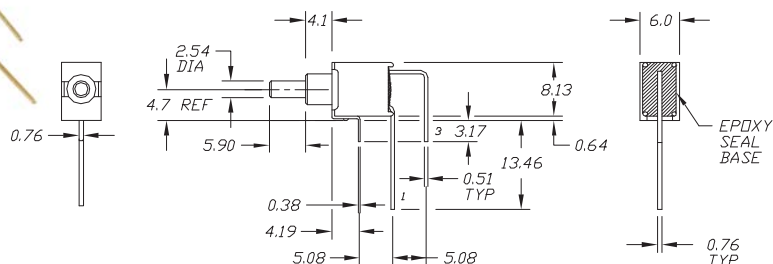
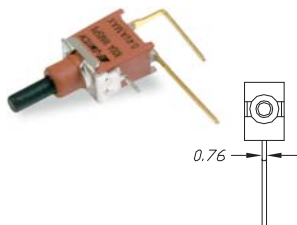
M61

SPST

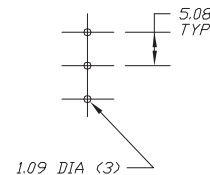


**M7**

SPST



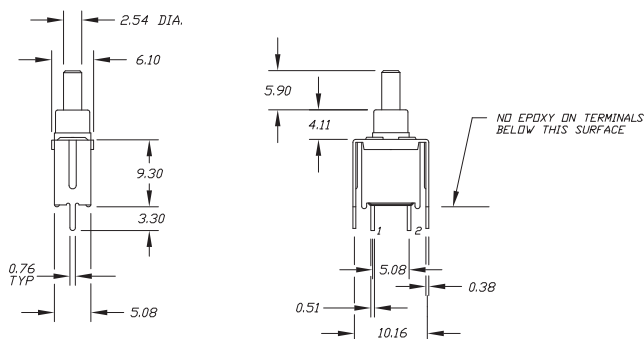
SCHEMATIC



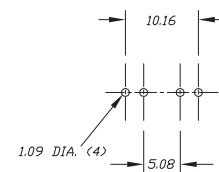
P.C. MOUNTING

VS2

SPST



SCHEMATIC



P.C. MOUNTING

CONTACT MATERIAL OPTIONS**Q**

Fixed Terminal:	Silver plated copper alloy
Moving Contact:	Silver plated copper alloy
Rating:	1 AMPS @ 120 VAC or 28 VDC

R

Fixed Terminal:	Copper alloy with gold plate over nickel plate
Moving Contact:	Copper alloy with gold plate over nickel plate
Rating:	0.4 VA max. @ 20 VAC or DC max.

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 800 B SWITCHES

PUSHBUTTON SWITCHES - SEALED SUB-MINIATURE



FEATURES & BENEFITS

- ▶ Surface mount design
- ▶ Tape & reel packaging

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Contact Rating: 0.4 VA max. @ 20 VAC or DC max. (gold)
3A @ 120 VAC or 28 VDC (silver)
1A @ 250 VAC (silver)

Life Expectancy: 50,000 make-and-break cycles at full load

Contact Resistance: 20 mΩ typical initial @ 2-4 VDC, 100 mA

Insulation Resistance: 1,000 MΩ min.

Dielectric Strength: 1,000 V RMS @ sea level

Operating Temperature: -30°C to 85°C

Packaging: Tape & Reel

MATERIALS

Case & Bushing: High temperature material, glass filled 4/6 Nylon, flame retardant, heat stabilized (UL94-V0)

Plunger: High temperature material, glass filled Nylon 4/6, flame retardant, heat stabilized (UL94-V0) Internal O-Ring seal standard.

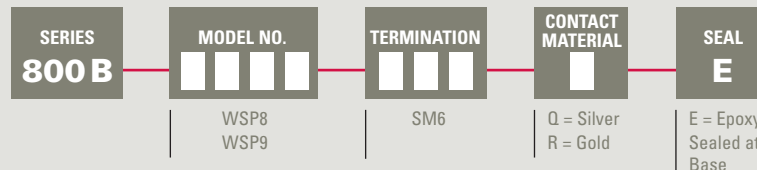
Switch Support: Brass/Steel, tin or tin-lead plated.

Contacts/Terminals: Gold or silver plate over nickel plated copper alloy.

Terminal Seal: Epoxy



HOW TO ORDER

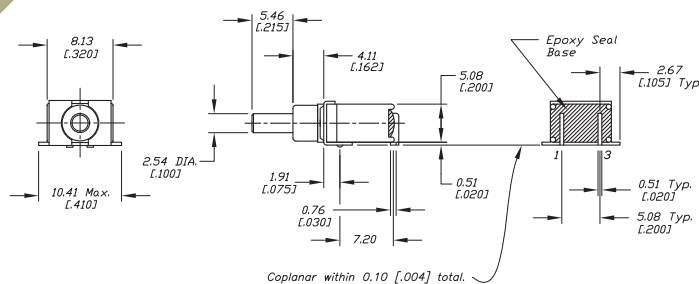


Example Ordering Number

800B-WSP9-SM6-R-E

Specifications subject to change without notice.

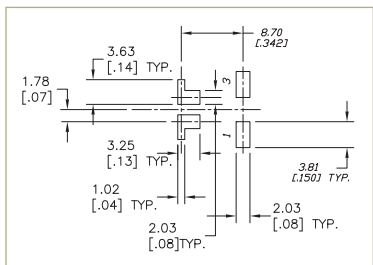
WSP9



SCHEMATIC



P.C. MOUNTING



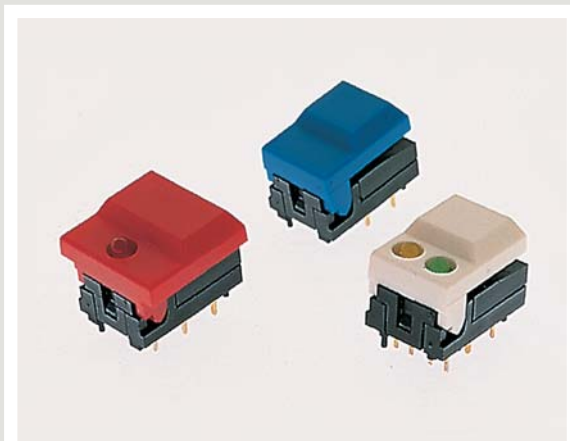
Model No.	Type
WSP8	SPDT
WSP9	SPST

SERIES 5500 SWITCHES

PUSHBUTTON SWITCHES



E-SWITCH®



FEATURES & BENEFITS

- ▶ Single or dual LED options
- ▶ Hinged pushbutton design
- ▶ High operating life

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Contact Ratings:	300mA @ 12 VDC
Life Expectancy:	500,000 cycles typical
Contact Resistance:	50mΩ max. typical @ 2-4 VDC, 100mA
Insulation Resistance:	50 MΩ min.
Dielectric Strength:	>1,000 V rms at sea level
Actuation Force:	255 grams max.
Operating Temperature:	-25°C to +65°C

MATERIALS

Housing:	Nylon
Cap:	ABS
Contacts:	Gold over nickel over copper alloy
Terminals:	Gold over nickel over copper alloy

HOW TO ORDER

SERIES
55

CAP STYLE
11

01 = Small
11 = Large

MECHANICAL
CONFIGURATION
M

M = Momentary

CAP COLOR
BLK

BLK = Black
GRY = Grey
YEL = Yellow
BLU = Blue
RED = Red
ORG = Orange
GRN = Green
WHT = White

1st LED COLOR
(1-LED cap styles only)

X = No LED
RED = Red LED
GRN = Green LED
YEL = Yellow LED

2nd LED COLOR
(2-LED cap styles only)

RED = Red LED
GRN = Green LED
YEL = Yellow LED

Example Ordering Number

55-11-M-BLU

55-01-M-WHT-RED, GRN

Specifications subject to change without notice.

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS



SERIES 5500 SWITCHES

PUSHBUTTON SWITCHES

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

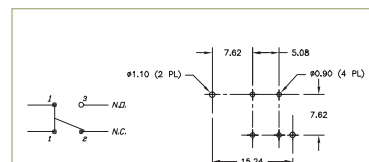
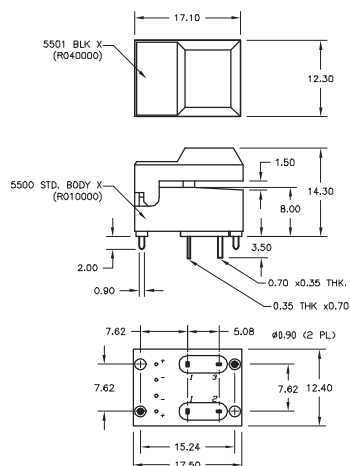
KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

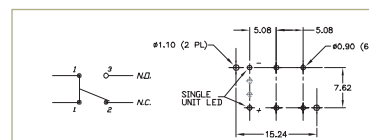
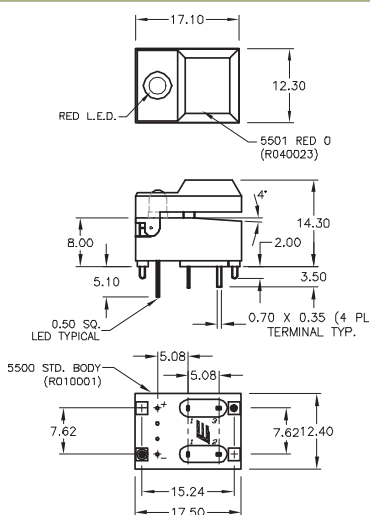
CAP
OPTIONS

5501



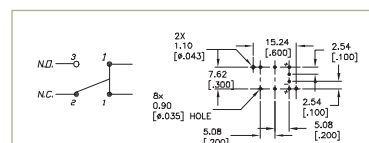
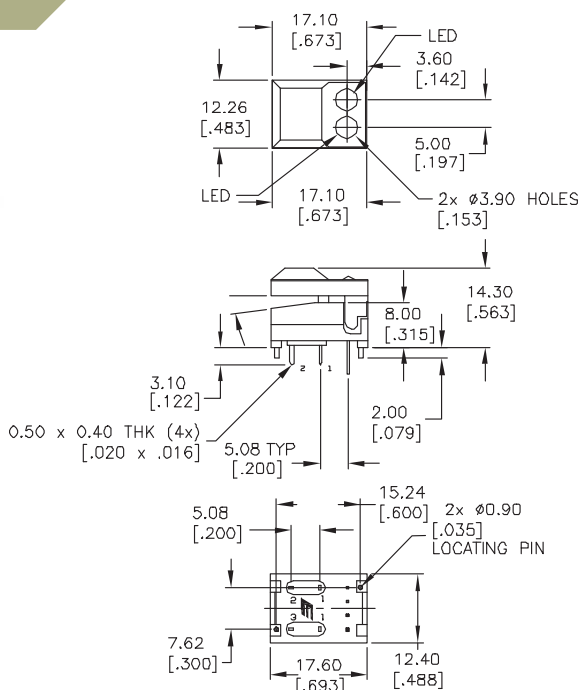
5501

1 LEDS



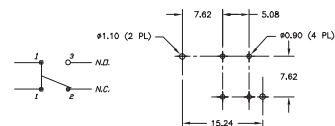
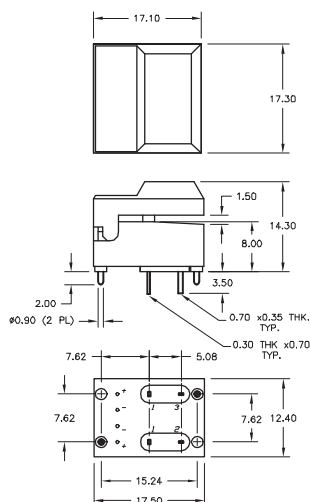
5501

2 LEDS





5511

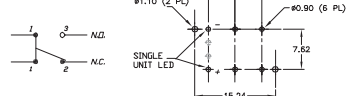
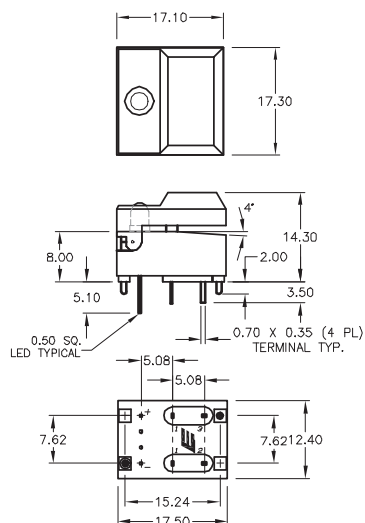


SCHEMATIC

P.C. MOUNTING

5511

1 LEDS

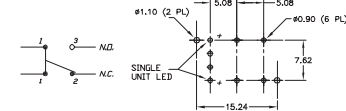
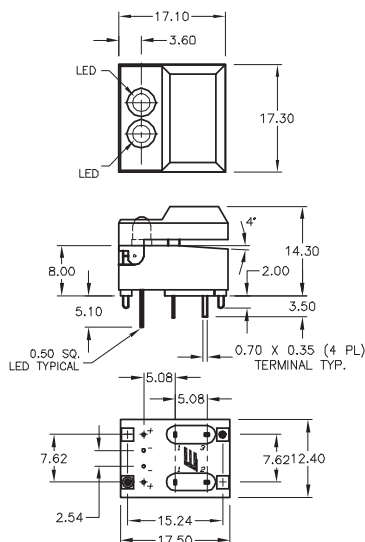


SCHEMATIC

P.C. MOUNTING

5511

2 LEDS



SCHEMATIC

P.C. MOUNTING

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES ULP SWITCHES

PUSHBUTTON SWITCHES - LIGHTED



SPECIFICATIONS

Contact Rating: Gold, 0.4VA Max @ 28V (AC or DC)
Silver, 0.5A @ 25VDC; 0.2A @ 250VAC

Life Expectancy (Mechanical): 1,000,000 cycles

Life Expectancy (Electrical): 200,000 cycles silver
200,000 cycles gold

Contact Resistance: 50mΩ silver, 100mΩ gold (initial max)

Insulation Resistance: 100MΩ @ 500 VDC

Dielectric Strength: 1000VAC for 60 seconds

Actuation Force: 200 ±100 grams SPDT
300 ±150 grams DPDT

Operating Temperature: -20°C to 70°C

FEATURES & BENEFITS

- ▶ Positive tactile response
- ▶ Available in illuminated or non-illuminated
- ▶ Many color options available

APPLICATIONS/MARKETS

- ▶ Telecommunications/Networking
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ Computers/servers/peripherals

HOW TO ORDER

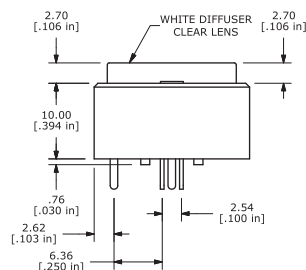
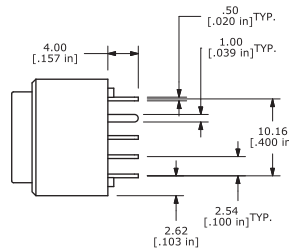
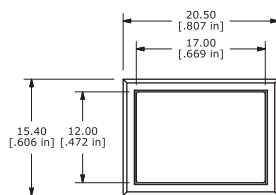
SERIES ULP	MODEL	MECHANICAL CONFIGURATION	TERMINATION	CONTACT MATERIAL	CAP STYLE	CAP COLOR	LED #1	LED #2
	12 = SPDT 22 = DPDT	EE = Latching OA = Momentary	P1 = PC pins M1 = Solder lugs*	Q = Silver R = Gold	SS = Square/ Sculptured SF = Square Flat RF = Rectangular Flat PM = Panel Mount LS = Large Sculptured	CL1 = Clear Lens/ White Diffuser OP1 = Black Opaque/ No LED	BLU = Blue GRN = Green RED = Red NIL = No LED	BLU = Blue GRN = Green RED = Red NIL = No LED

▶ ▶ ▶ **Example Ordering Number**
ULP-12-EE-P1-Q-SF-CL1-RED-GRN

*Note: PM version only

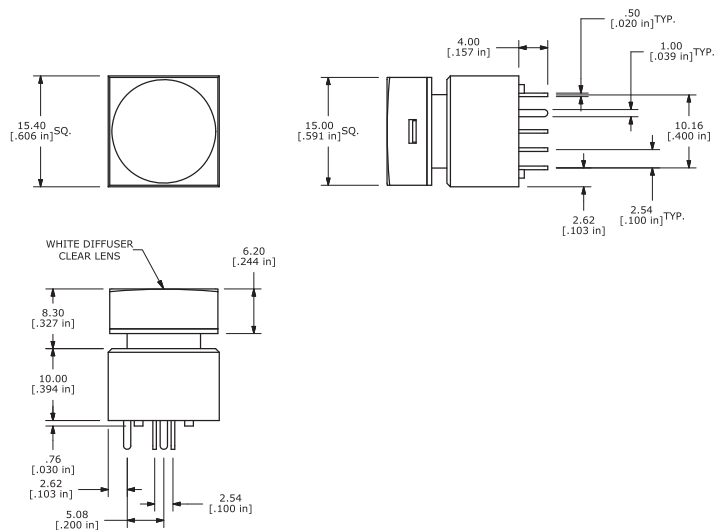
Specifications subject to change without notice.

RECTANGULAR FLAT

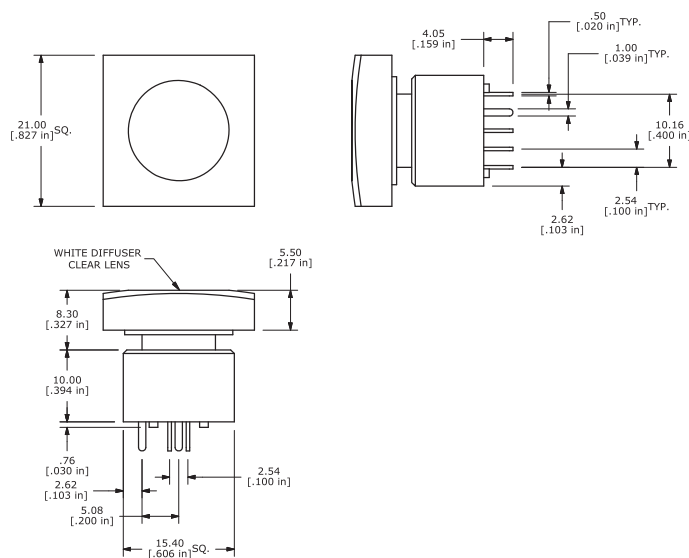




SQUARE SCULPTURED



LARGE SCULPTURED



TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

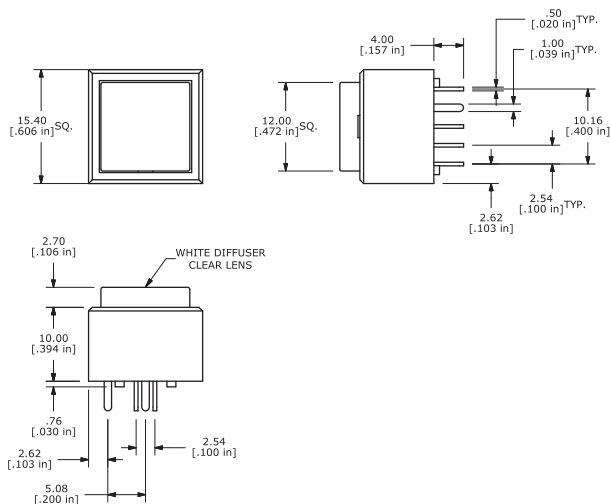
CAP
OPTIONS

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

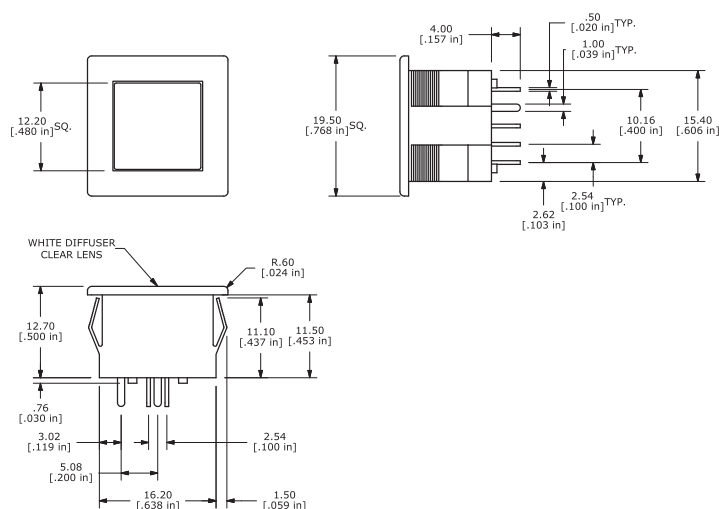
SERIES ULP SWITCHES

PUSHBUTTON SWITCHES - LIGHTED

SQUARE FLAT

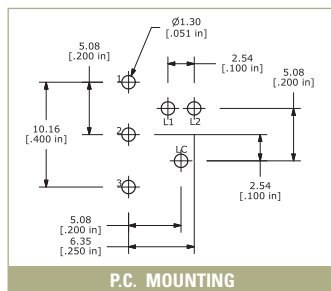


PANEL MOUNT

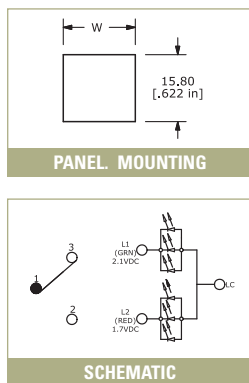


OPTIONS

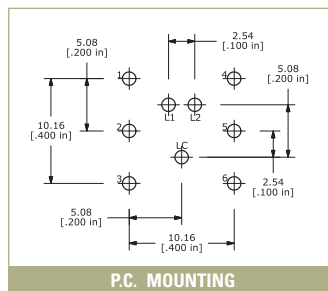
SPDT



PANEL MOUNTING

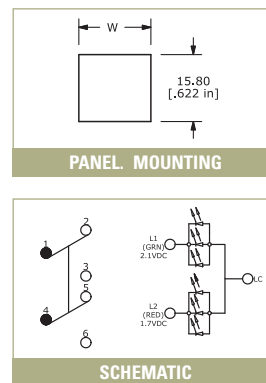


DPDT



P.C. MOUNTING

PANEL MOUNTING



SCHEMATIC



SERIES MDP-16 SWITCHES

PUSHBUTTON SWITCHES - MODULAR



SPECIFICATIONS

Contact Rating: 5A, 250VAC; 8A, 125VAC UL and VDE

Life Expectancy (Mechanical): 50,000 cycles

Life Expectancy (Electrical): 6,000 cycles

Contact Resistance: 100mΩ (initial max)

Insulation Resistance: 50MΩ @ 100V min.

Dielectric Strength: 2000VDC

Actuation Force: 500 grams SPDT
800 grams DPDT

Operating Temperature: -25°C to 55°C

Storage Temperature: -40°C to 70°C

FEATURES & BENEFITS

- ▶ Modular interface design
- ▶ Attractive front panel design
- ▶ Illuminated options available
- ▶ Robust product for industrial applications

APPLICATIONS/MARKETS

- ▶ Industrial controls
- ▶ Instrumentation
- ▶ Transportation
- ▶ Telecommunications

▶ ▶ ▶ HOW TO ORDER

SERIES MDP-16	FUNCTION STYLE	ACTUATOR CONFIGURATION	ACTUATOR STYLE	CIRCUIT CONFIGURATION	LAMP	ACTUATOR COLOR
	EE = Latching OA = Momentary	R = Round S = Square T = Rectangular	1 = Low Bezel 2 = High Bezel 3 = Flush Mount 5 = Full Guard*	1 = SPDT 2 = DPDT	00 = None 01 = 6VAC Incandescent 02 = 14VAC Incandescent 03 = 28VAC Incandescent 04 = 48VAC Incandescent 05 = 60VAC Incandescent 06 = 48VDC Incandescent 07 = Neon 110VAC 08 = Neon 220VAC 09 = LED 6VDC 10 = LED 12VDC 11 = LED 24VDC	R = Red B = Blue G = Green O = Orange Y = Yellow W = White

* Note: Only offered in square

▶ ▶ ▶ Example Ordering Number
MDP-16-OA-S-5-2-09-R

Specifications subject to change without notice.

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

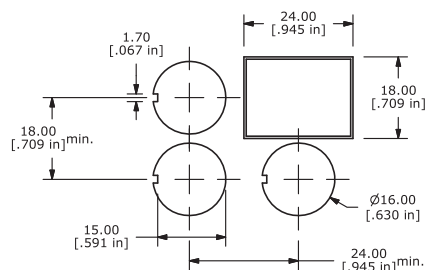
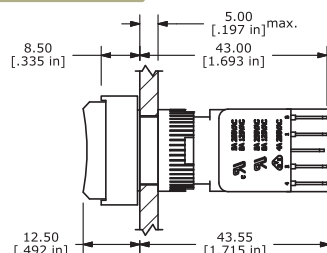
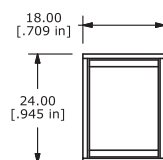
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES MDP-16 SWITCHES

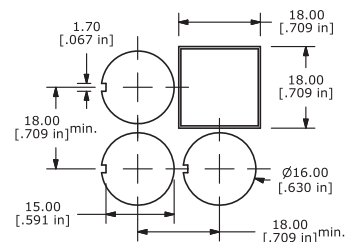
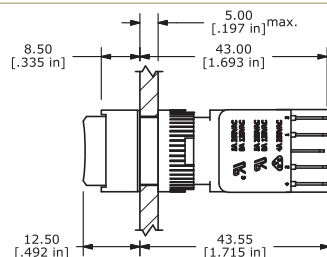
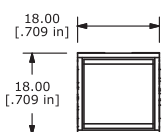
PUSHBUTTON SWITCHES - MODULAR

LOW BEZEL ACTUATOR STYLE

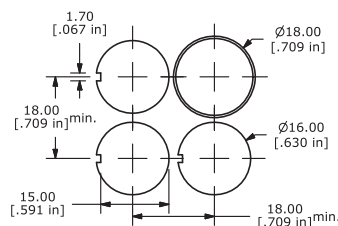
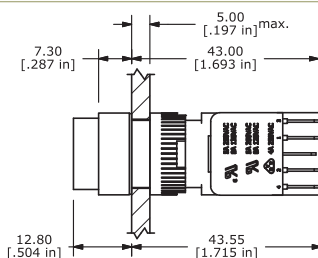
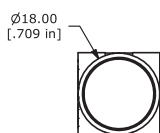
RECTANGULAR



SQUARE

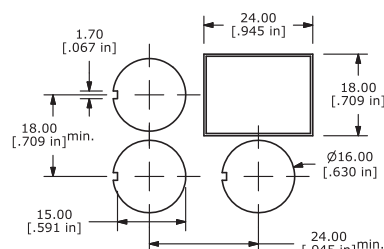
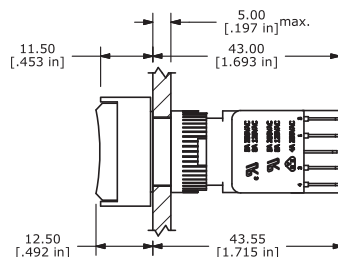
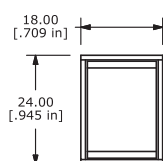


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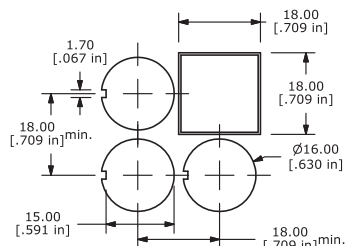
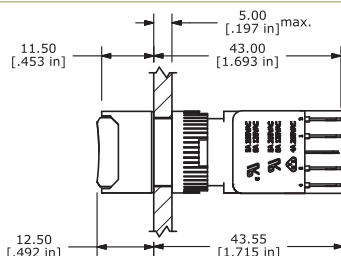
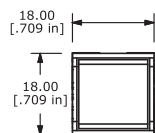


HIGH BEZEL ACTUATOR STYLE

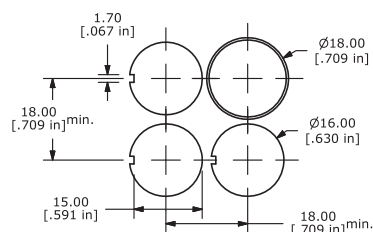
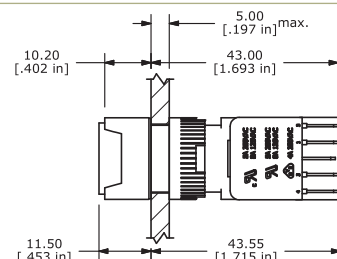
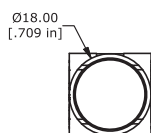
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SQUARE



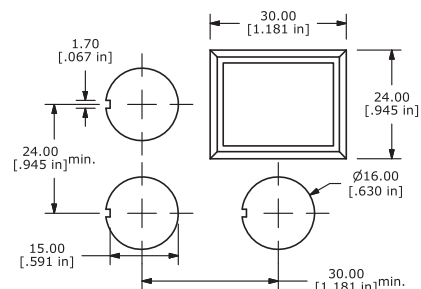
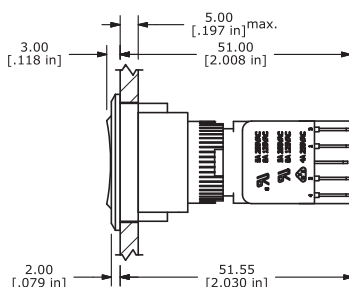
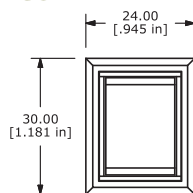
ROUND



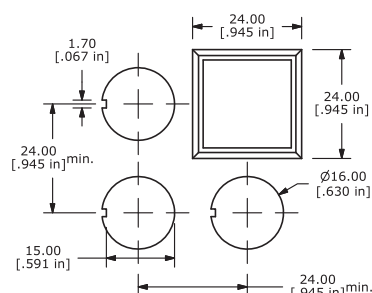
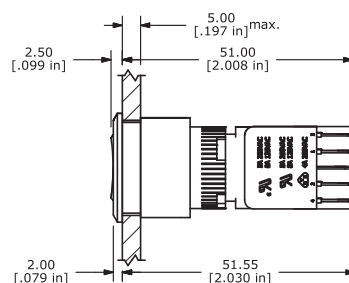
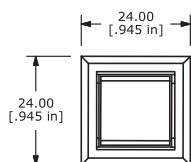


FLUSH MOUNT ACTUATOR STYLE

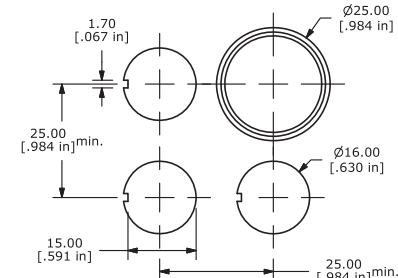
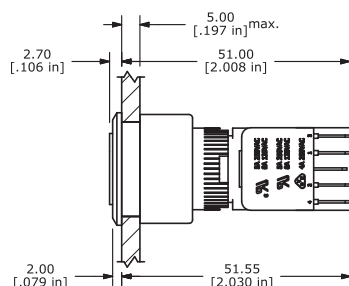
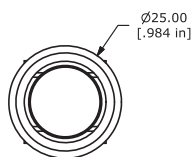
RECTANGULAR



SQUARE

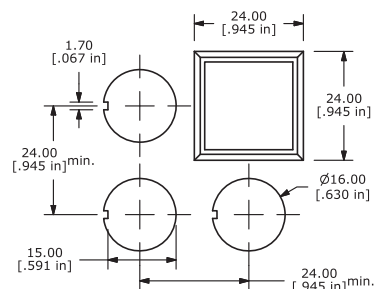
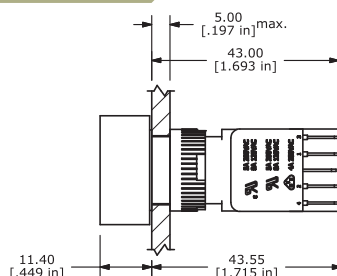
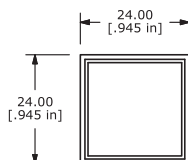


ROUND



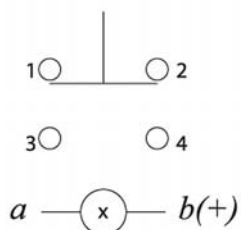
FULL GUARD ACTUATOR STYLE

SQUARE

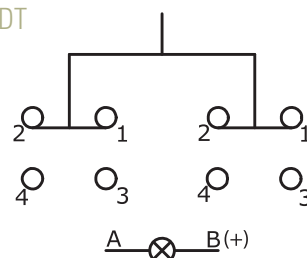


SCHEMATIC

SPDT



DPDT



TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES D16, P16, L16 SWITCHES

PUSHBUTTON SWITCHES - ILLUMINATED



SPECIFICATIONS

Contact Rating:	5A@250 VAC-UL, VDE 8A@125 VAC - UL, CSA 6A@24 VDC - UL, CSA
Life Expectancy (Mechanical):	100,000 cycles
Life Expectancy (Electrical):	50,000 cycles
Contact Resistance:	100mΩ max. typical; initial @ 2-4 VDC
Insulation Resistance:	> 1,000MΩ
Dielectric Strength:	> 1,500 volts 1 minute > 3,000 volts between poles
Actuation Force:	300g/pole
Operating Temperature:	-20°C to 55°C

FEATURES & BENEFITS

- ▶ Modular interface/contact block design
- ▶ Robust product for industrial applications
- ▶ Attractive front panel design
- ▶ Illuminated options available

APPLICATIONS/MARKETS

- ▶ Industrial controls
- ▶ Instrumentation
- ▶ Transportation
- ▶ Telecommunications

MATERIALS

Switch Housing:	Polyetherimide (PEI)
Contact Housing:	Diallyl Phthalate (DAP)
Lens:	Polycarbonate (PC)
Contacts:	Silver plated copper alloy
Terminals:	Silver plated copper alloy

HOW TO ORDER

SERIES	MECHANICAL CONFIGURATION	PUSHBUTTON HEAD	CIRCUIT	LAMP TYPE & VOLTAGE	LAMP COLOR (WHERE APPLICABLE)	LENS COLOR
D16 = Solder Lug P16 = Socket L16 = Pilot Indicator	EE = Latching OA = Momentary PL* = Pilot Indicator *For L16 (Pilot Indicator)	S1 S2 T1 T2 R* R1 *R (Mushroom Head) Available for D16 & P16 Only.	0* = Pilot Ind. 1**= SPDT 2 = DPDT 3 = 3PDT 4 = 4PDT *For L16 only (Pilot Indicator) **P16 available SPDT only	0 = None A B C F G H J K M N L D E	Red Grn Red Grn Yel	RED= Red GRN= Green BLU= Blue* WHT= White* ORG= Orange* YEL= Yellow* *Not Available For 'R' Mushroom Head.

▶ ▶ ▶ **Example Ordering Number**
D16-EE-R1-3-A-BLU

Specifications subject to change without notice.



E-SWITCH®

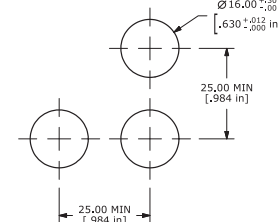
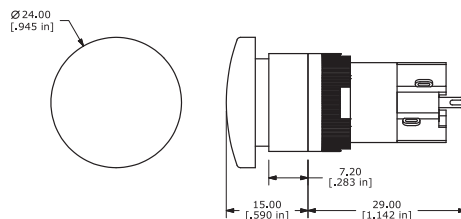
SERIES D16 SWITCHES

PUSHBUTTON SWITCHES - ILLUMINATED

D16 (SOLDER LUG)

R

MUSHROOM

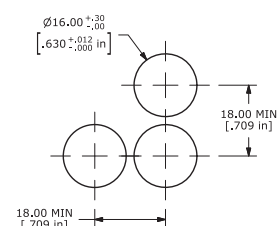
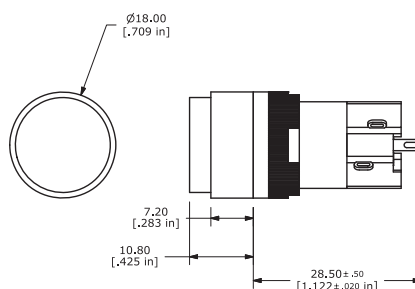


PANEL MOUNTING

D16 (SOLDER LUG)

R1

ROUND

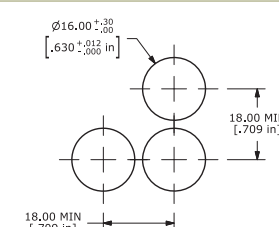
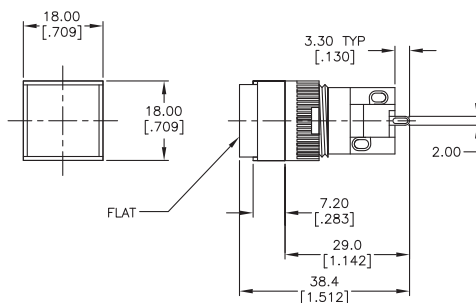


PANEL MOUNTING

D16 (SOLDER LUG)

S1

SQUARE

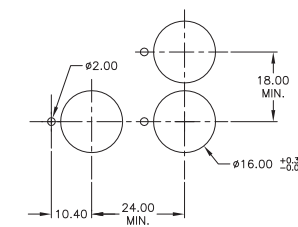
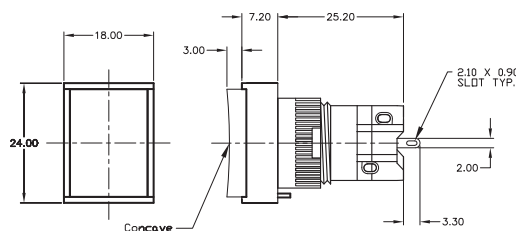


PANEL MOUNTING

D16 (SOLDER LUG)

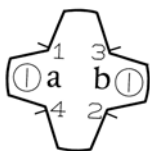
T1

RECTANGULAR

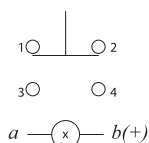


PANEL MOUNTING

BOTTOM VIEW



SCHEMATIC



MOUNTING LENGTH

	Mounting Length (A)
SPDT	29.0 mm
DPDT	36.5 mm
3PDT	44.0 mm
4PDT	51.5 mm

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

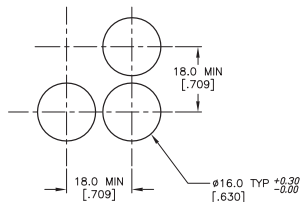
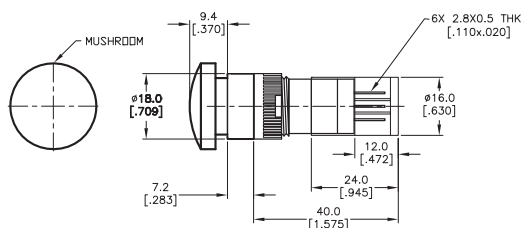
SERIES P16 SWITCHES

PUSHBUTTON SWITCHES - ILLUMINATED

P16 (SOCKET)

R

MUSHROOM

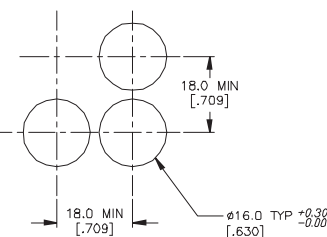
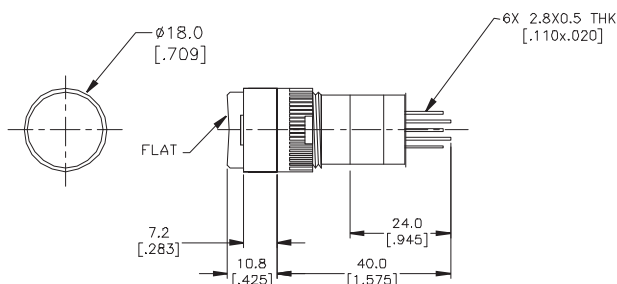


PANEL MOUNTING

P16 (SOCKET)

R1

ROUND

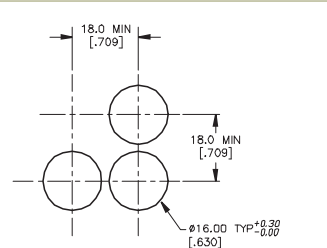
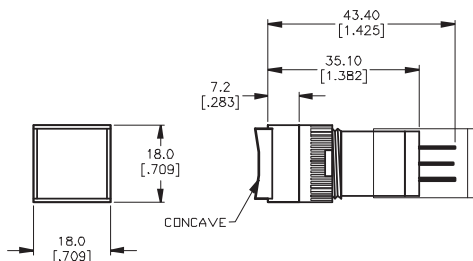


PANEL MOUNTING

P16 (SOCKET)

S1

SQUARE

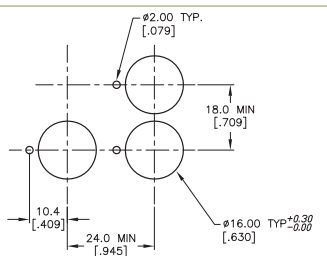
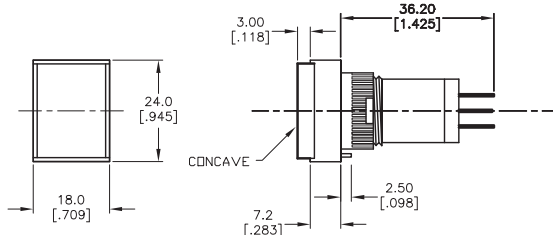


PANEL MOUNTING

P16 (SOCKET)

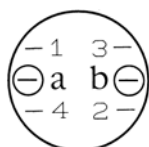
T1

RECTANGULAR

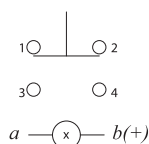


PANEL MOUNTING

BOTTOM VIEW



SCHEMATIC





E-SWITCH®

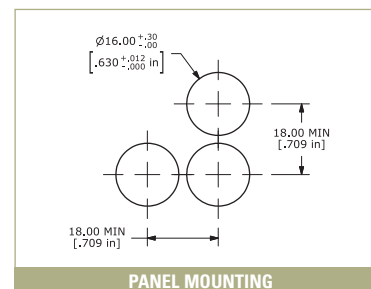
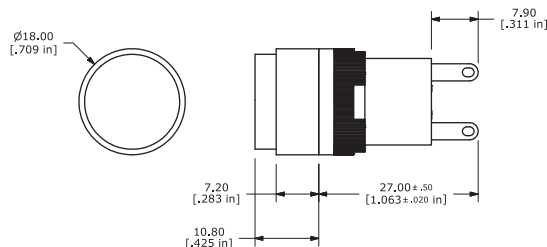
SERIES L16 SWITCHES

PUSHBUTTON SWITCHES - ILLUMINATED

L16 (PILOT INDICATOR)

R1

ROUND

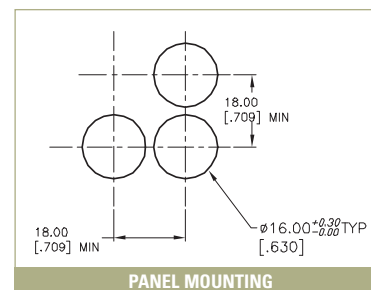
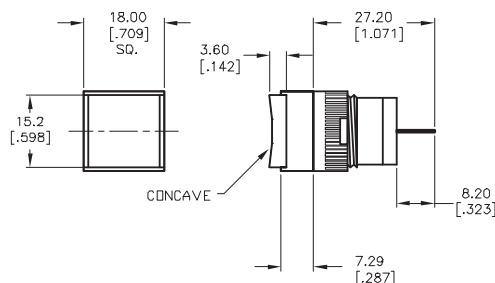


PANEL MOUNTING

L16 (PILOT INDICATOR)

S1

SQUARE

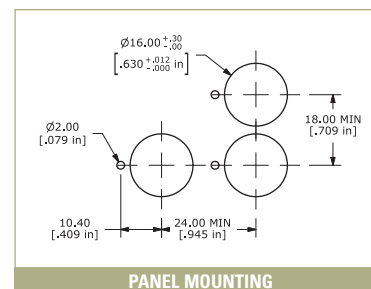
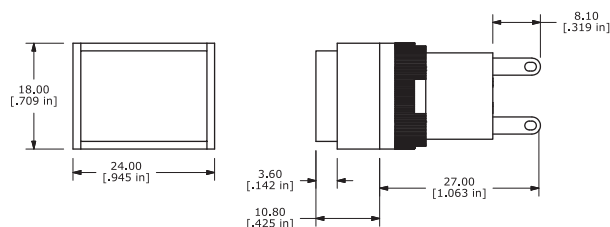


PANEL MOUNTING

L16 (PILOT INDICATOR)

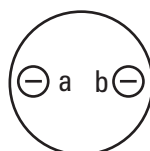
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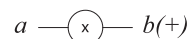


PANEL MOUNTING

BOTTOM VIEW



SCHEMATIC





SERIES D16, P16, L16 SWITCHES

PUSHBUTTON SWITCHES - ILLUMINATED

MECHANICAL CONFIGURATION & CIRCUIT OPTIONS

0 PILOT INDICATOR

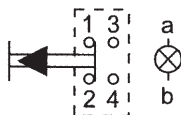
Available 'L16' Pilot Indicator Type



SCHEMATIC

1 SPDT**

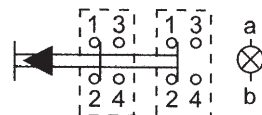
Available for 'P16' Socket Type and 'D16' Solder Lug



SCHEMATIC

2 DPDT

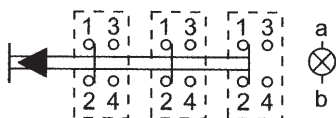
Available for 'D16' Solder Lug



SCHEMATIC

3 3PDT

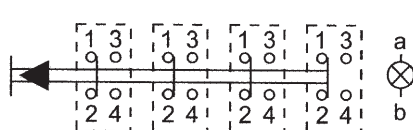
Available for 'D16' Solder Lug



SCHEMATIC

4 4PDT

Available for 'D16' Solder Lug



SCHEMATIC

Mechanical Configuration Code

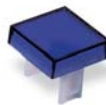
EE	Latching
OA	Momentary
PL	Pilot Indicator*

*'L16' Series only

LAMP TYPE & VOLTAGE OPTIONS

ILLUSTRATION	CATEGORY	DESCRIPTION	COLOR	PART NO.	
	Incandescent	A = 6V AC/DC 200 mA	Not Applicable	50-004-02	
		B = 14V AC/DC 80 mA		50-004-04	
		C = 28V AC/DC 40 mA		50-004-05	
		D = 48V AC/DC 25 mA		50-004-06	
		E = 60V AC/DC 20 mA		50-004-07	
		L = 33V AC/DC 35 mA		50-004-08	
		N = 14V AC/DC 40 mA		50-004-03	
		M = 6V AC/DC 40 mA		50-004-01	
	Neon	F = 110V AC	green red	50-004-11 50-004-12	
		G = 220V AC	green red	50-004-13 50-004-14	
		LED	H = 6V DC	green red yellow	50-004-16 50-004-17 50-004-18
			J = 12V DC	green red yellow	50-004-19 50-004-20 50-004-21
K = 24V DC			green red yellow	50-004-22 50-004-23 50-004-24	



ILLUSTRATION		STYLE	SHAPE	COLOR	PART NO.
	Available Color Lens (Acrylic Resin)	Round	Concave	blue green orange red white yellow	50-001-01 50-001-02 50-001-03 50-001-04 50-001-05 50-001-06
		Rectangular	Concave	blue green orange red white yellow	50-002-01 50-002-02 50-002-03 50-002-04 50-002-05 50-002-06
		Square	Concave	blue green orange red white yellow	50-003-01 50-003-02 50-003-03 50-003-04 50-003-05 50-003-06
		Mushroom Head	Convex	green red	50-012-01 50-012-02
		Round	Flat	blue green orange red white yellow	50-001-11 50-001-12 50-001-13 50-001-14 50-001-15 50-001-16
		Rectangular	Flat	blue green orange red white yellow	50-002-11 50-002-12 50-002-13 50-002-14 50-002-15 50-002-16
		Square	Flat	blue green orange red white yellow	50-003-11 50-003-12 50-003-13 50-003-14 50-003-15 50-003-16

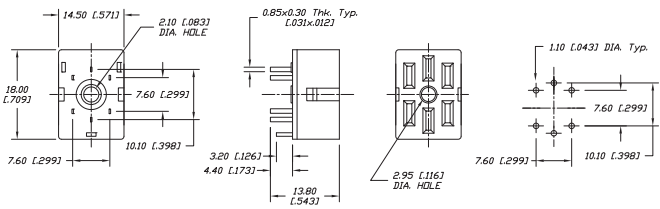
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS



SERIES D16, P16, L16 SWITCHES

PUSHBUTTON SWITCHES - ILLUMINATED

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

ILLUSTRATION	CATEGORY	DESCRIPTION	PART NO.
	Lamp Extractor * Also available for LA Series	Lamp removing tool	50-005-01
	Blanking Plate Block	PVC stopper to stuff the superfluous hole of the panel board	50-013-01
	Connector * Also available for LA Series	Insulation Socket 2.8 x 0.5 mm	50-014-01
	PCB Mounting Socket		50-015-01
	Mounting Wrench * Also available for LA Series	Use this for tightening the switch in the mounting hole	50-006-01
	Lens Removing Tool	Use this for replacing the fitted color lens	50-007-01
	Spray Cover	Meets requirement of IP65, two pieces of transparent plastic, rectangular head	50-010-01
	Protection Cap	To avoid faulty operation, housing for locking, transparent For square head (90°) For square head (180°) For rectangular head (90°) For rectangular head (180°)	50-011-01 50-011-11 50-011-02 50-011-12

SERIES LA SWITCHES

PUSHBUTTON SWITCHES - SEALED ILLUMINATED



E-SWITCH®



FEATURES & BENEFITS

- ▶ Modular interface/contact block design
- ▶ Robust product for industrial applications
- ▶ Attractive front panel design
- ▶ Illuminated options available

APPLICATIONS/MARKETS

- ▶ Industrial controls
- ▶ Instrumentation
- ▶ Transportation
- ▶ Telecommunications

SPECIFICATIONS

Contact Rating:	5A @ 250 VAC 8A @ 125 VAC 2A @ 250 VDC 6A @ 24 VDC
Life Expectancy (Mechanical):	≥ 100,000 cycles
Life Expectancy (Electrical):	≥ 50,000 cycles
Contact Resistance:	100mΩ max. typical; initial @ 2-4 VDC
Insulation Resistance:	> 1,000MΩ
Dielectric Strength:	> 1,500 volts 1 minute > 3,000 volts between poles
Actuation Force:	300g / pole
Operating Temperature:	-20°C to 55°C
Degree of Protection:	IP65

MATERIALS

Switch Housing:	Polyetherimide (PEI)
Contact Housing:	Diallyl Phthalate (DAP)
Actuator Ring:	Polycarbonate (PC)
Lens:	Polycarbonate (PC)
Contacts:	Silver plated copper alloy
Terminals:	Silver plated copper alloy



HOW TO ORDER

SERIES LA	TERMINATION	MECHANICAL CONFIGURATION	PUSHBUTTON HEAD	CIRCUIT	LAMP TYPE & VOLTAGE	LAMP COLOR (WHERE APPLICABLE)	LENS COLOR
	S = Solder Lug K = Socket P = Pilot Indicator	EE = Latching OA = Momentary PL* = Pilot Indicator *For LAP (Pilot Indicator)	U1 = Ø29mm V1 = Ø25mm U3* = Ø29mm V3* = Ø25mm *Flush Mount	0* = Pilot Ind. 1** = SPDT 2 = DPDT 3 = 3PDT 4 = 4PDT *For LAP (Pilot Indicator only) **LAK available SPDT only	0 = None A B C F Red G Grn H Red J Grn K Yel M N L D E	RED = Red GRN = Green BLU = Blue WHT = White ORG = Orange YEL = Yellow	



Example Ordering Number

LA-S-EE-U1-1-0-RED

Specifications subject to change without notice.

LAMP TYPE & VOLTAGE OPTIONS

0	:	Without lamp
A	:	Incandescent 6 V AC/DC 200 mA
B	:	Incandescent 14 V AC/DC 80 mA
C	:	Incandescent 28 V AC/DC 40 mA
D	:	Incandescent 48 V AC/DC 25 mA
E	:	Incandescent 60 V AC/DC 20 mA
F	:	Neon 110 V AC green/red
G	:	Neon 220 V AC green/red

LAMP TYPE & VOLTAGE OPTIONS

H	:	LED 6 V DC green/yellow/red
J	:	LED 12 V DC green/yellow/red
K	:	LED 24 V DC green/yellow/red
L	:	Incandescent 33 V AC/DC 35 mA
N	:	Incandescent 14 V AC/DC 40 mA
M	:	Incandescent 6 V AC/DC 40 mA

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES LA SWITCHES

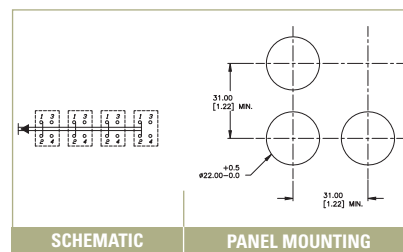
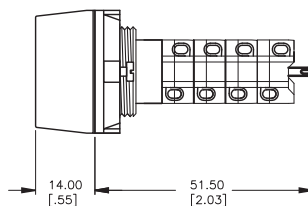
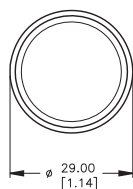
PUSHBUTTON SWITCHES - SEALED ILLUMINATED

TERMINATION & PUSHBUTTON HEAD OPTIONS

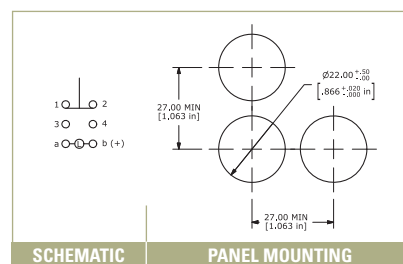
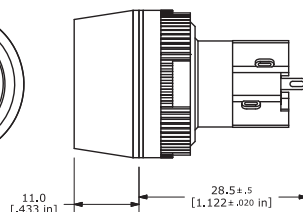
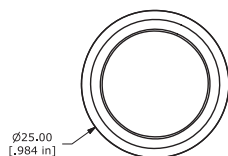
LAS

SOLDER LUG

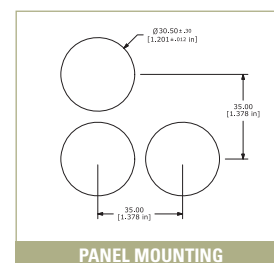
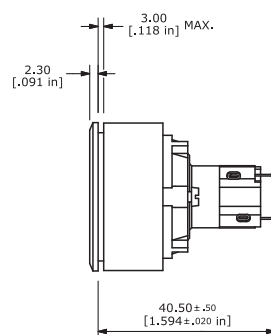
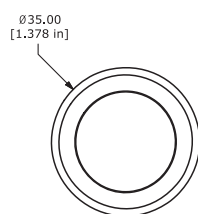
U1 Ø29mm



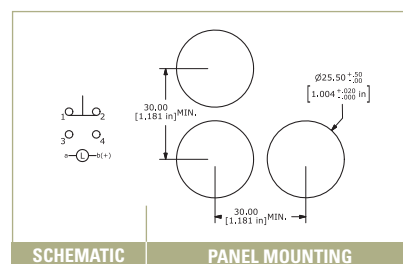
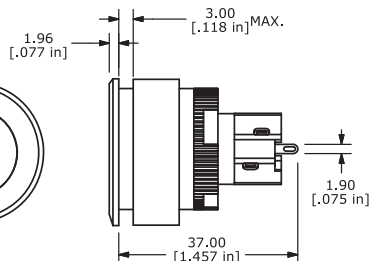
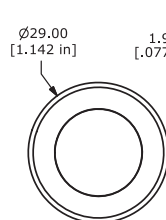
V1 Ø25mm



U3



V3



BOTTOM VIEW

Mounting Length (A)	
SPDT	29.0 mm
DPDT	36.5 mm
3PDT	44.0 mm
4PDT	51.5 mm

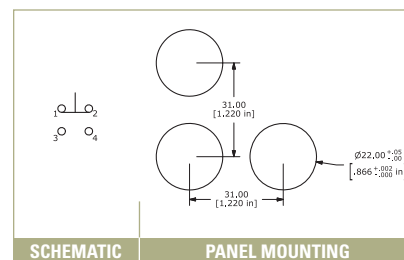
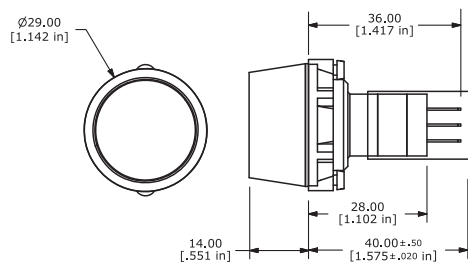


TERMINATION & PUSHBUTTON HEAD OPTIONS

LAK

SOCKET

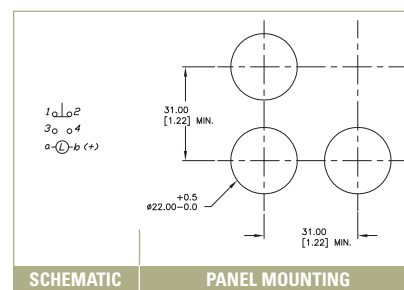
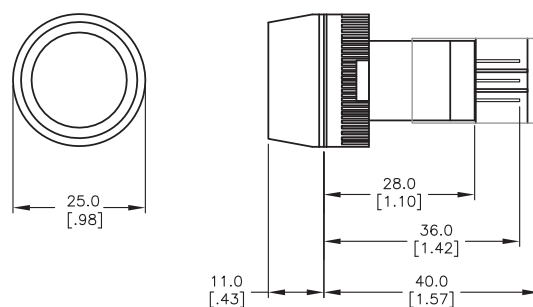
U1 Ø29mm



SCHEMATIC

PANEL MOUNTING

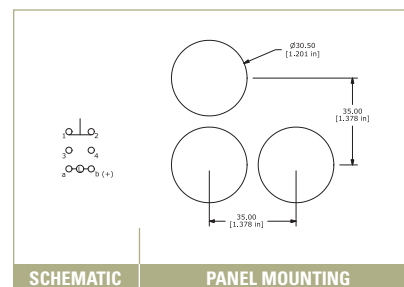
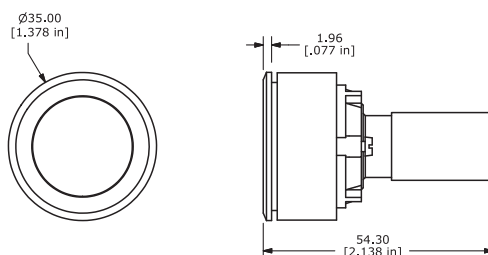
V1 Ø25mm



SCHEMATIC

PANEL MOUNTING

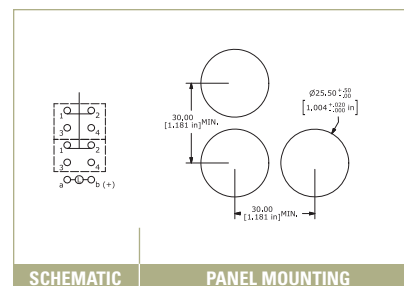
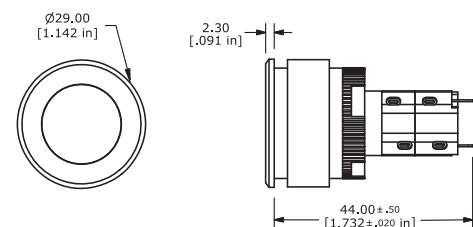
U3



SCHEMATIC

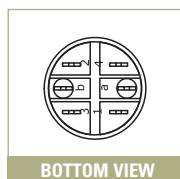
PANEL MOUNTING

V3



SCHEMATIC

PANEL MOUNTING



BOTTOM VIEW

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

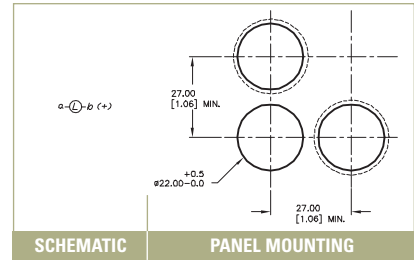
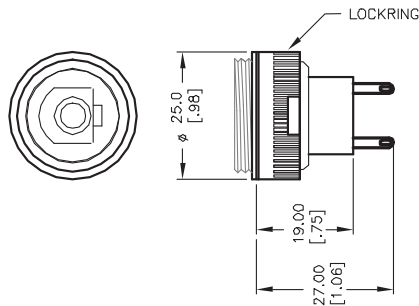
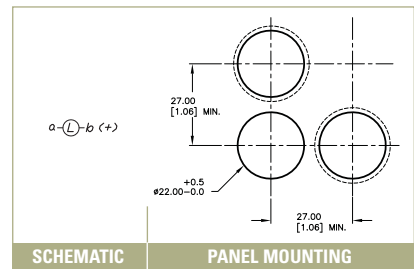
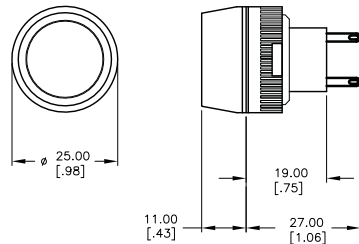
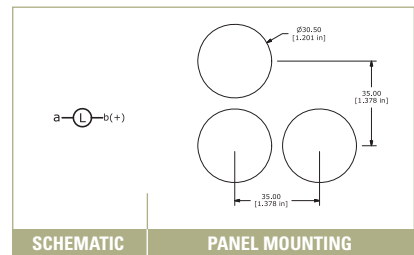
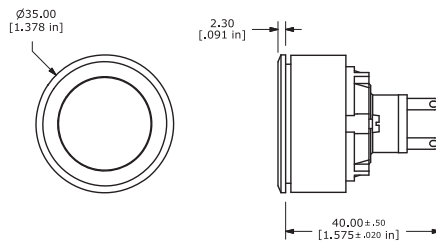
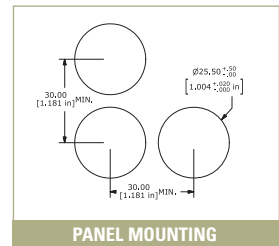
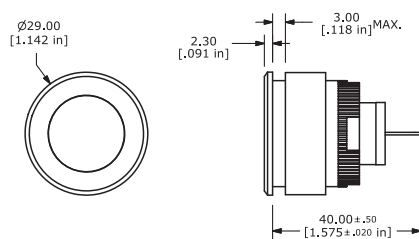
SERIES LA SWITCHES

PUSHBUTTON SWITCHES - SEALED ILLUMINATED

TERMINATION & PUSHBUTTON HEAD OPTIONS

LAP

PILOT INDICATOR

U1 Ø29mm**V1** Ø25mm**U3****V3**

MECHANICAL CONFIGURATION & CIRCUIT OPTIONS

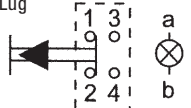
0 PILOT INDICATOR

Available LAS Pilot Indicator

**SCHEMATIC**

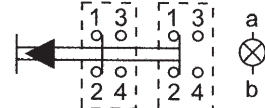
1 SPDT

Available for LAK Socket Type and LAS Solder Lug

**SCHEMATIC**

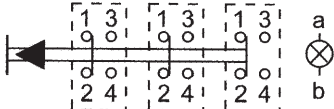
2 DPDT

Available for LAS Solder Lug

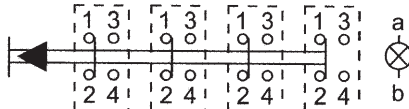
**SCHEMATIC**

3 3PDT

Available for LAS Solder Lug

**SCHEMATIC**

4 4PDT

**SCHEMATIC**

Mechanical Configuration Code

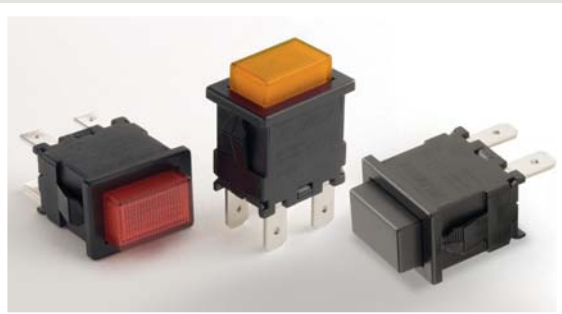
EE	Latching
OA	Momentary
PL	Pilot Indicator



E-SWITCH®

SERIES PB 1973 SWITCHES

PUSHBUTTON SWITCHES - ILLUMINATED PANEL MOUNT



FEATURES & BENEFITS

- ▶ Panel Mount
- ▶ Illuminated
- ▶ Many color options available

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Contact Rating: 15A @ 250 VAC UL listed
10A @ 125 VDC VDE listed

Life Expectancy (Mechanical): ≥30,000 cycles

Life Expectancy (Electrical): ≥10,000 cycles

Contact Resistance: < 20mΩ

Insulation Resistance: 1,000MΩ min.

Dielectric Strength: > 1,500 volts

Operating Temperature: -10°C to +55°C

MATERIALS

Housing: Nylon

Actuator: Polycarbonate

Moving Contact: Silver alloy

Terminals: Brass, silver plated

HOW TO ORDER

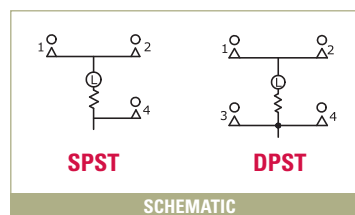
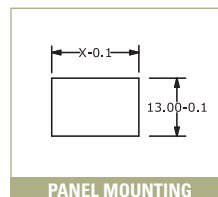
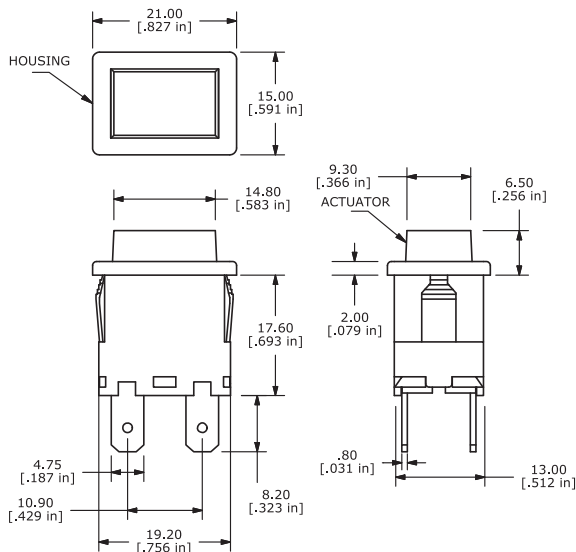
SERIES PB	MODEL NO. [][][][]	CIRCUIT []	HOUSING COLOR [][][]	ACTUATOR COLOR [][][]	MARKING []	TERMINATION []	LED COLOR []
	1973	A = SPST ON-OFF B = SPST (ON)-OFF C = SPST (ill) ON-OFF D = SPST (ill) (ON)-OFF E = DPST ON-OFF F = DPST (ON)-OFF G = DPST (ill) ON-OFF H = DPST (ill) (ON)-OFF	BLK = Black WHT = White	BLK = Black (Opaque) WHT = White (Opaque) GIL = Green Illuminated RIL = Red Illuminated YIL = Yellow Illuminated	E = No Marking	F = .187 x .032 Faston	0 = No Lamp 1 = 125 VAC Neon 2 = 250 VAC Neon 3 = 12 VDC Incandescent 4 = 24 VDC Incandescent

Example Ordering Number

PB-1973-B-BLK-RIL-E-F-2

Specifications subject to change without notice.

PB 1973



TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES RP 3502 SWITCHES

PUSHBUTTON SWITCHES - PANEL MOUNT



FEATURES & BENEFITS

- ▶ Single Pole, Single throw with momentary function
- ▶ Rugged, Panel mount design
- ▶ Available in Nylon or metal frame body

APPLICATIONS/MARKETS

- ▶ Test & Instrumentation
- ▶ Industrial controls
- ▶ Telecommunications
- ▶ Networking

SPECIFICATIONS

Contact Rating:	3A @ 120 VAC
	1.5A @ 250 VAC
Life Expectancy (Mechanical):	6,000 cycles
Life Expectancy (Electrical):	6,000 cycles
Contact Resistance:	50mΩ (initial max.)
Insulation Resistance:	500MΩ min.
Dielectric Strength:	1,000 VAC 1 minute
Operating Temperature:	-20°C to +65°C

MATERIALS

Plastic:	Nylon (UL flame: 94V-2)
Metal:	Nickel plated brass

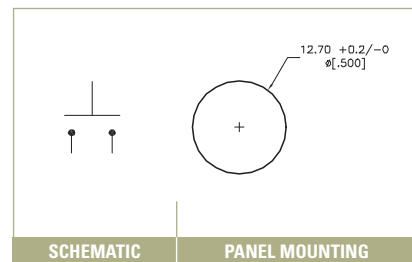
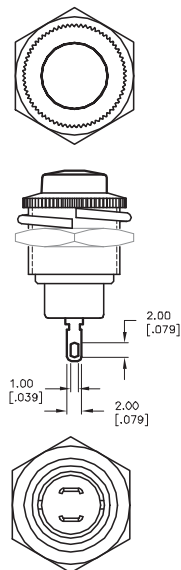
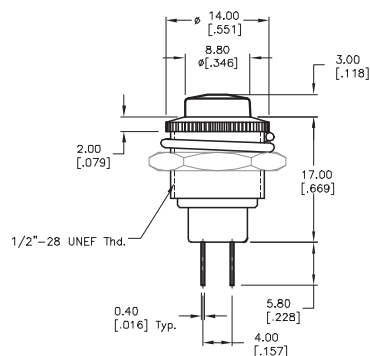
▶ ▶ ▶ HOW TO ORDER

SERIES	MODEL NO.	BODY STYLE	FUNCTION	BUTTON COLOR
RP	3502	None = Plastic M = Metal	A = OFF-(ON) B = ON-(OFF)	BLK = Red RED = Red GRN = Green YEL = Yellow

▶ ▶ ▶ Example Ordering Number
RP-3502-M-A-BLK

Specifications subject to change without notice.

RP 3502





E-SWITCH®

SERIES RP3508 SWITCHES

PUSHBUTTON SWITCHES - ILLUMINATED



FEATURES & BENEFITS

- ▶ Panel mount
- ▶ Illuminated
- ▶ Standard green, red and yellow LED options

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Contact Rating: 3A@125 VAC
1.5A@250 VDC

Life Expectancy (Mechanical): ≥20,000 cycles

Life Expectancy (Electrical): ≥6,000 cycles

Insulation Resistance: > 1,000M Ω

Dielectric Strength: > 1,500 volts 1 minute

Operating Temperature: 0°C to +65°C

Storage Temperature: -25°C to +85°C

MATERIALS

Switch Housing: UL94-HB

Terminals: Solder lug, silver-plated

HOW TO ORDER

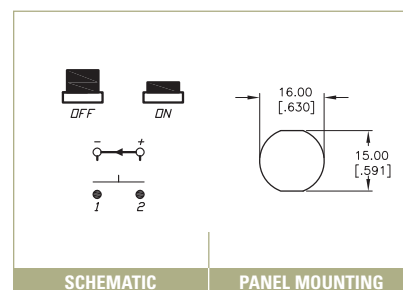
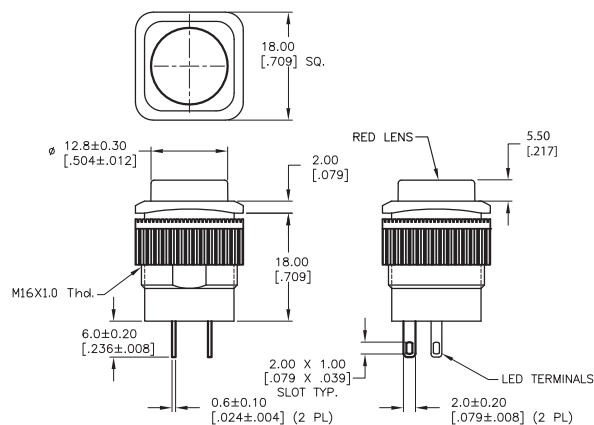
SERIES	MODEL NO.	CIRCUIT	HOUSING COLOR	ACTUATOR COLOR	LED COLOR	MARKING	TERMINATION
RP	3508	A = SPST OFF-(ON) B = SPST OFF-ON	BLK = Black	GRN = Green RED = Red YEL = Yellow	N = None GRN = Green RED = Red YEL = Yellow	N = None	S = Solder Lug

Example Ordering Number

RP-3508-A-BLK-RED-GRN-N-S

Specifications subject to change without notice.

RP 3508

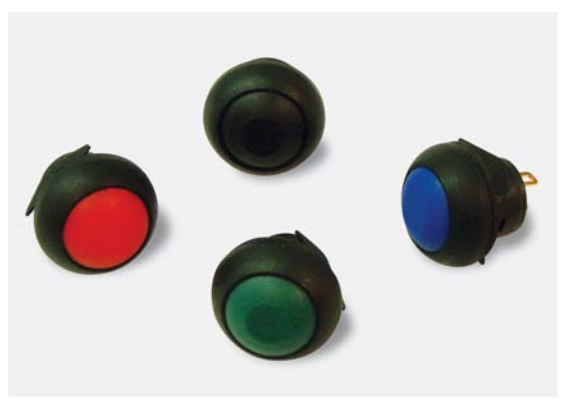


SCHEMATIC

PANEL MOUNTING

SERIES RP8100 SWITCHES

PUSHBUTTON SWITCHES - ROUND ILLUMINATED



SPECIFICATIONS

Contact Rating:	125mA @ 125 VAC 100mA @ 50 VDC
Life Expectancy (Electrical):	500,000 cycles at full load
Contact Resistance:	50 mΩ max (initial)
Insulation Resistance:	1,000 MΩ min. @ 500VDC
Dielectric Strength:	1,000 VAC rms.
Operating Force:	300 gf ±100 gf
Operating Temperature:	-30°C to +85°C
Contact Bounce:	10ms MAX
Travel:	1.5mm

FEATURES & BENEFITS

- ▶ Threaded or snap in panel mount
- ▶ Extended Operating life-500k cycles
- ▶ LED illuminated option
- ▶ Sealed to IP65

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Audio
- ▶ Appliance
- ▶ Instrumentation
- ▶ Consumer Electronics

MATERIALS

Housing:	Nylon
Button:	Nylon
Terminal Case:	Thermo plastic
Terminals:	Copper alloy, plated
Contact:	Copper alloy, plated

HOW TO ORDER

SERIES RP	MODEL NO. □ □ □ □	BUSHING □ □	TERMINATION □ □	CONTACT MATERIAL □	SEAL □	HOUSING COLOR □ □ □ □	CAP COLOR □ □ □ □	LED COLOR □ □ □ □
	8100	B1 = Snap In B2 = Threaded (12 x .75)	M1 (Std)	C = Gold over silver	E = Epoxy (Std)	BLK = Black (Std)	WHT= White BLK = Black RED = Red ORG = Orange YEL = Yellow GRN = Green BLU = Blue BRW= Brown GRY = Gray	WHT= White RED = Red YEL = Yellow GRN = Green BLU = Blue NIL = Non ILL.

Example Ordering Number

RP-8100-B1-M1-C-E-BLK-RED-RED

Specifications subject to change without notice.

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

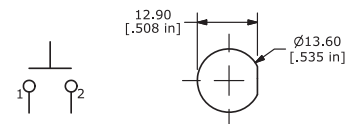
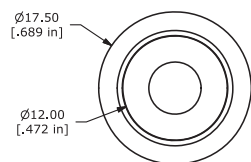
KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

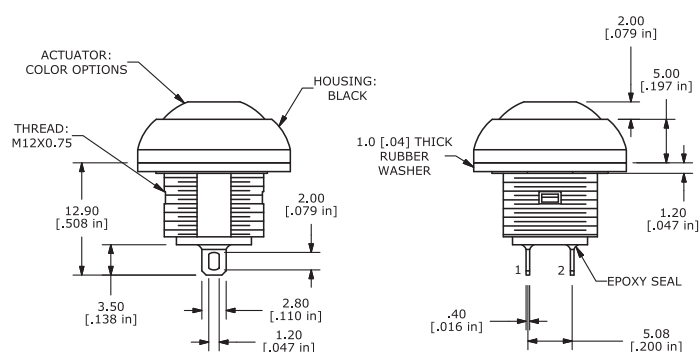
CAP
OPTIONS

THREADED

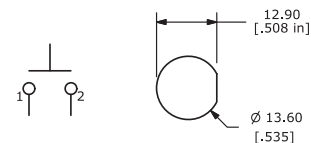
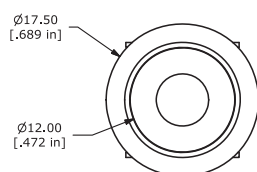


SCHEMATIC

PANEL MOUNTING

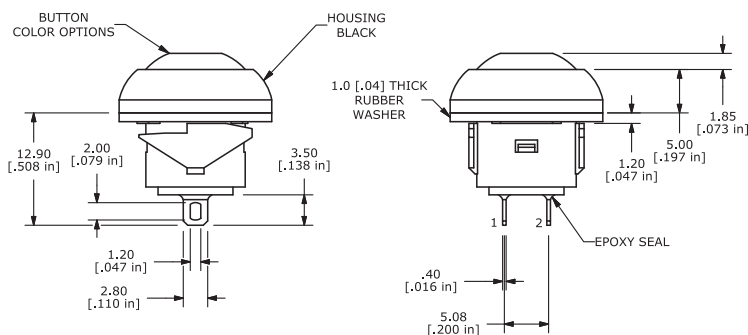


SNAP-IN



SCHEMATIC

PANEL MOUNTING



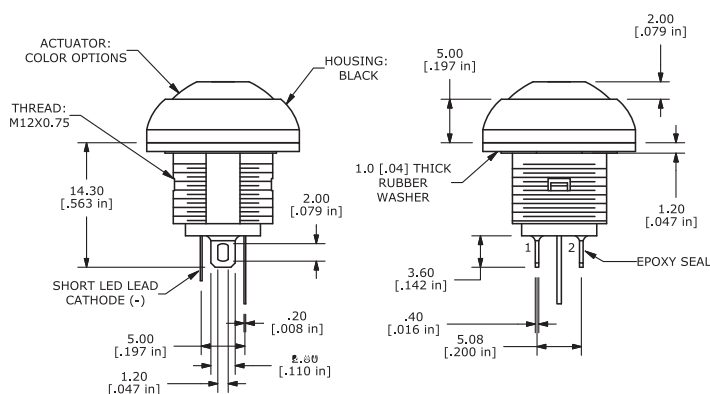
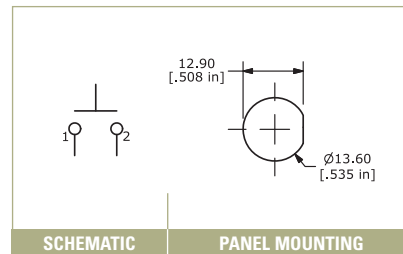
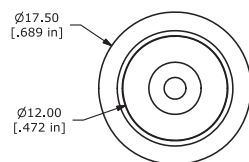
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES RP8100 SWITCHES

PUSHBUTTON SWITCHES - ILLUMINATED

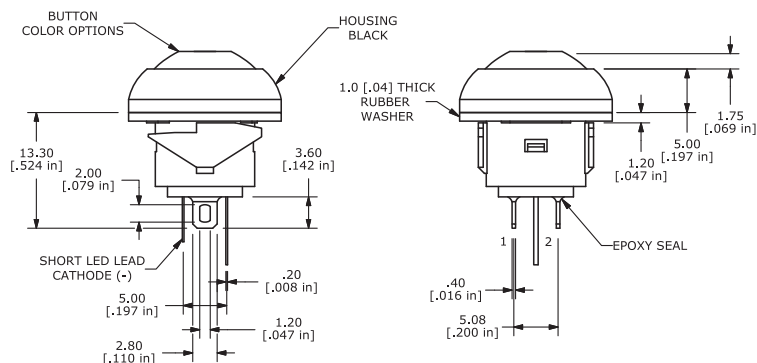
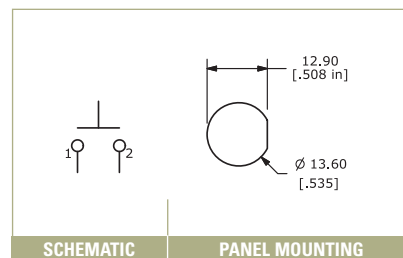
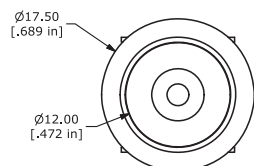
RP 8100

LED THREADED



RP 8100

LED SNAP-IN

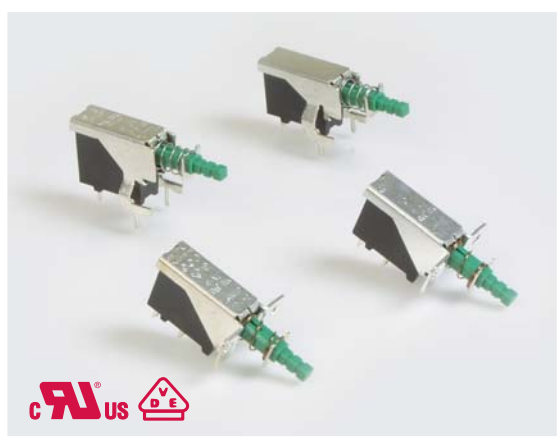




E-SWITCH®

SERIES P197 SWITCHES

POWER PUSHBUTTON SWITCHES



FEATURES & BENEFITS

- ▶ Power pushbutton rated up to 10amps
- ▶ Latching & momentary functions
- ▶ Panel & PC board mount options

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Contact Rating: 10A @ 125 VAC - UL, CUL
5A @ 250 VAC - UL, CUL, VDE
TV-5 @ 125 VAC - UL, CUL
In Rush, 80A @ 250 VAC - VDE

Life Expectancy: 10,000 cycles

Contact Resistance: 100mΩ max. typical; initial @ 2-4 VDC

Insulation Resistance: 1,000M Ω min.

Dielectric Strength: > 1,500 volts 1 minute
> 3,000 volts between poles

Actuation Force: 300 ±100 gram force

Operating Temperature: -20°C to +85°C

MATERIALS

Housing: 6/6 Nylon

Actuator: Acetal

Bracket: Tin plated steel

Contacts: Silver plated copper alloy

Terminals: Silver plated copper alloy



HOW TO ORDER

SERIES	MECHANICAL CONFIGURATION	TERMINATION	BRACKET TYPE	CAP	CAP COLOR
P197*	EE = Latching OA = Momentary	S = Solder Lug P = PC Pin	A = 2-Ø3.2 Non-Threaded Panel Mount B = 2-M3.0 x 0.5P Threaded Panel Mt. C = 12.2mm PC Mt. D = 8mm PC Mt.	See Cap Options	



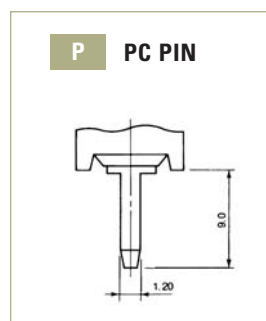
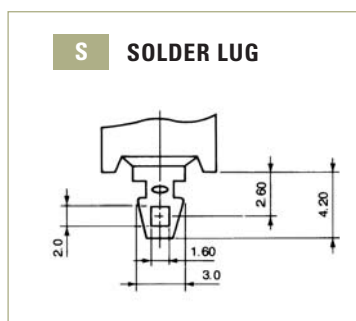
Example Ordering Number

P197-EE-P-B-TA12-BLU

*Note: Also available in 2 pole version P297.
Contact E-Switch for more information.

Specifications subject to change without notice.

TERMINATION OPTIONS



CAP
OPTIONS

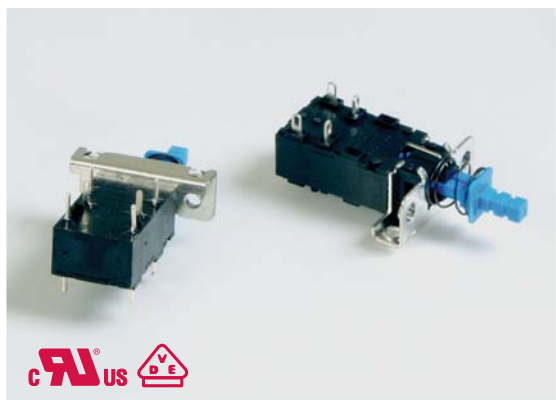
108

SERIES P227 SWITCHES

POWER PUSHBUTTON SWITCHES



E-SWITCH®



FEATURES & BENEFITS

- ▶ Power pushbutton rated up to 7 amps
- ▶ Latching & momentary functions
- ▶ Panel & PC board mount options

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Rating:	7A @ 125 VAC - UL, CUL 4A @ 250 VAC - UL, CUL
Electrical Life:	6,000 cycles
Contact Resistance:	100mΩ max. typical; initial @ 2-4 VDC
Dielectric Strength:	> 1,500 volts 1 minute > 3,000 volts between poles
Operating Force:	550 ±150 gram force
Operating Temperature:	-20°C to +85°C

MATERIALS

Housing:	Polybutylene Terephthalate (PBT)
Actuator:	Acetal
Bracket:	Steel, tin plated
Contacts:	Silver tin oxide plated copper alloy
Terminals:	Silver plated copper alloy



HOW TO ORDER

SERIES P227	MECHANICAL CONFIGURATION	CIRCUIT	BRACKET TYPE	PANEL MOUNT 'B' DIMENSION	TERMINATION	CAP	CAP COLOR
	EE = Latching OA = Momentary	1 = DPST 2 = DPDT	A = 2-Ø3.2 Panel Mount B = 2-M3.0 x 0.5P Threaded Panel Mount C = PC Bracket D = No Chassis	15 = 15mm 18 = 18mm 20 = 20mm X = None	A B C	See Cap Options	

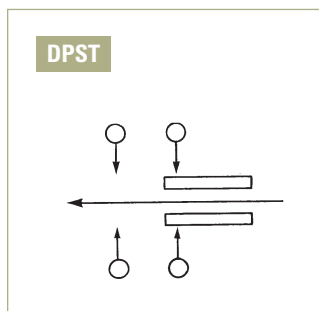
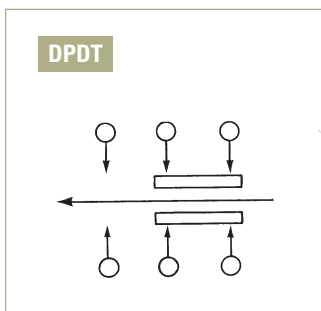


Example Ordering Number

P227-EE-1-B-20-A-TAG-BLK

Specifications subject to change without notice.

MECHANICAL CONFIGURATION & CIRCUIT OPTIONS



Mechanical Configuration Code

EE	Latching
OA	Momentary

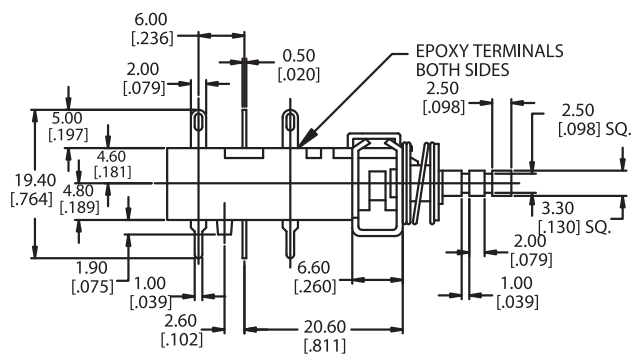
CAP
OPTIONS

Fax: 763-531-8235

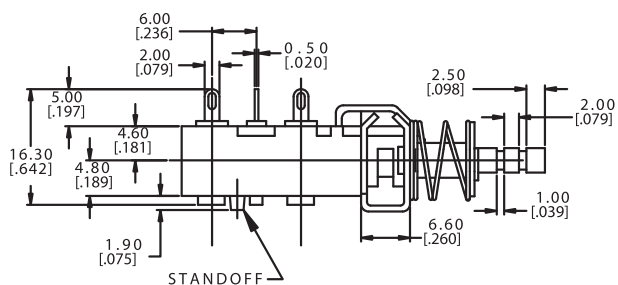


TERMINATION OPTIONS

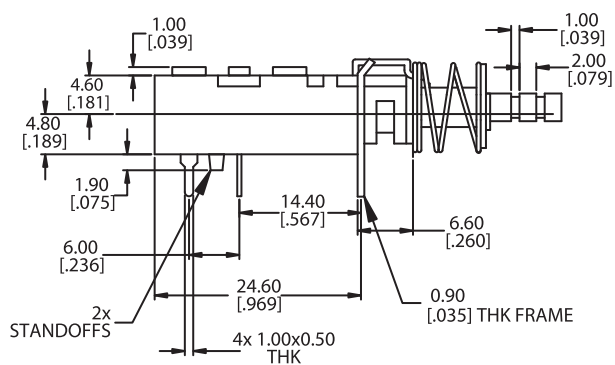
A



B



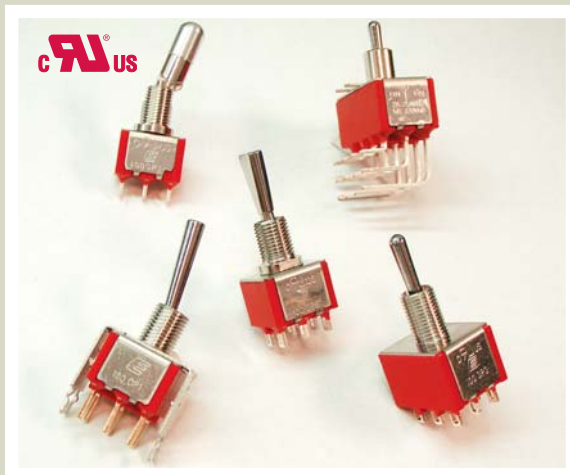
C

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 100 SWITCHES

TOGGLE SWITCHES - MINIATURE



FEATURES & BENEFITS

- ▶ Up to 4 poles available
- ▶ Variety of switching functions
- ▶ Miniature
- ▶ Multiple actuator & bushing options

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Instrumentation
- ▶ Networking
- ▶ Medical equipment

SPECIFICATIONS

Contact Rating:	See contact material options
Life Expectancy:	40,000 make-and-break cycles at full load
Contact Resistance:	100 mΩ max. typical initial @ 2-4 VDC 100 mA for both silver and gold plated contacts
Insulation Resistance:	1,000 MΩ min.
Dielectric Strength:	1,000 V RMS @ sea level
Operating Temperature:	-30° C to 85° C

MATERIALS

Case:	Diallyl Phthalate (DAP)
Toggle Handle:	Brass, chrome plated
Switch Support:	Brass or steel, tin plated
Bushing:	Brass, nickel plated
Housing:	Stainless steel
Contacts / Terminals:	Silver or gold plated copper alloy



HOW TO ORDER

SERIES 100	MODEL NO. □ □ □	ACTUATOR □ □	BUSHING □ □ □	TERMINATION □ □ □ □	CONTACT MATERIAL □	SEAL E	HARDWARE □
	SP1 SP2* SP3 SP4* SP5* DP1 DP2* DP3 DP4* DP5* DP6 DP7* DP8* 3P1 3P2* 3P3 3P4* 3P5* 4P1 4P2* 4P3 4P4* 4P5* 4P6 4P7* 4P8*	T1† T2 T3 T4 T5 T6 T7 T8 T9 K1 K2 † Optional Toggle Cap (T1 Only): T100-1 = White T100-2 = Black	B1 B2 B3 B4 B5 B6 B8 B9 B11 B12 B13 B15 B16 B25** B26**	M1 M2 M3 M5 M6 M61 M7 M71 VS2 VS3 VS5* M64* VS21* VS31*	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal	H = Hardware



Example Ordering Number
100-SP1-T4-B2-M1-R-E

Notes: * Not available with the K1 and K2 actuator options.

** Available only with the K1 and K2 actuator options.

Specifications subject to change without notice.

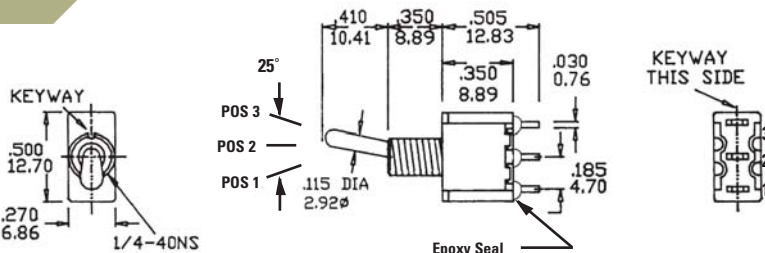


SPDT



2 Comm.
1 3

SCHEMATIC



Model No.	POS 1	POS 2	POS 3
SP-1	ON	NONE	ON
SP-2	ON	NONE	(ON)
SP-3	ON	OFF	ON
SP-4	(ON)	OFF	(ON)
SP-5	ON	OFF	(ON)
Term. Comm.	2-3	OPEN	2-1

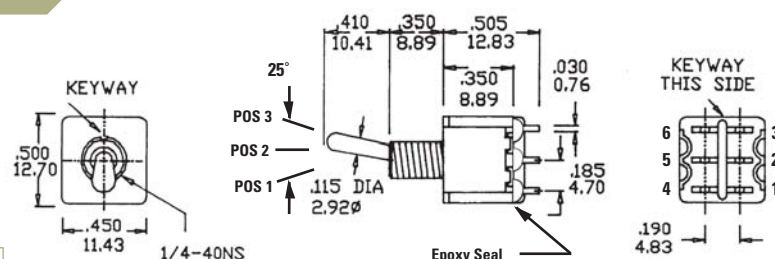
() = Momentary

DPDT



2 Comm. 5 Comm.
1 3 4 6

SCHEMATIC



Model No.	POS 1	POS 2	POS 3
DP-1	ON	NONE	ON
DP-2	ON	NONE	(ON)
DP-3	ON	OFF	ON
DP-4	(ON)	OFF	(ON)
DP-5	ON	OFF	(ON)
DP-7	ON	ON	(ON)
DP-8	(ON)	ON	(ON)
Term. Comm.	2-3, 5-6	OPEN	2-1, 5-4

DP-6	ON	ON	ON
Term. Comm.	2-3, 5-6	2-3, 5-4	2-1, 5-4

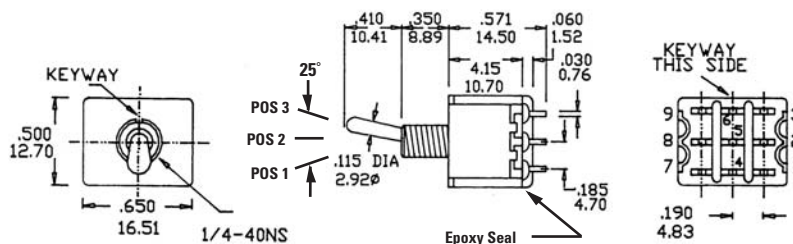
() = Momentary

3PDT



2 Comm. 5 Comm. 8 Comm.
1 3 4 6 7 9

SCHEMATIC



Model No.	POS 1	POS 2	POS 3
3P-1	ON	NONE	ON
3P-2	ON	NONE	(ON)
3P-3	ON	OFF	ON
3P-4	(ON)	OFF	(ON)
3P-5	ON	OFF	(ON)
Term. Comm.	2-3, 5-6 8-9	OPEN	2-1, 5-4 8-7

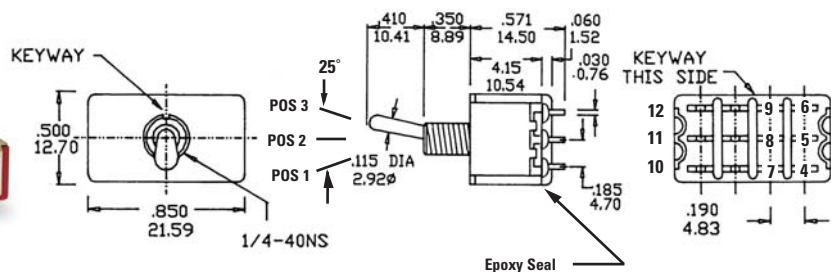
() = Momentary

4PDT



2 Comm. 5 Comm. 8 Comm. 11 Comm.
1 3 4 6 7 9 10 12

SCHEMATIC



Model No.	POS 1	POS 2	POS 3
4P-1	ON	NONE	ON
4P-2	ON	NONE	(ON)
4P-3	ON	OFF	ON
4P-4	(ON)	OFF	(ON)
4P-5	ON	OFF	(ON)
4P-7	ON	ON	(ON)
4P-8	(ON)	ON	(ON)
Term. Comm.	2-3, 5-6 8-9 11-12	OPEN	2-1, 5-4 8-7 11-10

4P-6	ON	ON	ON
Term. Comm.	2-3, 5-6 8-9 11-12	2-3, 5-4 8-9 11-10	2-1, 5-4 8-7 11-10

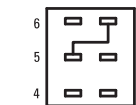
() = Momentary



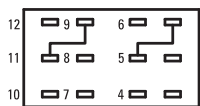
SERIES 100 SWITCHES

TOGGLE SWITCHES - MINIATURE

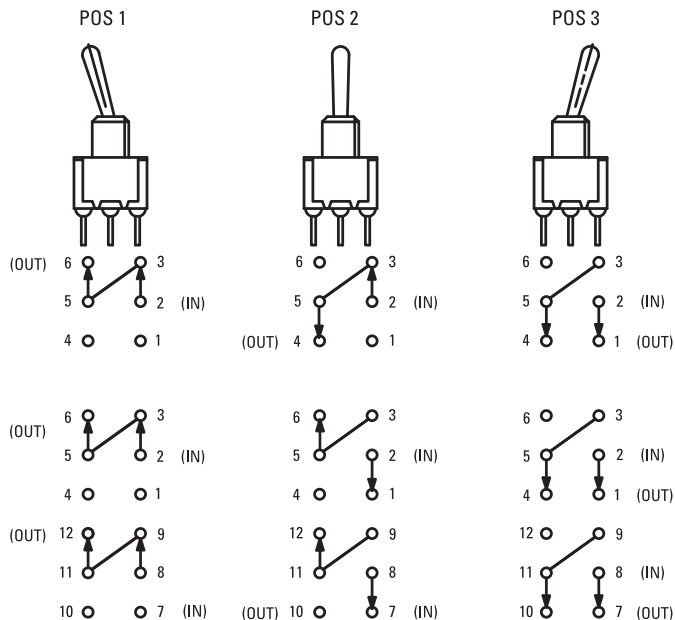
3 - WAY WIRING DIAGRAM SCHEMATICS



Bottom View
or DP-6, DP-7, DP-8

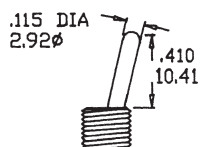


Bottom View
for 4P-6, 4P-7, 4P-8

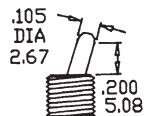


ACTUATOR OPTIONS

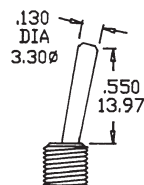
T1* STANDARD



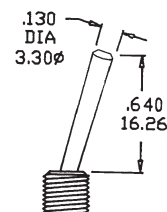
T2*



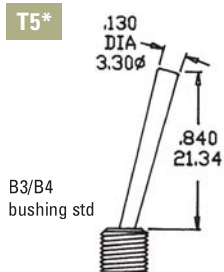
T3*



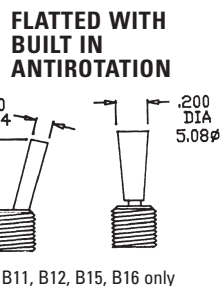
T4*



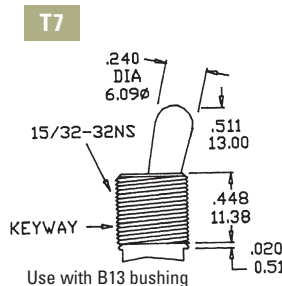
T5*



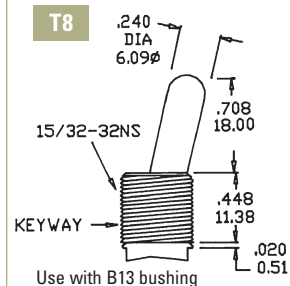
T6



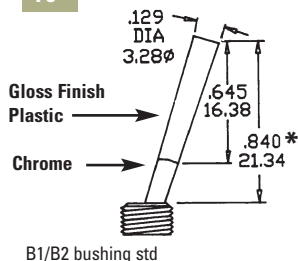
T7



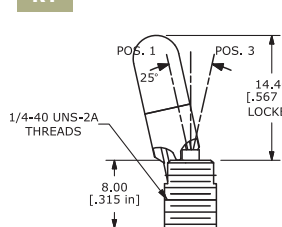
T8



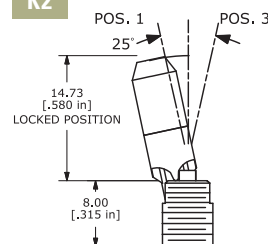
T9* PLASTIC BLACK



K1



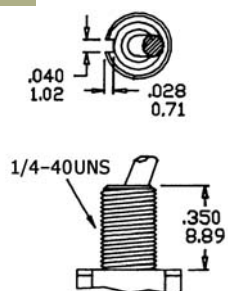
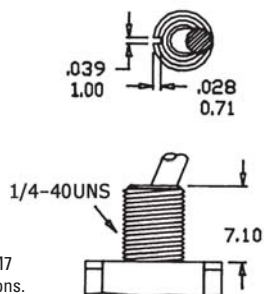
K2



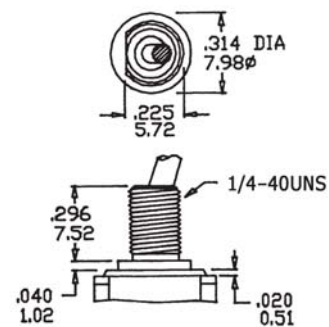
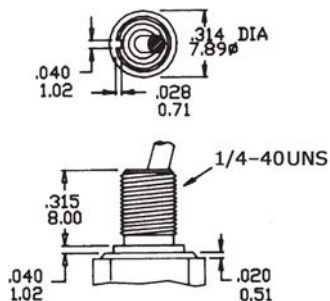
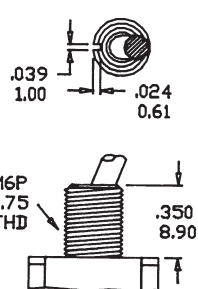
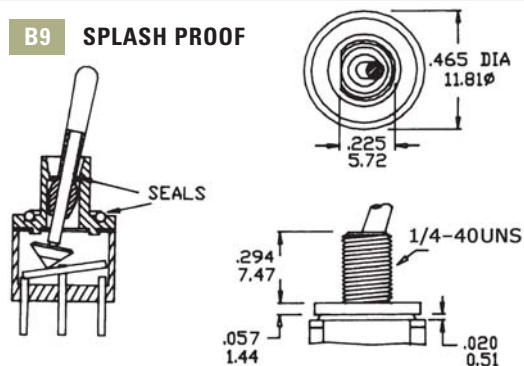
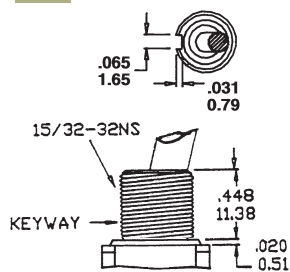
* Add .070 (1.78) for B3, B4 bushings, subtract .020 (0.51) for B6 bushing.



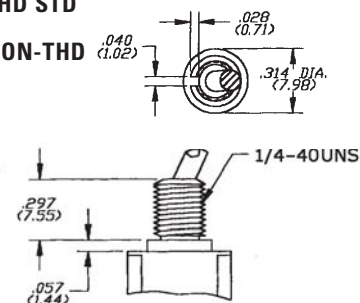
BUSHING OPTIONS

B1 THD STD**B2 NON-THD****B3 THD STD****B4 NON-THD**

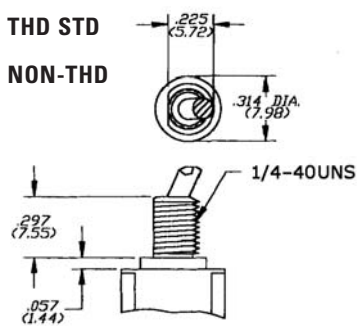
B4 is standard for M6, M7 and VS termination options.

B5 HIGH TORQUE**B6 HIGH TORQUE****B8 METRIC THD****B9 SPLASH PROOF****B13**

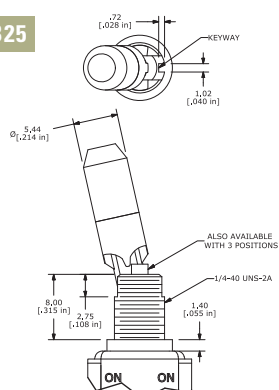
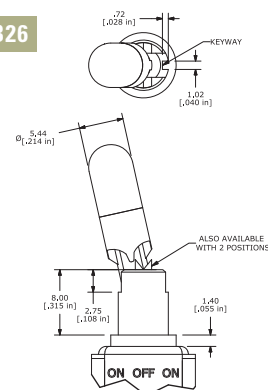
Use with T7 and T8 actuators only

B11 THD STD**B12 NON-THD**

Use with T6 actuator only

B15 THD STD**B16 NON-THD**

Use with T6 actuator only

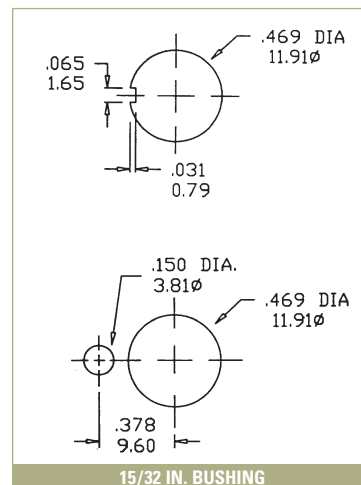
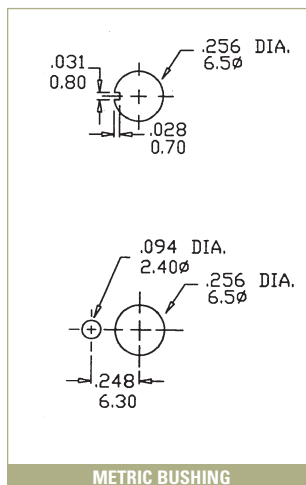
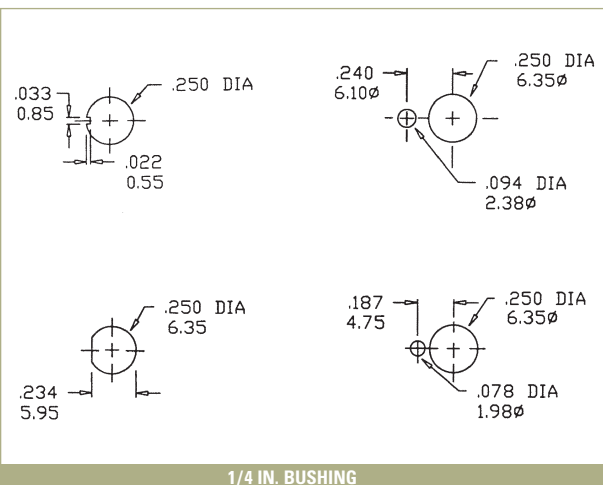
B25**B26**

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 100 SWITCHES

TOGGLE SWITCHES - MINIATURE

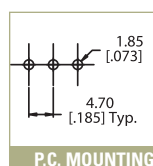
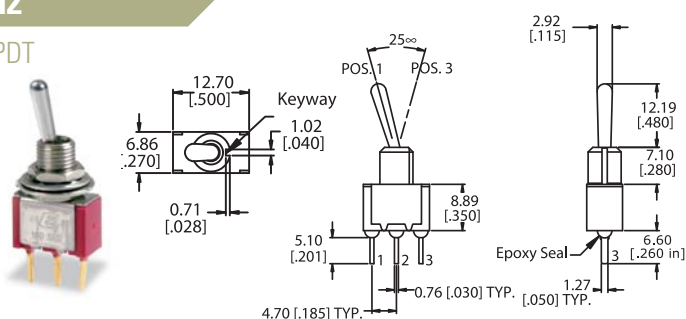
BUSHING OPTIONS - PANEL MOUNTING



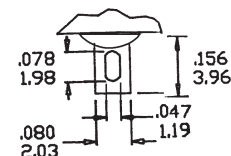
TERMINATION OPTIONS

M2

SPDT

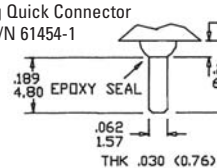


M1 SOLDER LUG



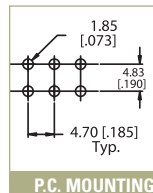
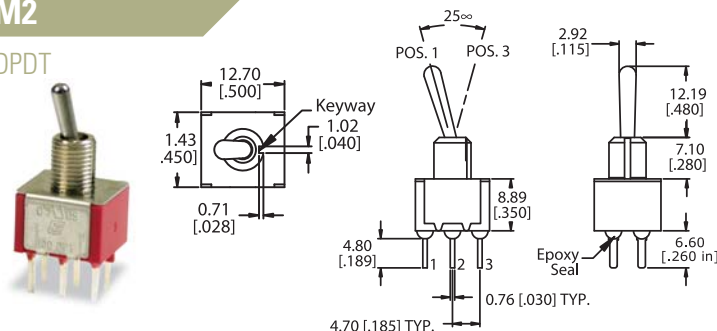
M3 QUICK CONNECT

Mating Quick Connector
Amp P/N 61454-1

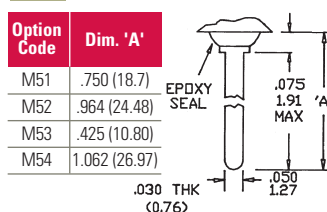


M2

DPDT

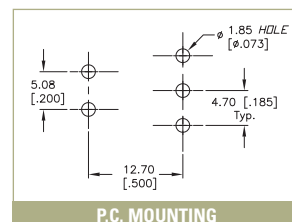
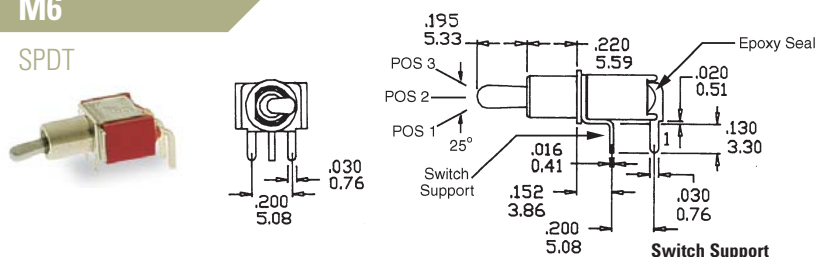


M5 WIRE WRAP



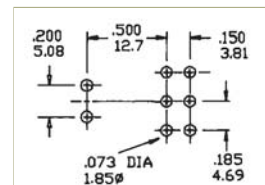
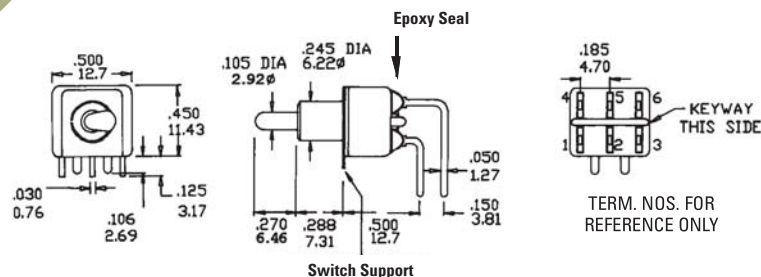
M6

SPDT

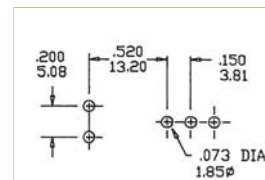
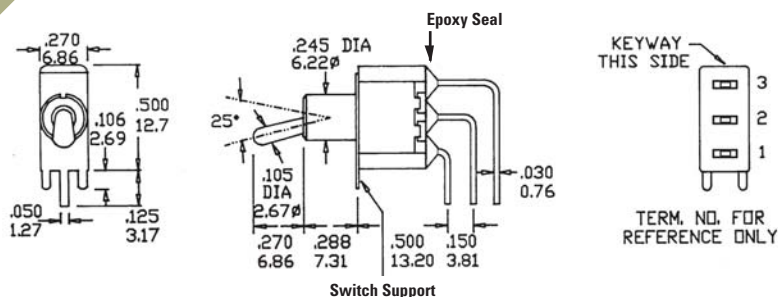


**M6**

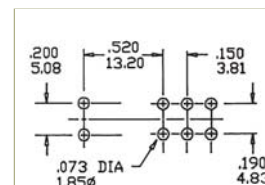
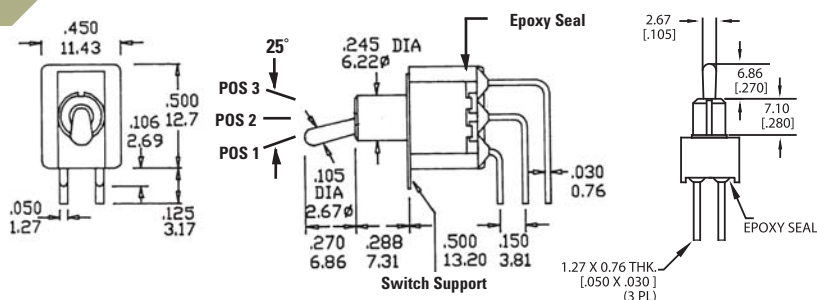
DPDT

**M7**

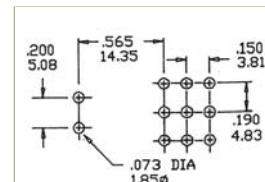
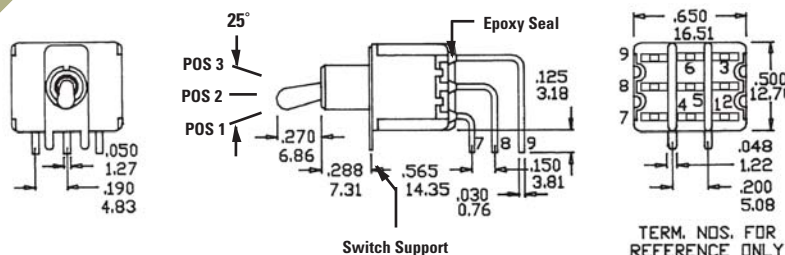
SPDT

**M7**

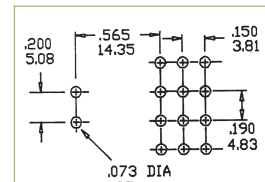
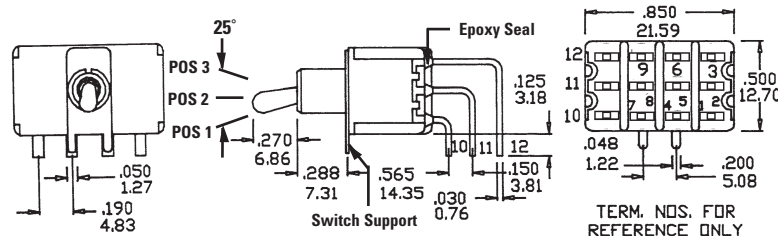
DPDT

**M7**

3PDT

**M7**

4PDT



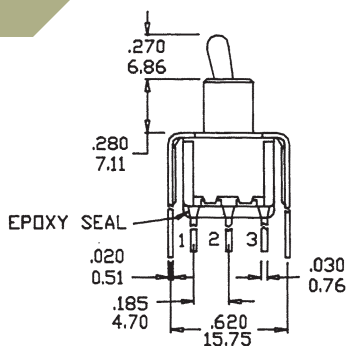
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 100 SWITCHES

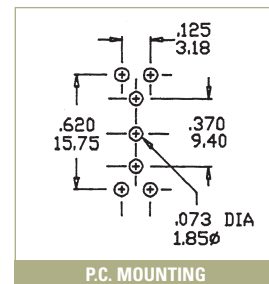
TOGGLE SWITCHES - MINIATURE

VS2-VS3

SPDT

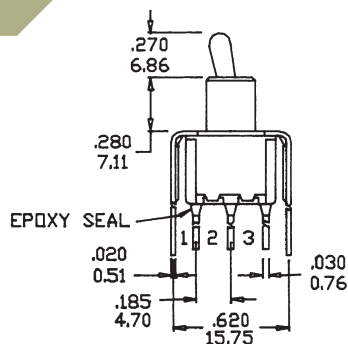


Option Code	Dim. 'A'
VS2	.460 (11.68)
VS3	.630 (16.00)

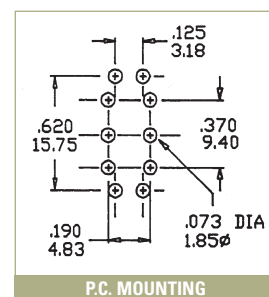


VS2-VS3

DPDT

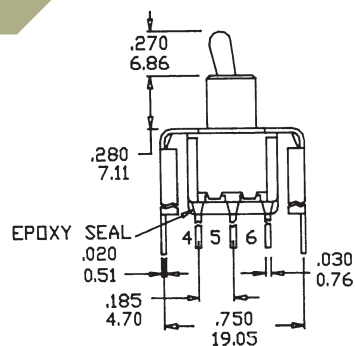


Option Code	Dim. 'A'
VS2	.460 (11.68)
VS3	.630 (16.00)

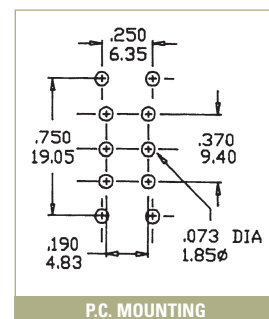


VS5

DPDT

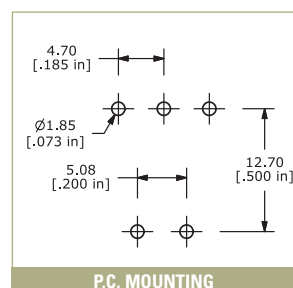
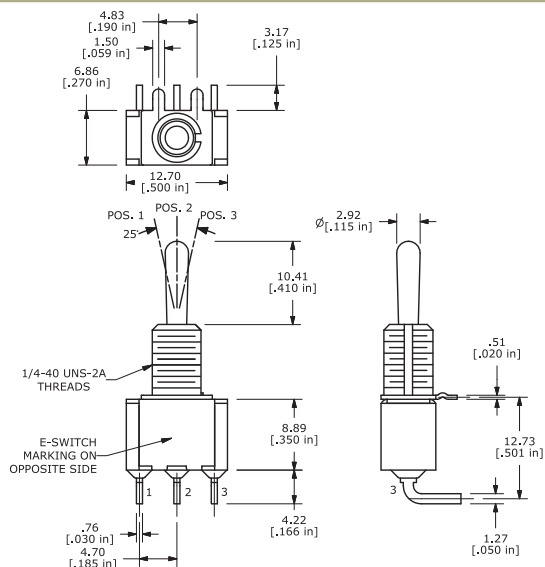


Option Code	Dim. 'A'
VS5	.630 (16.00)



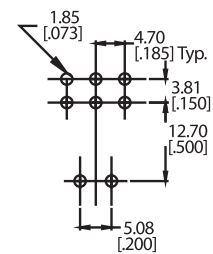
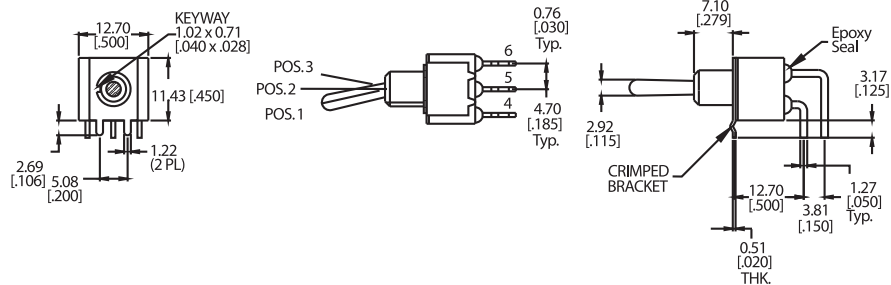
M61

SPDT



**M61**

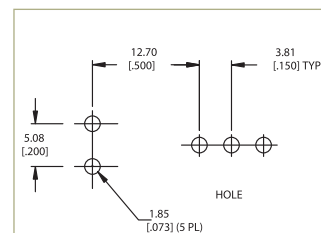
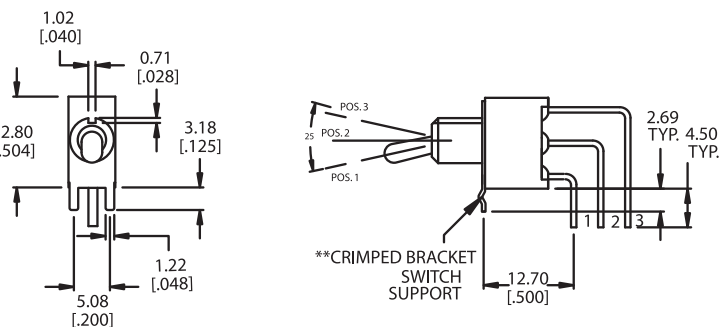
DPDT



P.C. MOUNTING

M71

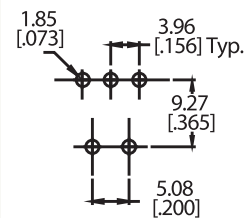
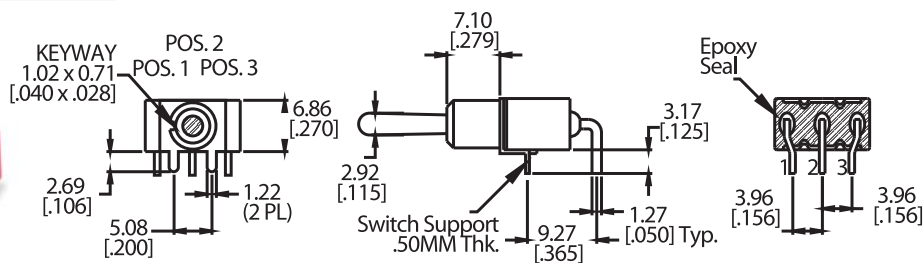
SPDT



P.C. MOUNTING

M64

SPDT



P.C. MOUNTING



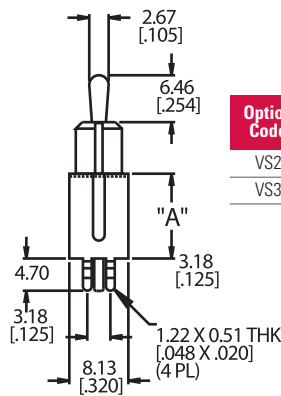
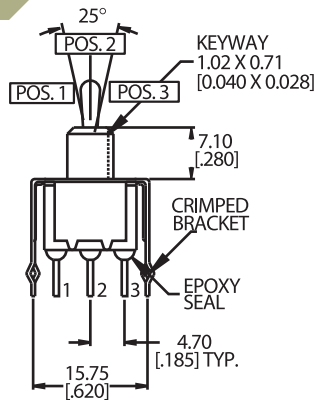
SERIES 100 SWITCHES

TOGGLE SWITCHES - MINIATURE

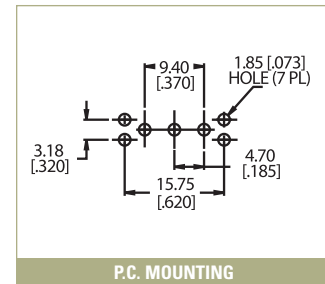
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

VS21-VS31

SPDT



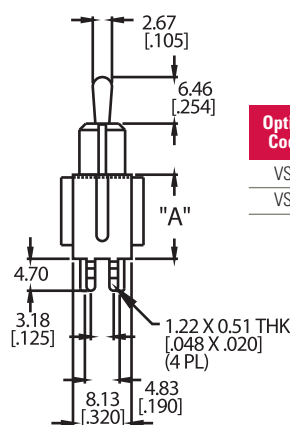
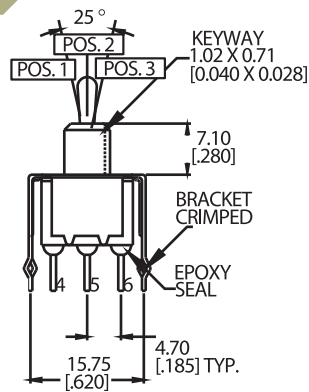
Option Code	Dim. 'A'
VS2	.460 (11.68)
VS3	.630 (16.00)



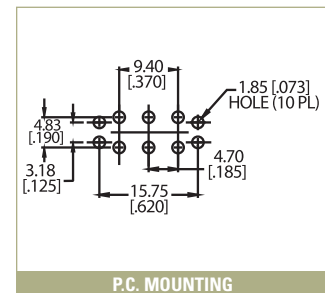
P.C. MOUNTING

VS21-VS31

DPDT



Option Code	Dim. 'A'
VS2	.460 (11.68)
VS3	.630 (16.00)

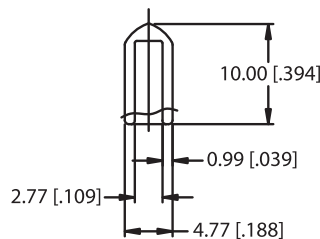


P.C. MOUNTING

OPTIONAL TOGGLE CAP



Use with T1
T100-1 WHITE
T100-2 BLACK



CONTACT MATERIAL OPTIONS

Q

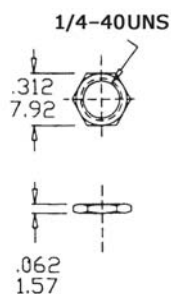
Fixed Terminal:	Silver plated over copper alloy
Moving Contact:	Silver plated over copper alloy
Rating:	5 Amps with resistive load @ 120VAC or 28VDC; 2 Amps with resistive load @ 250VAC

R

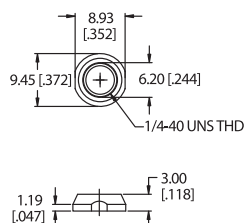
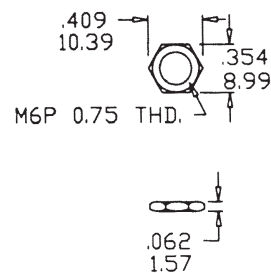
Fixed Terminal:	Copper alloy with gold plate over nickel plate
Moving Contact:	Copper alloy with gold plate over nickel plate
Rating:	0.4 Volt-Amps (VA) max. @ 20V max. (AC or DC)



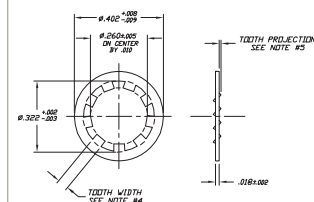
HARDWARE

HDW2 1/4 IN. NUTS

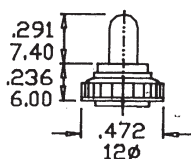
Supplied standard with
B1, B3, B5, B6 and B9 options

HDW3 BLIND DRESSNUT**HDW6 METRIC NUT**

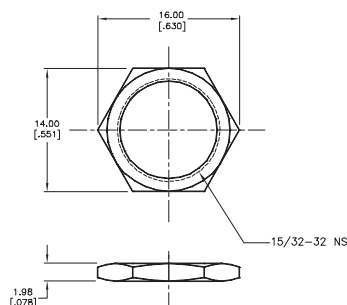
Supplied standard with B8
metric bushing

HDW11 LOCK WASHER

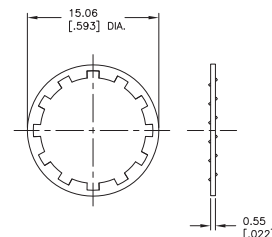
Supplied standard with B1/B3
bushing

**Optional Rubber Hood
Sealing E1**

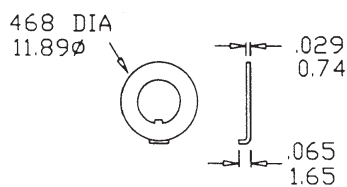
E1= Inch (Std.) for actuator T1, T2 and bushings
B1, B3, B5, B6 Optional rubber boot sealing

HDW4 15/32 IN. NUTS

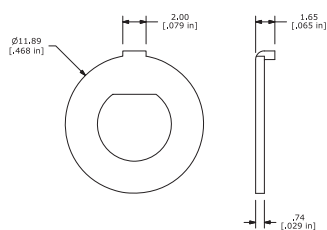
Supplied standard with B13 bushing

HDW12 LOCK WASHER

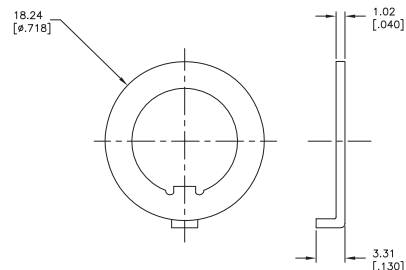
Supplied standard with B13 bushing

HDW15 LOCKING RING

Supplied standard

HDW16 LOCKING RING

Supplied with B5 bushing

HDW17 LOCKING RING

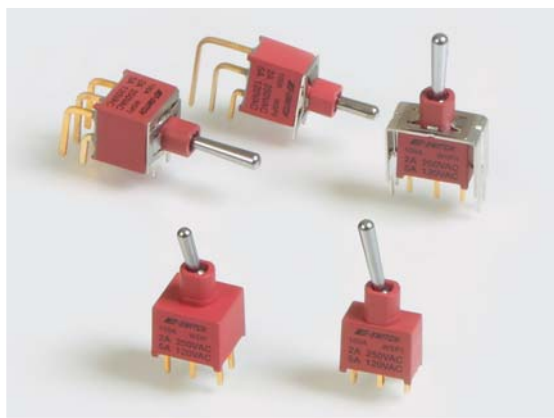
Supplied with B13 bushing

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 100A SWITCHES

TOGGLE SWITCHES - PROCESS SEALED MINIATURE



FEATURES & BENEFITS

- ▶ Variety of switching functions
- ▶ Miniature
- ▶ Multiple actuator & bushing options
- ▶ Sealed to IP67

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Instrumentation
- ▶ Networking
- ▶ Medical equipment

SPECIFICATIONS

Contact Rating:	Dependent upon contact material
Life Expectancy:	30,000 make-and-break cycles at full load
Contact Resistance:	10 mΩ max. typical initial @ 2-4 VDC 100 mA for both silver and gold plated contacts
Insulation Resistance:	1,000 MΩ min.
Dielectric Strength:	1,000 V RMS @ sea level
Operating Temperature:	-30° C to 85° C

MATERIALS

Case & Bushing:	PBT
Pedestal of Case:	LPC
Actuator:	Brass, chrome plated with internal O-ring seal
Switch Support:	Brass or steel tin plated
Contacts / Terminals:	Silver or gold plated copper alloy



HOW TO ORDER

SERIES 100A	MODEL NO.	ACTUATOR	BUSHING	TERMINATION	CONTACT MATERIAL	SEAL E	HARDWARE
	WSP1 WSP2 WSP3 WSP4 WSP5 WDP1 WDP2 WDP3 WDP4 WDP5	T1 T2	B1 B4	M1 M2 M5 M6 M7 VS2 VS3	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal	H = Hardware

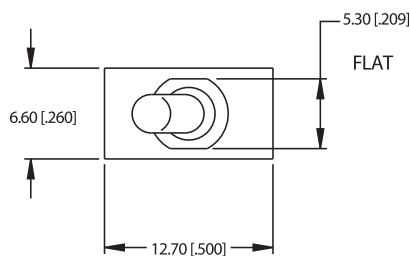


Example Ordering Number

100A-WDP4-T1-B4-M1-R-E

Specifications subject to change without notice.

SPDT

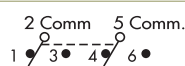


Model No.	POS 1	POS 2	POS 3
WSP-1	ON	NONE	ON
WSP-2	ON	NONE	(ON)
WSP-3	ON	OFF	ON
WSP-4	(ON)	OFF	(ON)
WSP-5	ON	OFF	(ON)
Term. Comm.	2-3	OPEN	2-1

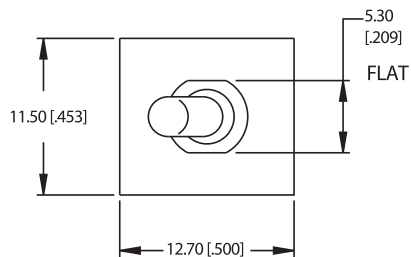
() = Momentary



DPDT



SCHEMATIC

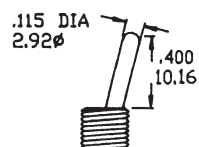


Model No.	POS 1	POS 2	POS 3
WDP-1	ON	NONE	ON
WDP-2	ON	NONE	(ON)
WDP-3	ON	OFF	ON
WDP-4	(ON)	OFF	(ON)
WDP-5	ON	OFF	(ON)
Term. Comm.	2-3, 5-6	OPEN	2-1, 5-4

() = Momentary

ACTUATOR OPTIONS

T1



T1 actuator std. when ordered with M1 termination.
Add 0.100 (2.54) for B4 bushing.

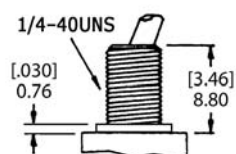
T2



T2 actuator std. when ordered with VS, M2, M6 or M7 terminations.
Add 0.100 (2.54) for B4 bushing.

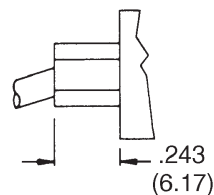
BUSHING OPTIONS

B1



Std for M1

B4



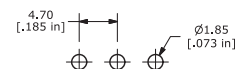
Std for M2, M6, M7, VS termination

A close-up photograph of the base of a 200B vacuum tube. The base is a metal pinout socket. A label on the base reads "200B WMSPT" and "0.4V". A red wire is connected to one of the pins, which is the heater connection.

TACT SWITCHES

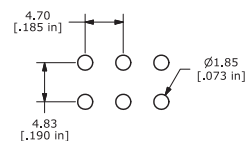
NAVIGATION
SWITCHES

USHBUTTON
SWITCHES



TOGGLE SWITCHES

ROCKER SWITCHES



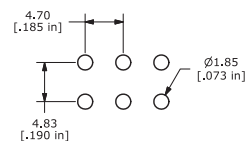
SLIDE SWITCHES

SNAP-ACTION SWITCHES



KEYLOCK
SWITCHES

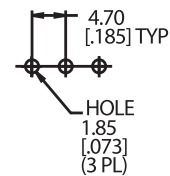
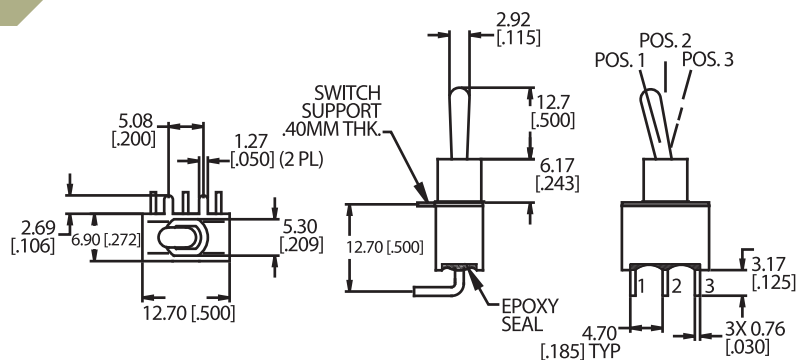
ROTARY SWITCHES

CAP
OPTIONS



M6

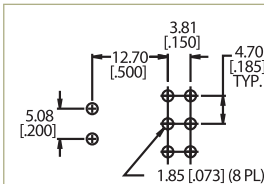
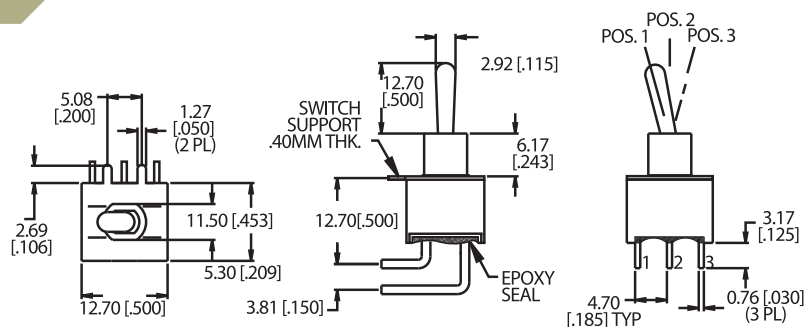
SPDT



P.C. MOUNTING

M6

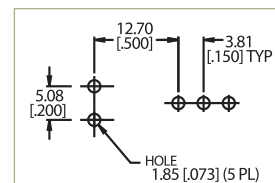
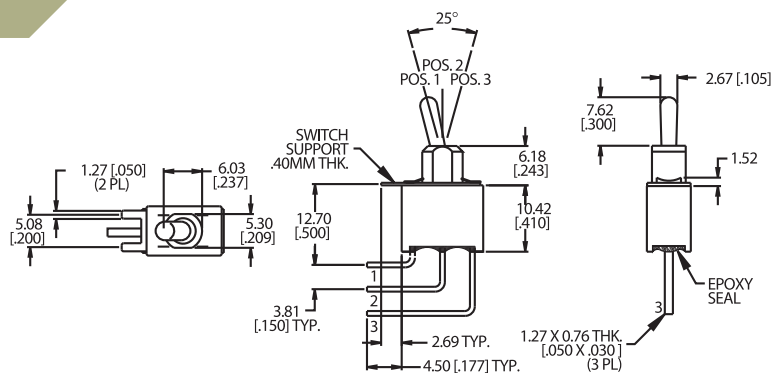
DPDT



P.C. MOUNTING

M7

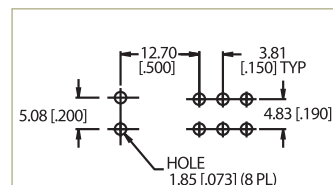
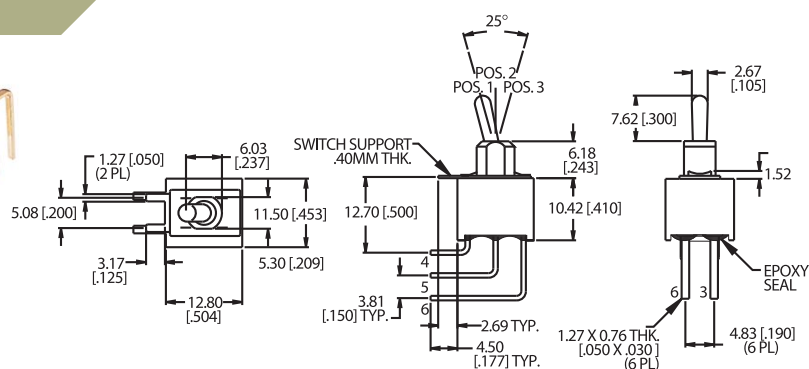
SPDT



P.C. MOUNTING

M7

DPDT



P.C. MOUNTING

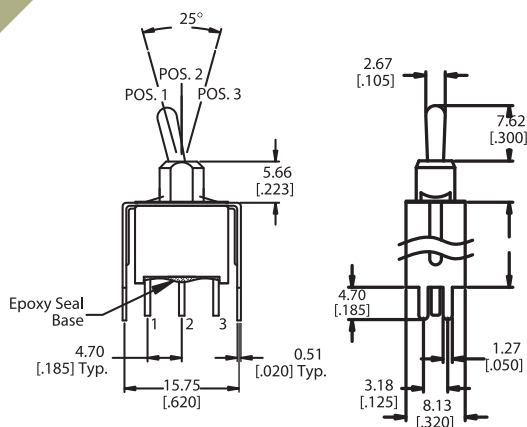
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 100A SWITCHES

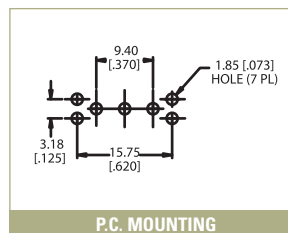
TOGGLE SWITCHES - PROCESS SEALED MINIATURE

VS2-VS3

SPDT



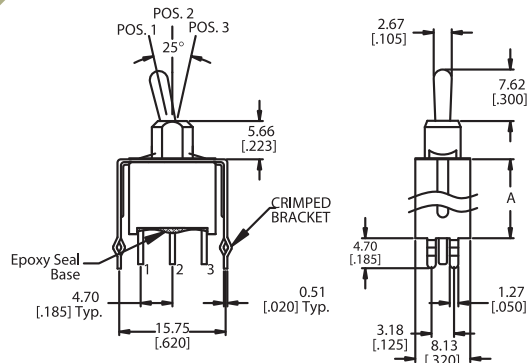
Option Code	Dim. 'A'
VS2	.460 (11.68)
VS3	.630 (16.00)



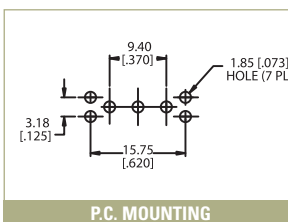
P.C. MOUNTING

VS2-VS3

DPDT



Option Code	Dim. 'A'
VS2	.460 (11.68)
VS3	.630 (16.00)



P.C. MOUNTING

CONTACT MATERIAL OPTIONS

Q

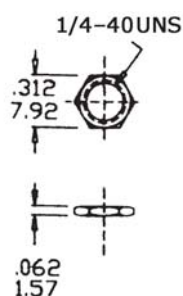
Fixed Terminal:	Gold flash over silver plated copper alloy
Moving Contact:	Silver plated copper alloy
Rating:	5 Amps with resistive load @ 120VAC or 28VDC; 2 Amps with resistive load @ 250VAC

R

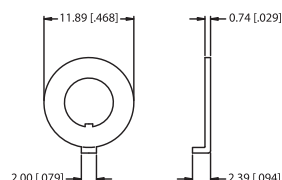
Fixed Terminal:	Copper alloy with gold plate over nickel plate
Moving Contact:	Copper alloy with gold plate overnickel plate
Rating:	0.4 Volt-Amps (VA) max. @ 20V max. (AC or DC)

HARDWARE

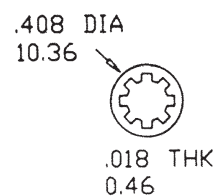
HDW2 NUT



HDW15 LOCKING RING



HDW11 LOCK WASHER



SERIES 200 SWITCHES

TOGGLE SWITCHES - SUB MINIATURE



FEATURES & BENEFITS

- ▶ Variety of switching functions
- ▶ Sub-miniature
- ▶ Multiple actuator & bushing options

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Instrumentation
- ▶ Networking
- ▶ Medical equipment

SPECIFICATIONS

Contact Rating:	Dependent upon contact material
Life Expectancy:	30,000 make-and-break cycles at full load
Contact Resistance:	20 mΩ max. typical initial @ 2-4 VDC 100 mA for both silver and gold plated contacts
Insulation Resistance:	1,000 MΩ min.
Dielectric Strength:	1,000 V RMS @ sea level
Operating Temperature:	-30° C to 85° C

MATERIALS

Case:	Diallyl Phthalate (DAP) or glass filled nylon (UL94-V0)
Toggle Handle:	Brass, chrome plated
Bushing:	Brass, nickel plated
Housing:	Stainless steel
Switch Support:	Brass, tin plated
Contacts / Terminals:	Silver or gold plated copper alloy



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR	BUSHING	TERMINATION	CONTACT MATERIAL	SEAL	HARDWARE
200						E	
	MSP1 MSP2 MSP3 MSP4 MSP5 MSP6* MDP1 MDP2 MDP3	T1 T2 T3 T4 T5	B1 B2 B3 B4 B5 B6 B7 B8	M1 M2 M6 M7 VS2	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal	H = Hardware



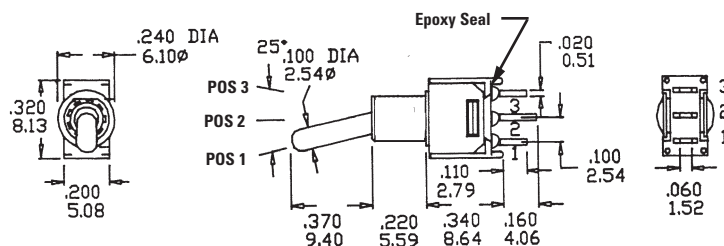
Example Ordering Number

200-MSP1-T4-B5-M1-R-E-H

*MSP6 - not available with M1, M6 & M7 termination

Specifications subject to change without notice.

SPDT



Model No.	POS 1	POS 2	POS 3
MSP-1	ON	NONE	ON
MSP-2	ON	NONE	(ON)
MSP-3	ON	OFF	ON
MSP-4	(ON)	OFF	(ON)
MSP-5	ON	OFF	(ON)
Term. Comm.	2 - 3	OPEN	2 - 1
MSP-6	OFF	NONE	ON
Term. Comm.	OPEN	NONE	3 - 1

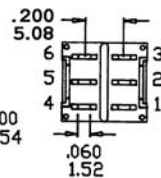
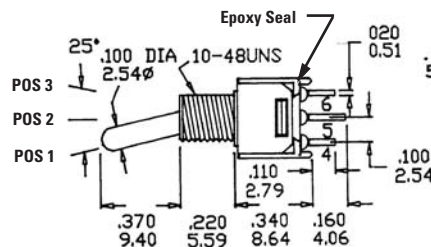
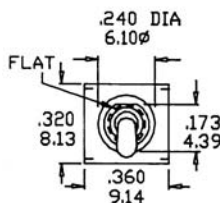
() = Momentary

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 200 SWITCHES

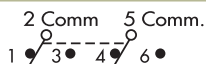
TOGGLE SWITCHES - SUB MINIATURE

DPDT



Model No.	POS 1	POS 2	POS 3
MDP-1	ON	NONE	ON
MDP-2	ON	NONE	(ON)
MDP-3	ON	OFF	ON
Term. Comm.	2-3, 5-6	OPEN	2-1, 5-4

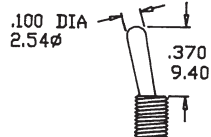
() = Momentary



SCHEMATIC

ACTUATOR OPTIONS

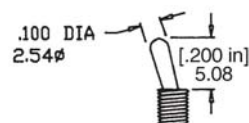
T1



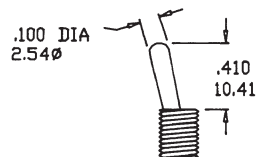
T2



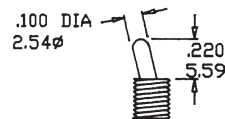
T3*



T4**



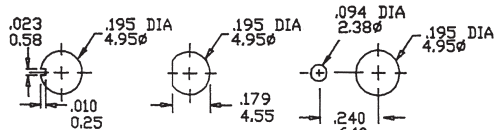
T5**



* Actuator shown with B1, B2, B3, or B4 bushing; subtract 0.09 (2.29) for B5, B6 bushing. Subtract 0.040 (1.02) for B7, B8 bushing.

** Actuator shown with B5, B6 bushing; add 0.09 (2.29) for B1, B2, B3, and B4 bushing. Add 0.50 (1.27) for B7, B8 bushing.

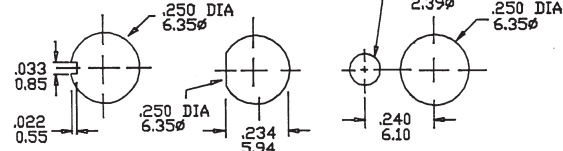
PANEL MOUNTING



Without locking ring

With std. locking ring

10-48 BUSHING



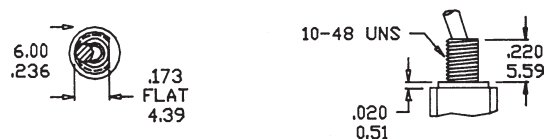
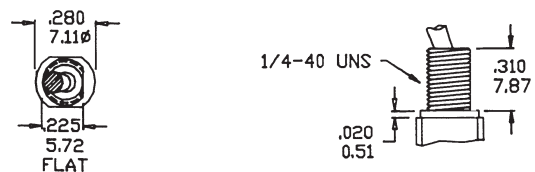
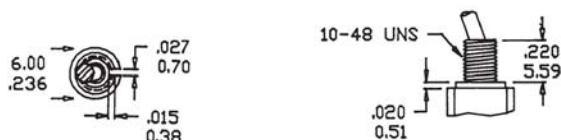
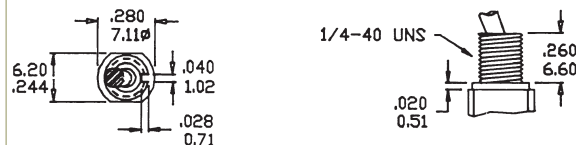
Without locking ring

With std. locking ring

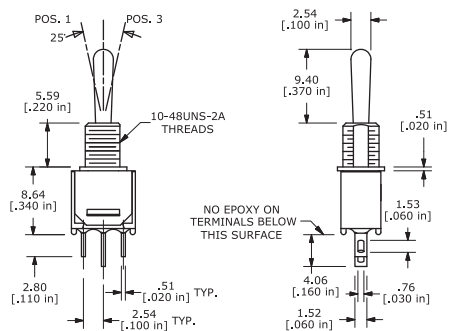
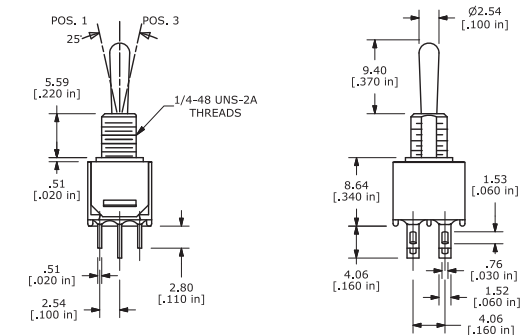
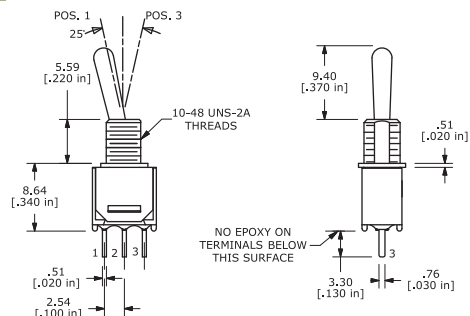
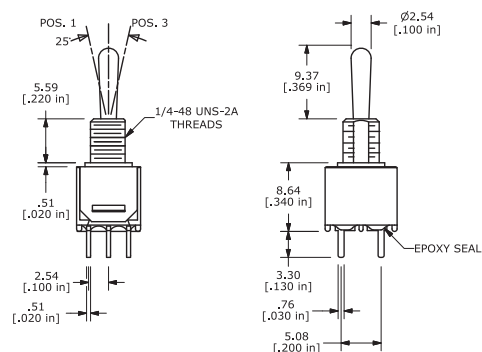
1/4 IN. BUSHING



BUSHING OPTIONS

B1 THD**B2 NON-THD****B5 THD****B6 NON-THD****B3 THD****B4 NON-THD****B7 THD****B8 NON-THD**

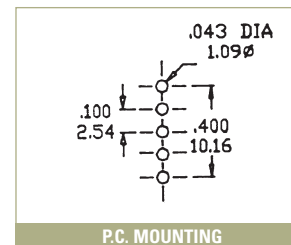
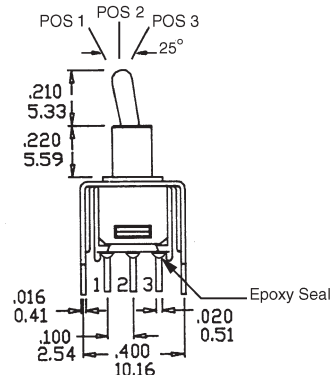
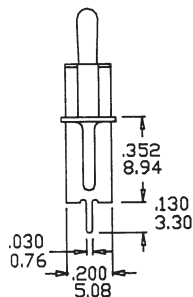
TERMINATION OPTIONS

M1 SPDT**M1 DPDT****M2 SPDT****M2 DPDT**



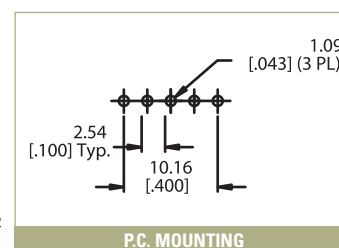
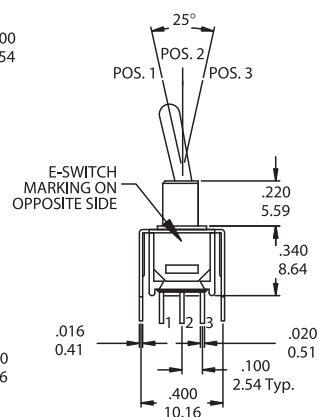
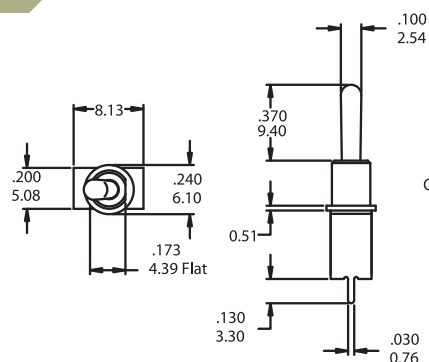
VS2

SPDT



VS2

DPDT



CONTACT MATERIAL OPTIONS

Q

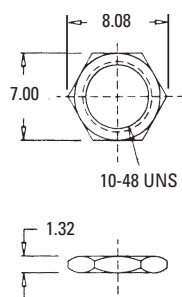
Fixed Terminal:	Silver plated copper alloy
Moving Contact:	Silver plated copper alloy
Rating:	3 Amps @ 120 VAC or 28 VDC; 1 Amp @ 250 VAC

R

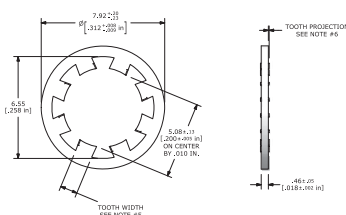
Fixed Terminal:	Copper alloy with gold plate over nickel plate
Moving Contact:	Copper alloy with gold plate over nickel plate
Rating:	0.4 VA max. @ 20 VAC or DC max.

HARDWARE

HDW21 NUT



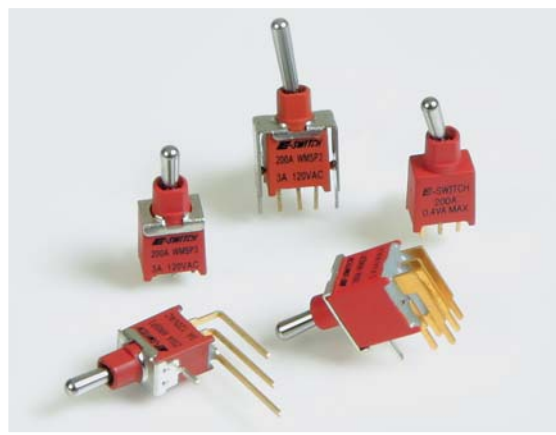
HDW22 LOCK WASHER



TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 200A SWITCHES

TOGGLE SWITCHES - PROCESS SEALED SUB-MINIATURE



FEATURES & BENEFITS

- Variety of switching functions
- Sub-miniature
- Multiple actuator & bushing options
- Sealed to IP67

APPLICATIONS/MARKETS

- Telecommunications
- Instrumentation
- Networking
- Medical equipment

SPECIFICATIONS

Contact Rating:	Dependent on contact material
Life Expectancy:	50,000 make-and-break cycles at full load
Contact Resistance:	Below 20 m typ. initial @ 2-4 VDC, 100 mA, for both silver and gold plated contacts
Insulation Resistance:	1,000 MΩ min.
Dielectric Strength:	1,000 V RMS min. @ sea level
Operating Temperature:	-30° C to 85° C
Seal Rated:	IP67

MATERIALS

Case & Bushing:	Glass filled nylon, flame retardant, heat stabilized (UL 94-V0)
Actuator:	Brass, chrome plated, internal O-ring seal standard for all actuators
Switch Support:	Brass, tin plated
Contacts / Terminals:	Silver or gold plated copper alloy
Terminal Seal:	Epoxy



HOW TO ORDER

SERIES 200A	MODEL NO.	ACTUATOR	BUSHING	TERMINATION	CONTACT MATERIAL	SEAL
	WMSP1 WMSP2 WMSP3 WMSP4 WMSP5 WMSP6* WMDP1 WMDP2 WMDP3	T1 T2	A1	M2 M6 M61 M7 VS2	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal



Example Ordering Number

200A-WMSP2-T1-A1-VS2-Q-E

*Only available with M2 or VS2 termination

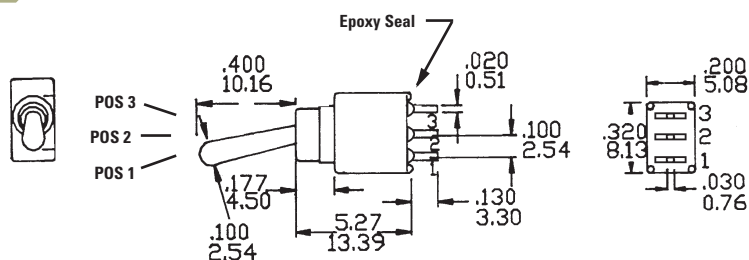
Specifications subject to change without notice.

SPDT



2 Comm.
1 3

SCHEMATIC

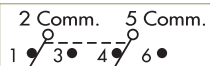


Model No.	POS 1	POS 2	POS 3
WMSP-1	ON	NONE	ON
WMSP-2	ON	NONE	(ON)
WMSP-3	ON	OFF	ON
WMSP-4	(ON)	OFF	(ON)
WMSP-5	ON	OFF	(ON)
Term. Comm.	2 - 3	OPEN	2 - 1
WMSP-6	OFF	NONE	ON
Term. Comm.	OPEN	NONE	3 - 1

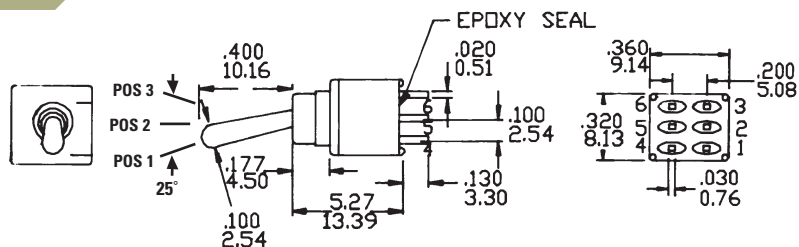
() = Momentary



DPDT



SCHEMATIC

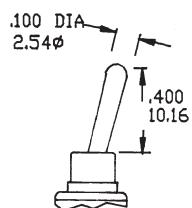


Model No.	POS 1	POS 2	POS 3
WMDP-1	ON	NONE	ON
WMDP-2	ON	NONE	(ON)
WMDP-3	ON	OFF	ON
Term. Comm.	2-3,5-6	OPEN	2-1,5-4

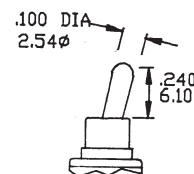
() = Momentary

ACTUATOR OPTIONS

T1

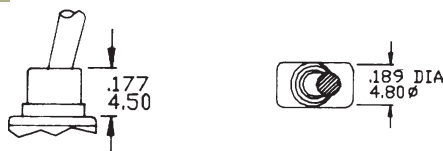


T2



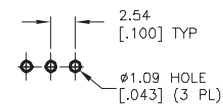
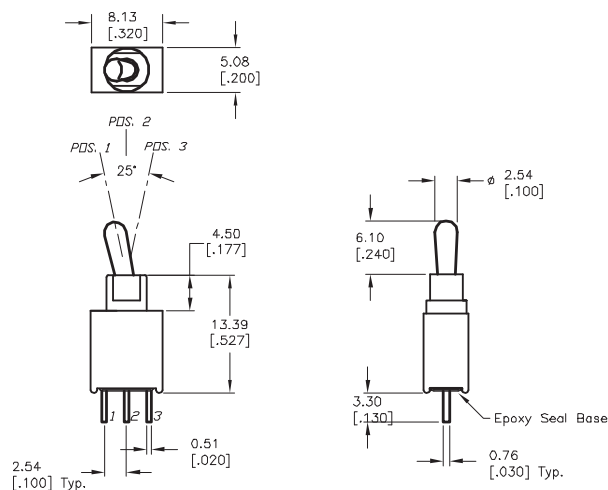
BUSHING OPTIONS

A1



TERMINATION OPTIONS

M2



P.C. MOUNTING

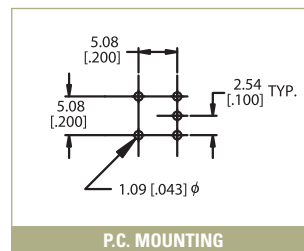
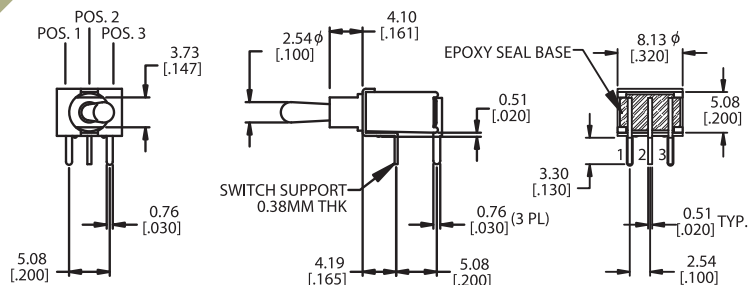
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 200A SWITCHES

TOGGLE SWITCHES - PROCESS SEALED SUB-MINIATURE

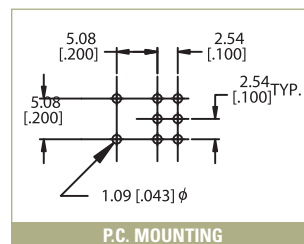
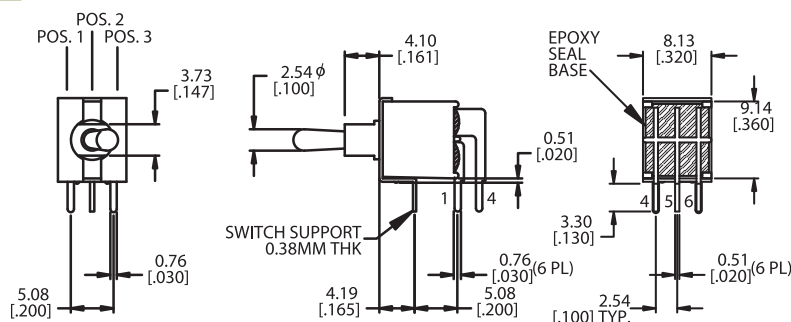
M6

SPDT



M6

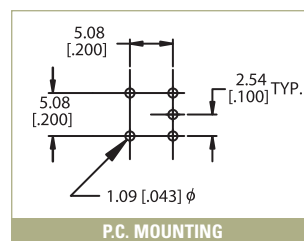
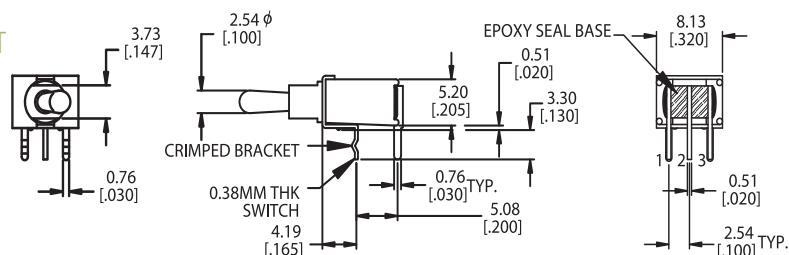
DPDT



M61

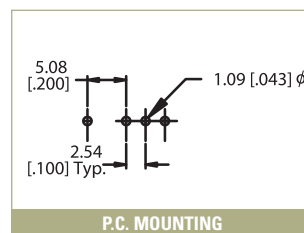
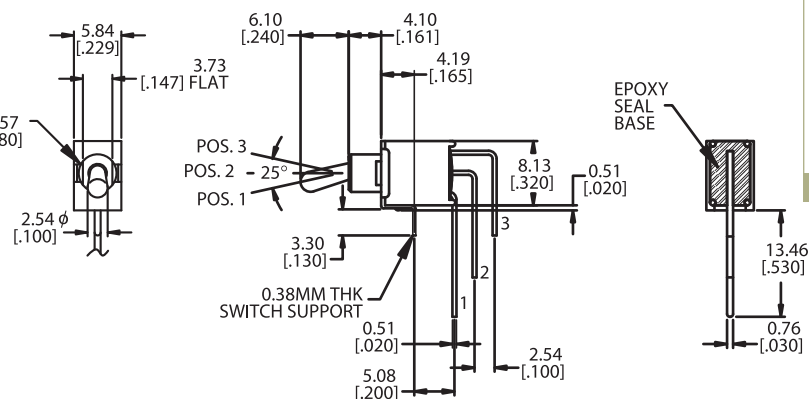
SPDT

SNAP-IN BRACKET



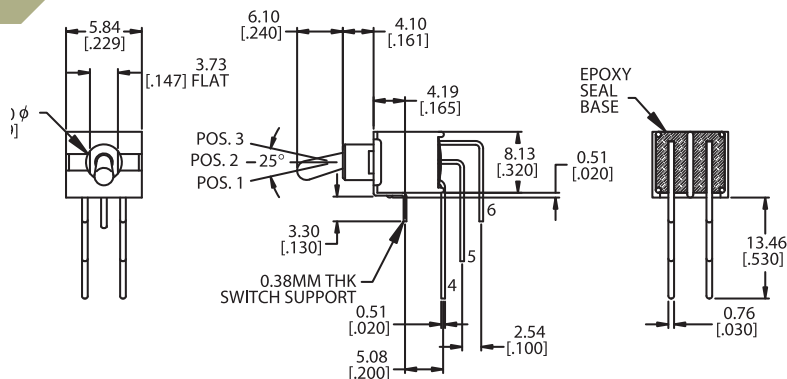
M7

SPDT



**M7**

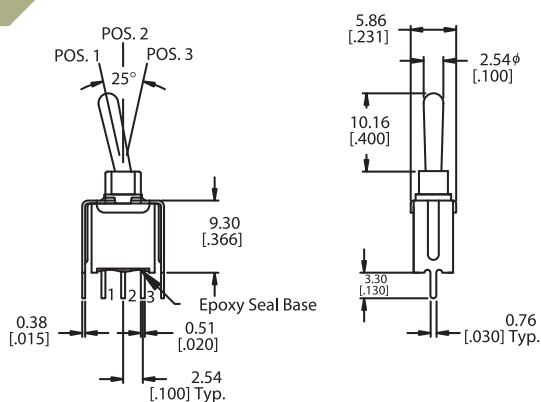
DPDT



P.C. MOUNTING

VS2

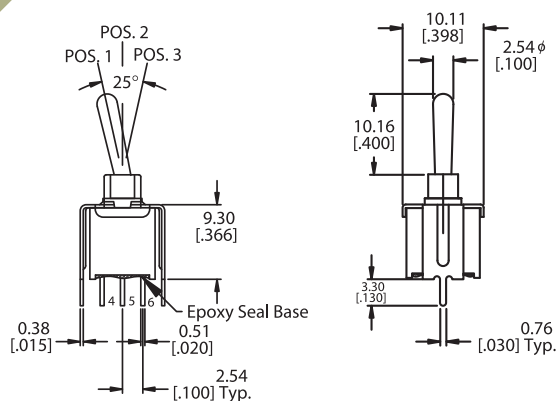
SPDT



P.C. MOUNTING

VS2

DPDT



P.C. MOUNTING

CONTACT MATERIAL OPTIONS**Q**

Fixed Terminal:	Silver plated copper alloy
Moving Contact:	Silver plated copper alloy
Rating:	3 Amps @ 120VAC or 28VDC; 1 Amp @ 250VAC

R

Fixed Terminal:	Copper alloy with gold plate over nickel plate
Moving Contact:	Copper alloy with gold plate over nickel plate
Rating:	0.4 Volt-Amps (VA) max. @ 20V max. (AC or DC)

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 200B SWITCHES

TOGGLE SWITCHES - PROCESS SEALED SMT SUB-MINIATURE



FEATURES & BENEFITS

- ▶ Variety of switching functions
- ▶ Sub-miniature
- ▶ Surface mount
- ▶ Sealed to IP67

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Instrumentation
- ▶ Networking
- ▶ Medical equipment

SPECIFICATIONS

Contact Rating:	0.4 VA max. @ 20 VAC or DC max.
Life Expectancy:	50,000 make-and-break cycles at full load
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC 100 mA
Insulation Resistance:	1,000 MΩ min.
Dielectric Strength:	1,000 V RMS @ sea level
Operating Temperature:	-30° C to 85° C
Packaging:	Tape & Reel

MATERIALS

Case & Bushing:	High temp material, glass filled 4/6 Nylon, flame retardant, heat stabilized (UL94-V0)
Actuator:	Brass, chrome plated with internal O-ring seal standard
Switch Support:	Brass/Steel
Contacts / Terminals:	Gold plate over nickel plated copper alloy
Terminal Seal:	Epoxy

HOW TO ORDER

SERIES
200B

MODEL NO.

WMSP2
WMSP3
WMSP4
WMSP5

ACTUATOR

T2

BUSHING

A1

TERMINATION

SM6

CONTACT MATERIAL

R = Gold

SEAL

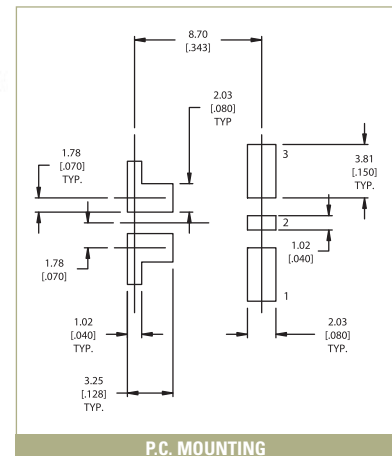
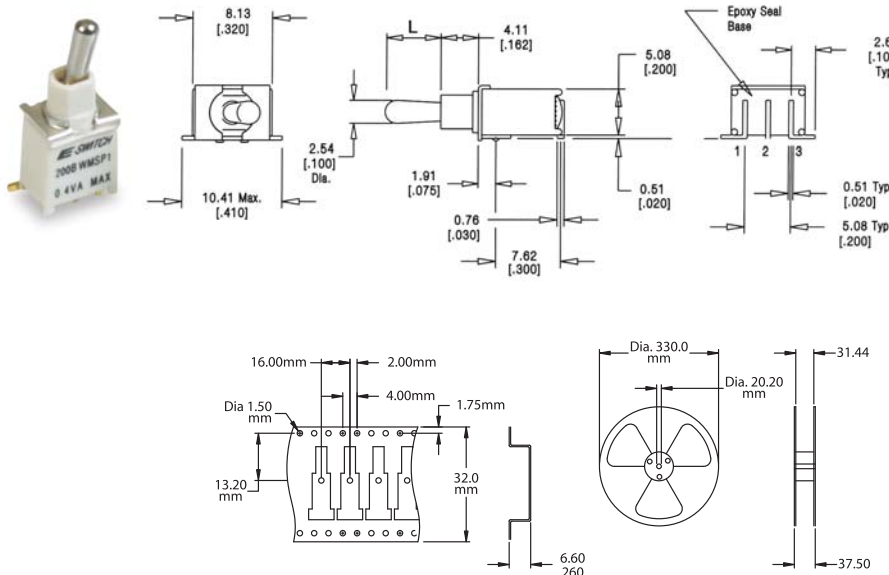
E

E = Epoxy
Sealed at
Base of
Terminal

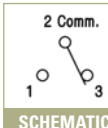
Example Ordering Number

200B-WMSP2-T2-A1-SM6-R-E

Specifications subject to change without notice.



P.C. MOUNTING

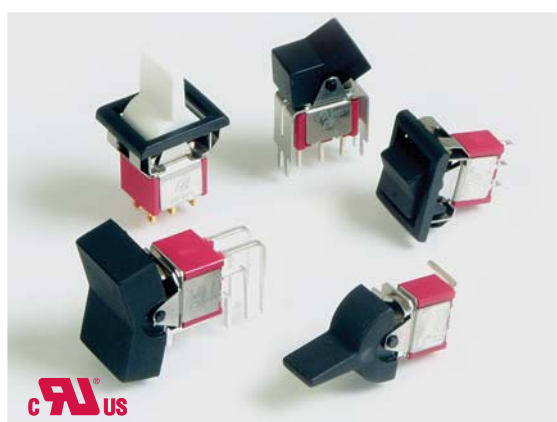


SERIES 300 SWITCHES

ROCKER AND PADDLE SWITCHES - MINIATURE



E-SWITCH®



FEATURES & BENEFITS

- ▶ Multiple rocker & paddle options
- ▶ Up to 4 poles
- ▶ Multiple termination options
- ▶ Snap-in panel mount option available

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Instrumentation
- ▶ Test equipment
- ▶ Networking
- ▶ Computer peripherals

SPECIFICATIONS

Contact Rating:	Dependent upon contact material
Life Expectancy:	50,000 make-and-break cycles at full load
Contact Resistance:	10 mΩ max. initial @ 2-4 VDC 100 mA for both silver and gold plated contacts
Insulation Resistance:	1,000 MΩ min.
Dielectric Strength:	1,000 V RMS @ sea level
Operating Temperature:	-30° C to 85° C

MATERIALS

Case:	Diallyl Phthalate (DAP)
Rockers:	Nylon
Bushing:	Brass, nickel plated
Housing:	Stainless steel
Terminal/Switch Support:	Brass, steel, electrotin plated
Contacts/Terminals:	Silver or gold plated copper alloy



HOW TO ORDER

SERIES 300	MODEL NO. [][]	ACTUATOR [][]	ACTUATOR** COLOR [][]	TERMINATION [][]	CONTACT MATERIAL []	SEAL E	FRAME** COLOR [][]
	SP1 SP2 SP3 SP4 SP5 DP1 DP2 DP3 DP4 DP5 DP6 DP7 DP8 3P1 3P2 3P3 3P4 3P5 4P1 4P2 4P3 4P4 4P5 4P6	<u>Panel Mount:</u> R1 R2 R3 R4 R6* R7* R8* R9* R11 R16 *Snap in panel mount	NONE = Black WHT = White RED = Red YEL = Yellow GRY = Gray PUR = Purple **Contact E-Switch for additional colors	M1 M3 M5	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal	(R6, R7 Only) BLK = Black WHT = White RED = Red YEL = Yellow GRY = Gray PUR = Purple **Contact E-Switch for additional colors

(See Above
Model No.
Options)

P.C. Mount:
J1
J2
J3
J4
J5
J6

BLK = Black
WHT = White
RED = Red
YEL = Yellow
GRY = Gray
PUR = Purple

M2
M6
M7
VS2
VS3
VS4
VS5
M61
VS21

Q = Silver
R = Gold

E = Epoxy
Sealed at
Base of
Terminal



Example Ordering Number

300-SP1-R6-RED-M1-R-E-RED

Specifications subject to change without notice.

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

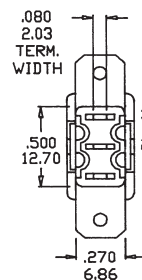
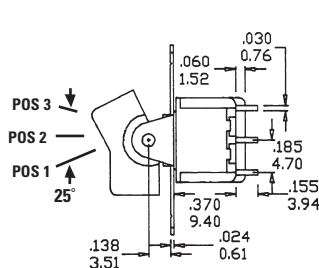
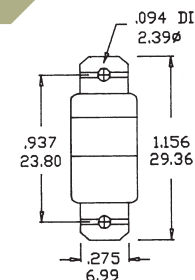
SERIES 300 SWITCHES

ROCKER AND PADDLE SWITCHES - MINIATURE

SPDT

2 Comm.
1 3

SCHEMATIC



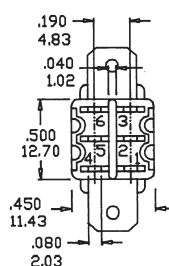
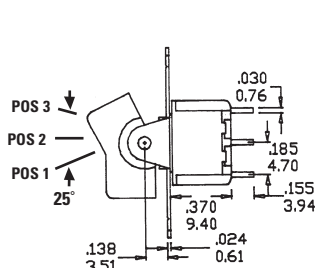
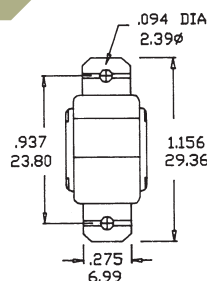
Model No.	POS 1	POS 2	POS 3
SP-1	ON	NONE	ON
SP-2	ON	NONE	(ON)
SP-3	ON	OFF	ON
SP-4	(ON)	OFF	(ON)
SP-5	ON	OFF	(ON)
Term. Comm.	2-3	OPEN	2-1

() = Momentary

DPDT

2 Comm. 5 Comm.
1 3 4 6

SCHEMATIC



Model No.	POS 1	POS 2	POS 3
DP-1	ON	NONE	ON
DP-2	ON	NONE	(ON)
DP-3	ON	OFF	ON
DP-4	(ON)	OFF	(ON)
DP-5	ON	OFF	(ON)
DP-7	ON	ON	(ON)
DP-8	(ON)	ON	(ON)
Term. Comm.	2-3, 5-6	OPEN	2-1, 5-4

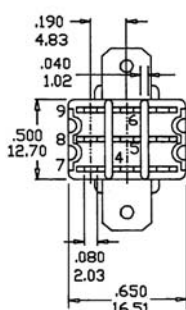
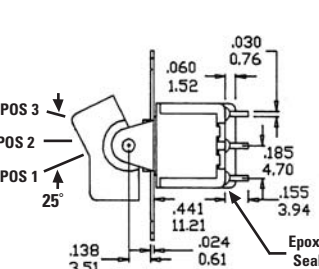
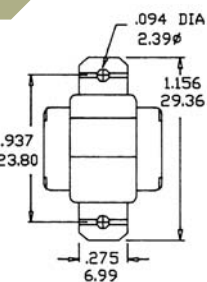
DP-6	ON	ON	ON
Term. Comm.	2-3, 5-6	2-3, 5-4	2-1, 5-4

() = Momentary

3PDT

2 Comm. 5 Comm. 8 Comm.
1 3 4 6 7 9

SCHEMATIC



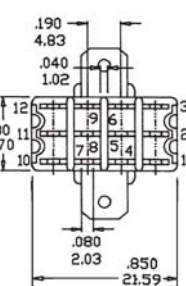
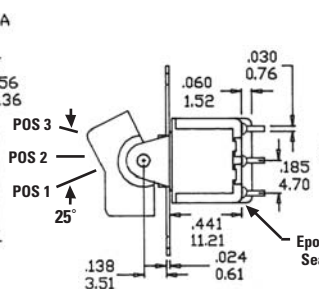
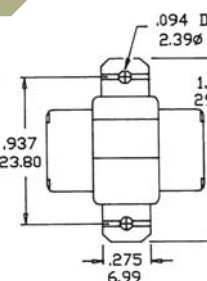
Model No.	POS 1	POS 2	POS 3
3P-1	ON	NONE	ON
3P-2	ON	NONE	(ON)
3P-3	ON	OFF	ON
3P-4	(ON)	OFF	(ON)
3P-5	ON	OFF	(ON)
Term. Comm.	2-3, 5-6 8-9	OPEN	2-1, 5-4 8-7

() = Momentary

4PDT

2 Comm. 5 Comm. 8 Comm. 11 Comm.
1 3 4 6 7 9 10 12

SCHEMATIC



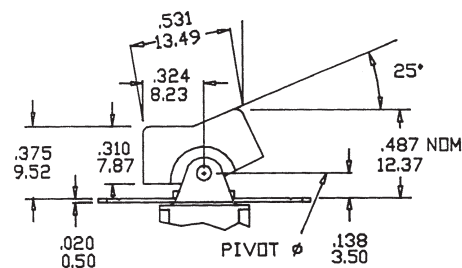
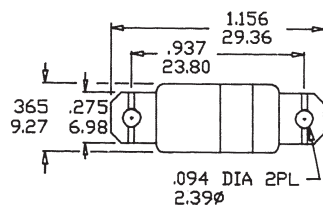
Model No.	POS 1	POS 2	POS 3
4P-1	ON	NONE	ON
4P-2	ON	NONE	(ON)
4P-3	ON	OFF	ON
4P-4	(ON)	OFF	(ON)
4P-5	ON	OFF	(ON)
Term. Comm.	2-3, 5-6 8-9, 11-12	OPEN	2-1, 5-4 8-7, 11-10
4P-6	ON	ON	ON
Term. Comm.	2-3, 5-6 8-9, 11-12	2-3, 5-4 8-9, 11-10	2-1, 5-4 8-7, 11-10

() = Momentary

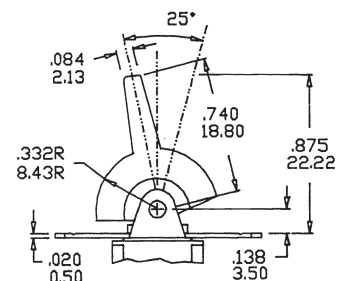
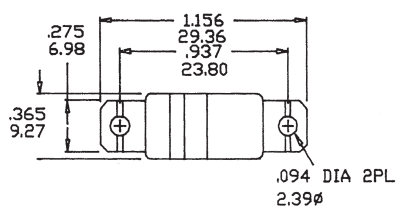


ACTUATOR OPTIONS – PANEL MOUNT

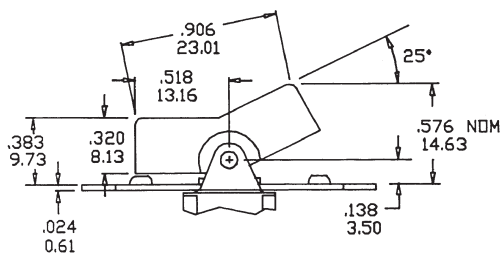
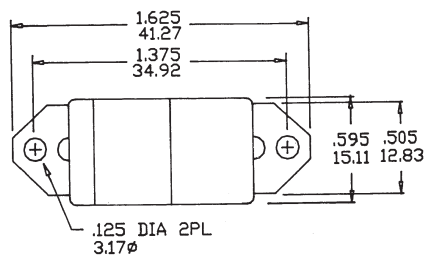
R1



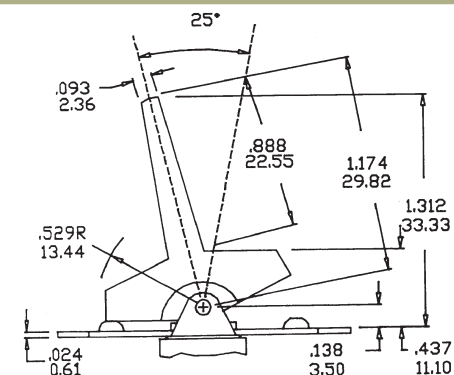
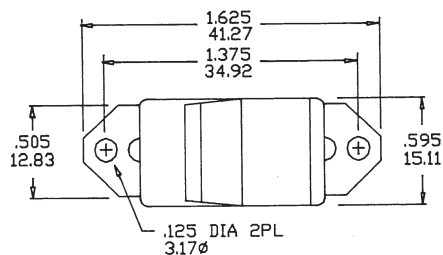
R2



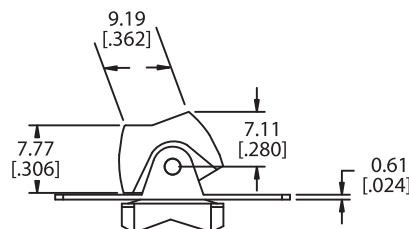
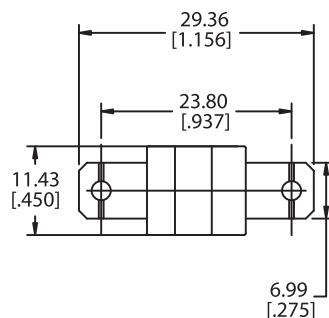
R3



R4



R11



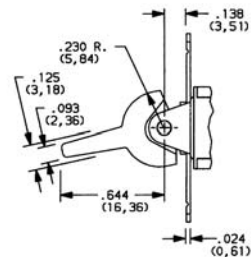
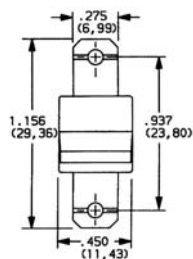


SERIES 300 SWITCHES

ROCKER AND PADDLE SWITCHES - MINIATURE

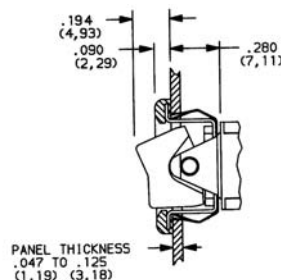
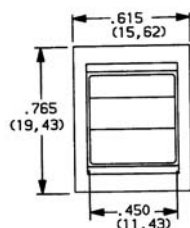
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

R16

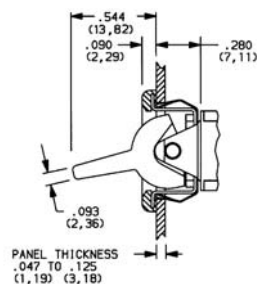
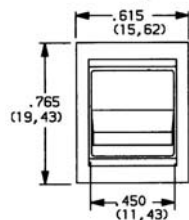


ACTUATOR OPTIONS – SNAP-IN FRONT MOUNT

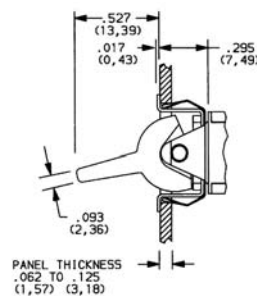
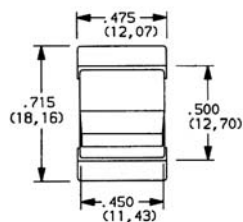
R6



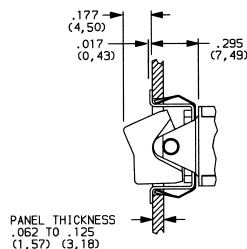
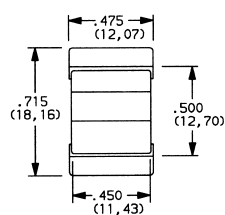
R7



R8



R9

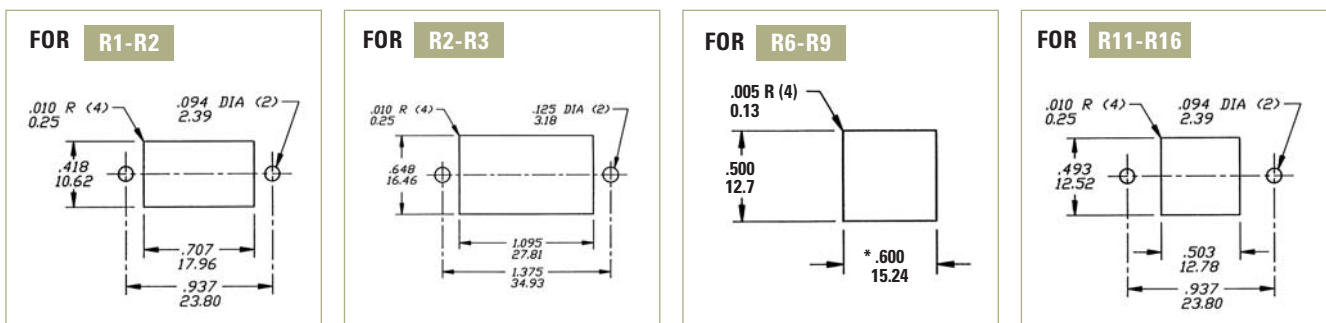


Actuator & Frame Colors:

Black, White, Red

Consult E-Switch for other colors and custom actuator marking.

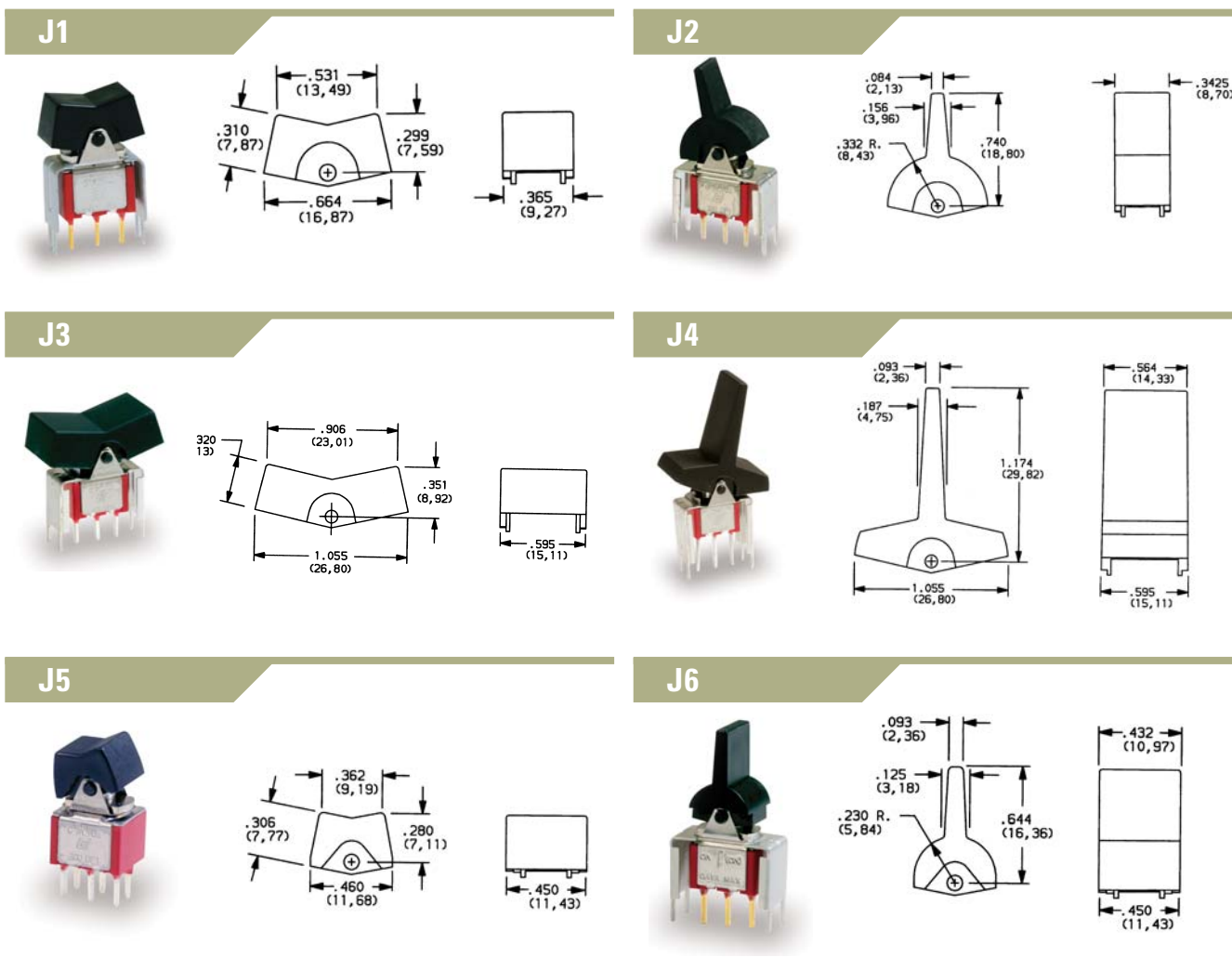
RECOMMENDED PANEL MOUNTING



* For R8 and R9: Increase this dim. to .620/.625 (15.75/15.88) for .091/.125 (2.31/3.18) thk. panels.

* For R6 and R7: Increase this dim. to .620/.625 (15.75/15.88) for .060/.125 (1.52/3.18) thk. panels.

ACTUATOR OPTIONS – P.C. MOUNT



Actuator & Frame Colors:

Black, White, Red

Consult E-Switch for other colors and custom actuator marking.

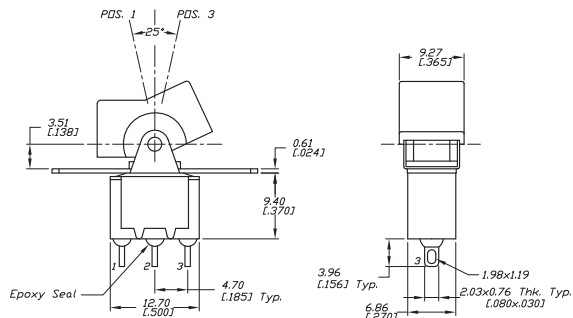
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 300 SWITCHES

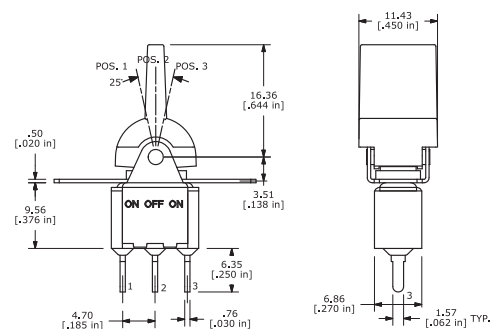
ROCKER AND PADDLE SWITCHES - MINIATURE

TERMINATION OPTIONS – PANEL MOUNT

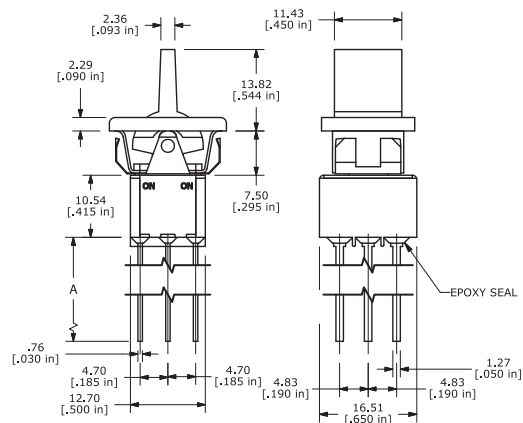
M1 STD



M3 QUICK CONNECT



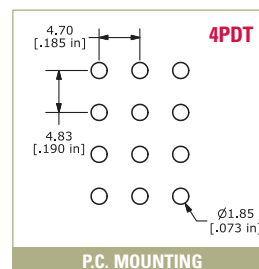
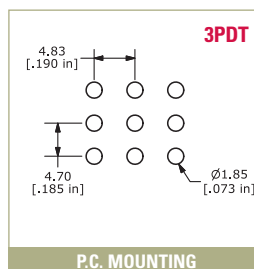
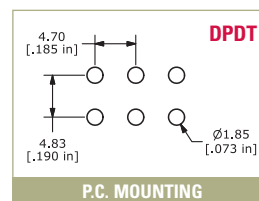
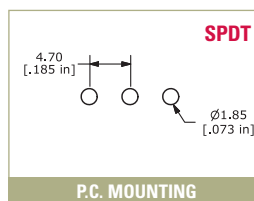
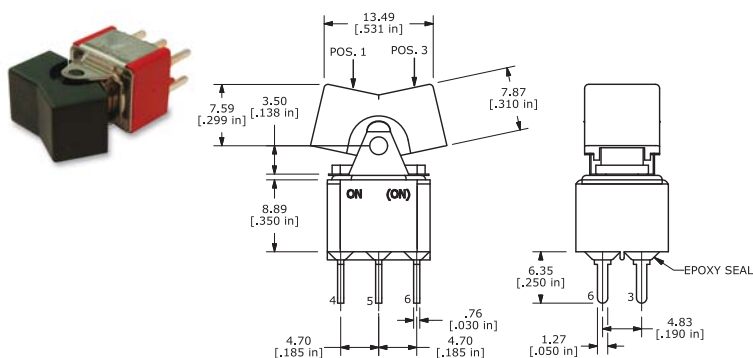
M5

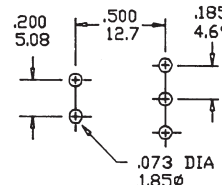
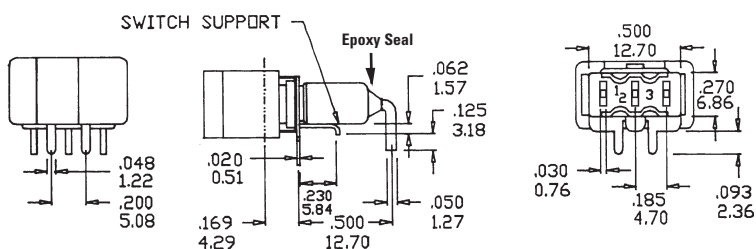


Option Code	Dim. 'A'
M51	.750 (19.05)
M52	.964 (24.48)
M53	.425 (10.80)
M54	1.062 (26.97)

TERMINATION OPTIONS – P.C. MOUNT

M2

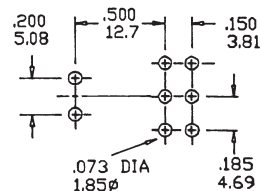
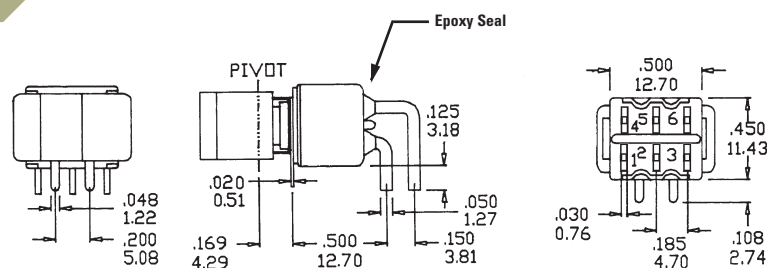


**M6**SPST
Shown with J1
Actuator

P.C. MOUNTING

M6

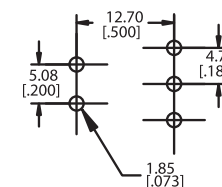
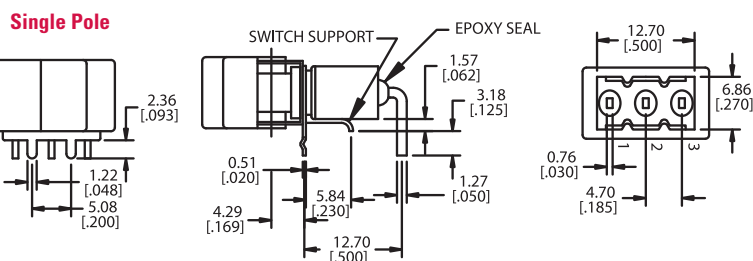
DPDT



P.C. MOUNTING

M61WITH P.C. BOARD
RETENTION BRACKET

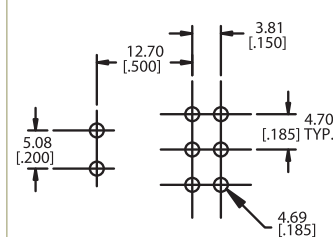
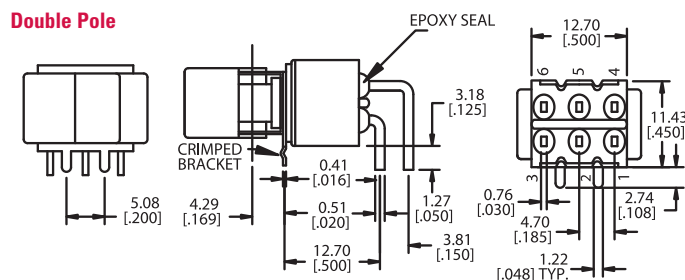
SPST



P.C. MOUNTING

M61WITH P.C. BOARD
RETENTION BRACKET

DPDT



P.C. MOUNTING



TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

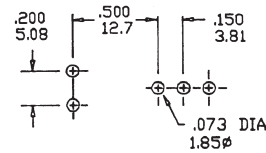
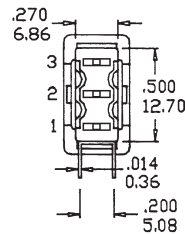
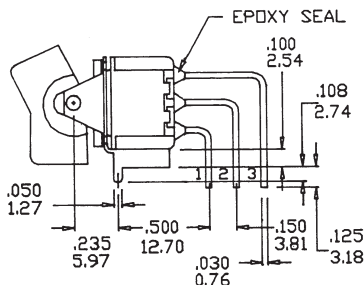
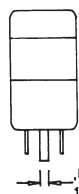
CAP
OPTIONS

SERIES 300 SWITCHES

ROCKER AND PADDLE SWITCHES - MINIATURE

M7

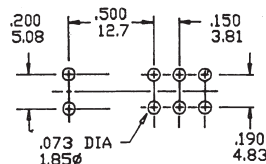
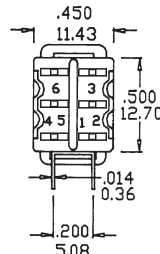
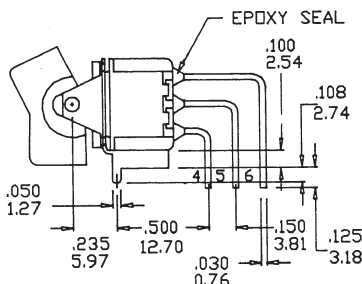
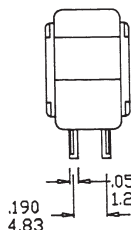
SPDT



P.C. MOUNTING

M7

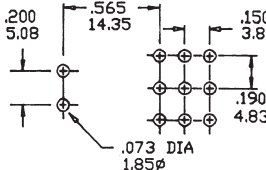
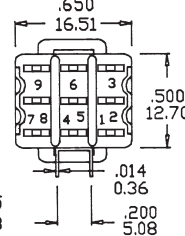
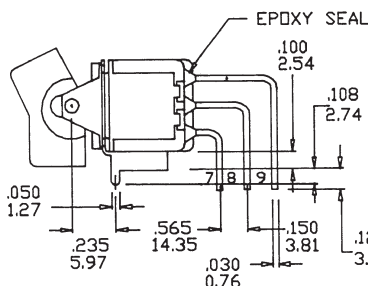
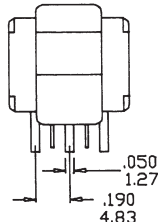
DPDT



P.C. MOUNTING

M7

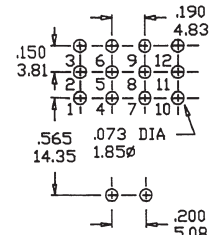
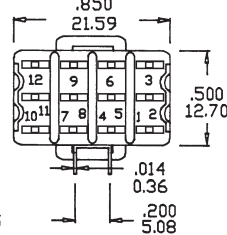
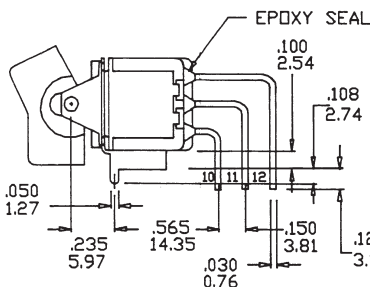
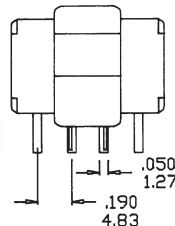
3PDT



P.C. MOUNTING

M7

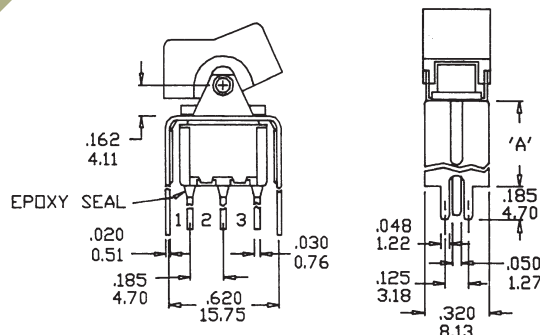
4PDT



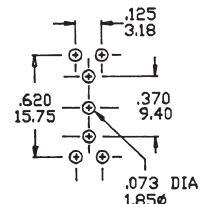
P.C. MOUNTING

VS2-VS3

SPDT



Option Code	Dim. 'A'
VS2	.460 (11.68)
VS3	.630 (16.00)

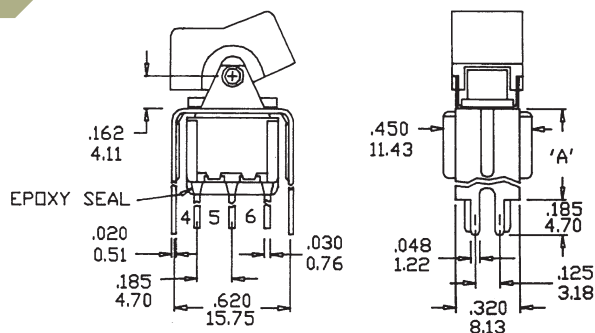


P.C. MOUNTING

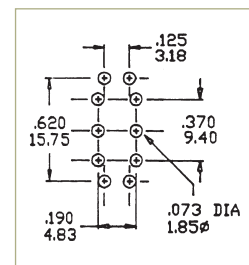


VS2-VS3

DPDT



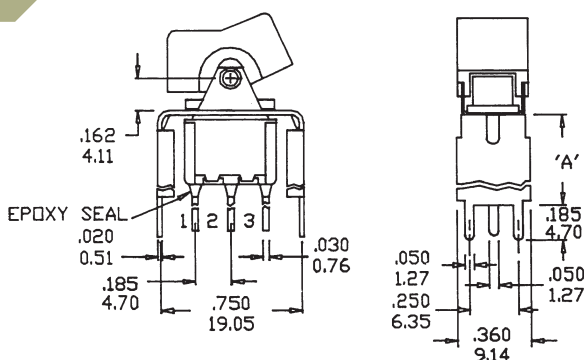
Option Code	Dim. 'A'
VS2	.460 (11.68)
VS3	.630 (16.00)



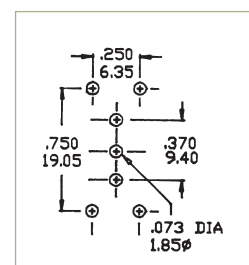
P.C. MOUNTING

VS4-VS5

SPDT



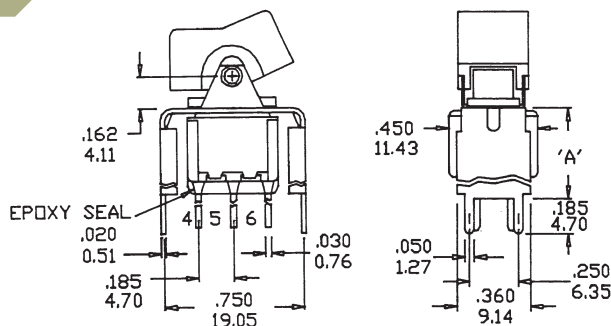
Option Code	Dim. 'A'
VS4	.460 (11.68)
VS5	.630 (16.00)



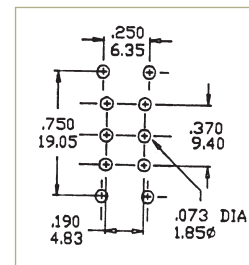
P.C. MOUNTING

VS5

DPDT



Option Code	Dim. 'A'
VS5	.630 (16.00)



P.C. MOUNTING

CONTACT MATERIAL OPTIONS

Q

Fixed Terminal:	Silver plated copper alloy
Moving Contact:	Silver plated copper alloy
Rating:	5 Amps with resistive load @ 120VAC or 28VDC; 2 Amps with resistive load @ 250VAC

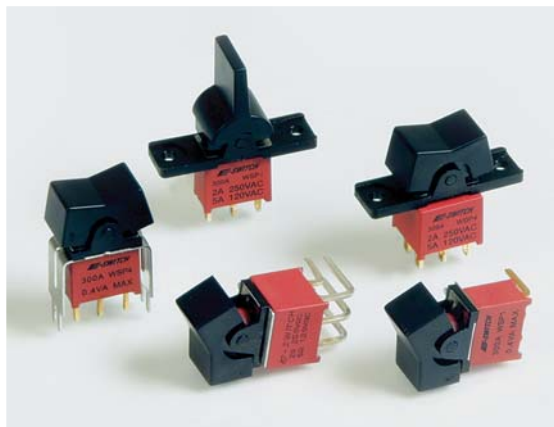
R

Fixed Terminal:	Copper alloy with gold plate over nickel plate
Moving Contact:	Copper alloy with gold plate over nickel plate
Rating:	0.4 Volt-Amps (VA) max. @ 20V max. (AC or DC)

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 300A SWITCHES

ROCKER AND PADDLE SWITCHES - PROCESS SEALED MINIATURE



FEATURES & BENEFITS

- ▶ Multiple rocker & paddle options
- ▶ Multiple termination options
- ▶ Sealed to IP67

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Instrumentation
- ▶ Test equipment
- ▶ Networking
- ▶ Computer peripherals

SPECIFICATIONS

Contact Rating:	Dependent upon contact material
Life Expectancy:	30,000 make-and-break cycles at full load
Contract Resistance:	10 mΩ typ. initial @ 2-4 V DC, 100 mA for both silver and gold plated contacts
Insulation Resistance:	1,000 MΩ min.
Dielectric Strength:	1,000 V RMS @ sea level
Operating Temperature:	-30° C to 85° C

MATERIALS

Housing:	Glass filled nylon, flame retardant, heat stabilized (UL 94-V0).
Actuator:	Nylon, black std. (UL 94-HB)
Actuator Seal:	Internal O-Ring
Switch Support:	Brass or steel, tin plated
Actuator Pivot & Mounting Bracket:	Nylon (UL 94-HB)
Actuator Pivot Retainer:	Stainless steel
Contacts / Terminals:	Silver or gold plated copper alloy
Terminal Seal:	Epoxy



HOW TO ORDER

SERIES 300A	MODEL NO. □ □ □ □	ACTUATOR □ □ □	COLOR □ □ □	TERMINATION □ □	CONTACT MATERIAL □	SEAL E
	WSP1 WSP2 WSP3 WSP4 WSP5 WDP1 WDP2 WDP3 WDP4 WDP5	<u>Panel Mount:</u> R1 R2 R11 R16	BLK =Black RED =Red WHT=White	M1 M3	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal
	(See Above Model No. Options)	<u>P.C. Mount:</u> J1 J2 J3 J4 J5 J6	BLK =Black RED =Red WHT=White	M2 M6 M7 VS2 VS3 M61 M71 VS21	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal



Example Ordering Number

300A-WSP5-R11-WHT-M1-Q-E

Specifications subject to change without notice.

Actuator & Frame Colors:

Black, White, Red

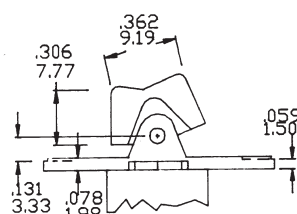
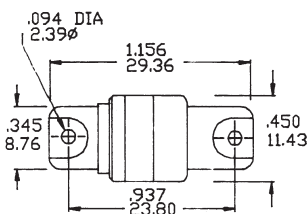
Consult E-Switch for other colors and custom actuator marking.

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

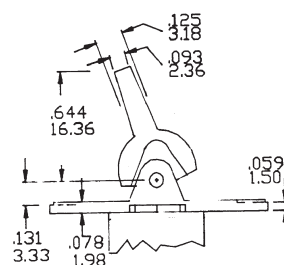
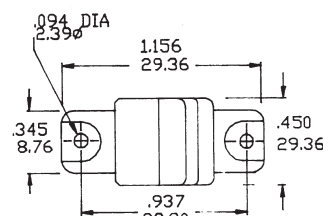
SERIES 300A SWITCHES

ROCKER AND PADDLE SWITCHES - PROCESS SEALED MINIATURE

R11

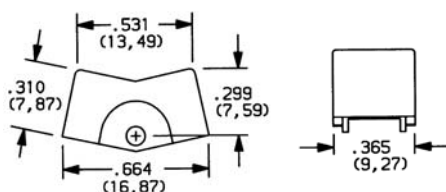


R16

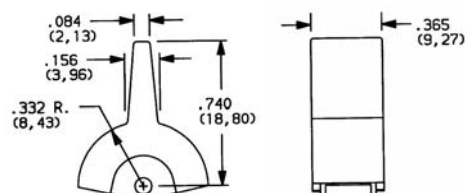


ACTUATOR OPTIONS - P.C. MOUNT

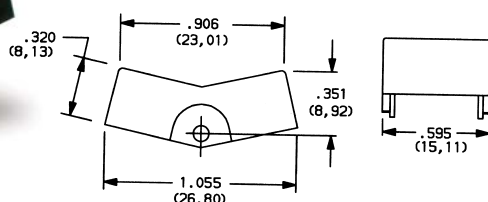
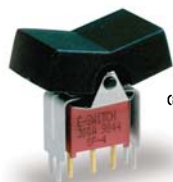
J1



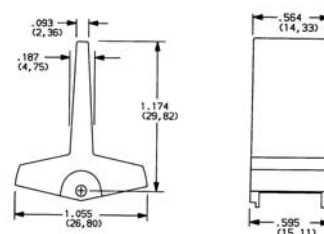
J2



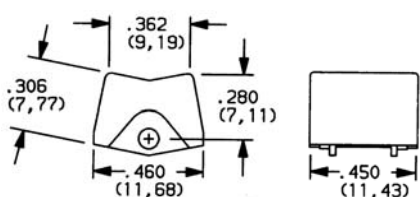
J3



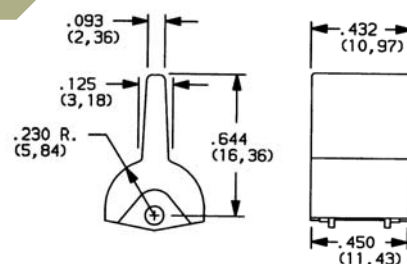
J4



J5



J6

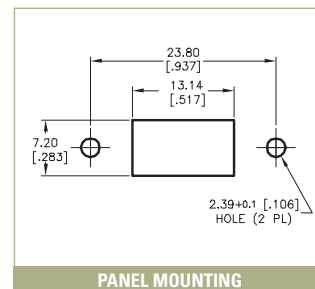
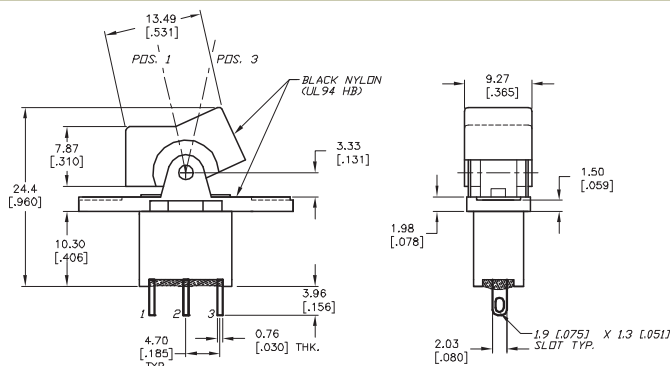




TERMINATION OPTIONS – PANEL MOUNT

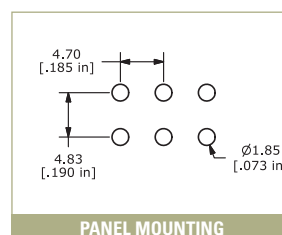
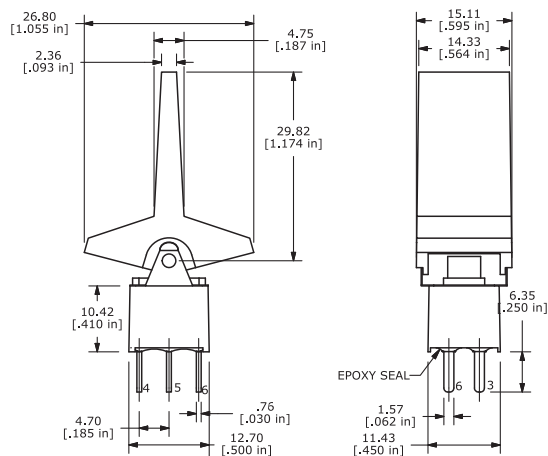
M1

STD



M3

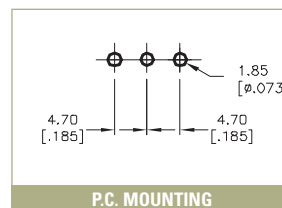
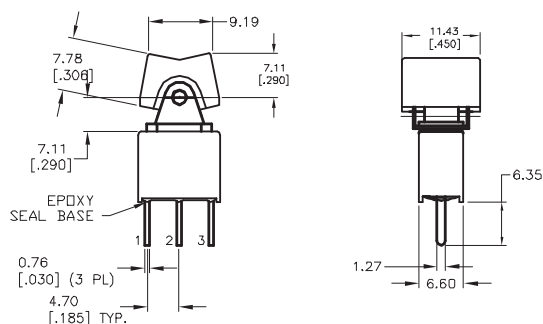
QUICK CONNECT



TERMINATION OPTIONS – P.C. MOUNT

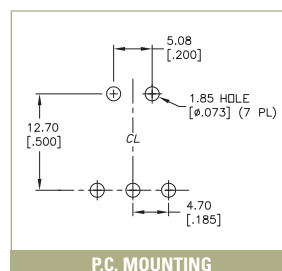
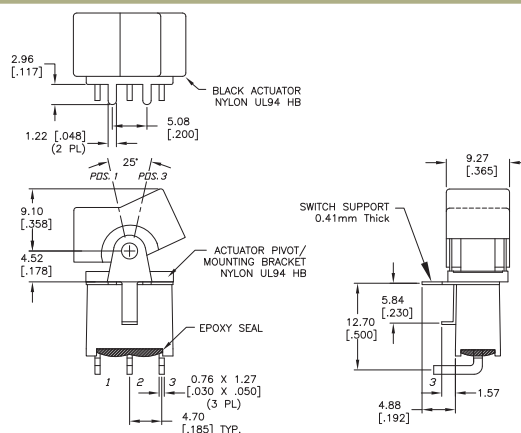
M2

STD



M6

SPDT



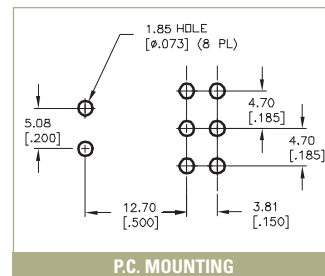
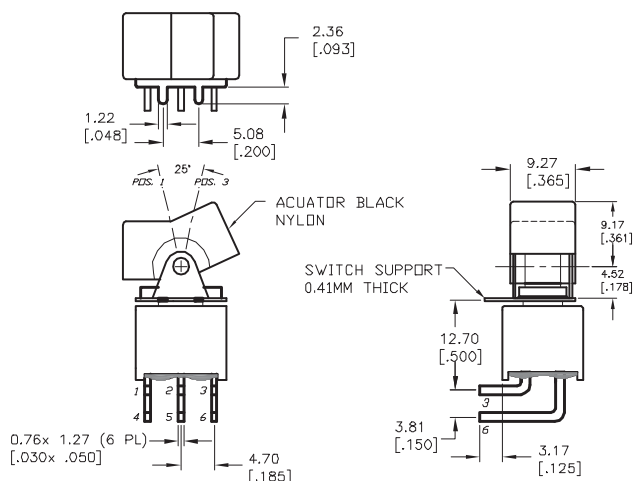
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 300A SWITCHES

ROCKER AND PADDLE SWITCHES - PROCESS SEALED MINIATURE

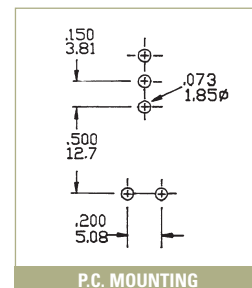
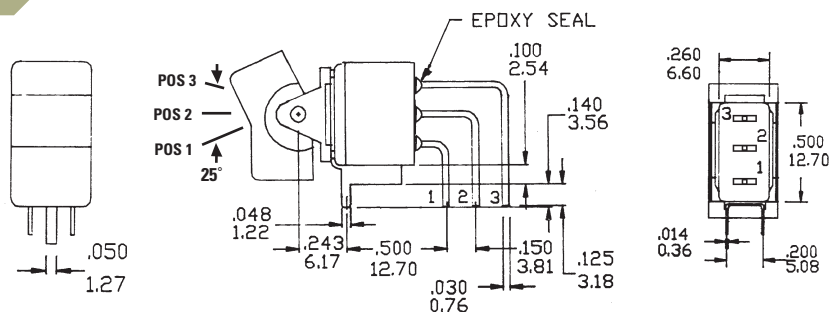
M6

DPDT



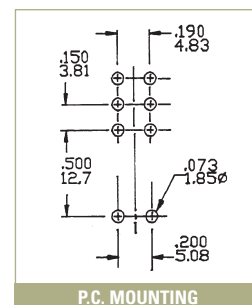
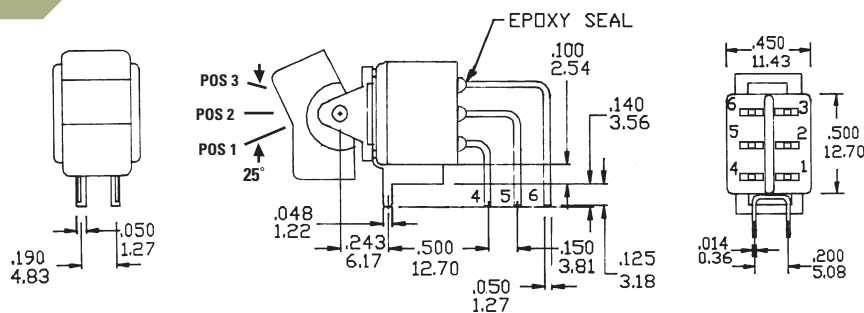
M7

SPDT



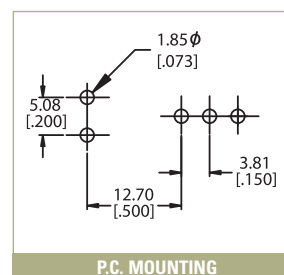
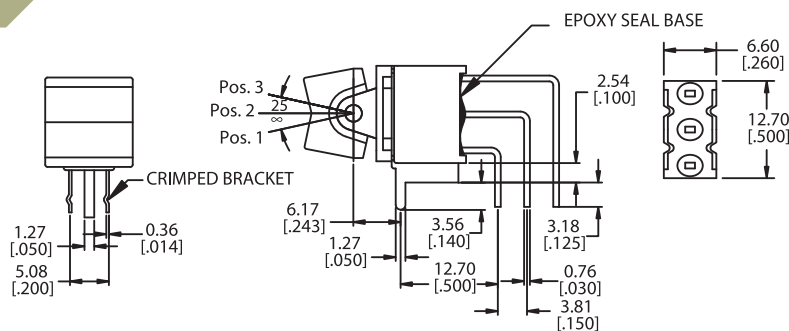
M7

DPDT



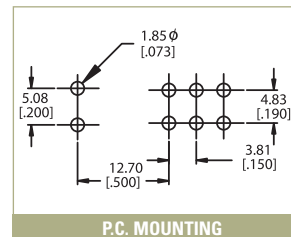
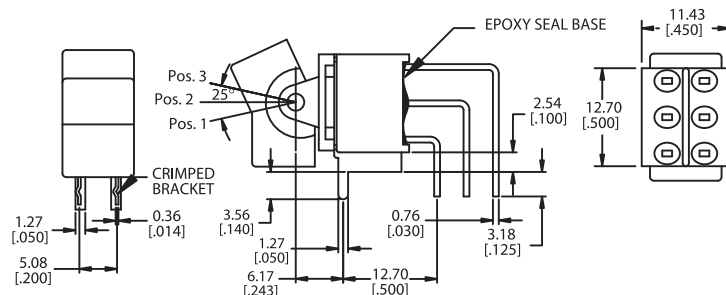
M71

SPDT

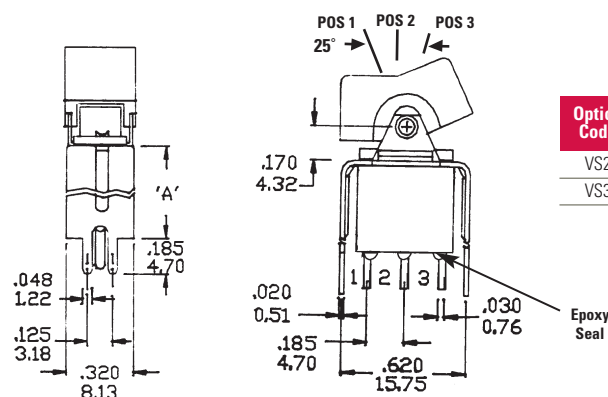


**M71**

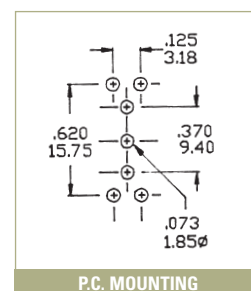
DPDT

**VS2-VS3**

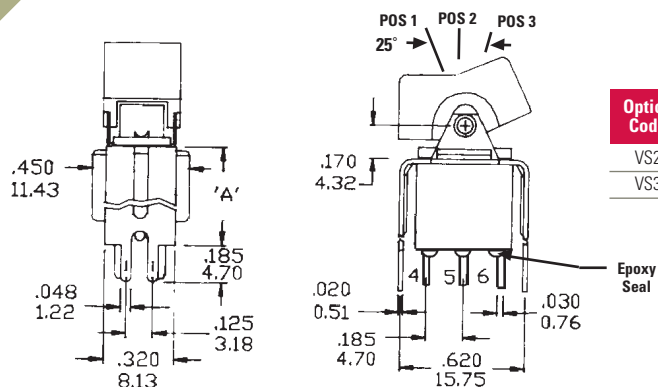
SPDT



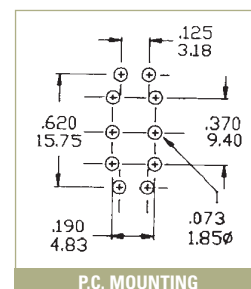
Option Code	Dim. 'A'
VS2	.460 (11.68)
VS3	.630 (16.00)

**VS2-VS3**

DPDT



Option Code	Dim. 'A'
VS2	.460 (11.68)
VS3	.630 (16.00)

**CONTACT MATERIAL OPTIONS****Q**

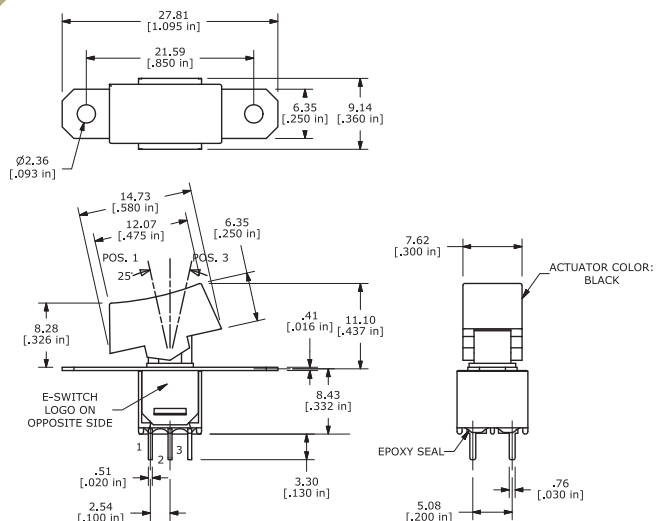
Fixed Terminal:	Gold flash over silver plated copper alloy
Moving Contact:	Silver plated copper alloy
Rating:	5 Amps with resistive load @ 120VAC or 28VDC; 2 Amps with resistive load @ 250VAC

R

Fixed Terminal:	Copper alloy with gold plate over nickel plate
Moving Contact:	Copper alloy with gold plate overnickel plate
Rating:	0.4 Volt-Amps (VA) max. @ 20V max. (AC or DC)

CAP
OPTIONS

SCHEMATIC



Model No.	POS 1 	POS 2 	POS 3 
MDP-1	ON	NONE	ON
MDP-2	ON	NONE	(ON)
MDP-3	ON	OFF	ON
Term. Comm.	2-3, 5-6	OPEN	2-1, 5-4

() = Momentary

ACTUATOR OPTIONS

Std. all models except SPDT with M6 terminations.

Std. on SPDT models with M6 terminations.

TERMINATION OPTIONS

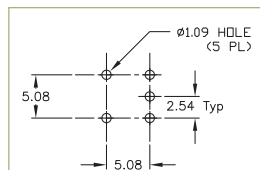
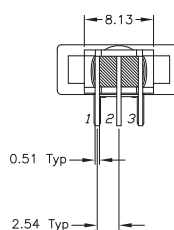
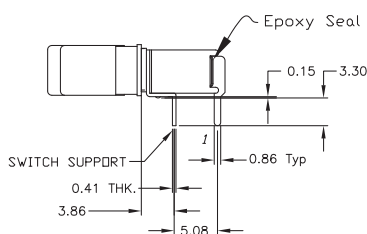
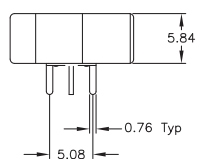
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 400 SWITCHES

ROCKER SWITCHES - SUB-MINIATURE

M6

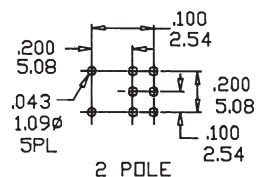
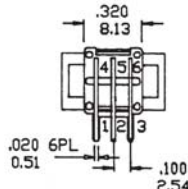
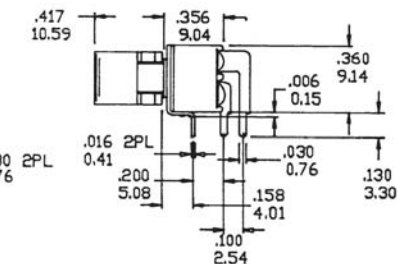
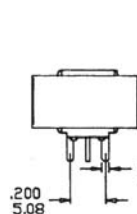
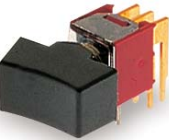
SPDT



P.C. MOUNTING

M6

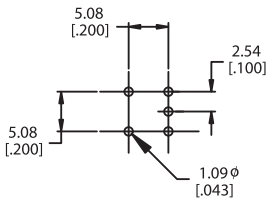
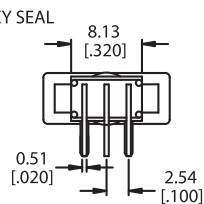
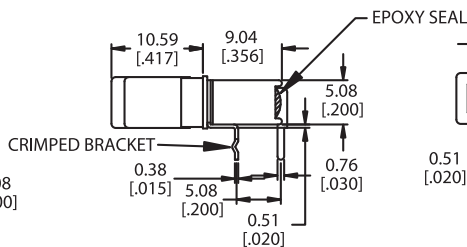
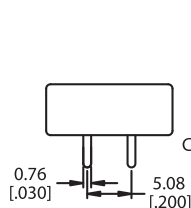
DPDT



P.C. MOUNTING

M61

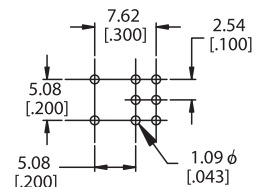
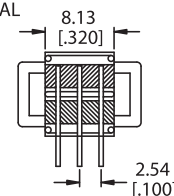
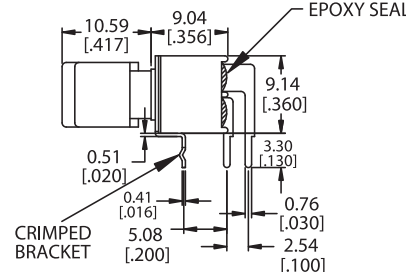
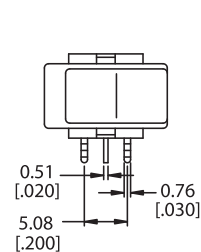
SPDT



P.C. MOUNTING

M61

DPDT



P.C. MOUNTING

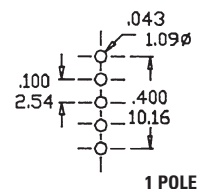
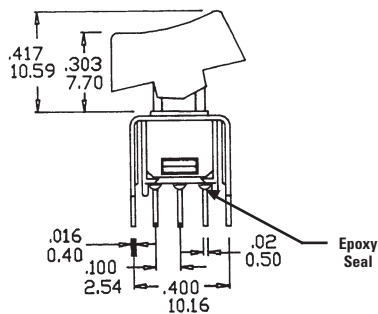
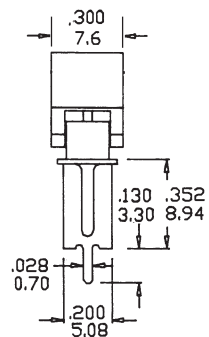
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 400 SWITCHES

ROCKER SWITCHES - SUB-MINIATURE

VS2

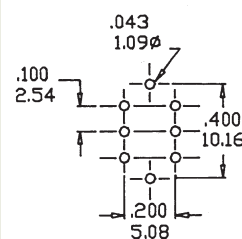
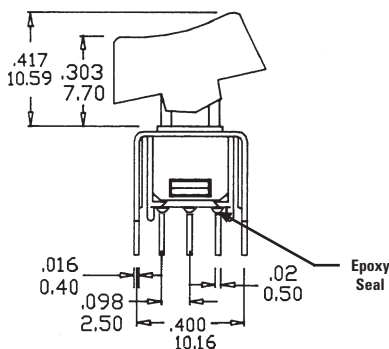
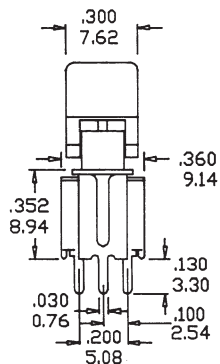
SPDT



P.C. MOUNTING

VS2

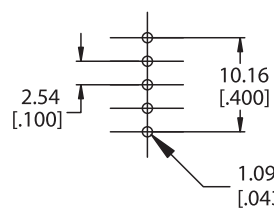
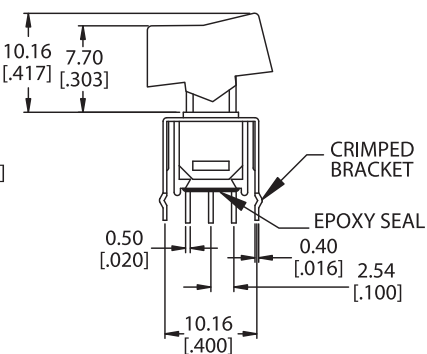
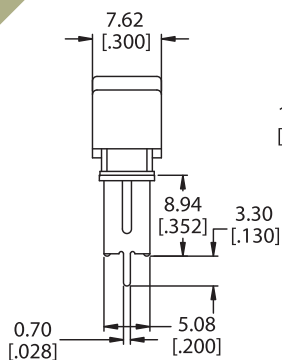
DPDT



P.C. MOUNTING

VS21

SPDT



P.C. MOUNTING

CONTACT MATERIAL OPTIONS

Q

Fixed Terminal:	Silver plated copper alloy
Moving Contact:	Silver plated copper alloy
Rating:	3 AMPS @ 120 VAC or 28 VDC; 1 AMP @ 250VAC

R

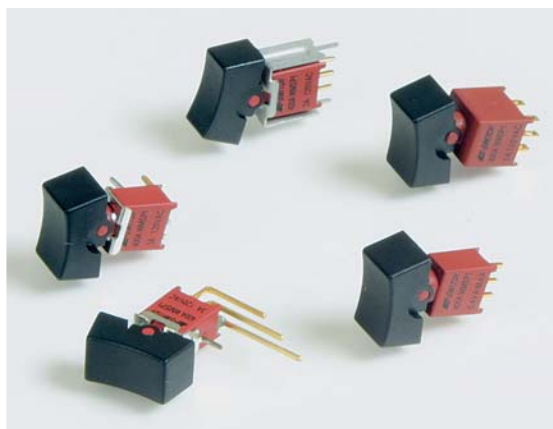
Fixed Terminal:	Copper alloy with gold plate over nickel plate
Moving Contact:	Copper alloy with gold plate over nickel plate
Rating:	0.4 VA max. @ 20 VAC or DC max.



E-SWITCH®

SERIES 400A SWITCHES

ROCKER SWITCHES - PROCESS SEALED SUB-MINIATURE



FEATURES & BENEFITS

- ▶ Variety of switching functions
- ▶ Sub-miniature
- ▶ Sealed to IP67

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Instrumentation
- ▶ Test equipment
- ▶ Networking
- ▶ Computer peripherals

SPECIFICATIONS

Contact Rating:	See contact material options
Life Expectancy:	30,000 make-and-break cycles at full load
Contact Resistance:	10 mΩ typ. initial @ 2-4 V DC, 100 mA for both silver and gold plated contacts
Insulation Resistance:	1,000 MΩ min
Dielectric Strength:	1,000 V RMS @ sea level
Operating Temperature:	-30° C to 85° C

MATERIALS

Housing:	Glass filled nylon, flame retardant, heat stabilized (UL 94-V0)
Actuator:	Nylon, black std. (UL94-HB)
Actuator Seal:	Internal O-Ring
Switch Support:	Brass or steel, tin plated
Actuator Pivot & Mounting Bracket:	Nylon (UL94-HB)
Actuator Pivot Retainer:	Stainless steel
Contacts / Terminals:	Silver or gold plated copper alloy
Terminal Seal:	Epoxy



HOW TO ORDER

SERIES 400A	MODEL NO.	ACTUATOR	ACTUATOR COLOR	TERMINATION	CONTACT MATERIAL	SEAL E
	WMSP1 WMSP2 WMSP3 WMSP4 WMSP5 WMDP1 WMDP2 WMDP3	R1 = Std.	BLK =Black WHT=White RED =Red	M1 M2 M6 M7 VS2 M61 M71 VS21	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal



Example Ordering Number

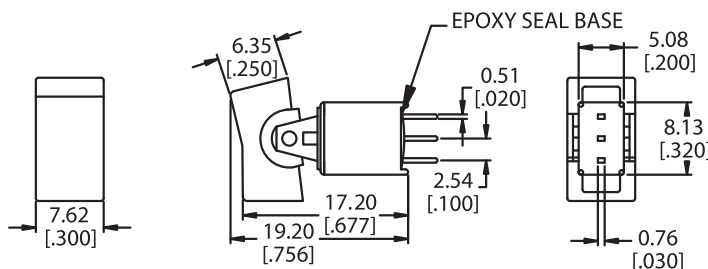
400A-WMSP3-R1-BLK-M1-Q-E

Specifications subject to change without notice.

SPDT

2 Comm.
1 3

SCHEMATIC



Model No.	POS 1	POS 2	POS 3
WMSP-1	ON	NONE	ON
WMSP-2	ON	NONE	(ON)
WMSP-3	ON	OFF	ON
WMSP-4	(ON)	OFF	(ON)
WMSP-5	ON	OFF	(ON)
Term. Comm.	2-3	OPEN	2-1

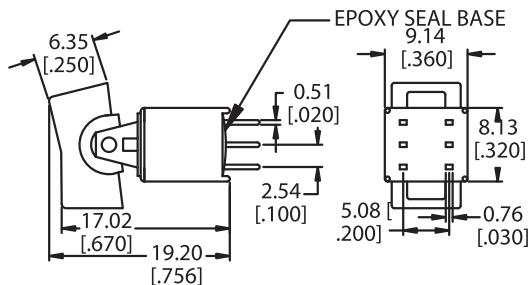
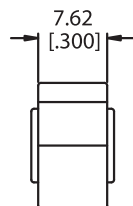
() = Momentary

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 400A SWITCHES

ROCKER SWITCHES - PROCESS SEALED SUB-MINIATURE

DPDT



Model No.	POS 1	POS 2	POS 3
WMMP-1	ON	NONE	ON
WMMP-2	ON	NONE	(ON)
WMMP-3	ON	OFF	ON
Term. Comm.	2-3, 5-6	OPEN	2-1, 5-4

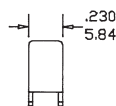
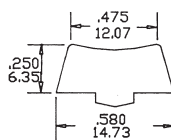
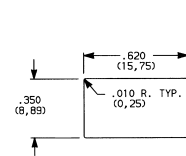
() = Momentary

2 Comm. 5 Comm.
1 3 4 6

SCHEMATIC

ACTUATOR OPTIONS

R1



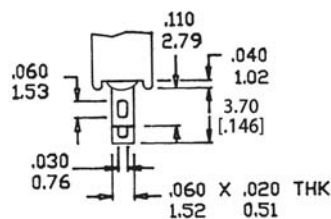
TERMINATION OPTIONS

M1

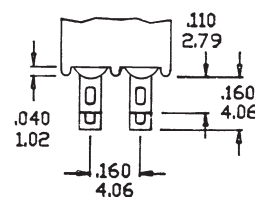
SOLDER LUG



Single Pole



Double Pole

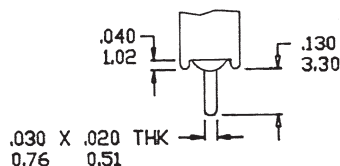


M2

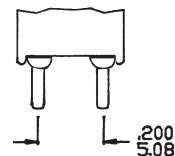
P.C. MOUNT



Single Pole

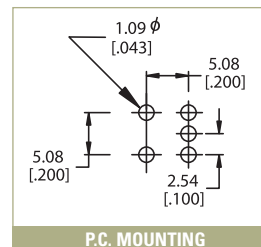
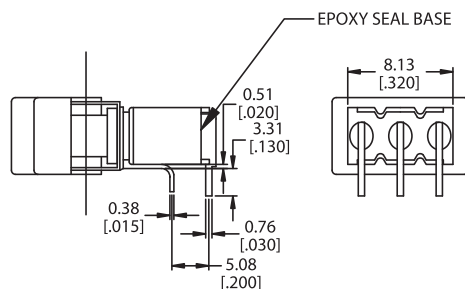
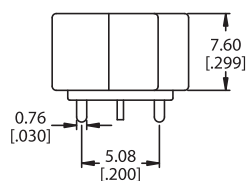


Double Pole



**M6**

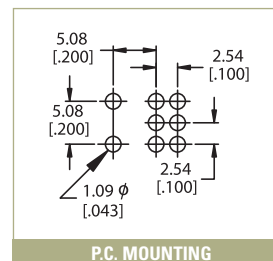
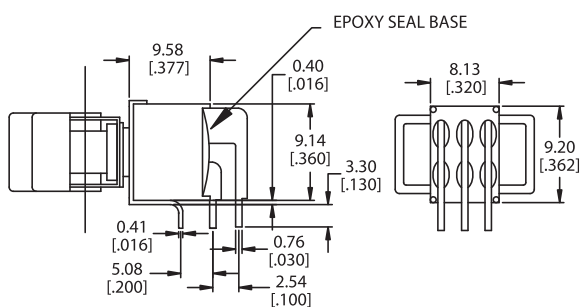
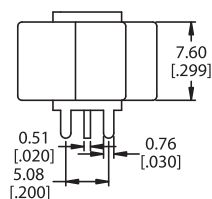
SPDT

**Single Pole**

P.C. MOUNTING

M6

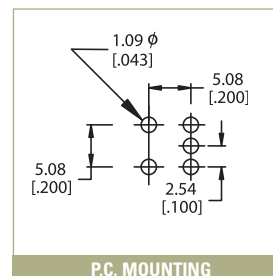
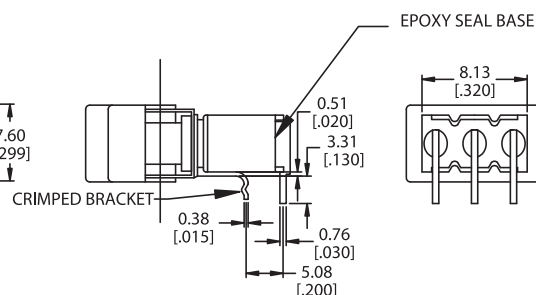
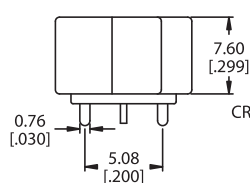
DPDT

**Double Pole**

P.C. MOUNTING

M61

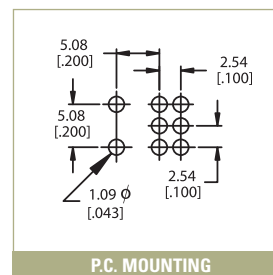
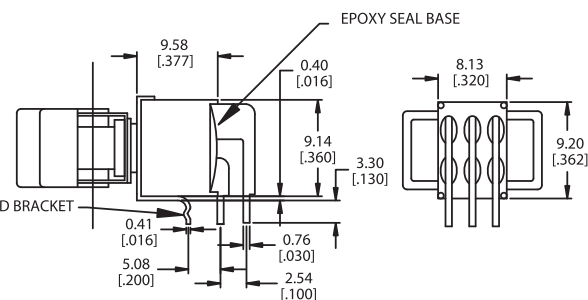
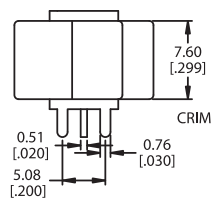
SPDT

**Single Pole**

P.C. MOUNTING

M61

DPDT

**Double Pole**

P.C. MOUNTING

M61 Termination includes
crimped bracket

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS



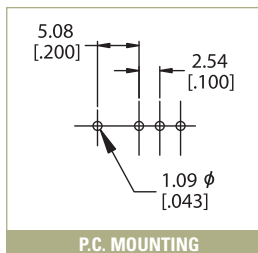
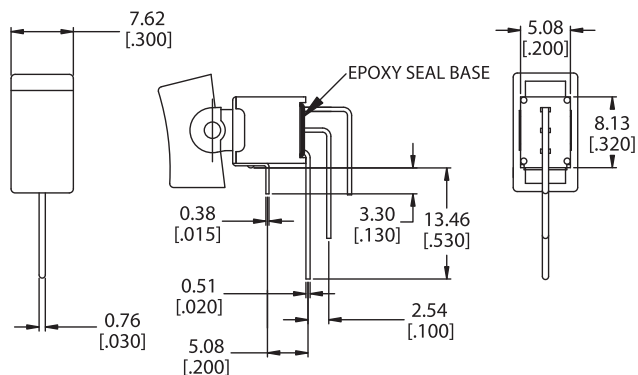
SERIES 400A SWITCHES

ROCKER SWITCHES - PROCESS SEALED SUB-MINIATURE

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

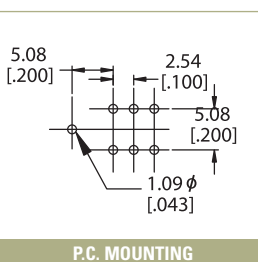
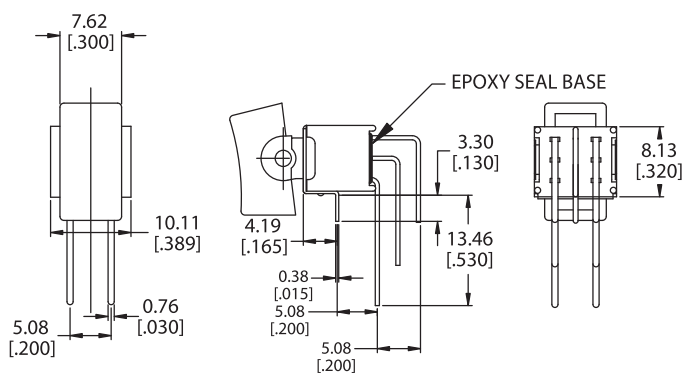
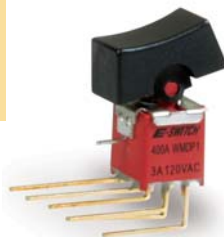
M7

SPDT



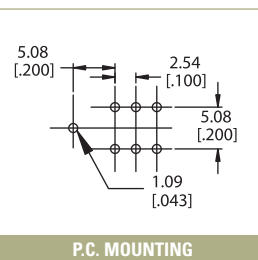
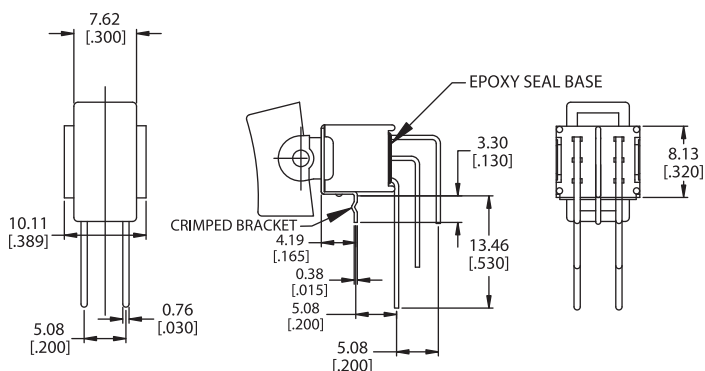
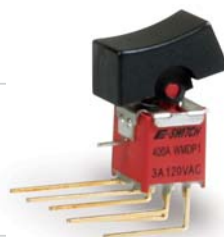
M7

DPDT



M71

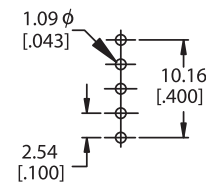
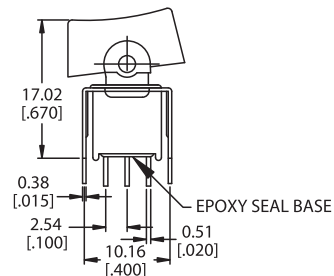
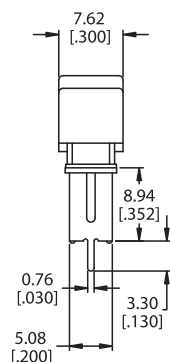
DPDT



M71 Termination includes crimped bracket

**VS2**

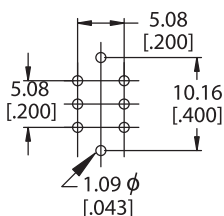
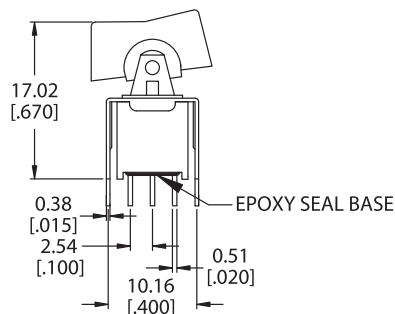
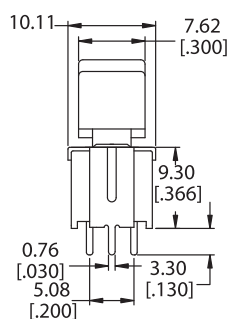
SPDT



P.C. MOUNTING

VS2

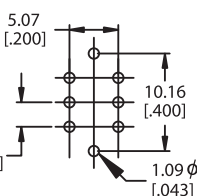
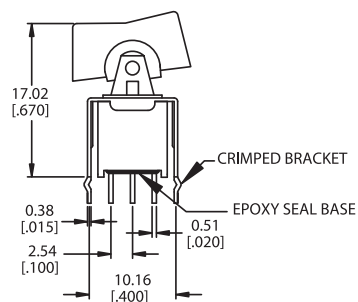
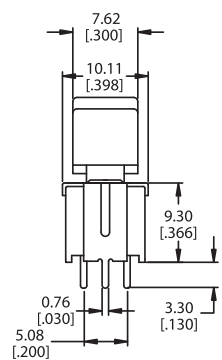
DPDT



P.C. MOUNTING

VS21

DPDT



P.C. MOUNTING

CONTACT MATERIAL OPTIONS**Q**

Fixed Terminal:	Silver plated copper alloy
Moving Contact:	Silver plated copper alloy
Rating:	3 AMPS @ 120 VAC or 28 VDC; 1.0 AMP @ 250VAC

R

Fixed Terminal:	Copper alloy with gold plate over nickel plate
Moving Contact:	Copper alloy with gold plate over nickel plate
Rating:	0.4 VA max. @ 20 VAC or DC max.

TACT
SWITCHES

NAVIGATION SWITCHES

PUSHBUTTON SWITCHES

TOGGLE SWITCHES

ROCKER SWITCHES

SLIDE SWITCHES

SNAP-ACTION SWITCHES

DIP SWITCHES

KEYLOCK SWITCHES

ROTARY SWITCHES

DETECTOR
SWITCHESCAP
OPTIONS

Contact Rating:	3A @ 120VAC; 1A @ 250VAC
Life Expectancy:	50,000 make-and-break cycles at full load
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC 100 mA
Insulation Resistance:	1000M Ω min.
Dielectric Strength:	1,000 V RMS @ sea level
Operating Temperature:	-30° C to 85° C
Packaging:	Tape & Reel

MATERIALS

Case & Bushing:	High temp material, glass filled 4/6 Nylon, flame retardant, heat stabilized (UL94-V0)
Actuator:	Brass, chrome plated with internal O-ring seal standard
Switch Support:	Brass/Steel, tin or tin-lead plated
Contacts / Terminals:	Silver or gold plate over nickel plated copper alloy
Terminal Seal:	Epoxy

APPLICATIONS/MARKETS

- ▶ Variety of switching functions
- ▶ Sub-miniature
- ▶ Surface mount
- ▶ Sealed to IP67

- ▶ Telecommunications
- ▶ Instrumentation
- ▶ Test equipment
- ▶ Networking
- ▶ Computer peripherals

HOW TO ORDER

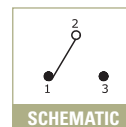
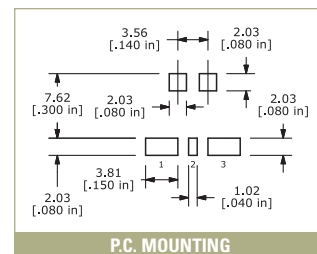
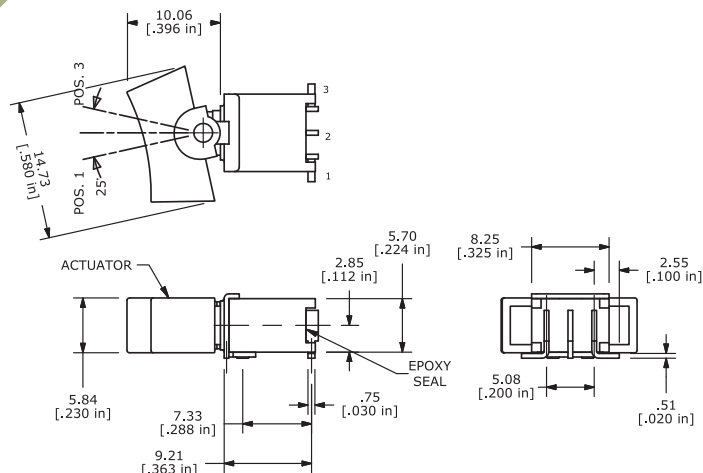
SERIES 400B	MODEL NO. □ □ □ □ □	ACTUATOR □ □	ACTUATOR COLOR □ □ □	TERMINATION □ □ □	CONTACT MATERIAL □	SEAL E
	WMSP1 WMSP2 WMSP3 WMSP4 WMSP5	R2 = Std.	BLK = Black	SM6	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal

Model No.	POS 1 	POS 2 	POS 3 
WMSP-1	ON	NONE	ON
WMSP-2	ON	NONE	(ON)
WMSP-3	ON	OFF	ON
WMSP-4	(ON)	OFF	(ON)
WMSP-5	ON	OFF	(ON)
Term. Comm.	2-3	OPEN	2-1

() = Momentary

Specifications subject to change without notice.

400 B



SERIES RC 1083 SWITCHES

ROCKER SWITCHES



E-SWITCH®



FEATURES & BENEFITS

- ▶ 15 amp
- ▶ Snap-in panel mount

APPLICATIONS/MARKETS

- ▶ Audio/Visual
- ▶ Consumer Electronics
- ▶ Test/instrumentation

SPECIFICATIONS

Contact Rating:	12A @ 125 VAC 8A @ 250 VAC (UL, CUL, CSA) 6A @ 250 VAC (S, N, Fi, VDE)
Life Expectancy (Mechanical):	15,000 cycles
Life Expectancy (Electrical):	10,000 cycles
Contact Resistance:	10 mΩ max., initial @ 2-4 VDC
Insulation Resistance:	> 1,000 MΩ
Dielectric Strengths:	> 1,500 volts 1 minute > 3,000 volts between poles
Operating Temperature:	-30° C to 85° C
Safety Standard Approval:	UL, CUL, VDE

MATERIALS

Body:	Nylon 6/6
Rocker:	Nylon 6/6
Terminal:	Silver plated copper alloy



HOW TO ORDER

SERIES RC1083	CIRCUIT	HOUSING COLOR	ACTUATOR COLOR	MARKING	TERMINATION
	B = DPST	BLK = Black WHT = White	BLK = Black WHT = White	A D E F G I L	F = Quick Connect



Example Ordering Number

RC1083-B-BLK-RED-E-F-1

Specifications subject to change without notice.

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS

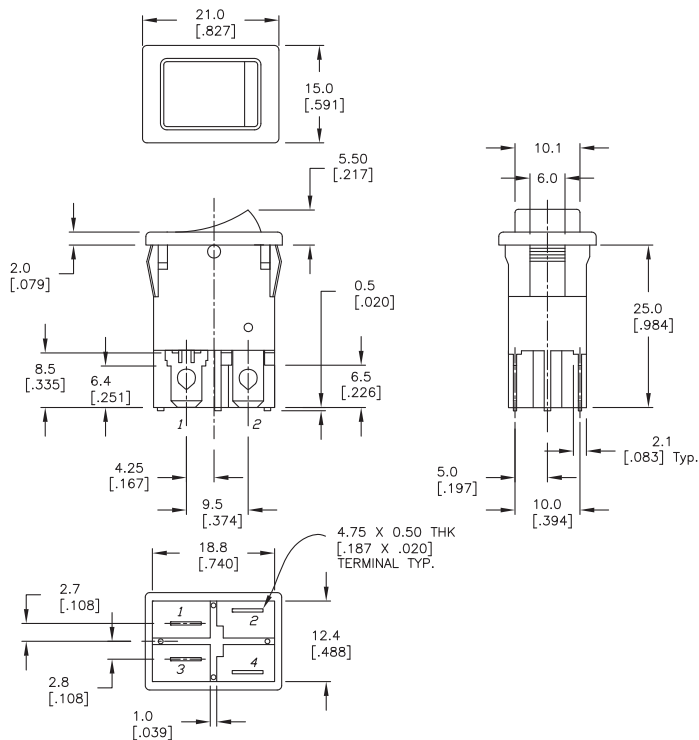


SERIES RC 1083 SWITCHES

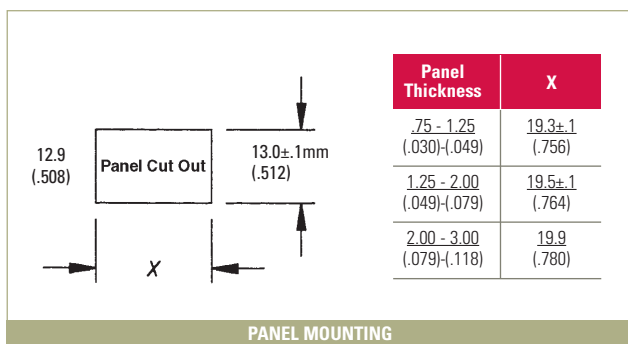
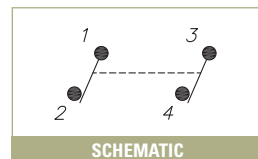
ROCKER SWITCHES

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

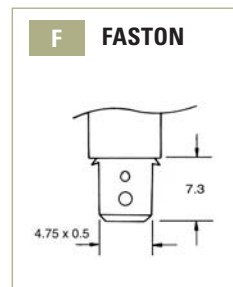
DPST



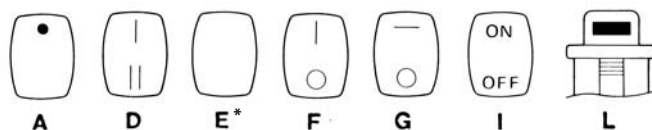
Circuit	POS 1	POS 2
DPST	ON	OFF
Term. Comm.	1-1a 2-2a	OPEN



TERMINATION OPTIONS



MARKING OPTIONS



* 'E' Marking standard for all LED versions.

ROCKER SWITCHES - ILLUMINATED



- ▶ Variety of termination options
- ▶ Industry standard panel cut out size
- ▶ Different marking options
- ▶ Variety of functions & colors available
- ▶ LED indicator option available

- ▶ Audio/Visual
- ▶ Consumer Electronics
- ▶ Test/instrumentation

Contact Rating: 15A @ 125 VAC
8A @ 250 VAC (UL CUL)

Life Expectancy (Mechanical): 30,000 cycles

Life Expectancy (Electrical): 10,000 cycles

Contact Resistance:	20 mΩ max., initial @ 2-4 VDC
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Insulation Resistance: > 1,000 MΩ

Dielectric Strengths:	> 1,500 volts 1 minute
	> 3,000 volts between poles

Operating Temperature: -30° C to 55° C

Safety Standard Approval: UL, CUL, VDE

Body:	Nylon 6/6
Rocker:	Polycarbonate
Terminal:	Silver plated copper alloy
Contact:	Coin silver, silver plated

SERIES R1966	CIRCUIT 	HOUSING COLOR 	ACTUATOR COLOR 	MARKING 	TERMINATION 	LED COLOR 
	See Below	BLK = Black WHT = White GRY = Grey	BLK = Black WHT = White GRY = Grey RED = Red ORG = Orange BLU = Blue	A B C D E* F G H I J K L	F = Faston, Quick Connect .187 x .031 G = Quick Connect* .187 x .020 S = Solder Lug P = PC Pin R = Right Angle PC Pin L = Left Angle PC Pin	(R1966 "A" Circuit Only) RED = Red YEL = Yellow GRN = Green (See Next Page For Description)

CIRCUIT CODE:

A = SPST On-Off
C = SPDT On-On
D = SPDT On-Off-On
E = SPST On-(Off)
F = SPST Off-(On)
G = SPDT On-(On)
H = SPDT On-Off-(On)
I = SPDT (On)-Off-(On)

() = Momentary

*Standard for use with LED

▶ ▶ ▶

R1966-A-BLK-BLK-E-F-YEL

*** Only available in SPST versions**

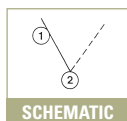
Specifications subject to change without notice.

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES R1966 SWITCHES

ROCKER SWITCHES - ILLUMINATED

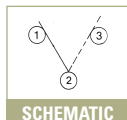
SPST



Circuit Code	POS 1	POS 2
A	ON	OFF
E	ON	(OFF)
F	OFF	(ON)
Term. Comm.	2-1	OPEN

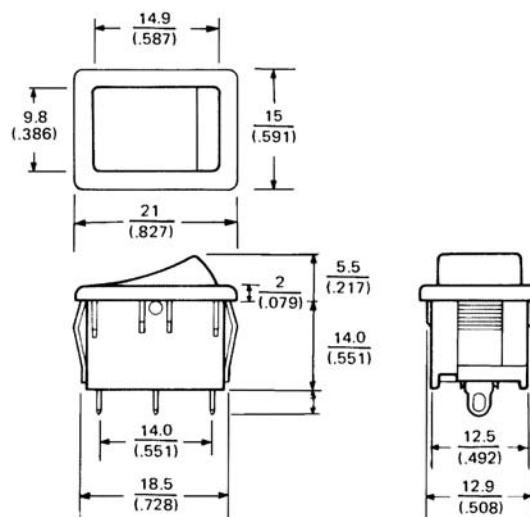
() = Momentary

SPDT

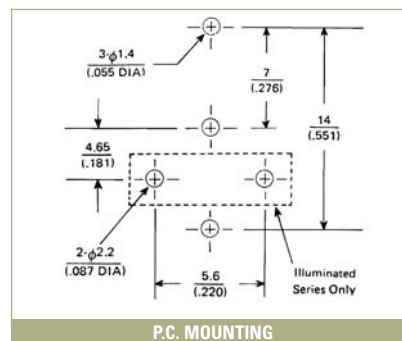
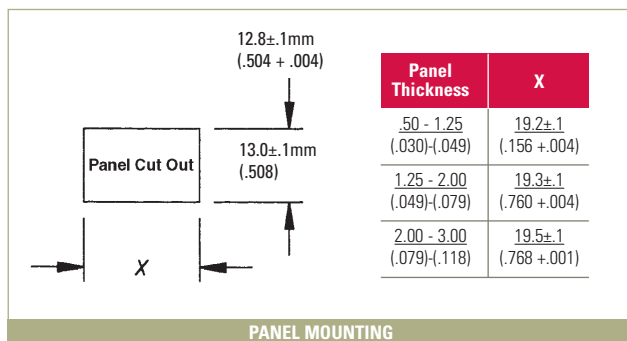


Circuit Code	POS 1	POS 2	POS 3
C	ON	NONE	ON
D	ON	OFF	ON
G	ON	NONE	(ON)
H	ON	OFF	(ON)
I	(ON)	OFF	(ON)
Term. Comm.	2-1	OPEN	2-3

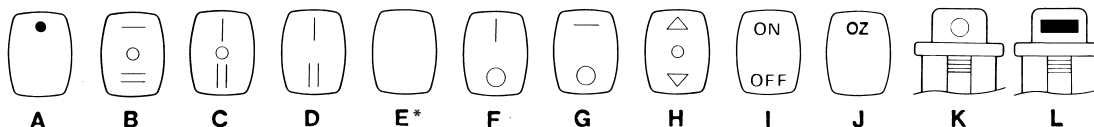
() = Momentary



LED Color	Forward Volt. Typ. (V _{FD})	Rated Current (I _{LED})	Reverse Breakdown (V _R)	Intensity Lum. Typ. (M _{CD})
RED = Red	2.0V	20mA	5V	4.0mcd
GRN = Green	2.2V	20mA	5V	4.0mcd
YEL = Yellow	2.1V	20mA	5V	4.0mcd

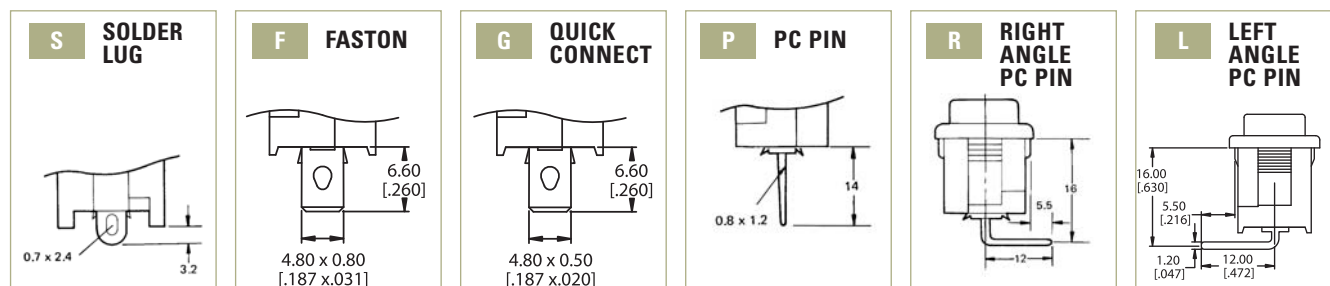


MARKING OPTIONS



* 'E' Marking standard for all LED versions.

TERMINATION OPTIONS



SERIES R1973 SWITCHES

ROCKER SWITCHES - ILLUMINATED



E-SWITCH®



FEATURES & BENEFITS

- ▶ Industry standard panel cut-out size
- ▶ Single & double pole options
- ▶ Fully illuminated actuator option

APPLICATIONS/MARKETS

- ▶ Audio/Visual
- ▶ Consumer Electronics
- ▶ Test/instrumentation

SPECIFICATIONS

Contact Rating: 9A@125 VAC (UL, CUL, CSA)
6A@250 VAC

Life Expectancy (Mechanical): 30,000 cycles

Life Expectancy (Electrical): 10,000 cycles

Contact Resistance: 20 mΩ max., initial @ 2-4 VDC

Insulation Resistance: >1,000MΩ

Dielectric Strength: >1,500 VAC, terminal to terminal

>3,000 VAC, terminal to case

Operating Temp: -30°C to 55°C

Safety Standard Approval: UL, CUL, VDE

MATERIALS

Body: Nylon 6/6 (UL94 V-2)

Rocker: Polycarbonate (UL94 V-2)

Contact Surface: Coin silver, silver plated

Terminal: Silver plated copper alloy

Illuminated Rockers: Neon lamp or Incandescent bulb

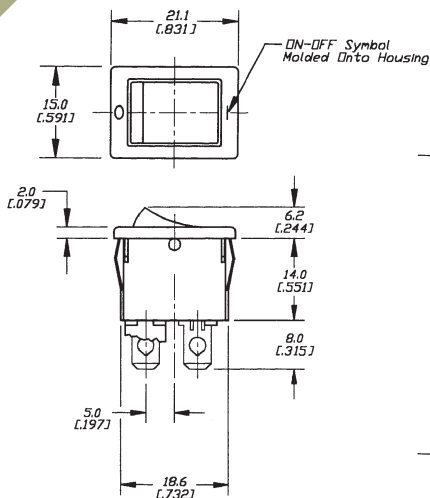
HOW TO ORDER

SERIES R1973	CIRCUIT	HOUSING COLOR	ACTUATOR COLOR	MARKING	TERMINATION	LAMP VOLTAGE
	A = SPST B = DPST	BLK = Black WHT = White GRY = Grey	BLK = Black WHT = White GRY = Grey RED = Red ORG = Orange YIL = Yellow ILL. GIL = Green ILL. RIL = Red ILL. BIL = Blue ILL.	A B C D E F G H I J K L	F = Faston R = Rt. Angle PC Pin L = Left Angle PC Pin	0 = No Lamp 1 = 125V AC ¹ 2 = 250V AC ¹ 3 = 12V DC ² 4 = 24V DC ² 6 = 6V DC ² ¹ Neon Bulb ² Incandescent Bulb

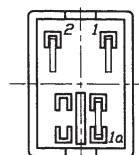
Example Ordering Number
R1973-B-BLK-RED-E-F-2

Specifications subject to change without notice.

A SPST



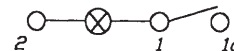
Bottom View



Circuit	POS 1	POS 2
SPST	ON	OFF
Term. Comm.	1-1a	OPEN



SPST SCHEMATIC



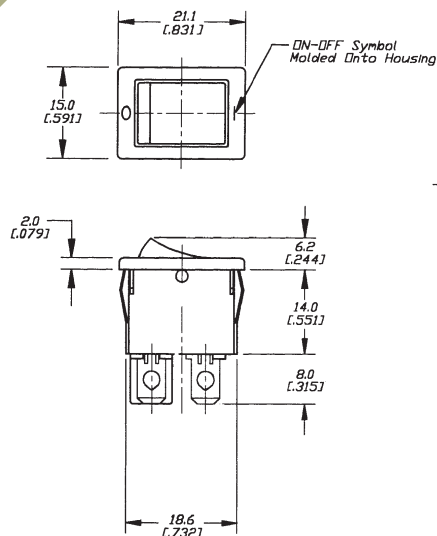
SPST ILLUMINATED SCHEMATIC

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

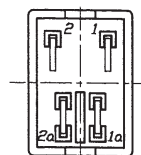
SERIES R1973 SWITCHES

ROCKER SWITCHES - ILLUMINATED

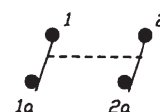
B DPST



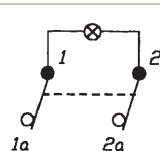
Bottom View



Circuit	POS 1	POS 2
DPST	ON	OFF
Term. Comm.	1-1a, 2-2a	OPEN

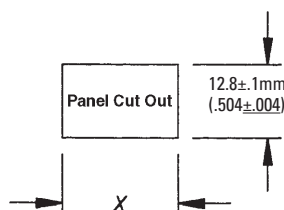


DPST SCHEMATIC

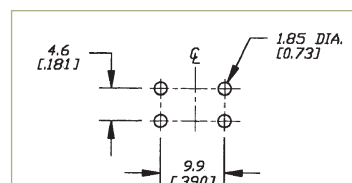


DPST ILLUMINATED SCHEMATIC

Panel Thickness	X
.75 - 1.25 (.030) - (.049)	19.2 ± .1 (.756 ± .004)
1.25 - 2.00 (.049) - (.079)	19.3 ± .1 (.760 ± .004)
2.00 - 3.00 (.079) - (.118)	19.5 ± .1 (.768 ± .004)

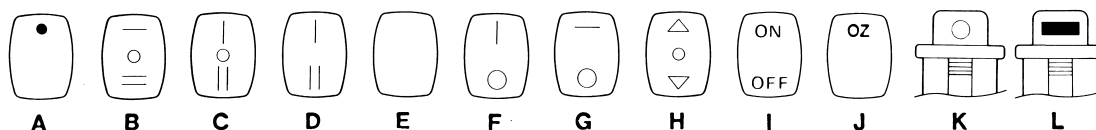


PANEL MOUNTING



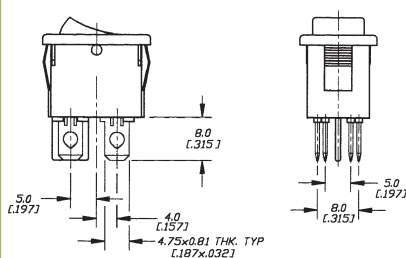
P.C. MOUNTING

MARKING OPTIONS



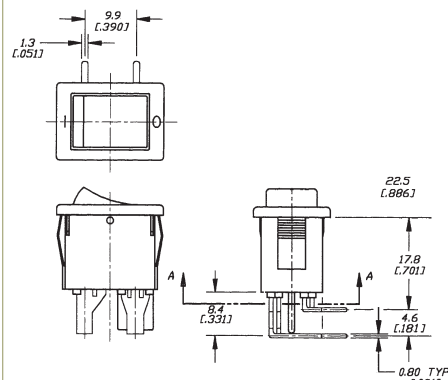
TERMINATION OPTIONS

F FASTON

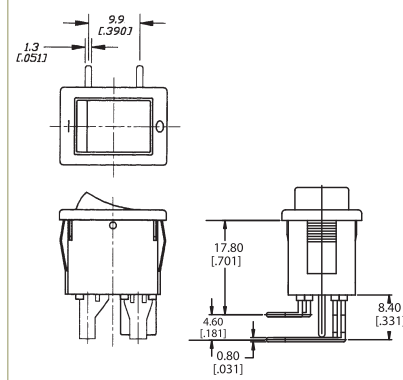


0.81 (.032) THK terminals designed for Quick Connect connectors available from AMP Industries, Harrisburg, PA 17105. (Or equivalent).

R RIGHT ANGLE PC PIN



L LEFT ANGLE PC PIN



SERIES R4 SWITCHES

ROCKER SWITCHES - ILLUMINATED



E-SWITCH®



FEATURES & BENEFITS

- ▶ Fully illuminated actuator option
- ▶ Neon & incandescent lamp options

APPLICATIONS/MARKETS

- ▶ Industrial
- ▶ Audio/visual
- ▶ Lighting ballast

SPECIFICATIONS

Contact Rating*:	Versions D,G,I - 10A @ 250V, 15A @ 125V AC Versions A,B,C,E,F,H - 15A @ 250V, 20A @ 125V AC
Life Expectancy (Mechanical):	30,000 cycles
Life Expectancy (Electrical):	6,000 cycles
Contact Resistance:	20 mΩ max. typical initial @ 2-4 VDC
Insulation Resistance:	>1,000MΩ
Dielectric Strength:	>1,500V 1 minute between terminals
Safety Std. Approval:	UL, VDE
Operating Temp:	-20°C to 55°C

MATERIALS

Body:	Nylon 6/6 (UL94 V-2)
Rocker:	Nylon 6/6 (UL94 V-2)
Contact Surface:	Silver over nickel alloy
Terminal:	Silver plated copper alloy
Illuminated Rockers:	Neon lamp or Incandescent bulb



HOW TO ORDER

SERIES R4	CIRCUIT	HOUSING COLOR	ACTUATOR COLOR	MARKING	TERMINATION	LAMP VOLTAGE
	See Below	BLK = Black WHT= White GRY = Grey	BLK = Black WHT= White RED = Red RIL = Red ILL.* GIL = Green ILL.* YIL = Yellow ILL.*	A B C D E F G H I J K L	F = Faston	0 = No Lamp 1 = 125V AC ¹ 2 = 250V AC ¹ 3 = 12V DC ² 4 = 24V DC ² ¹ Neon Bulb ² Incandescent Bulb
CIRCUIT CODE: A = SPST On-Off B = SPST On-(Off) Illuminated C = SPDT On-On D = SPDT On-Off-On E = SPDT On-(On) F = SPST Off-(On) G = SPDT (On)-Off-(On) H = SPDT On-None-(Off) I = SPDT On-Off-(On) J = SPST On-Off Fully Illuminated () = Momentary						



Example Ordering Number

R4-B-BLK-YIL-E-F-2

* To be used with the "J" circuit only

Specifications subject to change without notice.



SERIES R4 SWITCHES

ROCKER SWITCHES - ILLUMINATED

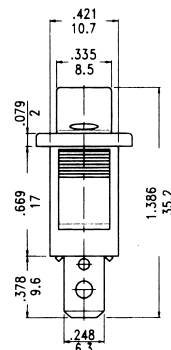
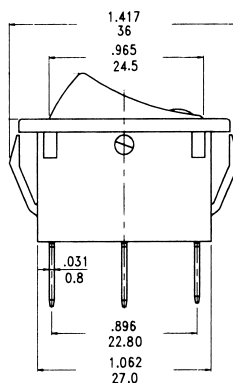
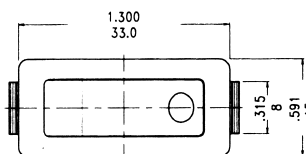
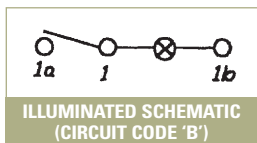
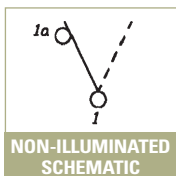
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SPST



Circuit Code	POS 1	POS 2
A	ON	OFF
B	ON	(OFF) Illum.
F	(ON)	OFF
H	ON	(OFF)
J	ON	OFF Illum.
Term. Comm.	1-1a	OPEN

() = Momentary

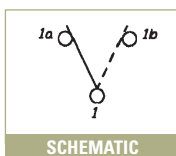


SPDT



Circuit Code	POS 1	POS 2	POS 3
C	ON	NONE	ON
D	ON	OFF	ON
E	ON	NONE	(ON)
G	(ON)	OFF	(ON)
I	ON	OFF	(ON)
Term. Comm.	1-1a	OPEN	1-1b

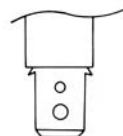
() = Momentary



NOTE: Illumination not available for SPDT versions.

TERMINATION OPTIONS

F FASTON

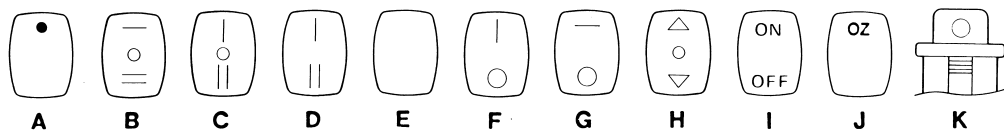


0.81 (.032) THK terminals designed for Quick Connect connectors available from AMP Industries, Harrisburg, PA 17105. (Or equivalent).

Panel Thickness	X mm (inch)
.75 - 1.25 (.030)-(.049)	30.1±.1 (1.18)
1.25 - 2.00 (.049)-(.079)	30.3±.1 (1.19)
2.00 - 3.00 (.079)-(.118)	30.7±.1 (1.20)

PANEL MOUNTING

MARKING OPTIONS



SERIES R5 SWITCHES

ROCKER SWITCHES - ILLUMINATED



E-SWITCH®



FEATURES & BENEFITS

- ▶ Fully illuminated actuator option
- ▶ DPDT (double pole, double throw)
- ▶ Snap-in panel mount

APPLICATIONS/MARKETS

- ▶ Industrial
- ▶ Audio/visual
- ▶ Lighting ballast

SPECIFICATIONS

Contact Rating*:	Versions D,G,I - 10A @ 250V, 15A @ 125V AC Versions A,B,C,E,F,H - 16A @ 250V, 20A @ 125V AC
Life Expectancy (Mechanical):	30,000 cycles
Life Expectancy (Electrical):	10,000 cycles
Contact Resistance:	20 mΩ (Initial)
Insulation Resistance:	>1,000M Ω @ 500V DC
Dielectric Strength:	>1,500V AC 1 minute (Initial)
Safety Std. Approval:	UL, CSA, VDE
Operating Temp:	-20°C to 55°C

MATERIALS

Body:	Nylon 6/6 (UL94 V-2)
Rocker:	Nylon 6/6, PC for illuminated versions (UL94 V-2)
Contact Surface:	Silver nickel alloy
Terminal:	Silver plated brass
Illuminated Rockers:	Neon lamp or Incandescent bulb



HOW TO ORDER

SERIES R5	CIRCUIT []	HOUSING COLOR [] [] []	ACTUATOR COLOR [] [] []	MARKING []	TERMINATION []	LAMP VOLTAGE []
	See Below	BLK = Black WHT = White	BLK = Black WHT = White RED = Red *YEL = Yellow *GRN = Green GRY = Gray ORG = Orange *RED = Red	A B C E F G H I	F = Faston	0 = No Lamp 1 = 125V AC ¹ 2 = 250V AC ¹ 3 = 12V DC ² ¹ Neon Bulb ² Incandescent Bulb
CIRCUIT CODE:						
A = DPST On-Off						
B = DPST On-Off Illuminated						
C = DPDT On-On						
D = DPDT On-Off-On						
E = DPDT On-(On)						
F = DPST Off-(On)						
G = DPDT (On)-Off-(On)						
H = DPDT On-None-(Off)						
I = DPDT On-Off-(On)						
J = DPST Off-On-(On)						

() = Momentary



Example Ordering Number

R5-C-WHT-BLK-C-F-3

Specifications subject to change without notice.

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

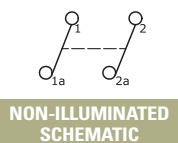
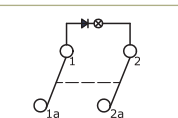
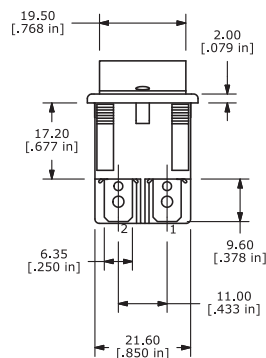
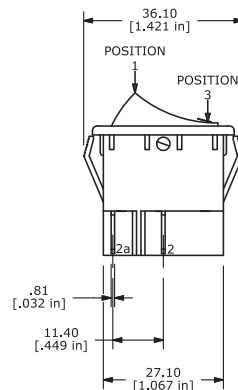
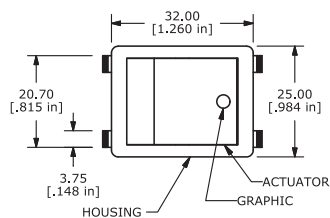
DPST



Circuit Code	POS 1	POS 2
A	ON	OFF
B	ON	OFF Illum.
F	(ON)	OFF
H	ON	(OFF)
Term. Comm.	1-1a, 2-2a	OPEN

Circuit Code	POS 1 OFF	POS 2	POS 3 RUN
J - Circuit 1	OFF	ON	ON
J - Circuit 2	OFF	OFF	(ON)

() = Momentary

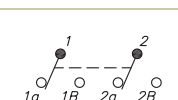
NON-ILLUMINATED
SCHEMATICILLUMINATED
SCHEMATIC
(CIRCUIT CODE 'B')

DPDT



Circuit Code	POS 1	POS 2	POS 3
C	ON	NONE	ON
D	ON	OFF	ON
E	ON	NONE	(ON)
G	(ON)	OFF	(ON)
I	ON	OFF	(ON)
Term. Comm.	1-1a, 2-2a	OPEN	1-1b

() = Momentary

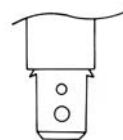
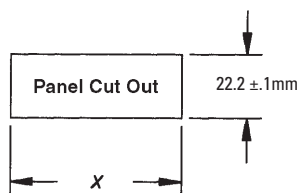


SCHEMATIC

**NOTE: Illumination not available
for DPDT versions.**

TERMINATION OPTIONS

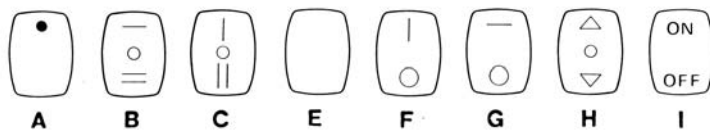
F FASTON

0.81 (.032) THK terminals designed for Quick
Connect connectors available from AMP
Industries, Harrisburg, PA 17105. (Or equivalent).

Panel Thickness	X mm (inch)
.75 - 1.25 (.030) - (.049)	30.0 ± .2 (1.181)
1.25 - 2.00 (.049) - (.079)	30.2 ± .2 (1.189)
2.00 - 3.00 (.079) - (.118)	30.6 ± .2 (1.205)

PANEL MOUNTING

MARKING OPTIONS

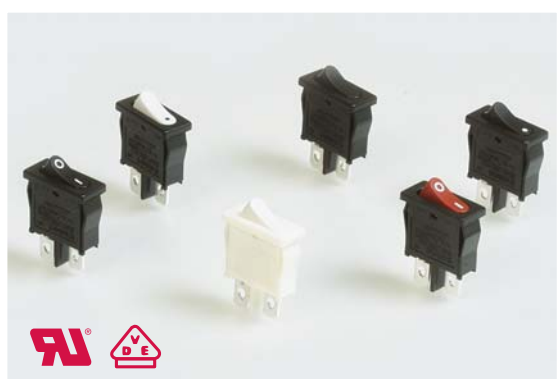


SERIES R6 SWITCHES

ROCKER SWITCHES



E-SWITCH®



FEATURES & BENEFITS

- Slim-line package design

APPLICATIONS/MARKETS

- Audio/Visual
- Consumer Electronics
- Test/instrumentation

SPECIFICATIONS

Contact Rating:	10A@125 VAC, 6A@250 VAC (UL, CUL) 4(1)A @250 VAC (D, S, N, Fi, VDE)
Life Expectancy (Mechanical):	50,000 cycles
Life Expectancy (Electrical):	10,000 cycles
Contact Resistance:	<20 mΩ (Initial)
Insulation Resistance:	>1,000MΩ @ 500V DC
Dielectric Strength:	>1,500V AC 1 minute (Initial)
Operating Temp:	-20°C to 55°C

MATERIALS

Body:	Nylon 6/6 (UL94 V-2)
Rocker:	Nylon 6/6 (UL94 V-2)
Contact Surface:	Coin Silver
Terminal:	Silver plated copper alloy

HOW TO ORDER

SERIES R6	CIRCUIT [Symbol]	HOUSING COLOR [Symbol]	ACTUATOR COLOR [Symbol]	MARKING [Symbol]	TERMINATION [Symbol]
	See Below	BLK = Black WHT = White GRY = Grey	BLK = Black WHT = White RED = Red GRY = Grey	A E F	F = Faston

CIRCUIT CODE:
A = SPST On-Off
B = SPST (On)-Off

Example Ordering Number

R6-A-BLK-BLK-E-F

Specifications subject to change without notice.

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS



SERIES R6 SWITCHES

ROCKER SWITCHES

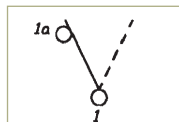
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SPST

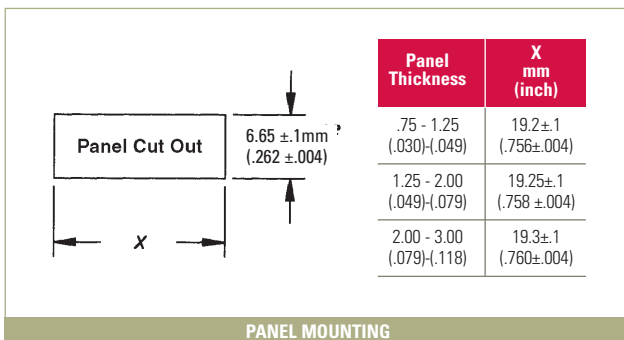
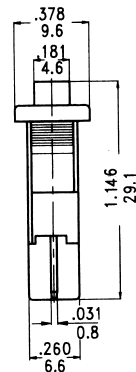
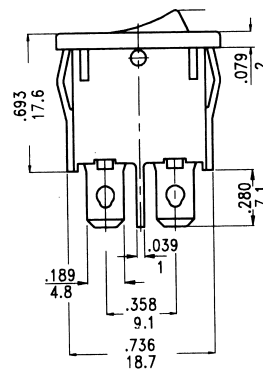
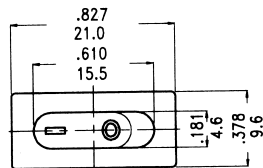


Circuit Code	POS 1	POS 2
A	ON	OFF
B	(ON)	OFF
Term. Comm.	1-1a	OPEN

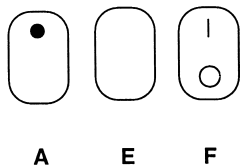
() = Momentary



SCHEMATIC

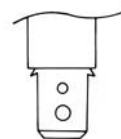


MARKING OPTIONS



TERMINATION OPTIONS

F FASTON



0.81 (.032) THK terminals designed for Quick Connect connectors available from AMP Industries, Harrisburg, PA 17105. (Or equivalent).

SERIES RR 3112 SWITCHES

ROCKER SWITCHES



SPECIFICATIONS

Contact Rating:	16A @ 125VAC 10A @ 250VAC
Life Expectancy (Mechanical):	20,000 cycles
Life Expectancy (Electrical):	6,000 cycles
Contact Resistance:	50 mΩ (Initial)
Insulation Resistance:	100M Ω @ 500V DC
Dielectric Strength:	1,500V Minimum (1 minute)
Operating Temp:	0°C to 65°C

FEATURES & BENEFITS

- ▶ Ergonomic feel
- ▶ Visually appealing
- ▶ Multiple options

APPLICATIONS/MARKETS

- ▶ Industrial
- ▶ Audio/visual
- ▶ Lighting ballast



HOW TO ORDER

SERIES	MODEL NO.	CIRCUIT	HOUSING COLOR	ACTUATOR COLOR	LED COLOR	MARKING	TERMINATION	LAMP
RR	3112	See Below	BLK = Black WHT = White	BLK = Black WHT = White RED = Red YEL = Yellow GRN = Green	N = None RED = Red YEL = Yellow GRN = Green	A B E F G I	F = Faston	0 = None 1 = 110V Neon 2 = 220V Neon 3 = 3V LED 4 = 12V LED 5 = 24V LED

CIRCUIT CODE:

- A = SPST On-None-Off
- B = SPST On-None-Off
- C = SPDT On-None-On
- D = SPDT On-Off-On
- F = SPST Off-None-(On)
- L = SPST On-None-Off



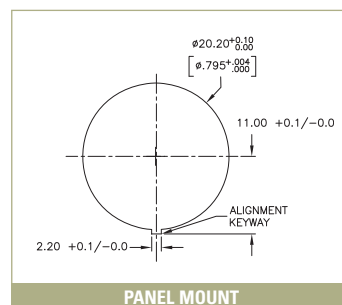
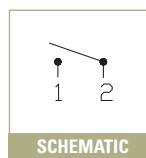
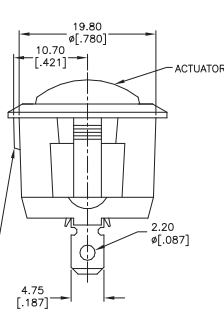
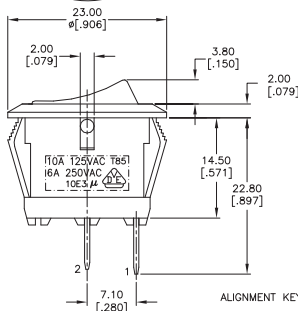
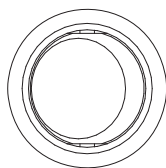
Example Ordering Number

RR-3112-D-BLK-RED-A-F-3

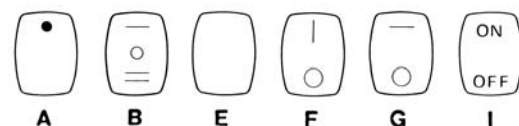
*** Note:**
B has NEON wired inline
L has LED wired separate

Specifications subject to change without notice.

RR 3112



MARKING OPTIONS



TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES RR 3130 SWITCHES

ROCKER SWITCHES



FEATURES & BENEFITS

- ▶ Ergonomic Euro design
- ▶ Panel mount
- ▶ Round design fits easily into your application

APPLICATIONS/MARKETS

- ▶ Industrial
- ▶ Lighting ballast
- ▶ Audio/visual
- ▶ Medical equipment
- ▶ Computer/servers/peripherals

SPECIFICATIONS

Contact Rating:	10A @ 125VAC 6A @ 250VAC
Life Expectancy (Mechanical):	20,000 cycles
Life Expectancy (Electrical):	6,000 cycles
Contact Resistance:	50 mΩ (Initial Max.)
Insulation Resistance:	100M Ω @ 500V DC
Dielectric Strength:	1,500V Minimum (1 minute)
Operating Temp:	0°C to 65°C

MATERIALS

Material:	UL94-V2
Termination:	Solder lug, silver-plated
Panel Requirement:	6mm max. thickness, cut out per drawing



HOW TO ORDER

SERIES	MODEL NO.	CIRCUIT	HOUSING COLOR	ACTUATOR COLOR	MARKING	TERMINATION
RR	3130	See Below	BLK = Black WHT = White	BLK = Black WHT = White RED = Red	N = None A E F G I	S = Solder Lug

CIRCUIT CODE:

- A = SPST On-Off
- B = DPDT On-On
- C = SPDT On-On

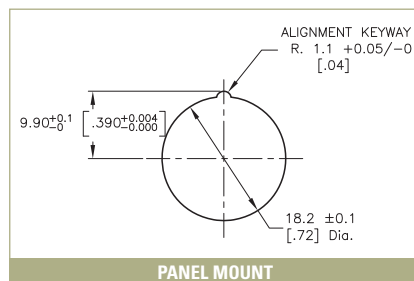
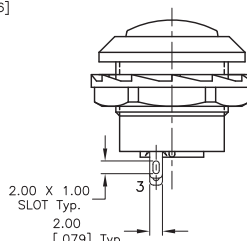
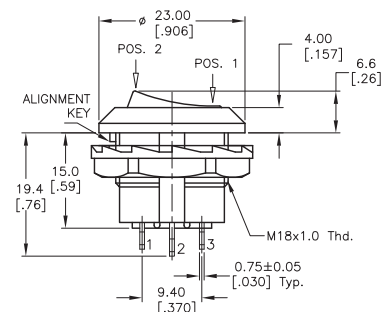
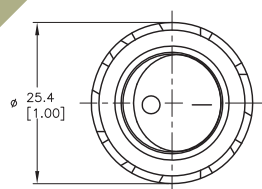


Example Ordering Number

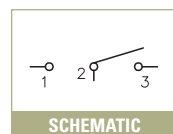
RR-3130-A-BLK-BLK-A-S

Specifications subject to change without notice.

RR 3130



PANEL MOUNT



SERIES RR 3402 SWITCHES

ROCKER SWITCHES



E-SWITCH®



FEATURES & BENEFITS

- ▶ Ergonomic feel
- ▶ Visually appealing
- ▶ Multiple options

APPLICATIONS/MARKETS

- ▶ Industrial
- ▶ Audio/visual
- ▶ Lighting ballast

SPECIFICATIONS

Contact Rating:	6A @ 125VAC 3A @ 250VAC
Life Expectancy (Mechanical):	20,000 cycles
Life Expectancy (Electrical):	6,000 cycles
Contact Resistance:	50 mΩ Max. (Initial)
Insulation Resistance:	100M Ω @ 500V DC
Dielectric Strength:	1,500VAC (1 minute)
Operating Temp:	0°C to 65°C

MATERIALS

Material:	UL94-V2
Termination:	Solder lug, silver-plated



HOW TO ORDER

SERIES	MODEL NO.	CIRCUIT	HOUSING COLOR	ACTUATOR COLOR	MARKING	TERMINATION
RR	3402	See Below	BLK = Black	BLK = Black	N = None	S = Solder Lug

CIRCUIT CODE:

- A = SPST On-None-Off
- C = SPDT On-None-On
- D = SPDT On-Off-On

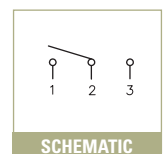
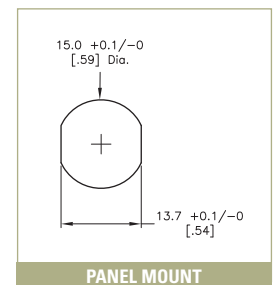
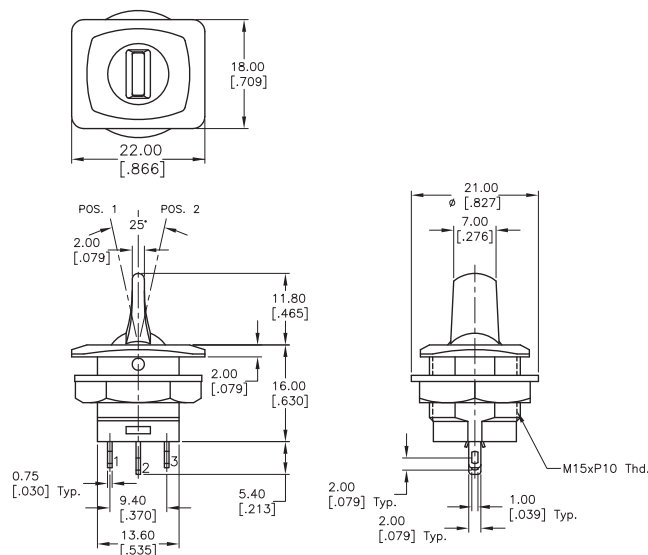


Example Ordering Number

RR-3402-A-BLK-BLK-N-S

Specifications subject to change without notice.

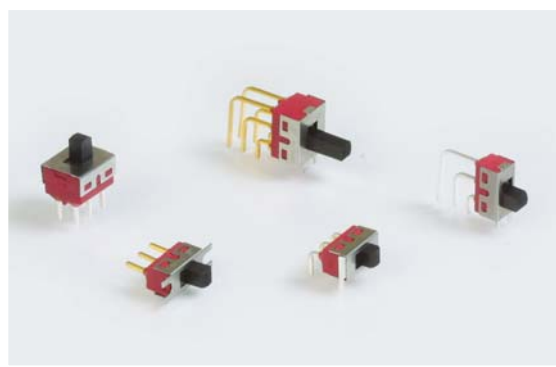
RR 3402



TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 500 SWITCHES

SLIDE SWITCHES



FEATURES & BENEFITS

- ▶ Single & double pole options
- ▶ Multiple actuator height options
- ▶ Panel & PC board mountable

APPLICATIONS/MARKETS

- ▶ Computer servers/peripherals
- ▶ Consumer electronics
- ▶ Instrumentation
- ▶ Test & measurement

SPECIFICATIONS

Contact Rating:	Gold, 0.4 VA @ 20 VAC or DC Silver, 5A @ 120 VAC, 2A @ 250 VAC
Life Expectancy:	50,000 make-and-break cycles at full load
Contact Resistance:	10 mΩ max. typical @ 2-4 VDC 100mA for both silver and gold plated contacts
Insulation Resistance:	1,000 MΩ min.
Dielectric Strength:	1,000 V rms at sea level
Operating Temperature:	-30°C to 85°C

MATERIALS

Case:	Diallyl phthalate (DAP), UL 94V0
Housing:	Stainless steel
Slide Handle:	Nylon UL 94HB
Contacts:	Silver or gold plated copper alloy



HOW TO ORDER

SERIES 500	MODEL NO. [][][][]	ACTUATOR [][]	TERMINATION [][][]	CONTACT MATERIAL []	SEAL E	MOUNTING TAB []
	SSP1 SSP2 SSP3	S1 S2 S3 S4	M1 M2 M3 M5-1 M5-2 M5-3 M5-4 M6 M7 VS2	Q = Silver R = Gold	E = Epoxy Sealed	A = Without Tabs B = With Tabs



Example Ordering Number
500-SSP2-S4-M1-Q-E-B

SDP1 SDP3	S1 S2 S3 S4 S5	M1 M2 M3 M5-1 M5-2 M5-3 M5-4 M6 M7 VS2	Q = Silver R = Gold	E = Epoxy Sealed	A = Without Tabs B = With Tabs
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Example Ordering Number
500-SDP1-S1-M6-R-E-A

Specifications subject to change without notice.

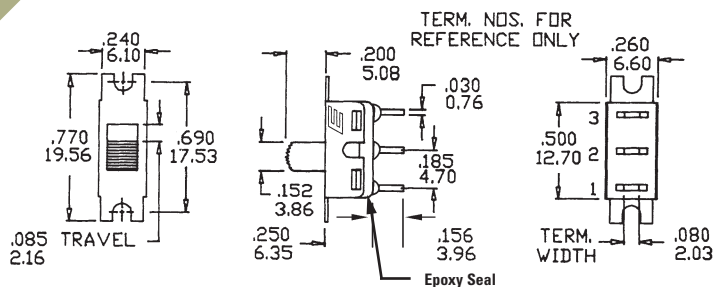


SPDT



2 Comm.
1 3

SCHEMATIC



Model No.	POS 1	POS 2	POS 3
SSP-1	ON	NONE	ON
SSP-2	ON	NONE	(ON)
SSP-3	ON	OFF	ON
Term. Comm.	2-1	OPEN	2-3

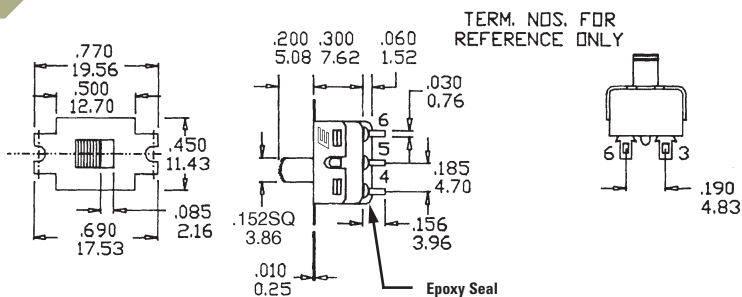
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DPDT



2 Comm. 5 Comm.
1 3 4 6

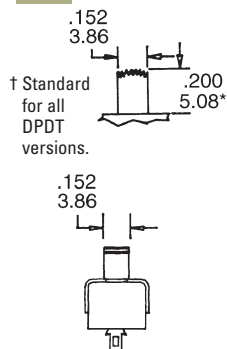
SCHEMATIC



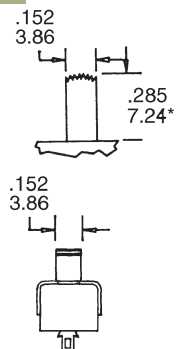
Model No.	POS 1	POS 2	POS 3
SDP-1	ON	NONE	ON
SDP-3	ON	OFF	ON
Term. Comm.	2-1, 5-4	OPEN	2-3, 5-6

ACTUATOR OPTIONS

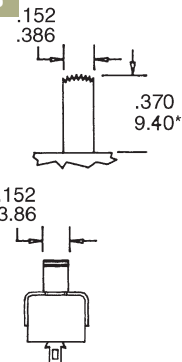
S1 STD†



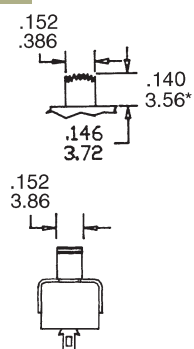
S2



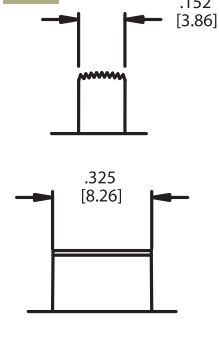
S3



S4



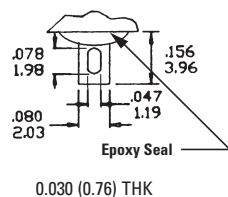
S5



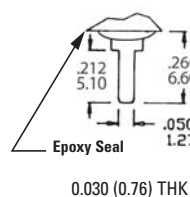
* Subtract 0.012 (0.301) from actuator height for M6, M7 PC mounting options.

TERMINATION OPTIONS

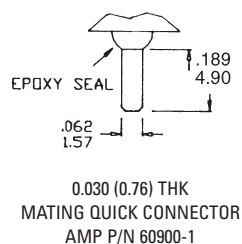
M1 SOLDER LUG



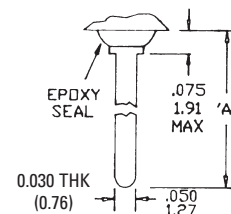
M2 P.C. MOUNT



M3 QUICK CONNECT



M5 WIRE WRAP



Option Code	Dim. 'A'
M51	.736 (18.70)
M52	.953 (24.20)
M53	.415 (10.55)
M54	1.062 (26.97)

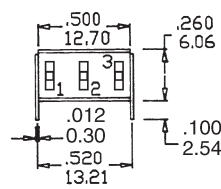
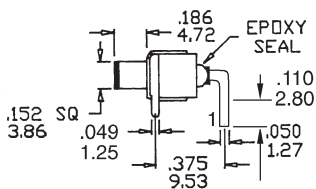
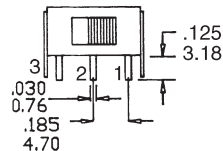
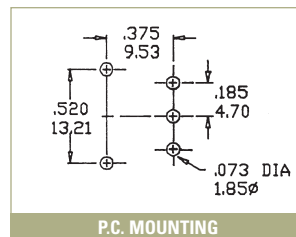
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 500 SWITCHES

SLIDE SWITCHES

M6

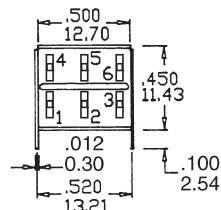
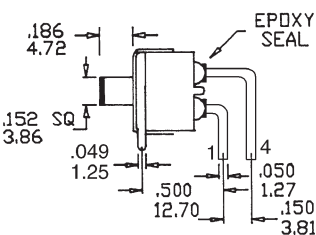
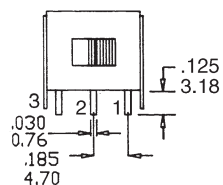
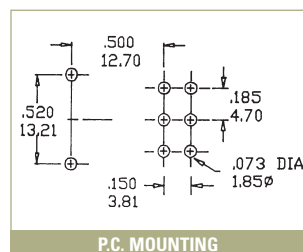
SPDT

TERM. NOS. FOR
REFERENCE ONLY

P.C. MOUNTING

M6

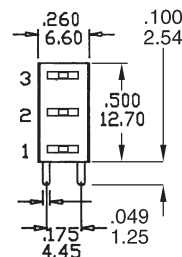
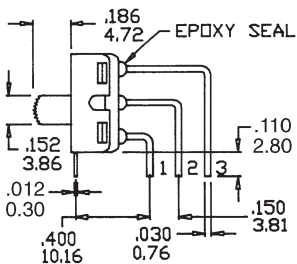
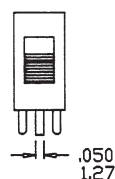
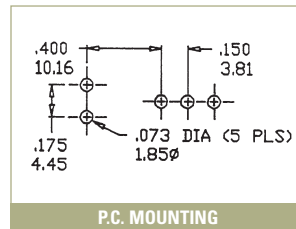
DPDT

TERM. NOS. FOR
REFERENCE ONLY

P.C. MOUNTING

M7

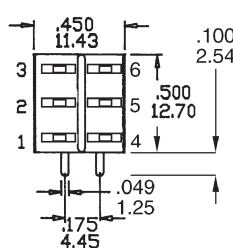
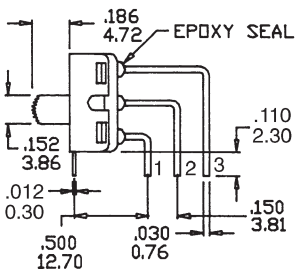
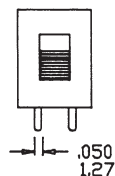
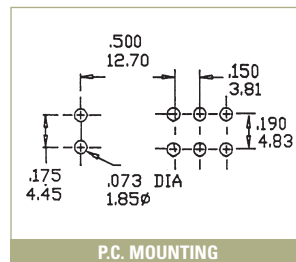
SPDT

TERM. NOS. FOR
REFERENCE ONLY

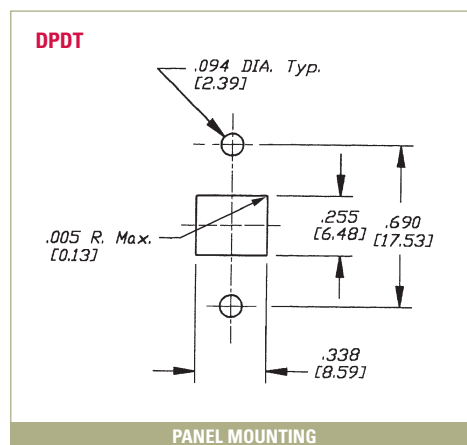
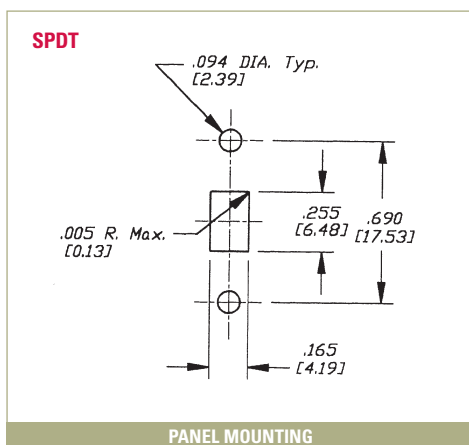
P.C. MOUNTING

M7

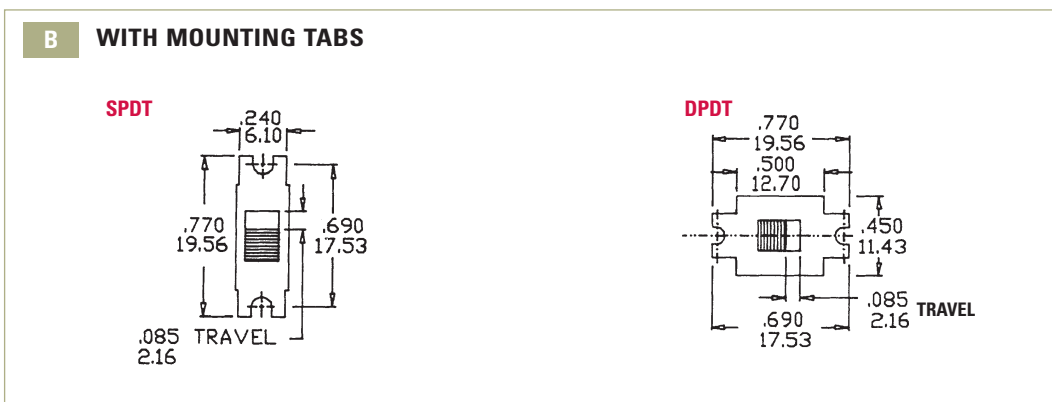
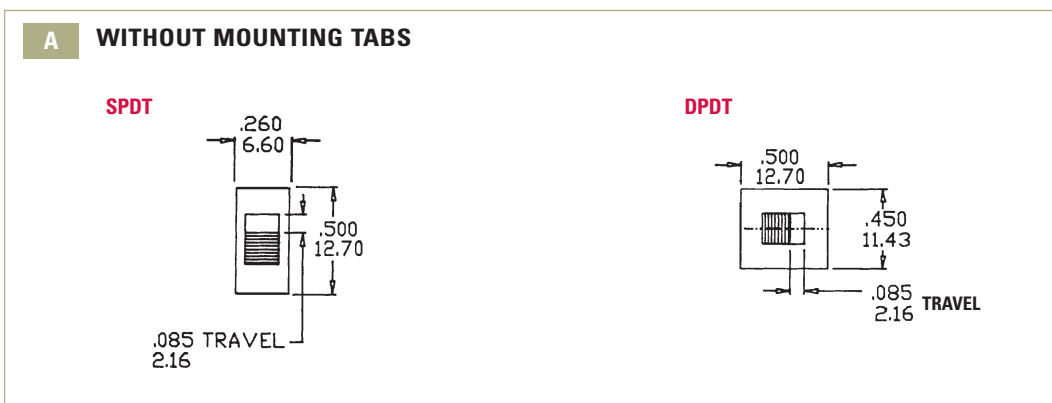
DPDT

TERM. NOS. FOR
REFERENCE ONLY

P.C. MOUNTING



MOUNTING TABS



CONTACT MATERIAL OPTIONS

Q

Fixed Terminal:	Silver plated copper alloy
Moving Contact:	Silver plated copper alloy
Rating:	5 Amps with resistive load @ 120VAC or 28VDC 2 Amps with resistive load @ 250VAC

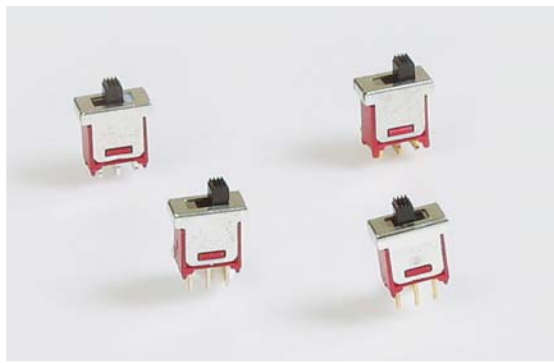
R

Fixed Terminal:	Copper alloy with gold plate over nickel plate
Moving Contact:	Copper alloy with gold plate over nickel plate
Rating:	0.4 Volt-Amps (VA) max. @ 20V max. (AC or DC)

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 500A SWITCHES

SLIDE SWITCHES - SUB-MINIATURE



FEATURES & BENEFITS

- ▶ Panel, SMT & PC board mountable
- ▶ Sub-miniature

APPLICATIONS/MARKETS

- ▶ Computer servers/peripherals
- ▶ Consumer electronics
- ▶ Instrumentation
- ▶ Test & measurement

SPECIFICATIONS

Contact Rating:	3 A @ 120 VAC 1 A @ 250 VAC
Life Expectancy:	30,000 make-and-break cycles at full load
Contact Resistance:	10 mΩ max. typical @ 2-4 VDC 100mA for both silver and gold plated contacts
Insulation Resistance:	1,000MΩ min.
Dielectric Strength:	1,000 V rms at sea level
Operating Temperature:	-30°C to 85°C

MATERIALS

Case:	Diallyl phthalate (DAP)
Housing:	Stainless steel
Slide Handle:	Nylon
Contact & Terminals:	Gold or Silver plated copper alloy



HOW TO ORDER

SERIES	MODEL NO.	TERMINATION	CONTACT MATERIAL	SEAL
500A	SSP1 SSP3	M2 M6 SM6	Q = Silver R = Gold	E = Epoxy Sealed at Base of Terminal



Example Ordering Number

500A-SSP1-M2-R-E

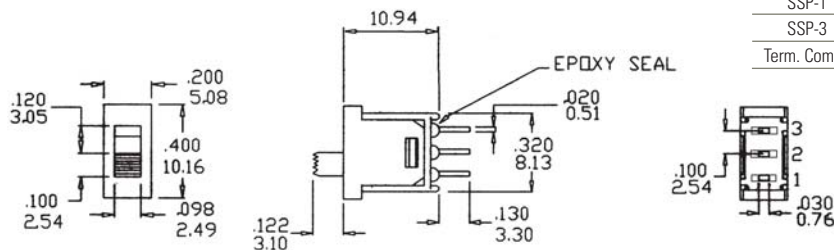
Specifications subject to change without notice.

SPDT



2 Comm.
1 3

SCHEMATIC



Model No.	POS 1	POS 2	POS 3
SSP-1	ON	NONE	ON
SSP-3	ON	OFF	ON
Term. Comm.	2-1	OPEN	2-3

() = Momentary

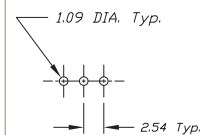
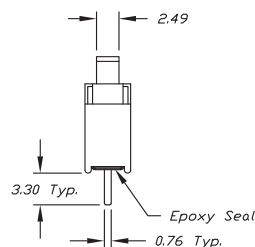
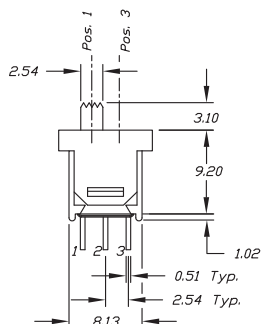
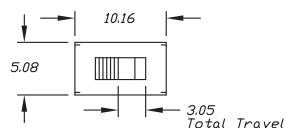


E-SWITCH®

P.C. MOUNTING OPTIONS

M2

PC PIN

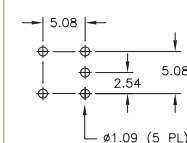
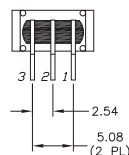
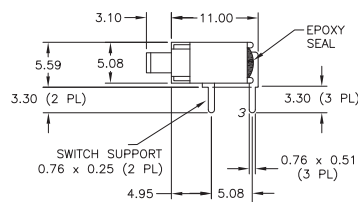
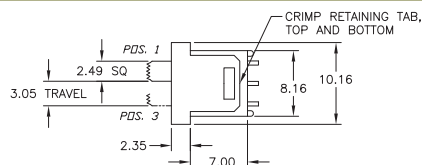


P.C. MOUNTING



SCHEMATIC

M6



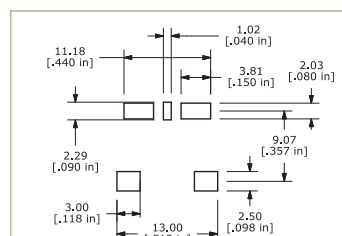
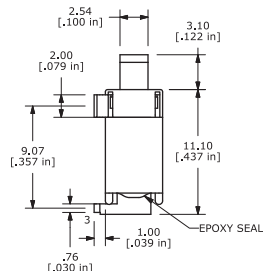
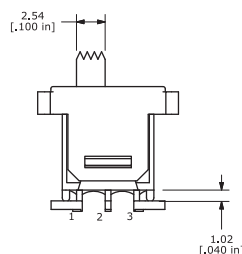
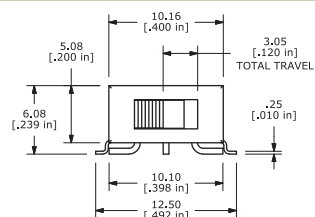
P.C. MOUNTING



SCHEMATIC

SM6

SMT



P.C. MOUNTING



SCHEMATIC

CONTACT MATERIAL OPTIONS

Q

Fixed Terminal:	Silver plated copper alloy
Moving Contact:	Silver plated copper alloy
Rating:	3 Amps with resistive load @ 120VAC or 28VDC 1 Amp with resistive load @ 250VAC

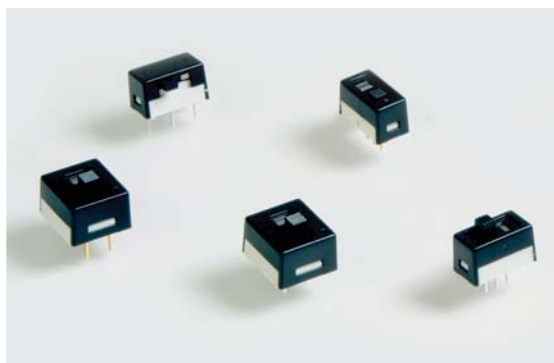
R

Fixed Terminal:	Copper alloy with gold plate over nickel plate
Moving Contact:	Copper alloy with gold plate over nickel plate
Rating:	0.4 Volt-Amps (VA) max. @ 20V max. (AC or DC)

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 600 SWITCHES

SLIDE SWITCHES - MINIATURE



FEATURES & BENEFITS

- ▶ Single & double pole options
- ▶ Multiple termination options
- ▶ Multiple actuator options
- ▶ Plastic switch body housing

APPLICATIONS/MARKETS

- ▶ Computer servers/peripherals
- ▶ Consumer electronics
- ▶ Instrumentation
- ▶ Test & measurement

SPECIFICATIONS

Contact Rating:	Dependent upon contact material
Life Expectancy:	10,000 cycles typical
Contact Resistance:	10 mΩ max. typical @ 2-4 VDC 100mA for both silver and gold plated contacts
Insulation Resistance:	1,000MΩ min.
Dielectric Strength:	1,000 V rms at sea level
Operating Temperature:	-30°C to 85°C

MATERIALS

Housing:	Polybutylene terephthalate (PBT)
Cover:	Polybutylene terephthalate (PBT)
Actuator:	Polybutylene terephthalate (PBT)
Contact & Terminals:	Silver or gold plated copper alloy



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR	TERMINATION	CONTACT MATERIAL
600				
	SP1 DP1 SP3 DP3	S1 S2 S3 S4	M1* M2** M3* M4**	Q = Silver R = Gold

*SPDT Only.

**DPDT Only.

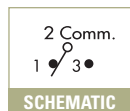


Example Ordering Number

600-SP1-S3-M1-R

Specifications subject to change without notice.

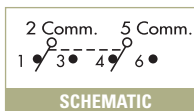
SPDT



Model No.	POS 1	POS 2	POS 3
SP-1	ON	NONE	ON
SP-3	ON	OFF	ON
Term. Comm.	2-1	OPEN	2-3

() = Momentary

DPDT



Model No.	POS 1	POS 2	POS 3
DP-1	ON	NONE	ON
DP-3	ON	OFF	ON
Term. Comm.	2-1,5-4	OPEN	2-3,5-6

() = Momentary



ACTUATOR OPTIONS

S1

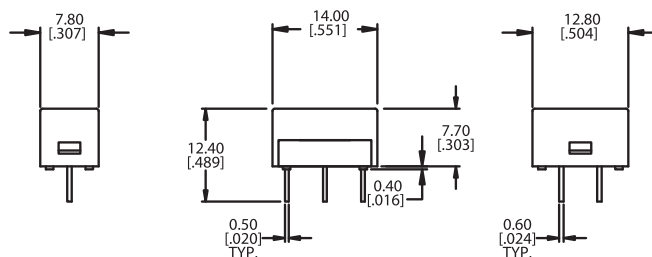
RECESSED ACTUATOR



SPDT



DPDT



S2

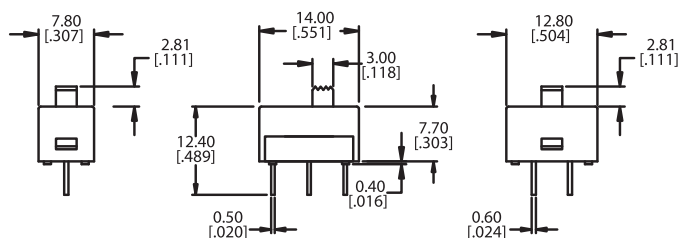
EXTENDED ACTUATOR



SPDT



DPDT



S3

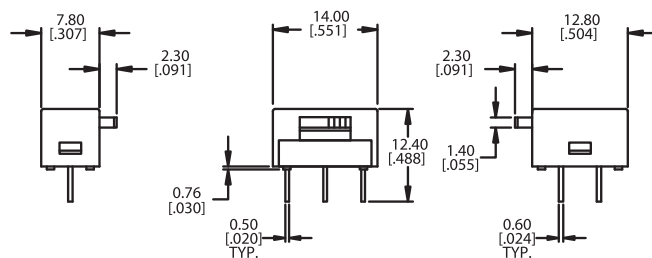
SIDE ACTUATOR



SPDT

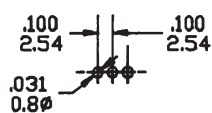


DPDT

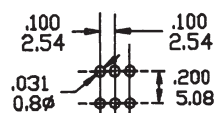


PC MOUNTING

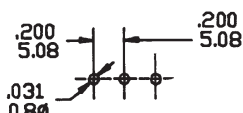
M1 SPDT



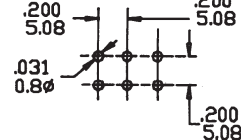
M2 DPDT



M3 SPDT



M4 DPDT



CONTACT MATERIAL OPTIONS

Q

Fixed Terminal:	Silver plated copper alloy
Moving Contact:	Silver plated copper alloy
Rating:	1 Amp with resistive load @ 30VDC

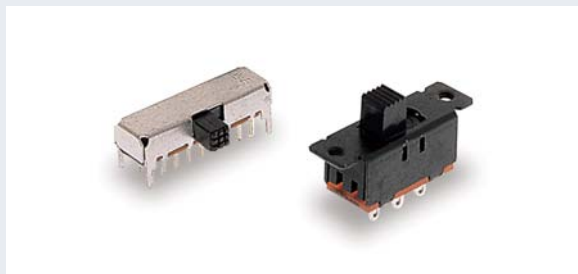
R

Fixed Terminal:	Copper alloy with gold plate over nickel plate
Moving Contact:	Copper alloy with gold plate over nickel plate
Rating:	0.4 Volt-Amps (VA) max. @ 20V max. (AC or DC)

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES EG SWITCHES

SLIDE SWITCHES



FEATURES & BENEFITS

- ▶ Variety of package styles & sizes
- ▶ Up to 6 poles
- ▶ Variety of functions
- ▶ Positive detent
- ▶ SMT options

APPLICATIONS/MARKETS

- ▶ Computer servers/peripherals
- ▶ Consumer electronics
- ▶ Instrumentation
- ▶ Test & measurement

SPECIFICATIONS

Contact Resistance:	Less than 20 milliohms
Insulation Resistance:	500VDC – 100 milliohms
Dielectric Strength:	500V AC for 1 minute between any terminal and frame
Operating Temperature:	-20°C to +70°C (-4°F to +158°F)
Soldering:	Auto 270 ± 5°C/3 seconds; Manual 350 ± 10°C/3 seconds

MATERIALS

Contact: Silver plated copper alloy

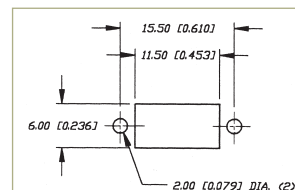
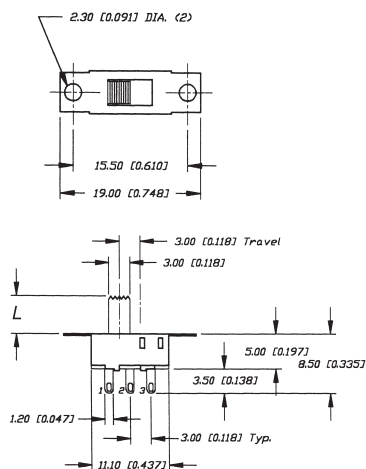
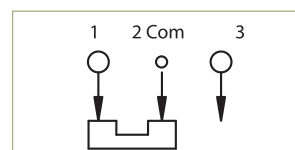
**Example Ordering Number****EG-1201A**

HOW TO ORDER

SERIES
EG**MODEL NO.**

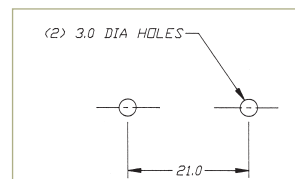
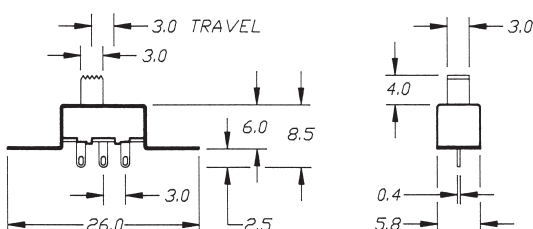
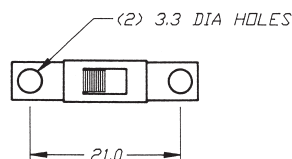
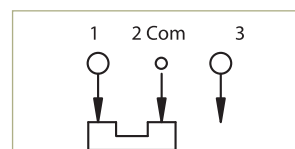
Specifications subject to change without notice.

EG 1201

**PANEL MOUNT****SCHEMATIC**

Model No.	L
EG1201	4
EG1201A	5.5

EG 1205

**PANEL MOUNT****SCHEMATIC**

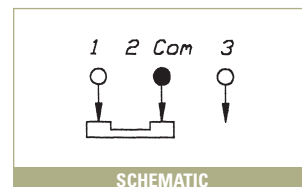
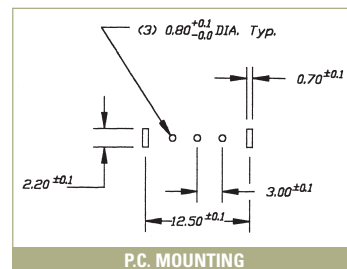
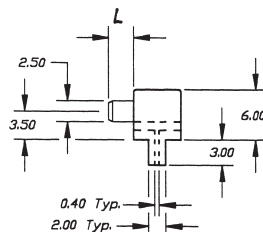
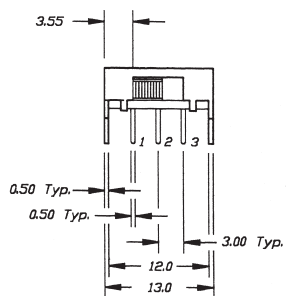
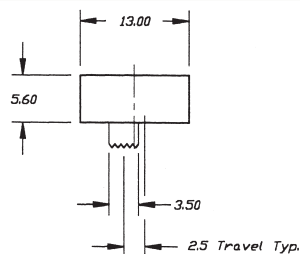
Model No.	L
EG1205	4
EG1205A	5.5



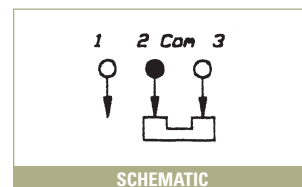
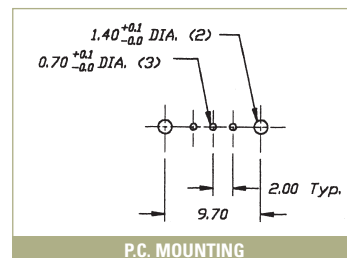
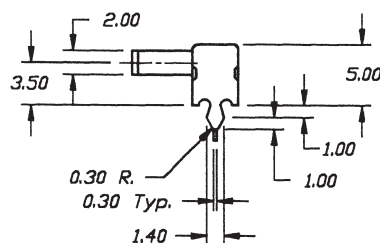
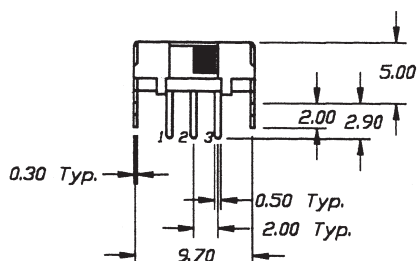
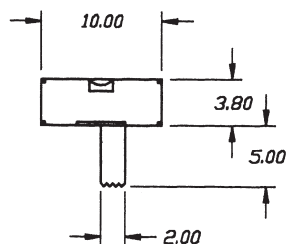
EG 1206



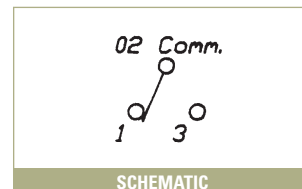
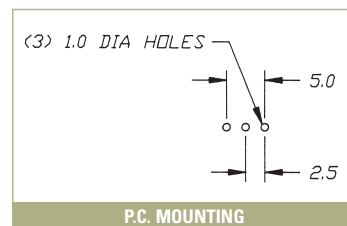
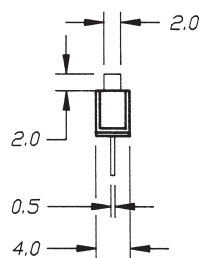
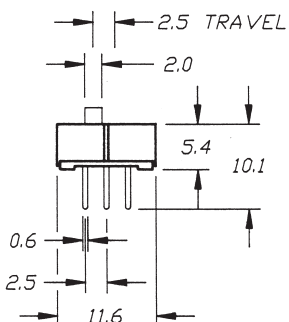
Model No.	L
EG1206	3
EG1206A	6

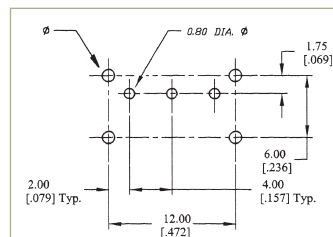
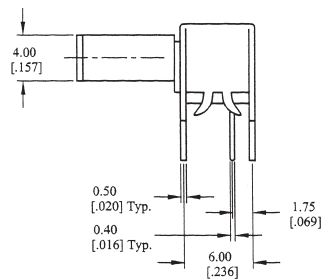
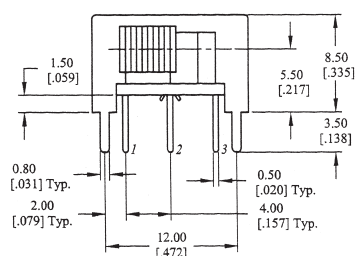
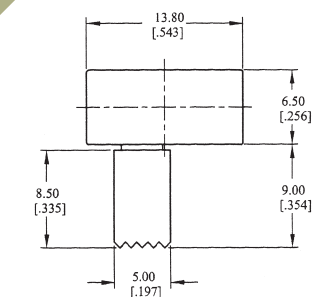


EG 1213

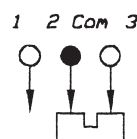


EG 1218

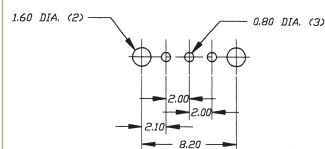
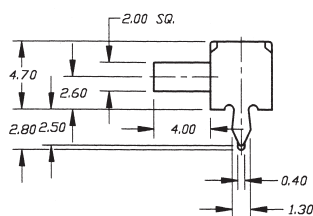
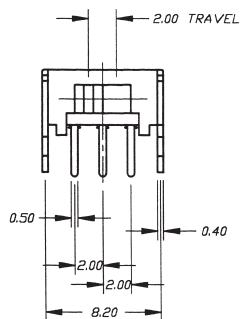
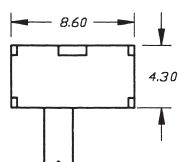


CAP
OPTIONS

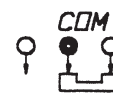
P.C. MOUNTING



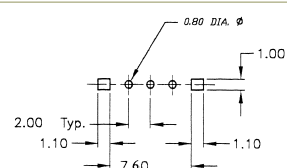
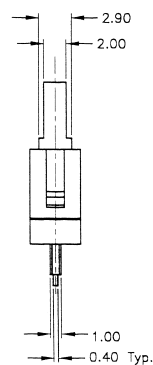
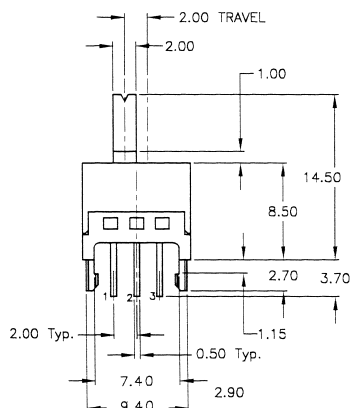
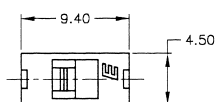
SCHEMATIC



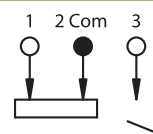
P.C. MOUNTING



SCHEMATIC



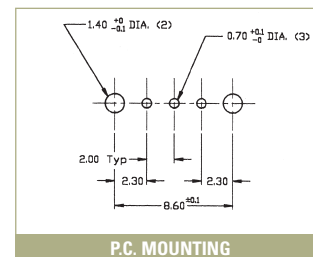
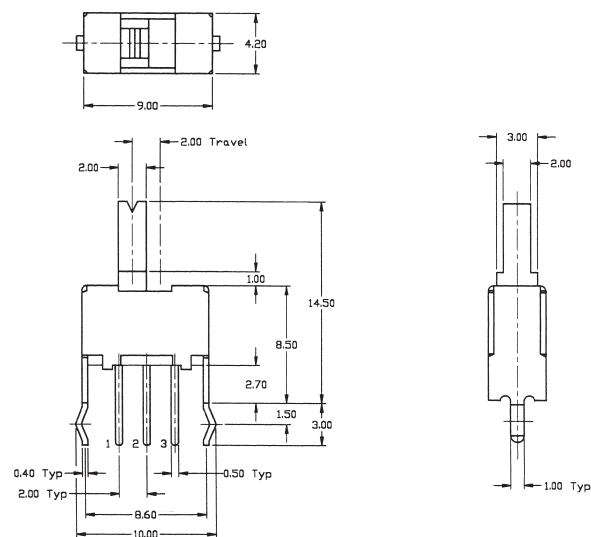
P.C. MOUNTING



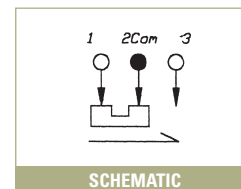
SCHEMATIC



EG 1249



P.C. MOUNTING

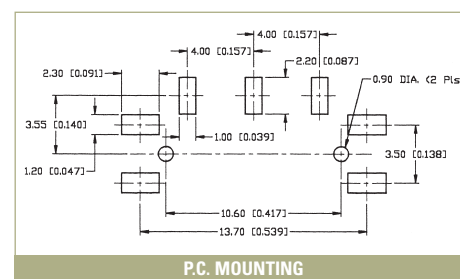
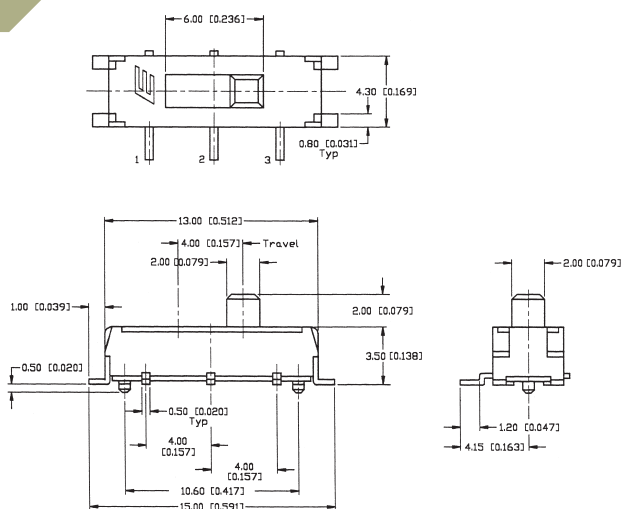


SCHEMATIC

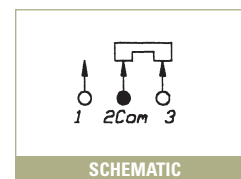
EG 1253



Momentary Only

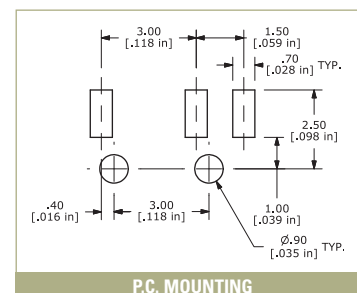
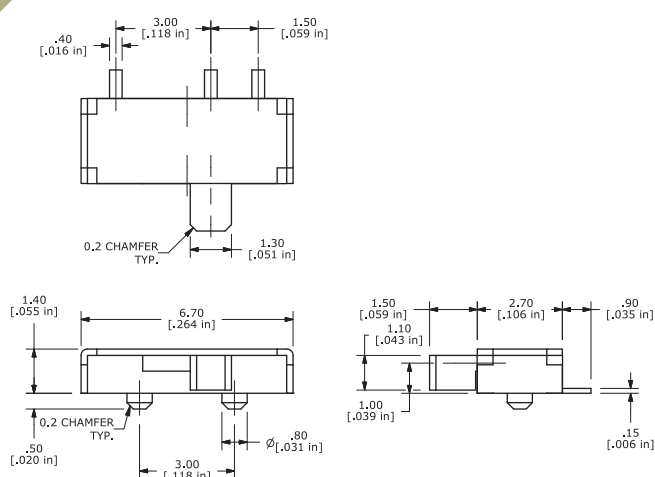


P.C. MOUNTING

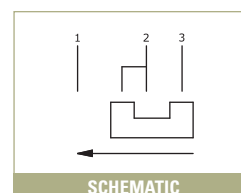


SCHEMATIC

EG 1260



P.C. MOUNTING



SCHEMATIC

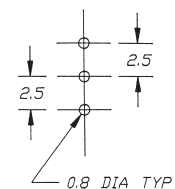
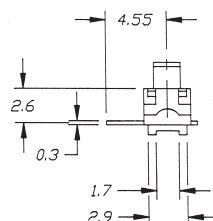
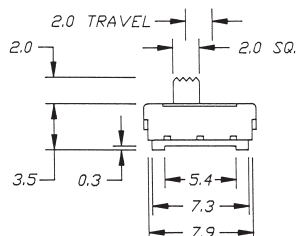
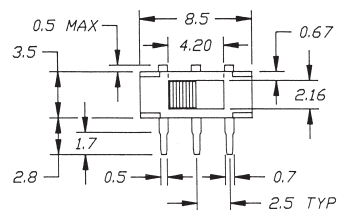
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES EG SWITCHES

SLIDE SWITCHES

EG 1270



P.C. MOUNTING

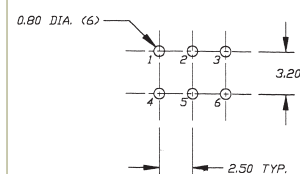
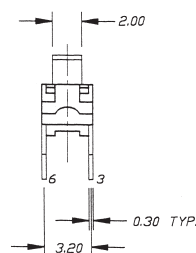
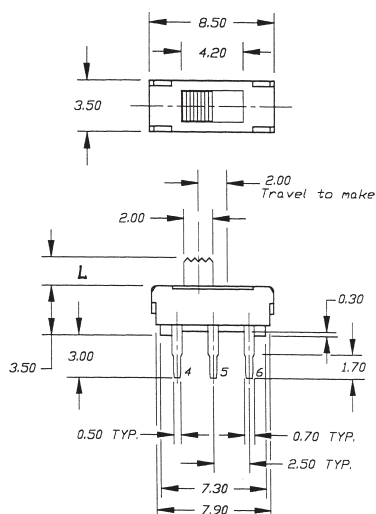


SCHEMATIC

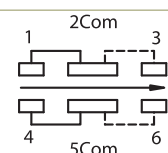
EG 1271



Model No.	L
EG1271	2
EG1271A	4.4



P.C. MOUNTING

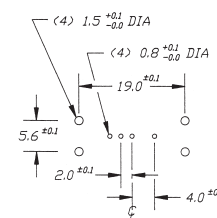
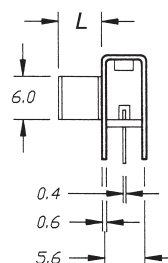
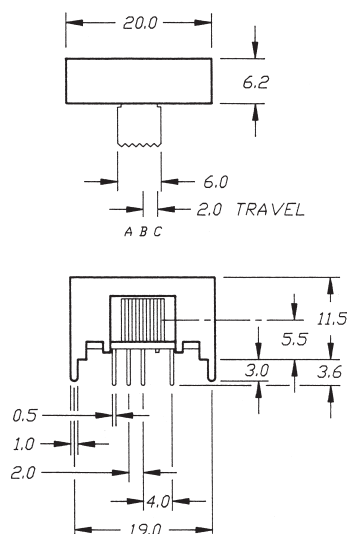


SCHEMATIC

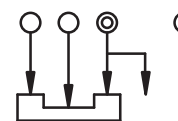
EG 1302



Model No.	L
EG1302	6
EG1302A	9



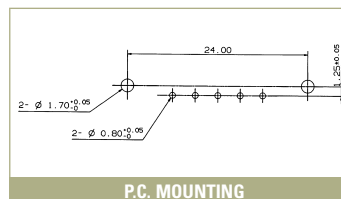
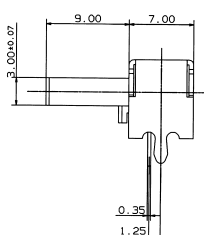
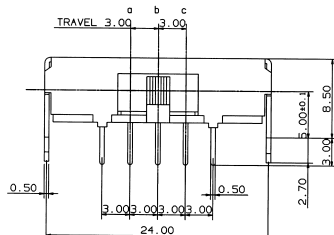
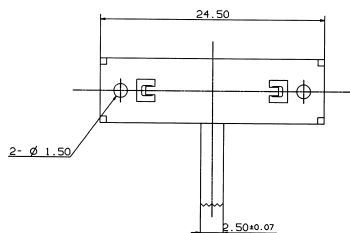
P.C. MOUNTING



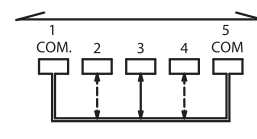
SCHEMATIC



EG 1307

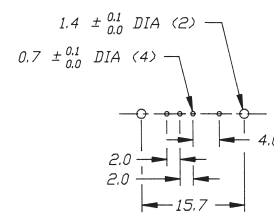
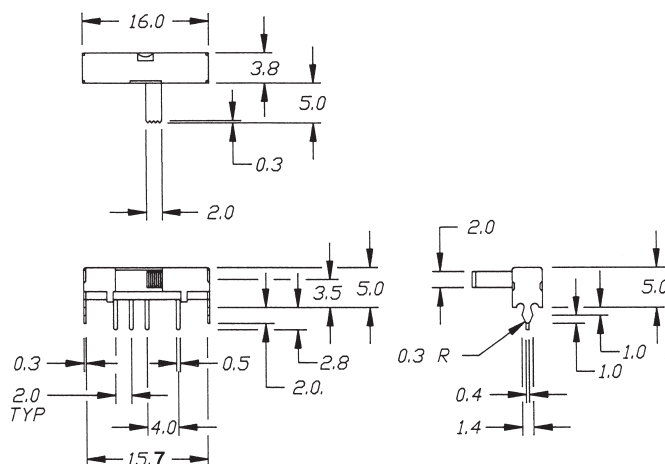


P.C. MOUNTING

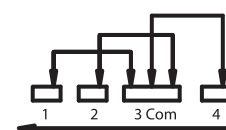


SCHEMATIC

EG 1313



P.C. MOUNTING

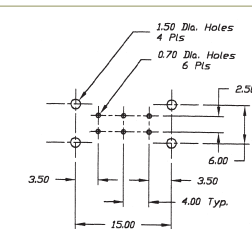
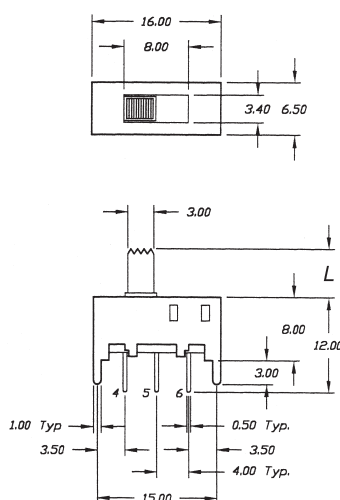


SCHEMATIC

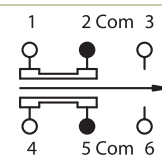
EG 2201



Model No.	L
EG2201	3
EG2201A	6
EG2201B	9
EG2201C	12
EG2201D	4.5



P.C. MOUNTING



SCHEMATIC



SERIES EG SWITCHES

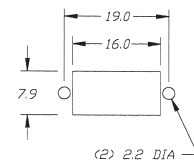
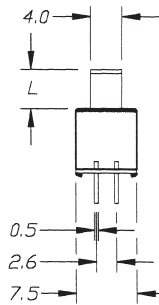
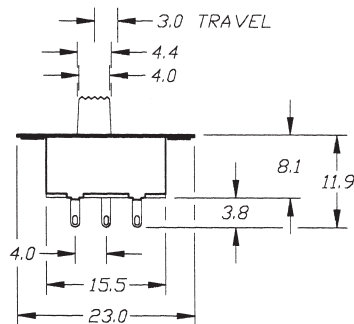
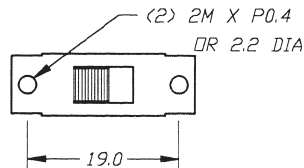
SLIDE SWITCHES

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

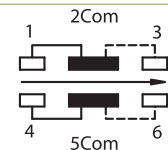
EG 2202



Model No.	L
EG2202	5
EG2202A	7.5
EG2202B	9



P.C. MOUNTING

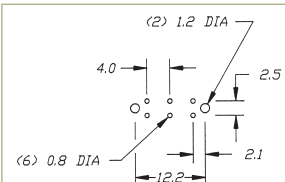
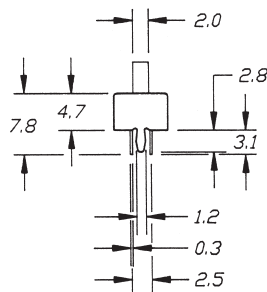
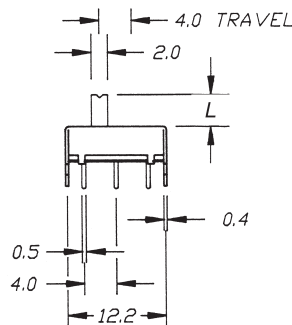
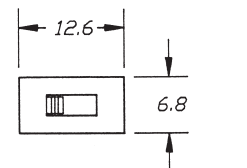


SCHEMATIC

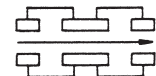
EG 2205



Model No.	L
EG2205	4
EG2205A	2

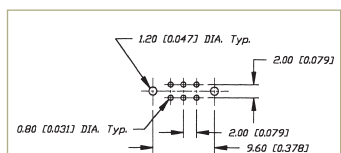
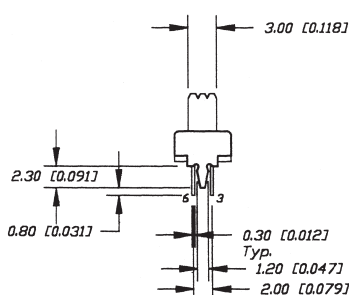
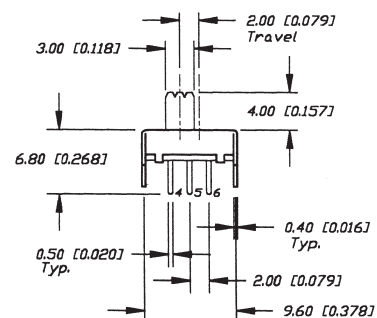
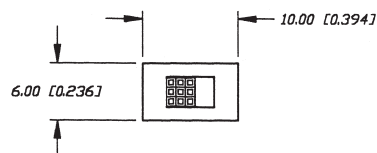


P.C. MOUNTING

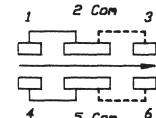


SCHEMATIC

EG 2207



P.C. MOUNTING



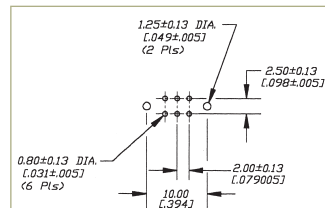
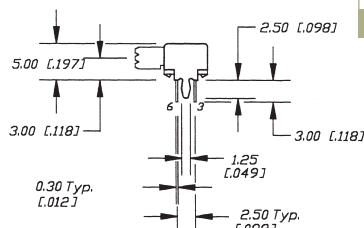
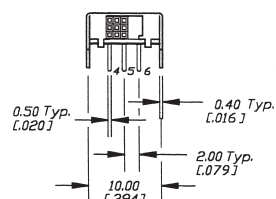
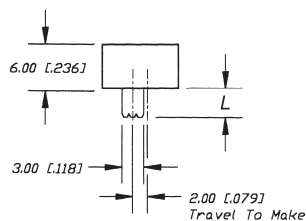
SCHEMATIC



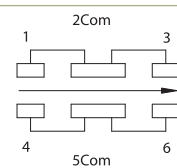
EG 2208



Model No.	L
EG2208	4
EG2208A	6

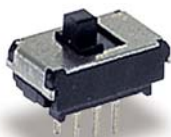


P.C. MOUNTING

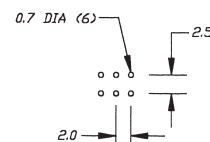
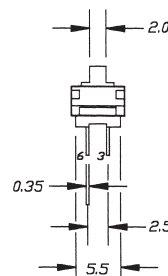
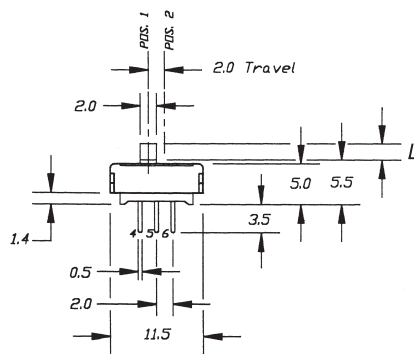
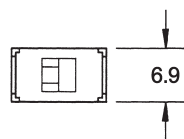


SCHEMATIC

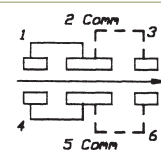
EG 2209



Model No.	L
EG2209	2
EG2209A	4

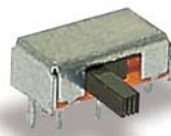


P.C. MOUNTING

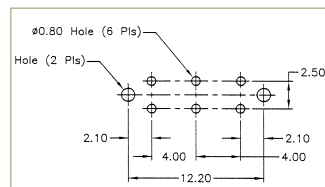
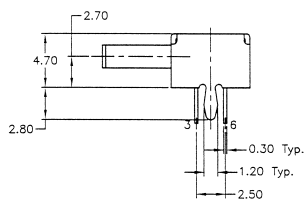
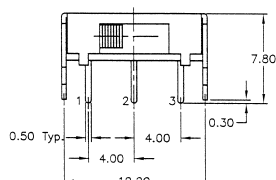
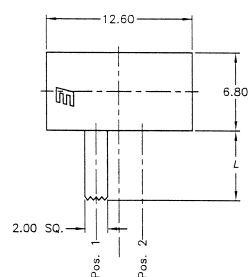


SCHEMATIC

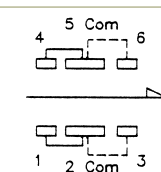
EG 2210



Model No.	L
EG2210	6
EG2210A	4
EG2210D	2



P.C. MOUNTING



SCHEMATIC



SERIES EG SWITCHES

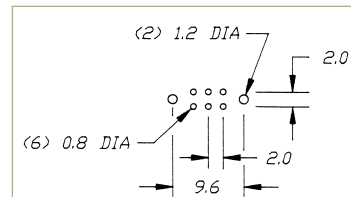
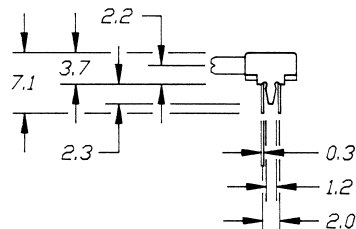
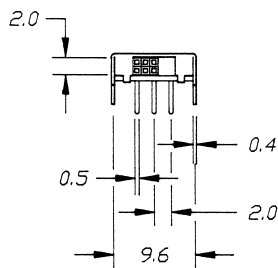
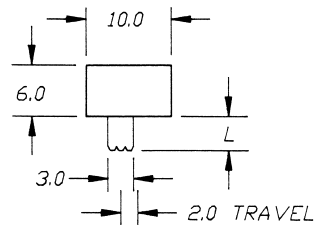
SLIDE SWITCHES

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

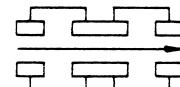
EG 2211



Model No.	L
EG2211	4
EG2211A	2

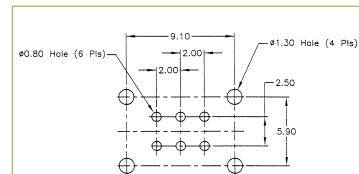
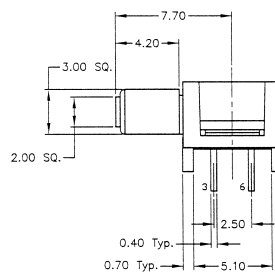
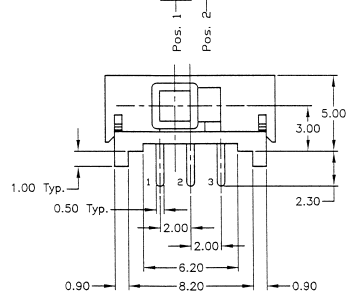
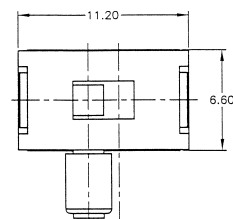


P.C. MOUNTING

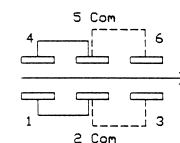


SCHEMATIC

EG 2214

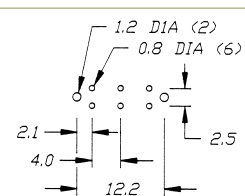
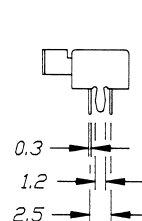
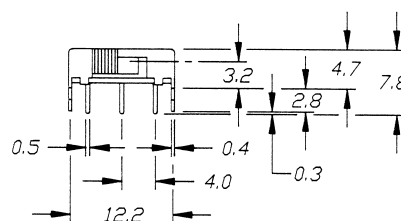
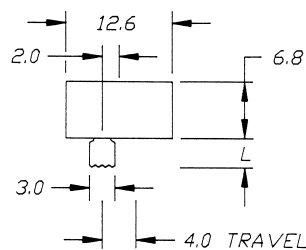


P.C. MOUNTING

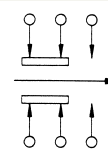


SCHEMATIC

EG 2215



P.C. MOUNTING

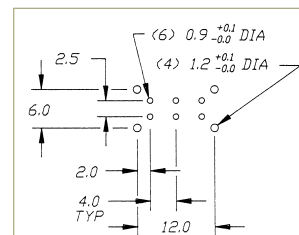
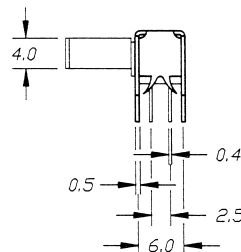
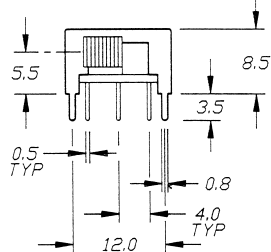
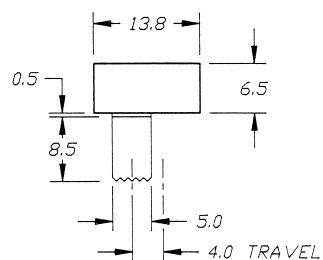


SCHEMATIC

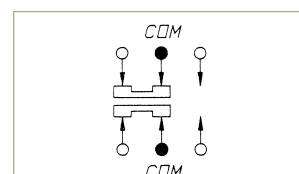
Model No.	L
EG2215	3.5
EG2215A	6



EG 2219

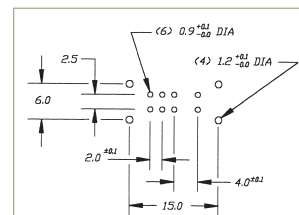
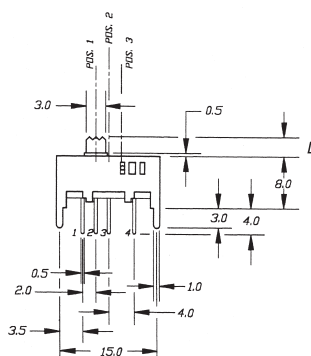
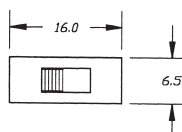


P.C. MOUNTING

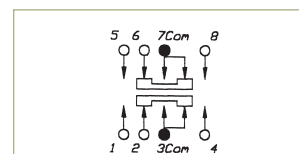


SCHEMATIC

EG 2301

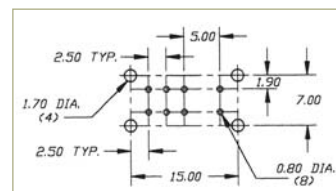
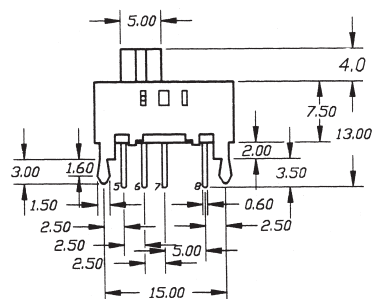
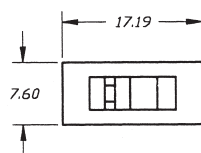


P.C. MOUNTING

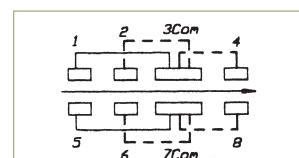


SCHEMATIC

EG 2303



P.C. MOUNTING



SCHEMATIC

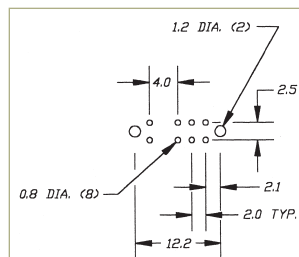
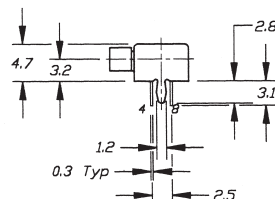
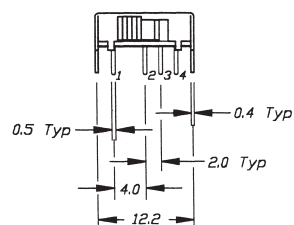
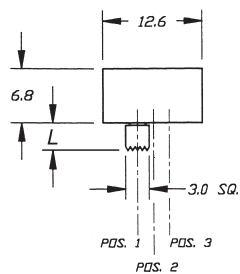
CAP
OPTIONS



EG 2315



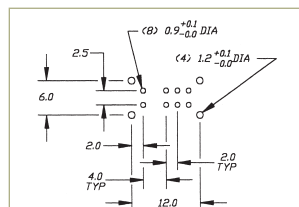
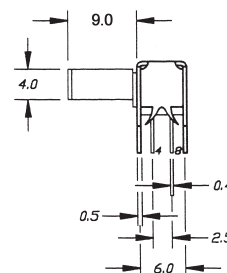
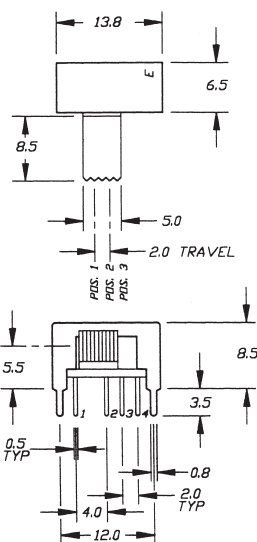
Model No.	L
EG2315	3.5
EG2315A	6



P.C. MOUNTING

SCHEMATIC

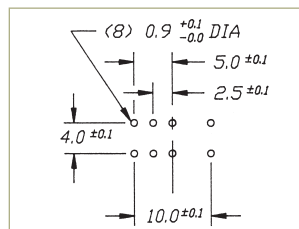
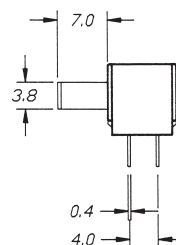
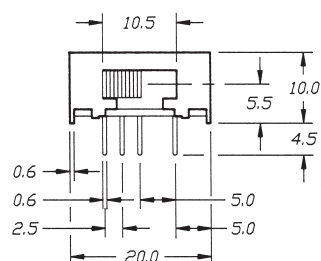
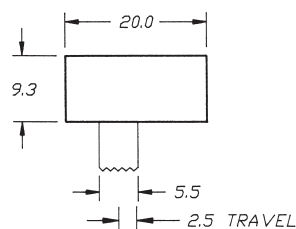
EG 2319



P.C. MOUNTING

SCHEMATIC

EG 2322



P.C. MOUNTING

SCHEMATIC

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

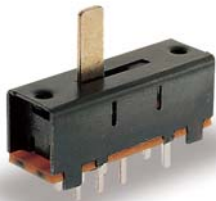


SERIES EG SWITCHES

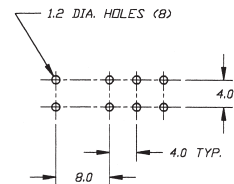
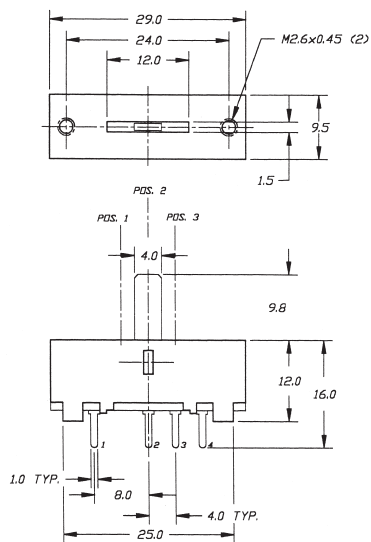
SLIDE SWITCHES

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

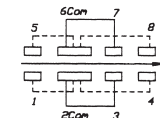
EG 2323



Model No.	Mtg. Hole
EG2323	None
EG2323A	M2.6 x P0.45

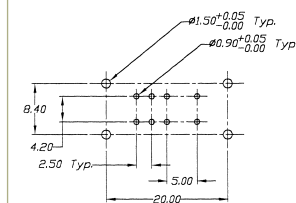
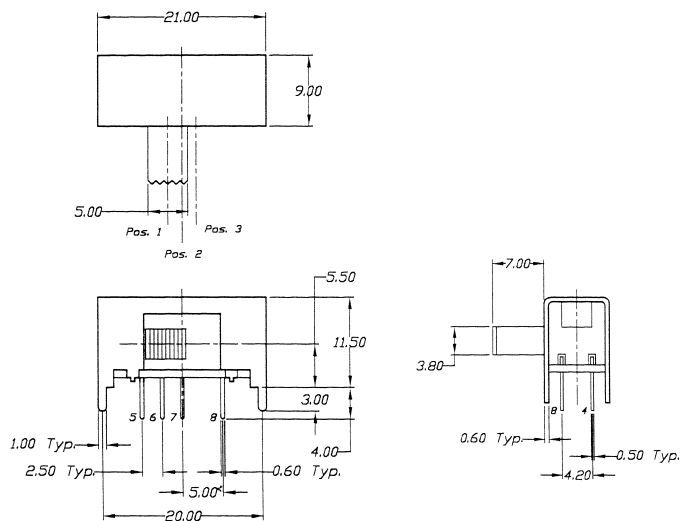
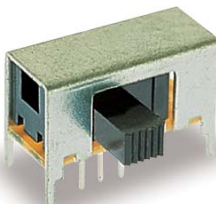


P.C. MOUNTING

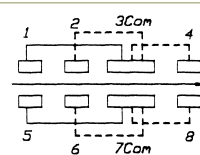


SCHEMATIC

EG 2324



P.C. MOUNTING

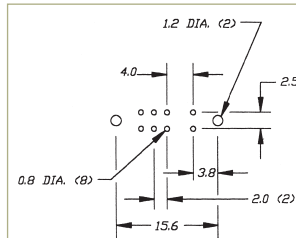
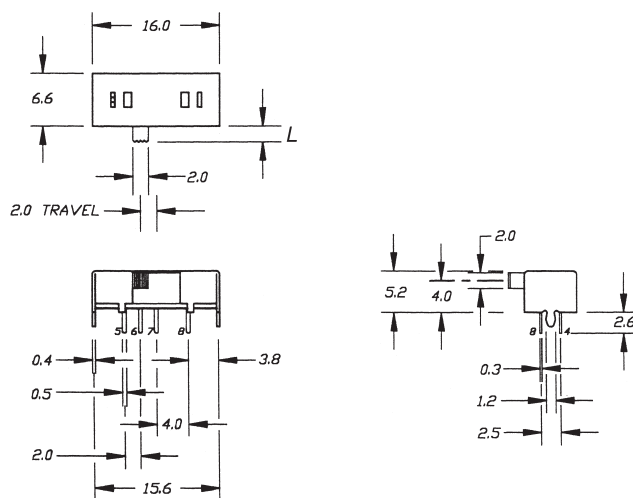


SCHEMATIC

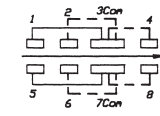
EG 2325



Model No.	L
EG2325	2
EG2325A	6



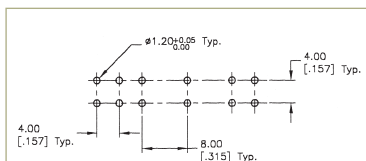
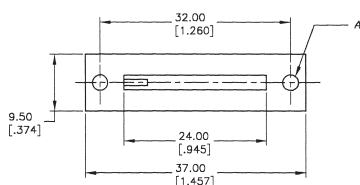
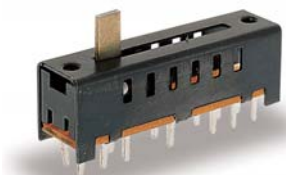
P.C. MOUNTING



SCHEMATIC

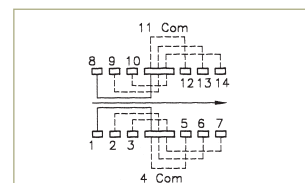
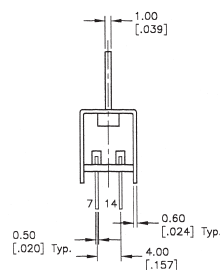
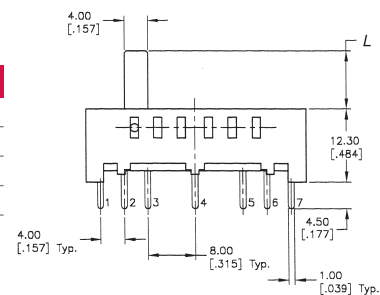


EG 2601



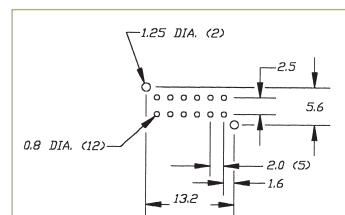
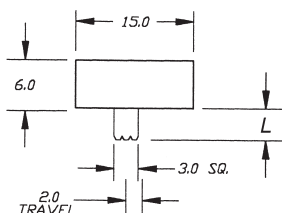
P.C. MOUNTING

Model No.	L	"A"
EG2601	9.8	None
EG2601A	9.8	M2.6 x P0.45
EG2601B	6.5	M2.6 x P0.45
EG2601C	6.5	None



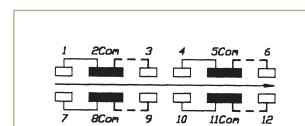
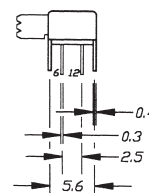
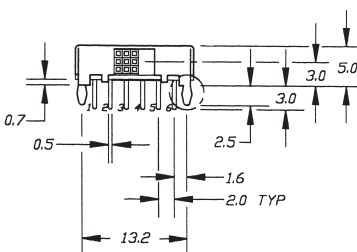
SCHEMATIC

EG 4208



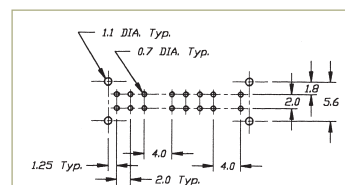
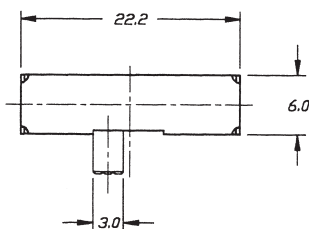
P.C. MOUNTING

Model No.	L
EG4208	4
EG4208A	6

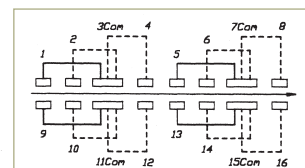
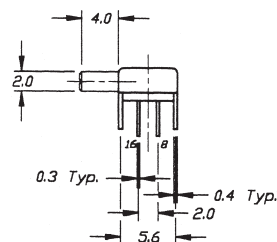
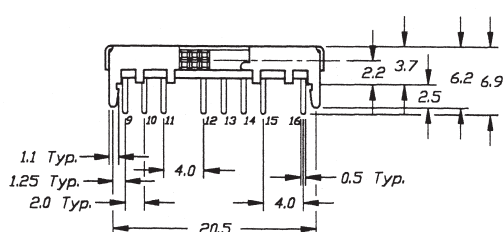


SCHEMATIC

EG 4311



P.C. MOUNTING



SCHEMATIC

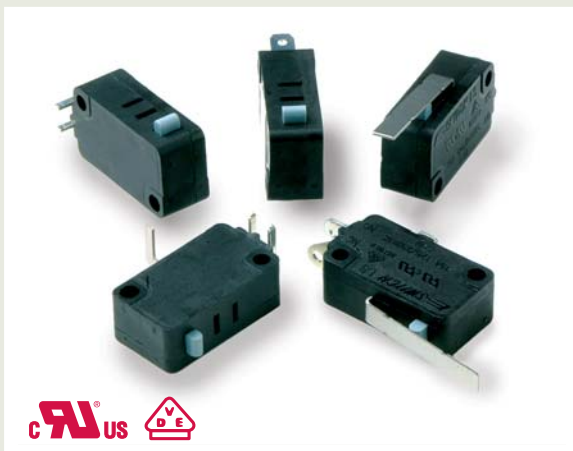
CAP
OPTIONS

SERIES LS SWITCHES

SNAP ACTION SWITCHES



E-SWITCH®



FEATURES & BENEFITS

- ▶ Available in gold & 15amp versions
- ▶ Wide variety of actuator, operating force & termination options

APPLICATIONS/MARKETS

- ▶ Appliance
- ▶ Timing controls
- ▶ Vending machines
- ▶ Gaming
- ▶ Industrial controls
- ▶ Power tools

SPECIFICATIONS

Contact Rating:	Gold .4VA max. @ 20 VDC or VAC Max. 15 Amps @ 125/250 VAC-UL, CUL, VDE
Life Expectancy:	50,000 cycles minimum
Mechanical Life:	500,000 cycles typical
Insulation Resistance:	100 MΩ min.
Dielectric Strength:	1,500 VAC for 60 seconds
Operating Temperature:	-25° C to 85° C (std)
Operating Force:	See Chart

MATERIALS

Switch Housing:	High Temperature PBT (UL94 V0)
Actuator Button:	High Temperature PBT (UL94 V0)
Contacts:	Silver (std) or Gold
Terminals:	Copper Alloy



HOW TO ORDER

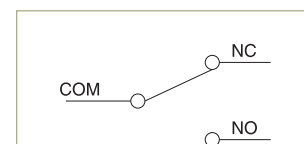
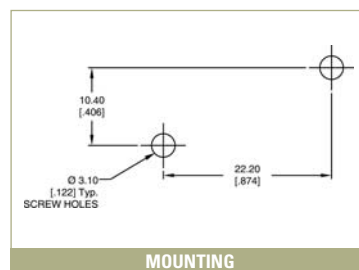
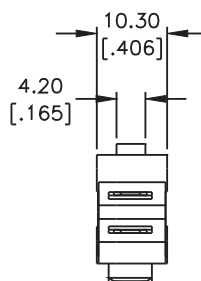
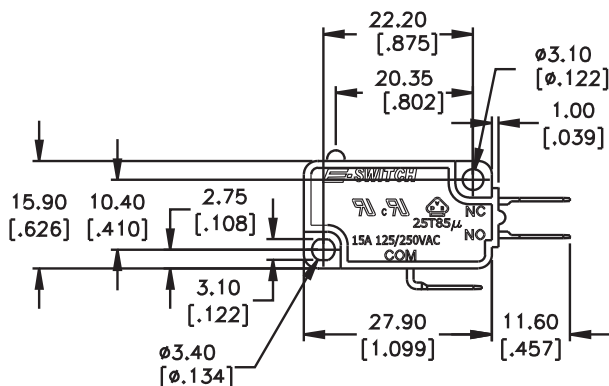
SERIES	OPERATING TEMP.	CURRENT RATING	ACTUATOR	OPERATING FORCE	TERMINATION	CIRCUIT
LS	085 = 85C	R1 = Gold 15 = 15A	See Chart	See Chart	S1 = Solder Lug C1 = 0.187" Quick Connect C2 = 0.250" Quick Connect V1 = Right Angle PCB Pin V2 = Left Angle PCB Pin	A = SPDT B = SPST NC C = SPST NO



Example Ordering Number

LS-085-15-03-F040-C2-A

Specifications subject to change without notice.



TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS



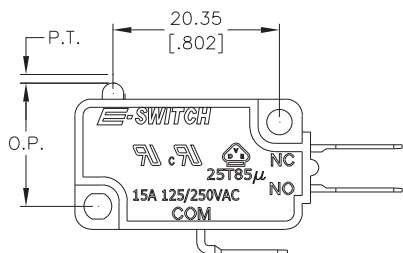
SERIES LS SWITCHES

SNAP ACTION SWITCHES

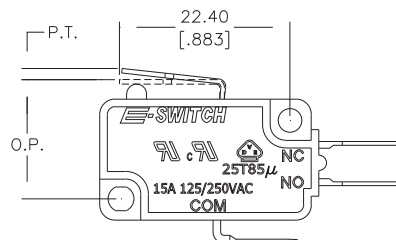
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

ACTUATOR OPTIONS

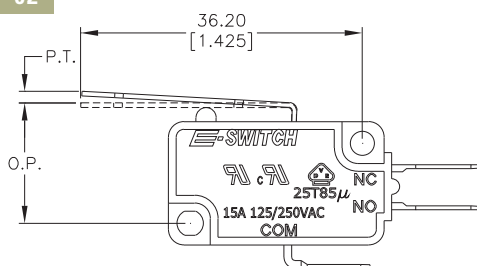
00



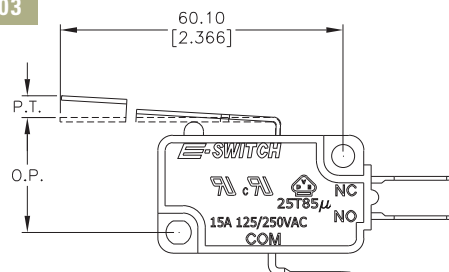
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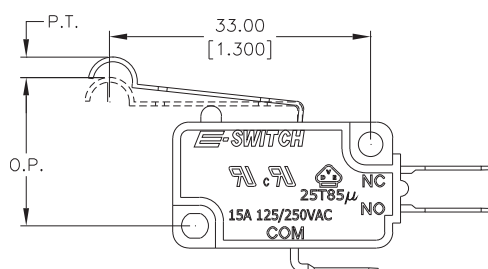
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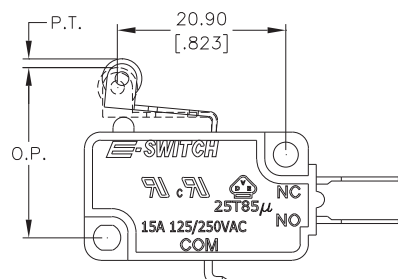
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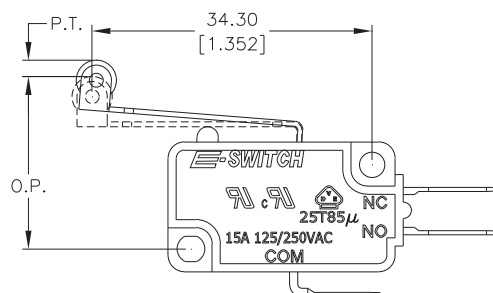
04



05



06



ACTUATOR AND OPERATING FORCE CHART

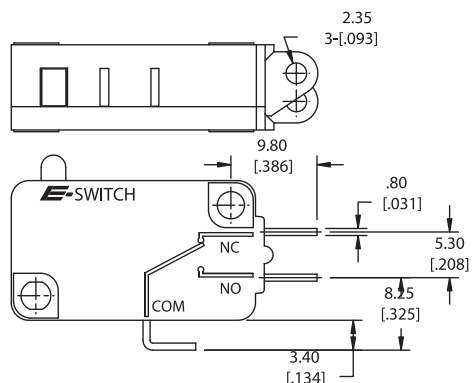
Actuator	Actuation/Return Force			Pre-Travel	Operating Position
00	100+/-30	160+/-40	250+/-50	2.0 max	14.7+/-0.5
01	100+/-30	160+/-40	250+/-50	2.0 max	15.3+/-0.5
02	45+/-20	75+/-25	120+/-40	4.1 max	15.5+/-0.8
03	25+/-10	40+/-15	60+/-25	8.5 max	15.3+/-2.0
04	50+/-20	85+/-30	140+/-40	5.2 max	19.0+/-1.5
05	100+/-30	160+/-40	250+/-50	2.7 max	20.7+/-0.8
06	45+/-15	75+/-25	120+/-40	5.5 max	20.7+/-1.5

PT= Pretravel OP= Operating Point OT= Over Travel

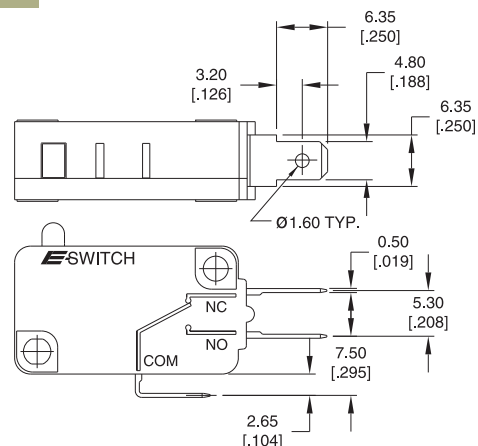


TERMINATION OPTIONS

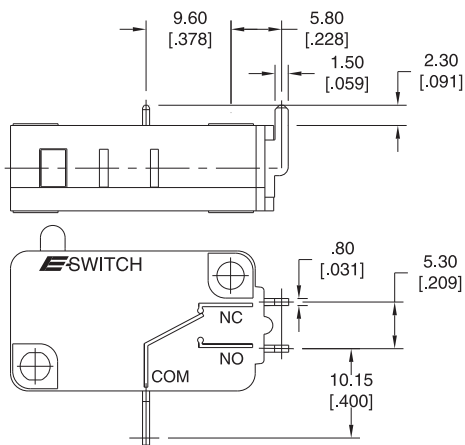
S1 SOLDER LUG



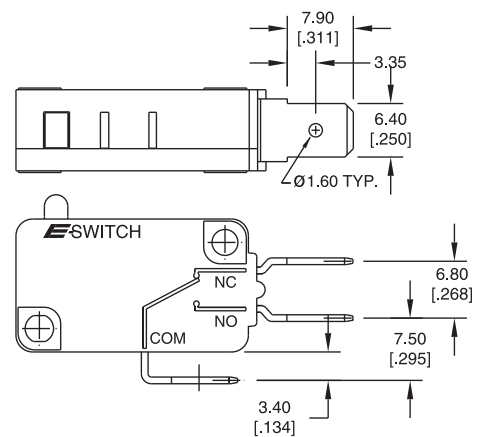
C1 0.187" QUICK CONNECT



V1 RIGHT ANGLE PCB PIN



C2 0.250" QUICK CONNECT

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES MS SWITCHES

SNAP ACTION SWITCHES - MINIATURE



FEATURES & BENEFITS

- ▶ Available in gold & 5 amp versions
- ▶ Wide variety of actuator, operating force & termination options

APPLICATIONS/MARKETS

- ▶ Appliance
- ▶ Timing controls
- ▶ Vending machines
- ▶ Gaming
- ▶ Industrial controls
- ▶ Power tools

SPECIFICATIONS

Contact Rating: Gold .4VA max. @ 20 VDC or VAC Max.
5 Amps @ 125/250 VAC-UL, CUL

Life Expectancy: 10,000 cycles minimum

Mechanical Life: 100,000 cycles typical

Insulation Resistance: 100 MΩ min.

Dielectric Strength: 1,000 VAC for 60 seconds

Operating Temperature: -25° C to 85° C (std)

Operating Force: See Chart

MATERIALS

Switch Housing: High Temperature PBT (UL94 V-0)

Actuator Button: High Temperature PBT (UL94 V-0)

Contacts: Silver (std) or Gold

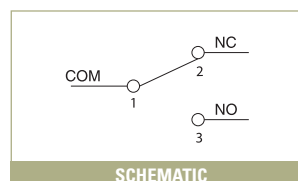
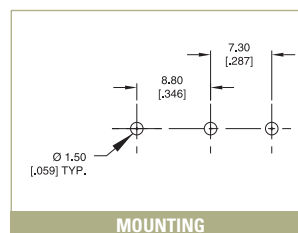
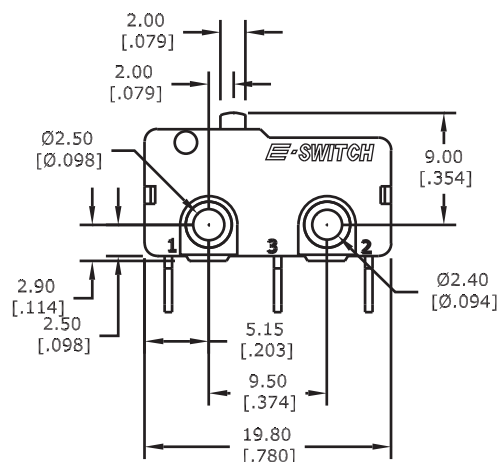
Terminals: Copper Alloy

HOW TO ORDER

SERIES	OPERATING TEMP.	CURRENT RATING	ACTUATOR	OPERATING FORCE	TERMINATION	CIRCUIT
MS						

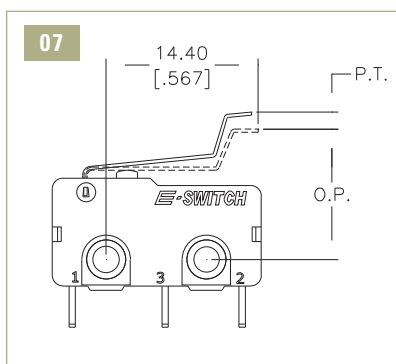
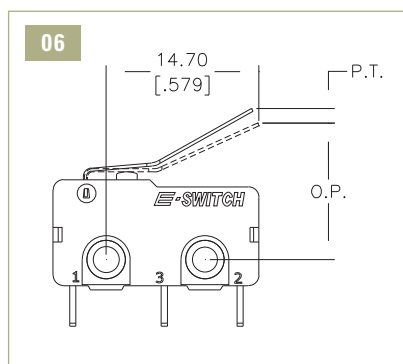
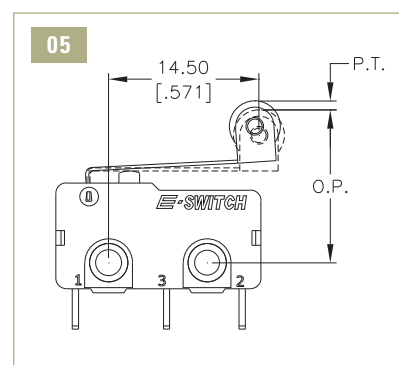
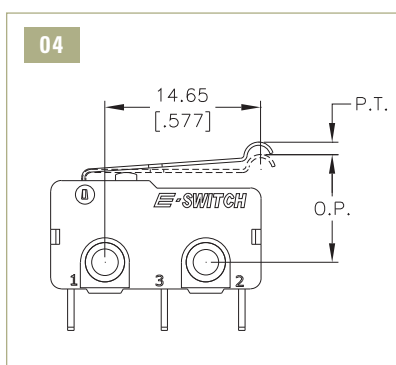
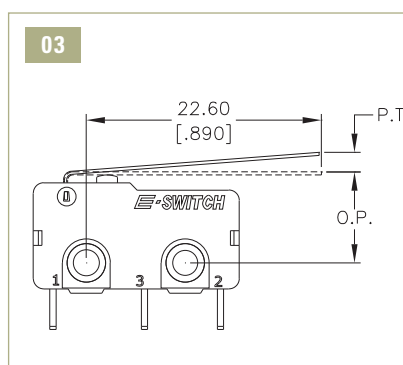
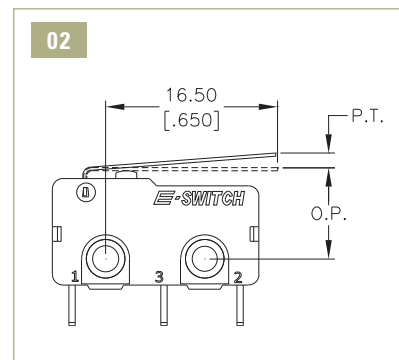
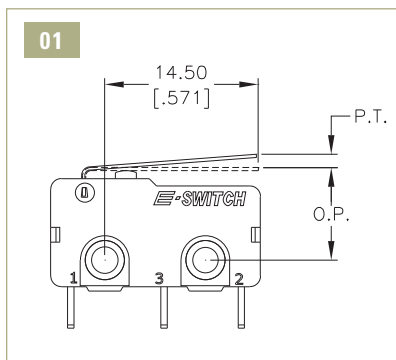
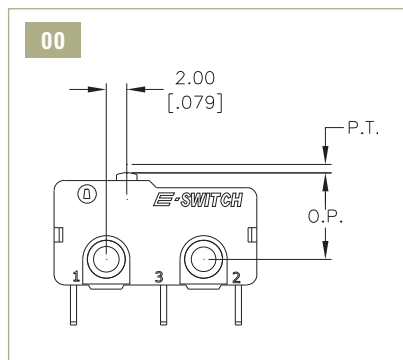
Example Ordering Number
MS-085-R1-00-F130-S1-A

Specifications subject to change without notice.





ACTUATOR OPTIONS

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

ACTUATOR AND OPERATING FORCE CHART

Actuator	Actuation/Return Force									
00	60+/-25	80+/-25	95+/-30	115+/-40	130+/-40	150+/-40	175+/-45	190+/-45	250+/-50	295+/-55
01	20+/-8	25+/-12	30+/-12	35+/-20	40+/-20	45+/-20	50+/-20	55+/-25	70+/-25	85+/-30
02	15+/-6	20+/-8	25+/-12	30+/-12	35+/-20	40+/-20	45+/-20	50+/-20	65+/-25	75+/-25
03	10+/-5	15+/-6	20+/-8	25+/-12	30+/-12	35+/-20	40+/-20	55+/-25	60+/-25	---
04	15+/-6	20+/-8	25+/-12	30+/-12	35+/-20	40+/-20	45+/-20	50+/-20	65+/-25	75+/-25
05	15+/-6	20+/-8	25+/-12	30+/-12	35+/-20	40+/-20	45+/-20	50+/-20	65+/-25	75+/-25
06	15+/-6	20+/-8	25+/-12	30+/-12	35+/-20	40+/-20	45+/-20	50+/-20	65+/-25	75+/-25
07	15+/-6	20+/-8	25+/-12	30+/-12	35+/-20	40+/-20	45+/-20	50+/-20	65+/-25	75+/-25

Actuator	Pre-Travel	Operating Position
00	1.1 max	8.5+/-0.3
01	3.6 max	9.1+/-0.8
02	3.8 max	9.1+/-0.8
03	4.4 max	9.5+/-0.8
04	3.2 max	10.9+/-1.0
05	4.0 max	14.9+/-1.0
06	4.1 max	13.9+/-1.5
07	5.0 max	12.5+/-1.5

PT= Pretravel OP= Operating Point OT= Over Travel



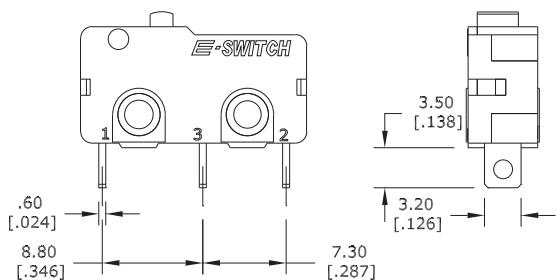
SERIES MS SWITCHES

SNAP ACTION SWITCHES - MINIATURE

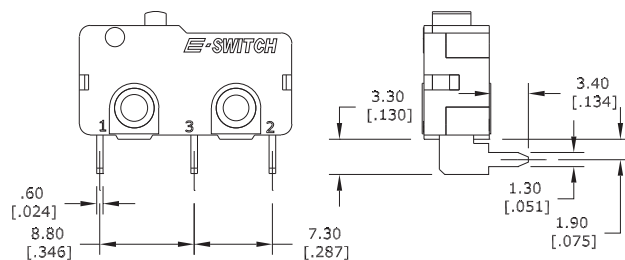
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

TERMINATION OPTIONS

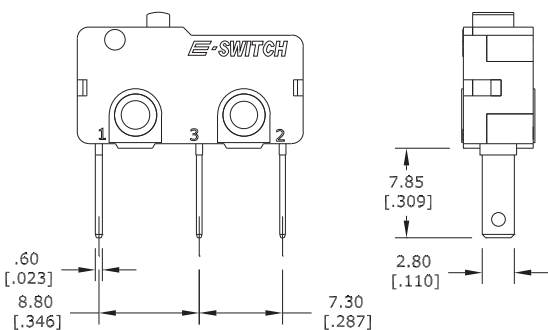
S1 SOLDER LUG



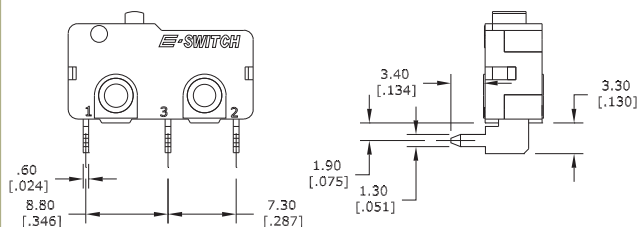
V1 RIGHT ANGLE PCB PIN



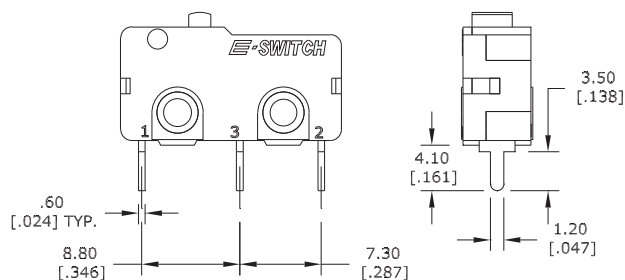
C1 0.110" QUICK CONNECT



V2 LEFT ANGLE PCB PIN



P1 PCB TERMINALS





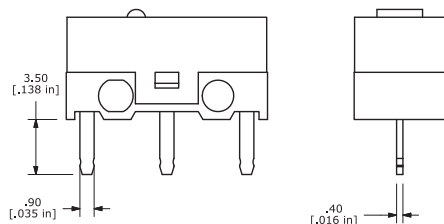
SERIES SS SWITCHES

SNAP ACTION SWITCHES - SUB-MINIATURE

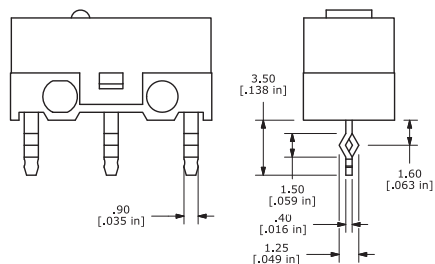
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

TERMINATION OPTIONS

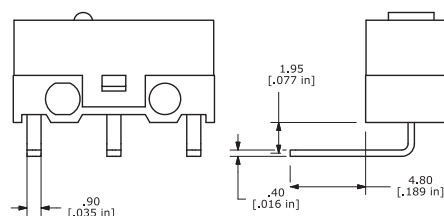
P1



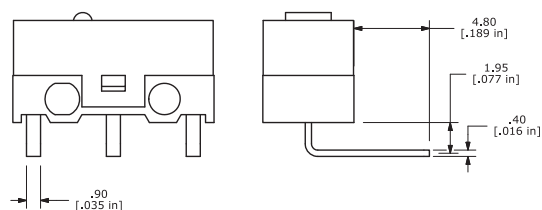
R1



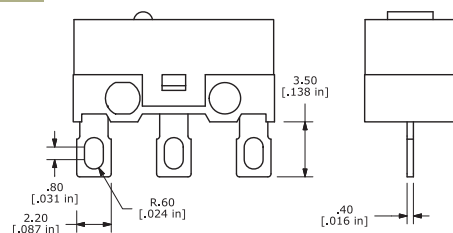
V1



V2

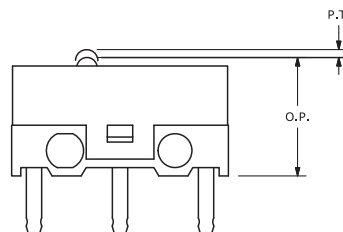


S1

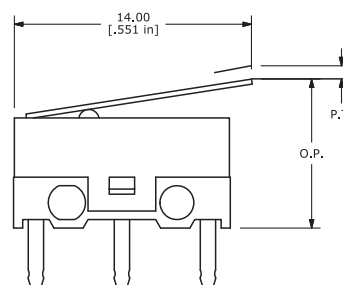


ACTUATOR OPTIONS

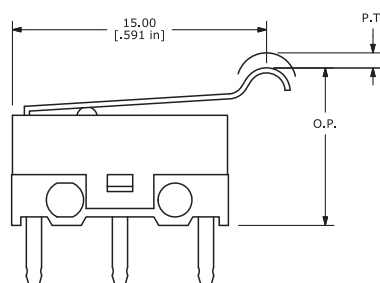
00



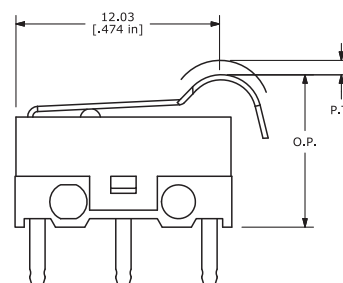
01



02



03



PT= Pretravel OP= Operating Point

ACTUATOR AND OPERATING FORCE CHART

Actuator	Actuation/Return Force					Pre-Travel	Operating Point
00	070 / 25	090 / 40	110 / 50	130 / 60		0.75 Max	5.5 ± 0.2
01	020 / 5	030 / 10	035 / 10	040 / 15		3.2 Max	7.3 ± 0.8
02	015 / 5	025 / 10	030 / 10	035 / 10		3.6 Max	3.6 ± 0.8
03	020 / 5	030 / 10	040 / 15	050 / 15		3.6 Max	3.6 ± 0.8

SNAP ACTION SWITCHES - SUB-MINIATURE



Contact Rating:	0.3A @ 6VDC
Mechanical Life:	50,000 cycles typical
Insulation Resistance:	100M ohms minimum
Dielectric Strength:	250 VAC for 60 seconds
Operating Temperature:	-25C to 85C
Storage Temperature:	-30C to 85C

APPLICATIONS/MARKETS

- ▶ Sub miniature snap action switch
- ▶ Vertical and right angle pc pin termination
- ▶ Security/detection
- ▶ Appliance
- ▶ Instrumentation
- ▶ Power tools

SERIES
TS

CURRENT

01 = 0.3A @ 6 VDC

ACTUATOR

01 = Type 1

OPERATING

$$30 = 30 \pm 15 \text{ gf}$$

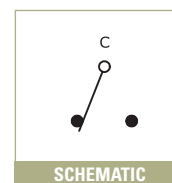
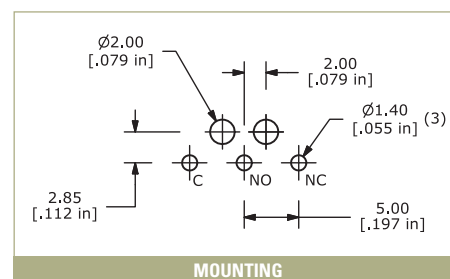
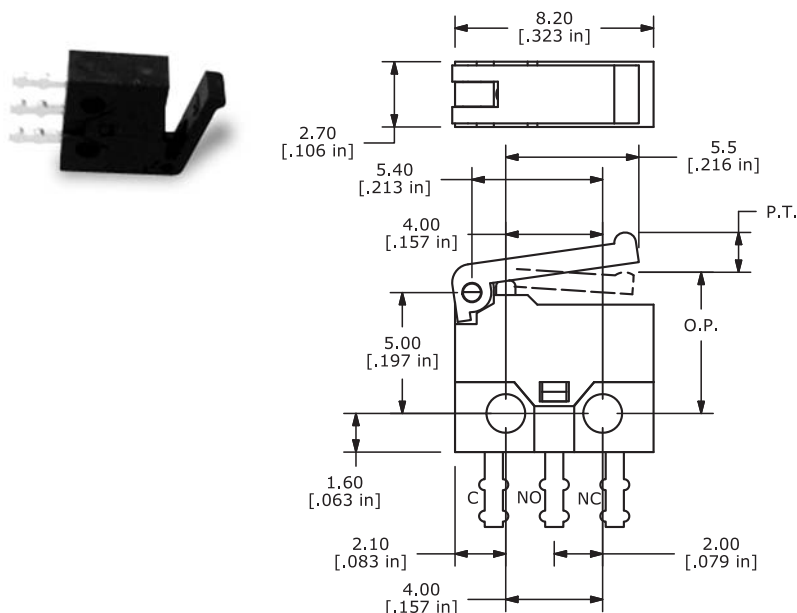
TERMINATION

- P = Vertical PC Pins
- V1 = PCB Right Angle-Short
- V2 = PCB Left Angle-Short
- V1 = PCB Right Angle-Long
- V2 = PCB Left Angle-Long

Example Ordering Number

TS-01-01-30-V1

Specifications subject to change without notice.





SERIES TS SWITCHES

SNAP ACTION SWITCHES - SUB-MINIATURE

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

KEYLOCK
SWITCHES

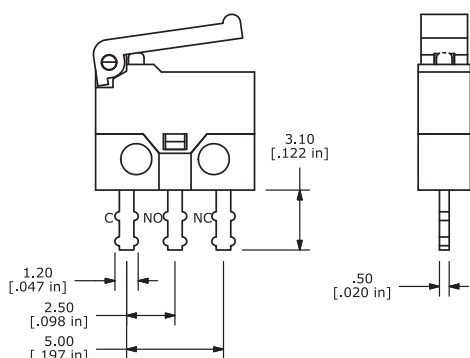
ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS

TERMINATION OPTIONS

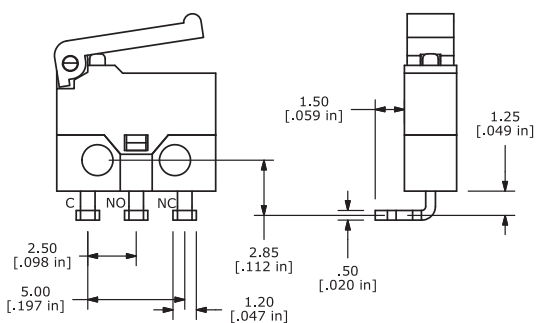
P VERTICAL PC PINS



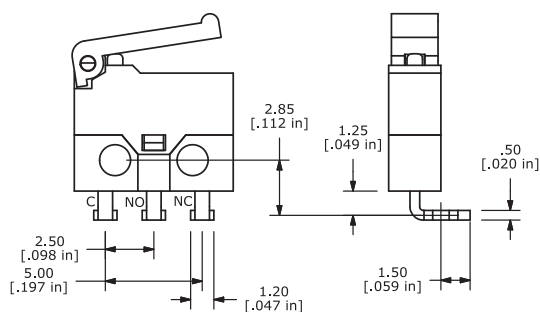
ACTUATOR BUTTON

Actuator	Operating Point
Type 1	8.3 ± 0.5
Type 2	8.5 ± 0.5

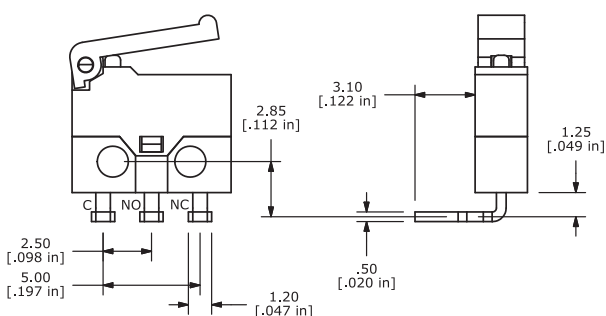
V1 PCB RIGHT ANGLE-SHORT



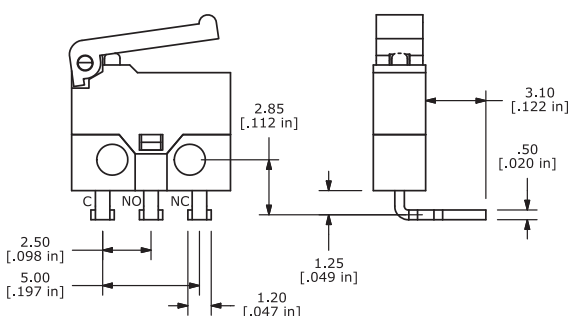
V2 PCB LEFT ANGLE-SHORT



V3 PCB RIGHT ANGLE-LONG



V4 PCB LEFT ANGLE-LONG

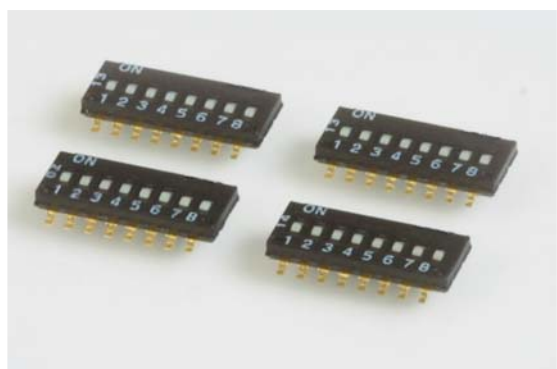




E-SWITCH®

SERIES KAN SWITCHES

HALF-PITCH LOW PROFILE DIP SWITCHES



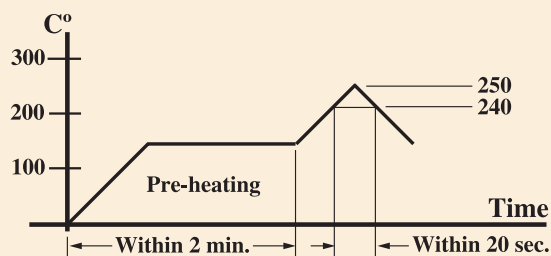
FEATURES & BENEFITS

- ▶ Half pitch, low profile, SMT
- ▶ Tape & reel packaging

APPLICATIONS/MARKETS

- ▶ Garage door openers
- ▶ Test & instrumentation
- ▶ Telecommunications
- ▶ Controller application

TYPICAL SMT TEMPERATURE PROFILE



SPECIFICATIONS

Switch Function:	2, 4, 6, 8 & 10 positions
Ratings:	Switch: 25mA @ 24 VDC Carry: 100mA @ 50 VDC
Contact Resistance:	initial 50mΩ typical @ 2-4 VCD, 100mA
Insulation Resistance:	100 MΩ min. @ 500 VDC
Operating Life:	2,000 make-and-break cycles, each circuit
Dielectric Strength:	500 V rms @ sea level between adjacent terminals
Operating Temperature:	-40° C to 85° C

MATERIALS

Base:	PPS UL94 V0, black finish
Cover:	PPS UL94 V0, black finish
Actuator:	Nylon UL94 V0, white finish
Movable Contact:	Copper alloy, gold finish
Terminal Contact:	Brass, gold finish
Tape Seal:	Mylar, amber color

PACKAGING

Switches are supplied in standard IC tubes, or tape and reel, with all poles in the "ON" position.



HOW TO ORDER

SERIES	MODEL NO.	TERMINATION	CIRCUIT	NO. OF POSITIONS	ACTUATOR	PACKAGING
KA	N = Low Profile Half-Pitch Type	1 = Gull Wing	1 = SPST	02 04 06 08 10	R = Recessed Actuator	(None) = Std. Tube Qty. T = Std. Tube w/ Top Tape Seal R = Tape and Reel w/ Top Tape Seal



Example Ordering Number

KA-N-1-1-02-R-T

Specifications subject to change without notice.

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

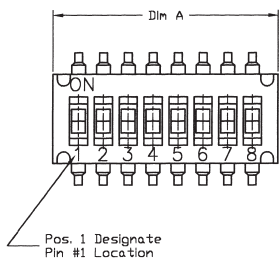


SERIES KAN SWITCHES

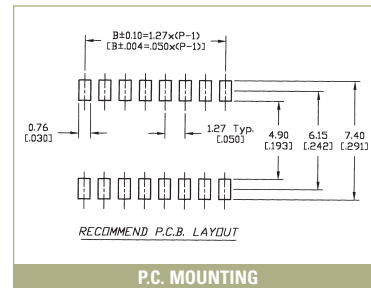
HALF-PITCH LOW PROFILE DIP SWITCHES

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

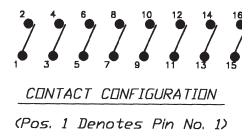
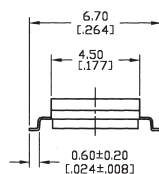
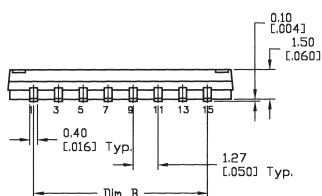
GULL WING



Positions	Dimension A	
	MM	Inches
2	3.77	0.148
4	6.31	0.248
6	8.85	0.348
8	11.39	0.448
10	13.73	0.541



P.C. MOUNTING



SCHEMATIC

ACTUATOR OPTIONS

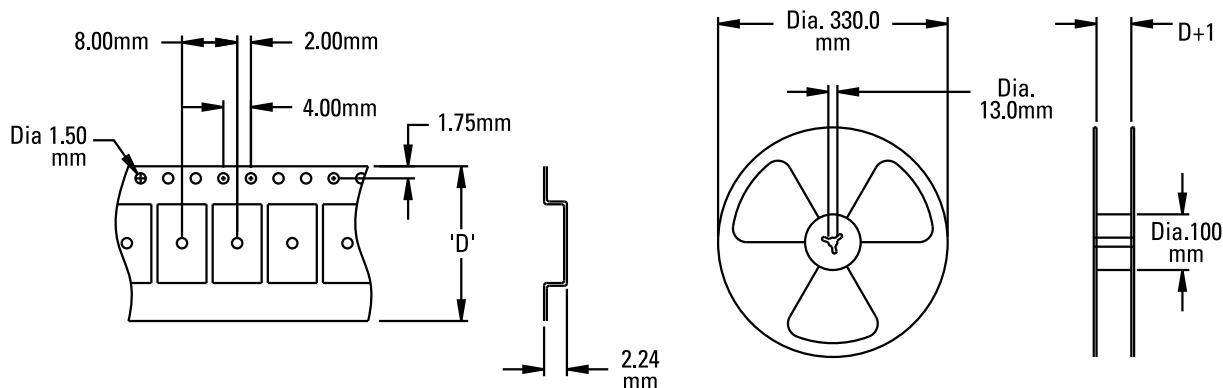
WITHOUT TOP TAPE SEAL



WITH TOP TAPE SEAL



TAPE & REEL PACKAGING

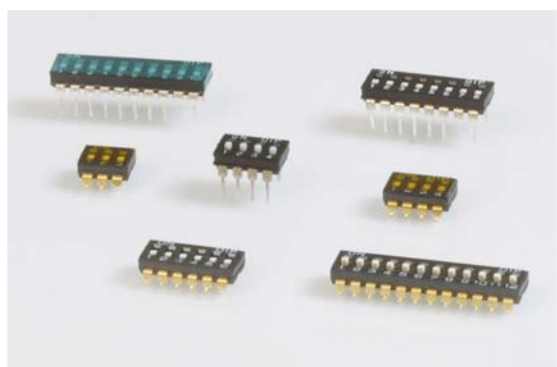


SERIES KAJ SWITCHES

LOW-PROFILE DIP SWITCHES



E-SWITCH®



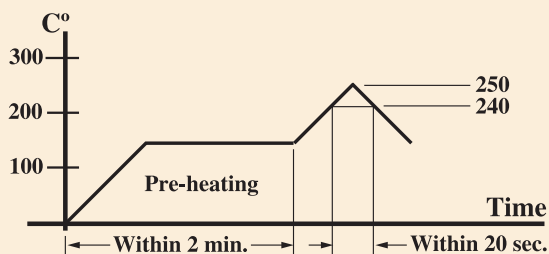
FEATURES & BENEFITS

- Available in SMT or Thru Hole
- Tape & reel or tube packaging
- Up to 12 positions

APPLICATIONS/MARKETS

- Garage door openers
- Test & instrumentation
- Telecommunications
- Controller application

TYPICAL SMT TEMPERATURE PROFILE



SPECIFICATIONS

Switch Function:	2, 3, 4, 5, 6, 7, 8, 9, 10 & 12 positions
Ratings:	Switch: 25mA @ 24 VDC Carry: 100mA @ 50 VDC
Contact Resistance:	initial 50mΩ typical @ 2-4 VCD, 100mA
Insulation Resistance:	100 MΩ min.
Operating Life:	2,000 cycles, typical
Dielectric Strength:	500 V rms @ sea level between adjacent terminals
Temperature Range:	-40° C to 85° C

MATERIALS

Base:	PPS UL94 V0, black finish
Cover:	PPS UL94 V0, black finish
Actuator:	Nylon UL94 V0, white finish
Movable Contact:	Gold-plated copper alloy
Terminal Contact:	Gold-plated brass
Tape Seal:	Mylar, amber color

PACKAGING

Switches are supplied in standard IC tubes with all poles in the "OFF" position.



HOW TO ORDER

SERIES KA	MODEL NO. J	NO. OF POSITIONS	ACTUATOR	TERMINATION	TERMINAL FINISH	PACKAGING
KA	J = Low Profile	02 = 2 03 = 3 04 = 4 05 = 5 06 = 6 07 = 7 08 = 8 09 = 9 10 = 10 12 = 12	L = Extended S = Recessed w/o Tape Seal T = Recessed w/ Tape Seal	A = Splayed Pins H = Straight Pins G = Gull Wing	G = Gold	T = Std. Tube R = Tape and Reel



Example Ordering Number

KA-J-02-S-A-G-T

Specifications subject to change without notice.

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

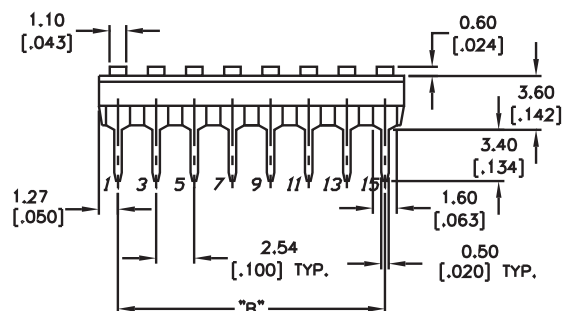
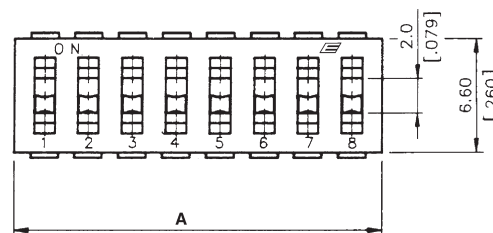
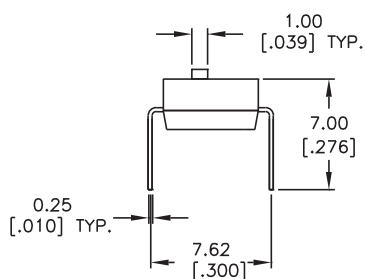
SERIES KAJ SWITCHES

LOW-PROFILE DIP SWITCHES

TERMINATION & PIN SPACING OPTIONS

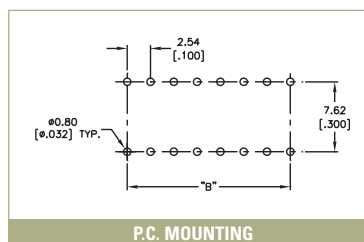
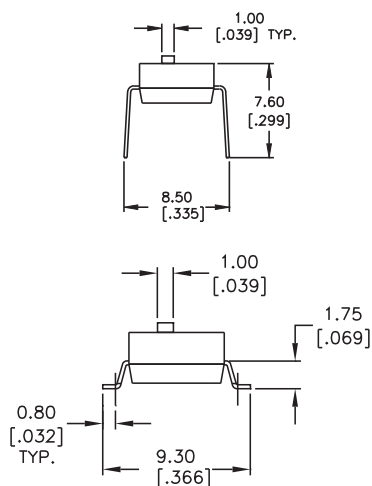
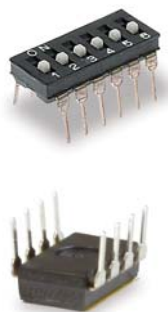
KAJ

STRAIGHT (FOR MANUAL INSERTION)

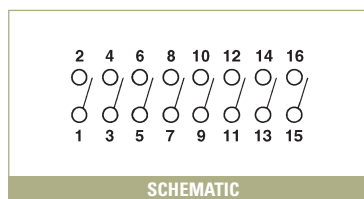
H 7.62mm SPACING

KAJ

SPLAY (FOR IC MACHINE INSERTION)

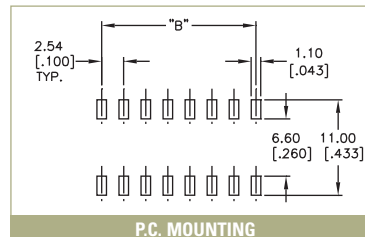
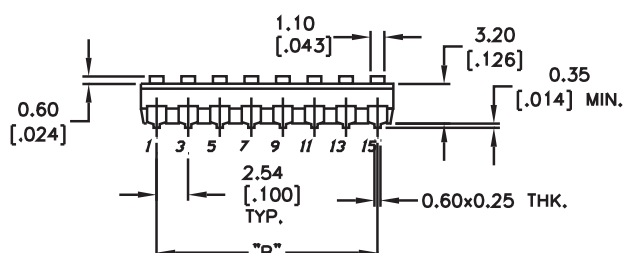
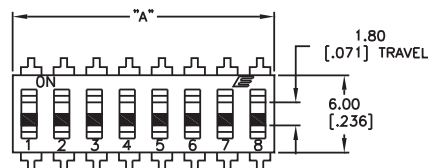
A 9.84mm SPACING

P.C. MOUNTING

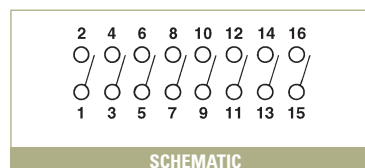


SCHEMATIC

KAJ

G GULL WING

P.C. MOUNTING



SCHEMATIC

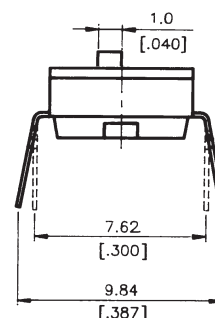
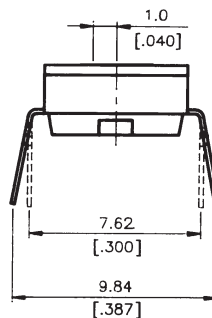


ACTUATOR OPTIONS

S RECESSED



L EXTENDED



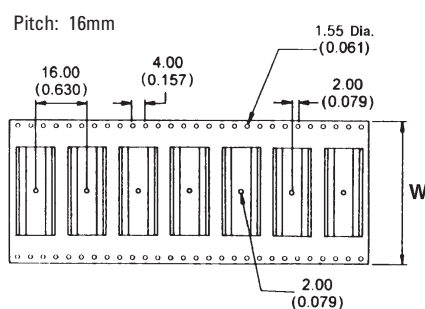
PACKAGING & SEAL OPTIONS

T TOP TAPE SEALED



*Top Tape Seal for
Recessed Actuator only.

R TAPE AND REEL WITH TOP TAPE SEAL



Pos.	TapeSize (W)
2	16mm
3	16mm
4	24mm
5	24mm
6	24mm
7	32mm
8	32mm
9	44mm
10	44mm
12	44mm



SERIES KAS SWITCHES

SLIDE DIP SWITCHES

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

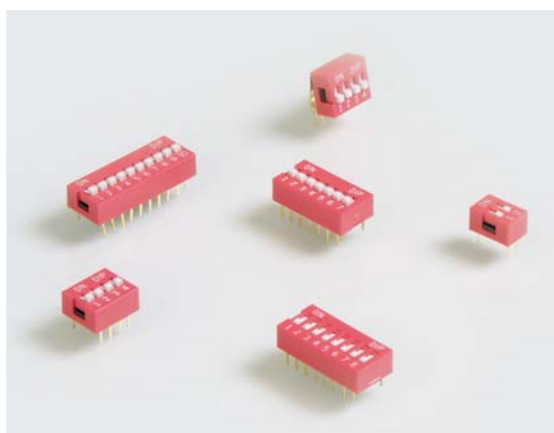
DIP
SWITCHES

KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS



FEATURES & BENEFITS

- ▶ Available in 2 to 12 positions
- ▶ Tape seal option
- ▶ Vertical & right angle options

APPLICATIONS/MARKETS

- ▶ Garage door openers
- ▶ Test & instrumentation
- ▶ Telecommunications
- ▶ Controller application

SPECIFICATIONS

Switch Function:	SPST, 2 thru 12 positions (except position 11)
Contact Rating:	Switch: 25mA @ 24V DC Carry: 100mA @ 50V DC
Insulation Resistance:	100 M Ω Min. @ 500V DC
Contact Resistance:	Initial: 50 m Ω typical @ 2-4V DC @ 100mA After Life: 100m Ω typical @ 2-4 DC @ 100mA
Operating Life:	2,000 make-and-break cycles, each circuit
Operating Force:	1000 gf max.
Travel (Actuator):	2.0 mm typical
Dielectric Strength:	500V RMS min. @ sea level between adjacent terminals
Temperature Range:	Operating/Storage: -40° C to 85° C
Vibration:	To MIL-STD-202F, Method 201 A
Shock:	To MIL-STD-202F, Method 213B, Condition A
Soldering Recommendations:	Wave: 500 F (260 C) for 5s max; Hand: 30W soldering iron @ 608 F (320 C) for 2s typical. Keep all switches in the "OFF" position during soldering and cleaning process.

MATERIALS

Housing and Actuator:	Glass filled polyester (PBT) UL94-V0
Contacts:	Phosphor Bronze with gold plate over nickel plate
Terminals:	Phosphor Bronze with gold plate over nickel plate
Tape:	Mylar

PACKAGING

Switches are supplied in standard IC tubes with all poles in the "OFF" position.

HOW TO ORDER

SERIES	MODEL NO.	TERMINATION	CIRCUIT	NO. OF POSITIONS	ACTUATOR	SEAL
KA	S	1	1	02	R	(None)
		2		03	E	Std.
				04		Unsealed
				05		T
				06		Top Tape
				07		Sealed
				08		
				09		
				10		
				12		

Example Ordering Number

KA-S-1-1-04-R-T

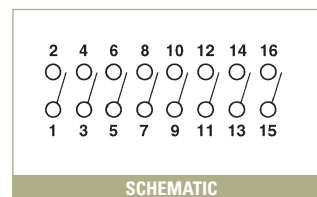
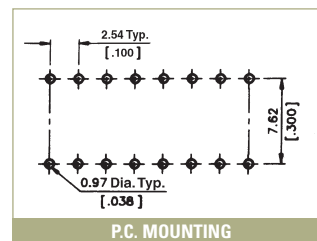
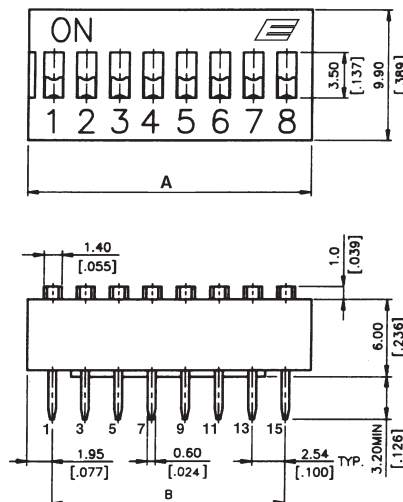
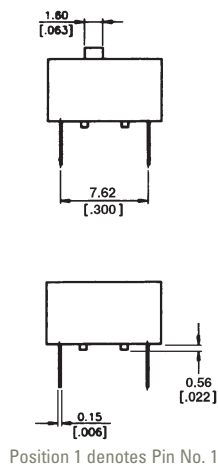
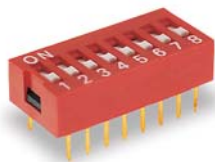
Specifications subject to change without notice.



TERMINATION OPTIONS

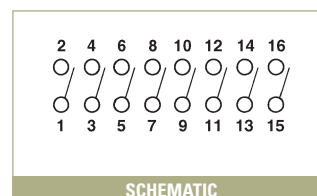
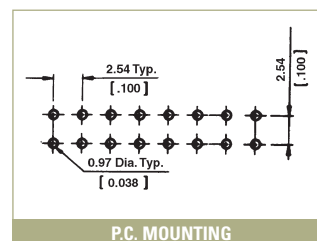
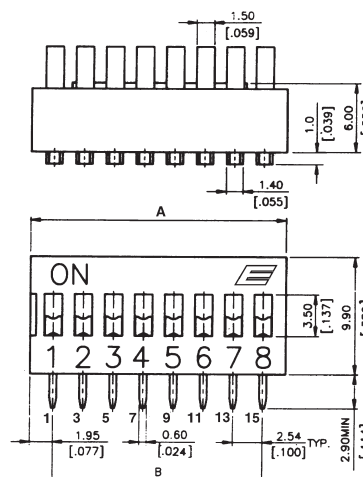
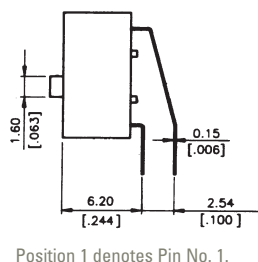
KAS

1 PC PIN



KAS

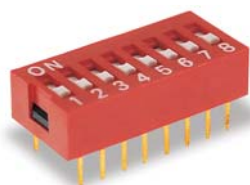
2 RIGHT ANGLE PC PIN



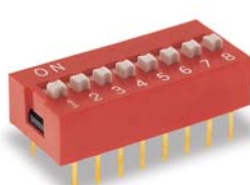
Positions:	2	3	4	5	6	7	8	9	10	12
"A"	6.44	8.98	11.52	14.06	16.6	19.14	21.68	24.22	26.76	31.84
Dimension:	(.254)	(.354)	(.454)	(.554)	(.654)	(.754)	(.854)	(.954)	(1.054)	(1.254)
"B"	2.54	5.08	7.62	10.16	12.7	15.24	17.78	20.32	22.86	27.94
Dimension:	(.100)	(.200)	(.300)	(.400)	(.500)	(.600)	(.700)	(.800)	(.900)	(1.100)

ACTUATOR OPTIONS

R RECESSED

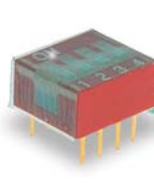


E EXTENDED



SEAL OPTIONS

R TOP TAPE SEALED



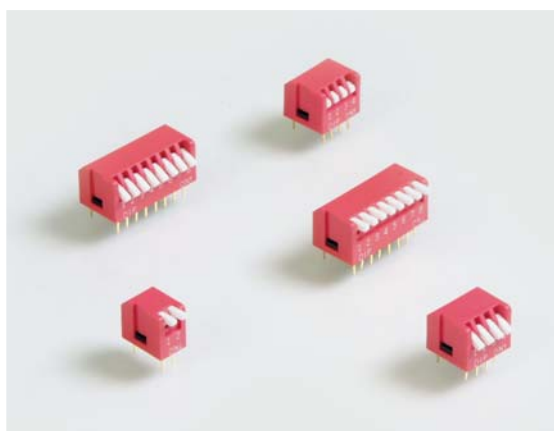
ET TOP TAPE SEALED





SERIES KAP SWITCHES

PIANO DIP SWITCHES

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

FEATURES & BENEFITS

- ▶ Piano style
- ▶ Top side off or top side on option
- ▶ Tape seal option

APPLICATIONS/MARKETS

- ▶ Garage door openers
- ▶ Test & instrumentation
- ▶ Telecommunications
- ▶ Controller application

SPECIFICATIONS

Switch Function:	SPST, 2 thru 12 positions (except position 11)
Contact Rating:	Switch: 25mA @ 24V DC Carry: 100mA @ 50V DC
Insulation Resistance:	100 M Ω Min. @ 500V DC
Contact Resistance:	Initial: 50 m Ω typical @ 2-4V DC @ 100mA After Life: 100m Ω typical @ 2-4 DC @ 100mA
Operating Life:	2,000 make-and-break cycles, each circuit
Operating Force:	1000 gf max.
Travel (Actuator):	2.0 mm typical
Dielectric Strength:	500V RMS min. @ sea level between adjacent terminals
Temperature Range:	Operating/Storage: -40° C to 85° C
Vibration:	To MIL-STD-202F, Method 201 A
Shock:	To MIL-STD-202F, Method 213B, Condition A
Soldering Recommendations:	Wave: 500 F (260 C) for 5s max; Hand: 30W soldering iron @ 608 F (320 C) for 2s typical. Keep all switches in the "OFF" position during soldering and cleaning process.

MATERIALS

Housing and Actuator:	Glass filled polyester (PBT) UL94-V0
Contacts:	Phosphor Bronze with gold plate over nickel plate
Terminals:	Phosphor Bronze with gold plate over nickel plate
Tape:	Mylar

PACKAGING

Switches are supplied in standard IC tubes with all poles in the "OFF" position.

HOW TO ORDER

SERIES	MODEL NO.	TERMINATION	CIRCUIT	NO. OF POSITIONS	ACTUATOR	SEAL
KA	P = Piano Type	1 = PC Pin	1 = SPST	02 03 04 05 06 07 08 09 10 12	R = Recessed Act., Top Side OFF E = Extended Act., Top Side OFF V = Recessed Act., Top Side ON W = Extended Act., Top Side ON	(None) = Std. Unsealed T = Top Tape Sealed

Example Ordering Number

KA-P-1-1-04-R-T

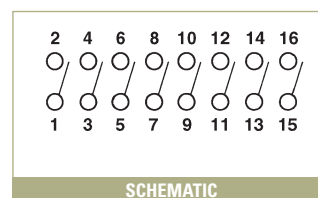
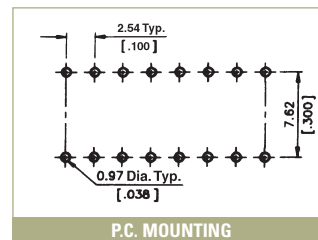
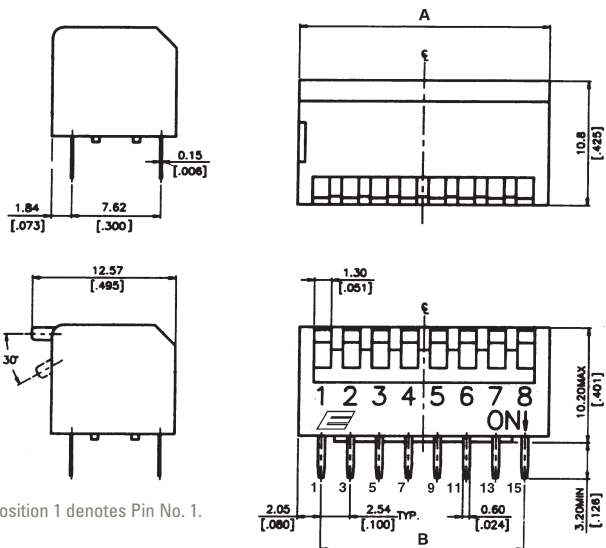
Specifications subject to change without notice.



TERMINATION OPTIONS

KAP

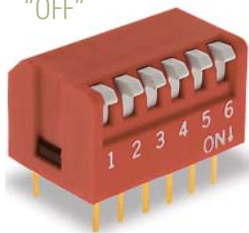
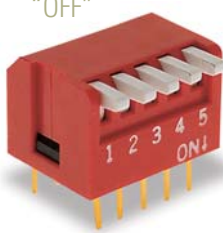
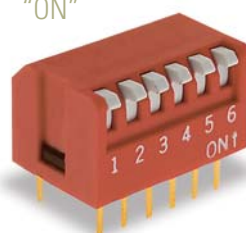
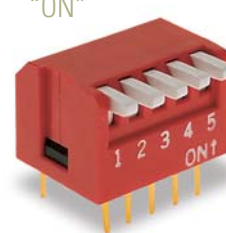
1 PC PIN



ACTUATOR OPTIONS

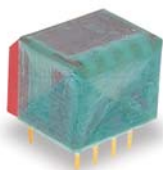
Positions:	2	3	4	5	6	7	8	9	10	12
"A"	6.64	9.18	11.72	14.26	16.8	19.34	21.88	24.42	26.96	32.04
Dimension:	(.261)	(.361)	(.461)	(.561)	(.661)	(.761)	(.861)	(.961)	(1.061)	(1.261)
"B"	2.54	5.08	7.62	10.16	12.7	15.24	17.78	20.32	22.86	27.94
Dimension:	(.100)	(.200)	(.300)	(.400)	(.500)	(.600)	(.700)	(.800)	(.900)	(1.100)

NUMBER OF POSITIONS

R RECESSED TOPSIDE
"OFF"E EXTENDED TOPSIDE
"OFF"V RECESSED TOPSIDE
"ON"W EXTENDED TOPSIDE
"ON"

SEAL OPTIONS

T Top Tape Sealed



SERIES KO SWITCHES

KEYLOCK SWITCHES



FEATURES & BENEFITS

- ▶ Variety of size and product package options
- ▶ Barrel and flat key options
- ▶ Wide variety of key code options

APPLICATIONS/MARKETS

- ▶ Security applications
- ▶ Personal transportation vehicles
- ▶ Elevator controls



Example Ordering Number
KO-103B

SPECIFICATIONS

Contact Rating:	As per individual model number
Initial Contact Resistance:	10 mΩ Max.
Insulation Resistance:	As per individual model number
Dielectric Strength:	As per individual model number

MATERIALS

Housing and Cylinder:	Die cast zinc alloy. Finish dependent upon individual model number
Contact:	Silver plated copper alloy
Keys:	As per individual model number

HOW TO ORDER

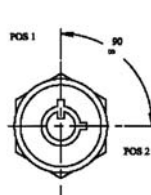
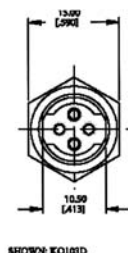
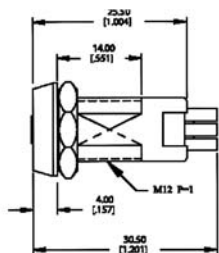
SERIES
KO

MODEL NO.



Specifications subject to change without notice.

KO 103



HOLE SIZE

FEATURES & BENEFITS

- ▶ Zinc alloy die cast housing and cylinder, chrome plated
- ▶ Zinc alloy keys, chrome plated
- ▶ Silver plated contacts and terminals
- ▶ 200 combinations available

SPECIFICATIONS

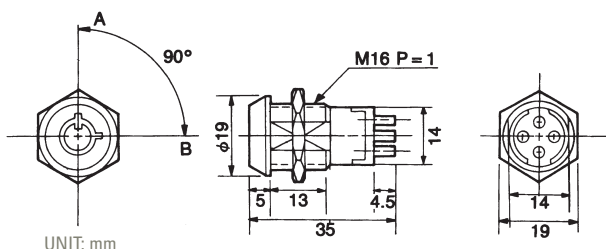
Ratings:	1A @ 125 VAC 0.5A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

Part Number	Lock Configuration (as viewed from key end)	Connected Terminals			Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	
KO103A	90° indexing	OFF	1-2		Pos. 1
KO103B	90° indexing	OFF	1-2		Pos. 1, Pos. 2
KO103C	90° indexing	1-2	3-4		Pos. 1
KO103D	90° indexing	1-2	3-4		Pos. 1, Pos. 2
KO103E	90° indexing	OFF	1-2		Pos. 1

• = Detent Position ○ = Keypull Possible ▼ = Momentary



KO 104



UNIT: mm

HOLE SIZE

FEATURES & BENEFITS

- Zinc alloy die cast housing and cylinder, chrome plated
- Zinc alloy keys, chrome plated, with plastic cover
- Silver plated contacts and terminals
- 10,000 combinations available

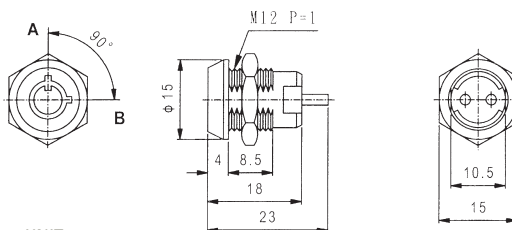
SPECIFICATIONS

Ratings:	3A @ 125 VAC
	1.5A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

Part Number	Lock Configuration (as viewed from key end)	Connected Terminals			Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	
KO104A	1 90° indexing	1-2	3-4		Pos. 1
KO104B	1 90° indexing	1-2	3-4		Pos. 1, Pos. 2

• = Detent Position ⊙ = Keypull Possible ▼ = Momentary

KO 105



UNIT: mm

HOLE SIZE

FEATURES & BENEFITS

- Zinc alloy die cast housing and cylinder, chrome plated
- Steel made tubular keys, nickel plated, with plastic cover
- Silver plated contacts and terminals
- 100 combinations available

SPECIFICATIONS

Ratings:	1A @ 125 VAC
	0.5A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

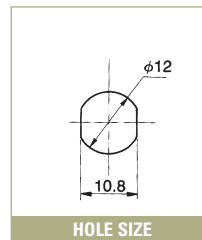
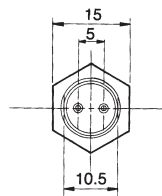
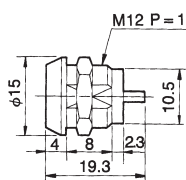
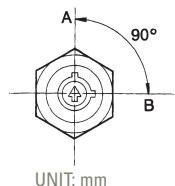
Part Number	Lock Configuration (as viewed from key end)	Connected Terminals			Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	
KO105A	1 90° indexing	OFF	1-2		Pos. 1, Pos. 2
KO105B	1 90° indexing	1-2	3-4		Pos. 1, Pos. 2

• = Detent Position ⊙ = Keypull Possible ▼ = Momentary

SERIES KO SWITCHES

KEYLOCK SWITCHES

KO 106



FEATURES & BENEFITS

- ▶ Zinc alloy die cast housing and cylinder, chrome plated
- ▶ Zinc alloy keys, chrome plated
- ▶ Silver plated contacts and terminals
- ▶ 1 combination available

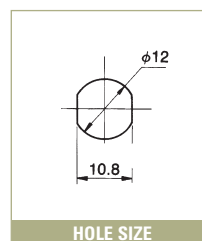
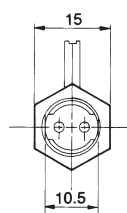
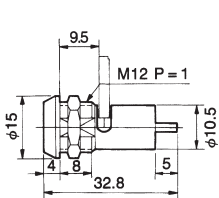
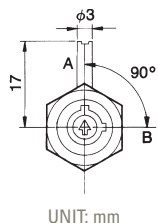
SPECIFICATIONS

Ratings:	1A @ 125 VAC
	0.5A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

Part Number	Lock Configuration (as viewed from key end)	Connected Terminals			Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	
KO106A	 90° indexing	OFF	1-2		Pos. 1, Pos. 2

• = Detent Position ◉ = Keypull Possible ▼ = Momentary

KO 107



FEATURES & BENEFITS

- ▶ Zinc alloy die cast housing and cylinder, chrome plated
- ▶ Zinc alloy keys, chrome plated
- ▶ Silver plated contacts and terminals
- ▶ L dimension per customer requirement, 13 mm is standard
- ▶ 6 combinations available

SPECIFICATIONS

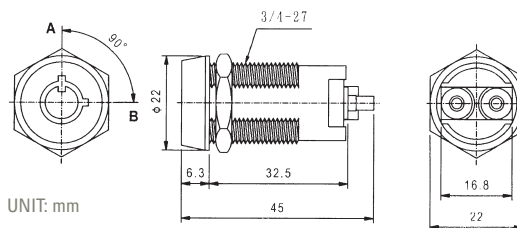
Ratings:	1A @ 125 VAC
	0.5A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

Part Number	Lock Configuration (as viewed from key end)	Connected Terminals			Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	
KO107A	 90° indexing	OFF	1-2		Pos. 1, Pos. 2

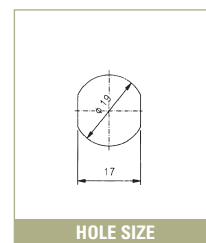
• = Detent Position ◉ = Keypull Possible ▼ = Momentary



KO 113



UNIT: mm



HOLE SIZE

FEATURES & BENEFITS

- ▶ Zinc alloy die cast housing and cylinder, chrome plated
- ▶ Steel made tubular keys, nickel plated,
- ▶ Silver plated contacts and terminals
- ▶ 50,000 combinations available

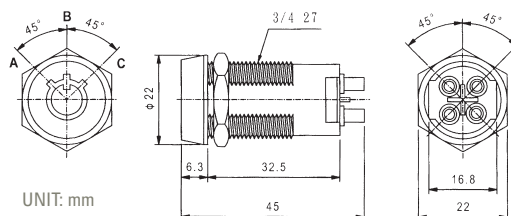
SPECIFICATIONS

Ratings:	4A @ 125 VAC
	2A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

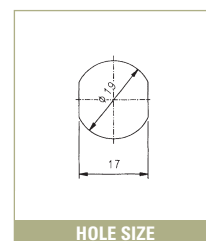
Part Number	Lock Configuration (as viewed from key end)	Connected Terminals			Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	
K0113A	1 90° indexing	OFF	1-2		Pos. 1
K0113B	1 90° indexing	OFF	1-2		Pos. 1, Pos. 2
K0113C	1 90° indexing	OFF	1-2		Pos. 1

• = Detent Position ⊙ = Keypull Possible ▼ = Momentary

KO 114



UNIT: mm



HOLE SIZE

FEATURES & BENEFITS

- ▶ Zinc alloy die cast housing and cylinder, chrome plated
- ▶ Steel made tubular keys, nickel plated
- ▶ Silver plated contacts and terminals
- ▶ 50,000 combinations available

SPECIFICATIONS

Ratings:	4A @ 125 VAC
	2A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

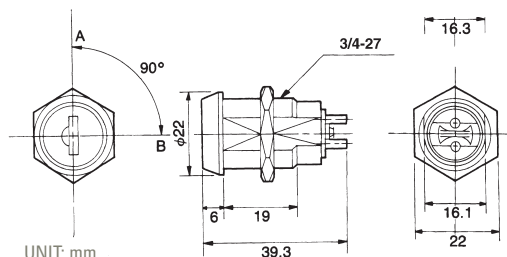
Part Number	Lock Configuration (as viewed from key end)	Connected Terminals				Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	Pos. 4	
K0114A	1 45° 45° indexing	1-2	OFF	3-4		Pos. 1, Pos. 2, Pos. 3
K0114B	1 45° 90° indexing	OFF	1-2		3-4	Pos. 1, Pos. 2, Pos. 4
K0114C	1 90° indexing		1-2		3-4	Pos. 1, Pos. 2
K0114D	2 45° indexing	OFF		1-2, 3-4		Pos. 2, Pos. 3

• = Detent Position ⊙ = Keypull Possible ▼ = Momentary

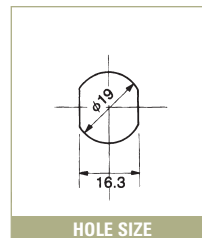
SERIES KO SWITCHES

KEYLOCK SWITCHES

KO 117



UNIT: mm



HOLE SIZE

FEATURES & BENEFITS

- ▶ Zinc alloy die cast housing, chrome plated
- ▶ 5-Disk tumblers mechanism, with dust shutter
- ▶ Reversible double cut key, brass made, nickel plated
- ▶ Silver plated contacts and terminals
- ▶ 150 combinations available

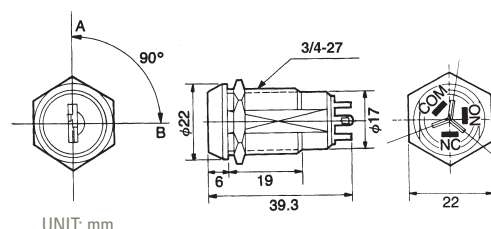
SPECIFICATIONS

Ratings:	4A @ 125 VAC
	2A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

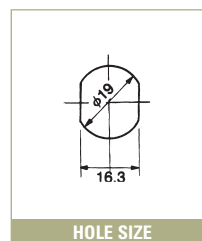
Part Number	Lock Configuration (as viewed from key end)	Connected Terminals			Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	
K0117A	1 90° indexing	OFF	1-2		Pos. 1, Pos. 2

• = Detent Position ◯ = Keypull Possible ▼ = Momentary

KO 118



UNIT: mm



HOLE SIZE

FEATURES & BENEFITS

- ▶ Zinc alloy die cast housing, chrome plated
- ▶ 5-Disk tumblers mechanism, with dust shutter
- ▶ Reversible double cut key, brass made, nickel plated
- ▶ Silver plated contacts and terminals
- ▶ 150 combinations available

SPECIFICATIONS

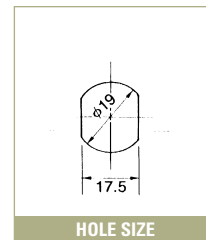
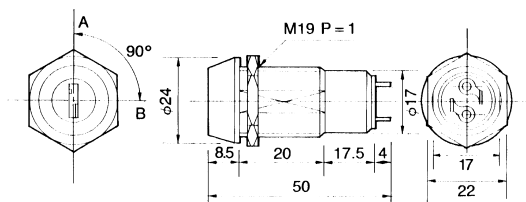
Ratings:	4A @ 125 VAC
	2A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

Part Number	Lock Configuration (as viewed from key end)	Connected Terminals			Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	
K0118A	1 90° indexing	1-2	3-4		Pos. 1, Pos. 2

• = Detent Position ◯ = Keypull Possible ▼ = Momentary



KO 119



HOLE SIZE

FEATURES & BENEFITS

- ▶ Zinc alloy die cast housing and cylinder
- ▶ 5-Disk tumblers mechanism
- ▶ Reversible double cut key
- ▶ Silver plated contacts and terminals
- ▶ 150 combinations available

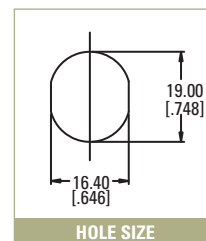
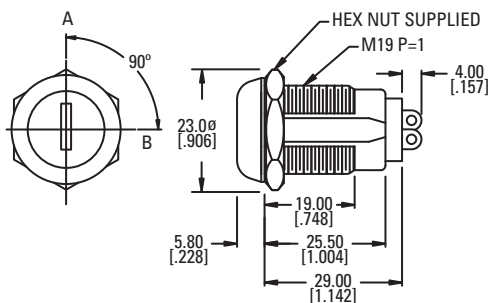
SPECIFICATIONS

Ratings:	4A @ 125 VAC 2A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

Part Number	Lock Configuration (as viewed from key end)	Connected Terminals			Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	
KO119A	90° indexing	OFF	1-2		Pos. 1
KO119B	90° indexing	OFF	1-2		Pos. 1, Pos. 2
KO119C	90° indexing	OFF	1-2		Pos. 1

• = Detent Position ⊙ = Keypull Possible ▼ = Momentary

KO 121



HOLE SIZE

FEATURES & BENEFITS

- ▶ Zinc alloy die cast housing with bright stainless steel bezel
- ▶ 5-Disk tumblers mechanism, with dust shutter
- ▶ 150 combinations available

SPECIFICATIONS

Ratings:	4A @ 125 VAC 2A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

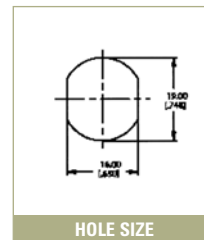
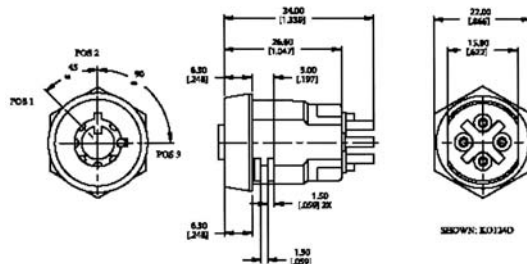
Part Number	Lock Configuration (as viewed from key end)	Connected Terminals			Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	
KO121A	90° indexing	OFF	1-2		Pos. 1, Pos. 2

• = Detent Position ⊙ = Keypull Possible ▼ = Momentary

SERIES KO SWITCHES

KEYLOCK SWITCHES

KO 124



HOLE SIZE

FEATURES & BENEFITS

- ▶ Zinc alloy die cast housing and cylinder, satin chrome plated
- ▶ Steel made tubular keys, nickel plated
- ▶ Silver plated contacts and terminals
- ▶ 50,000 combinations available

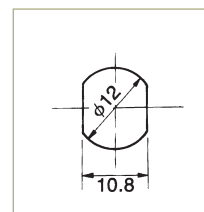
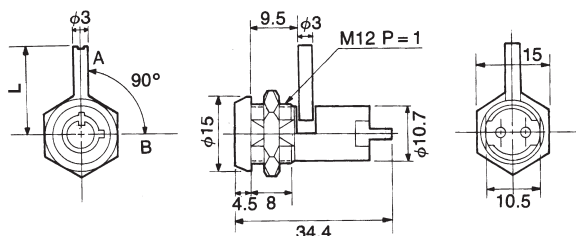
SPECIFICATIONS

Ratings:	2A @ 125 VAC 1A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

Part Number	Lock Configuration (as viewed from key end)	Connected Terminals				Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	Pos. 4	
KO124A	90° indexing		OFF	1-2		Pos. 2, Pos. 3
KO124C	90° indexing		1-2	3-4		Pos. 2, Pos. 3
KO124D	45°/90° indexing	OFF	1-2	3-4		Pos. 1, Pos. 2, Pos. 3

• = Detent Position ◯ = Keypull Possible ▼ = Momentary

KO 126



HOLE SIZE

FEATURES & BENEFITS

- ▶ Zinc alloy die cast housing, chrome plated
- ▶ Brass cylinder, chrome plated
- ▶ Brass keys, nickel plated, with plastic cover
- ▶ Silver plated contacts and terminals
- ▶ 2 positions (Off-On)
- ▶ Dual-Functioned Key Lock Switch
- ▶ L dimension per customer requirement; 13mm is standard
- ▶ 200 combinations available

SPECIFICATIONS

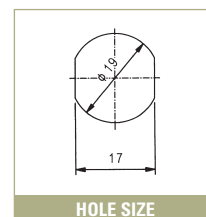
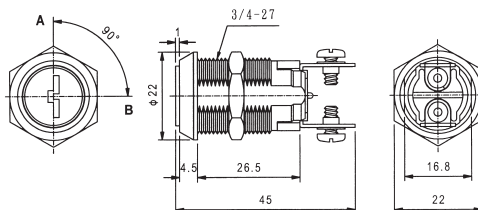
Ratings:	1A @ 125 VAC 0.5A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

Part Number	Lock Configuration (as viewed from key end)	Connected Terminals				Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	Pos. 4	
KO126A	90° indexing	OFF	1-2			Pos. 1, Pos. 2

• = Detent Position ◯ = Keypull Possible ▼ = Momentary



KO 128



FEATURES & BENEFITS

- Zinc alloy die cast housing and cylinder, chrome plated
- 11 Blade criss cross tumblers.
- Reversible, double bitted keys

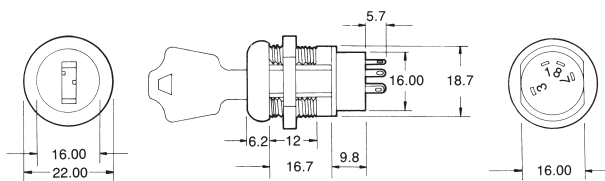
SPECIFICATIONS

Ratings:	4A @ 125 VAC 2A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

Part Number	Lock Configuration (as viewed from key end)	Connected Terminals				Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	Pos. 4	
KO128A	90° indexing	OFF	1-2			Pos. 1
KO128B	90° indexing	OFF	1-2			Pos. 1, Pos. 2
KO128E	90° indexing	OFF	1-2			Pos. 1
KO128F	90° indexing	OFF	1-2			Pos. 1
KO128G	90° indexing	OFF	1-2			Pos. 1, Pos. 2
KO128H	90° indexing	OFF	1-2			Pos. 1

• = Detent Position ⊕ = Keypull Possible ▼ = Momentary

KO 129



FEATURES & BENEFITS

- Lock: bright nickel plated zinc alloy with nickel facing (black and polished chrome facing available)
- Tumbler mechanism: 4-disc tumbler cylinder
- Keys: brass with code no.
- Contacts: silver plated copper alloy
- Terminals: silver plated copper alloy
- Mounting nut: nickel plated zinc alloy



SPECIFICATIONS

Ratings:	4A @ 125 VAC 2A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

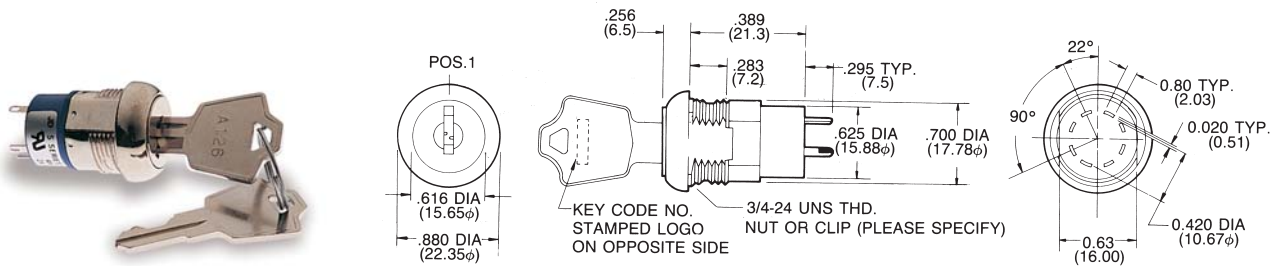
Part Number	Lock Configuration (as viewed from key end)	Connected Terminals					Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	Pos. 4	Pos. 5	
KO129A (SP)	45°-90° indexing		7-8	8-1		1-3	Pos. 3, Pos. 5
KO129B (SP)	90°-45° indexing	1-2		7-1	6-7		Pos. 1, Pos. 3
KO129C (SP)	45°-45° indexing		1-2	8-1	7-8		Pos. 3
KO129D (DP)	45°-45° indexing		1-2, 5-6	8-1, 4-5	7-8, 3-4		Pos. 3
KO129E (SP)	45° indexing			8-1	1-2		Pos. 3
KO129F (DP)	45° indexing			8-1, 4-5	1-2, 5-6		Pos. 3
KO129G (SP)	45° indexing		7-8	8-1			Pos. 3
KO129H (DP)	45° indexing		7-8, 3-4	8-1, 4-5			Pos. 3
KO129J (SP)	45°-45° indexing		1-2	8-1	7-8		Pos. 3
KO129K (DP)	45°-45° indexing		1-2, 5-6	8-1, 4-5	7-8, 3-4		Pos. 3
KO129L (SP)	45°-45° indexing		7-8	8-1	1-2		Pos. 3
KO129M (DP)	45°-45° indexing		7-8, 3-4	8-1, 4-5	1-2, 5-6		Pos. 3

• = Detent Position ⊕ = Keypull Possible ▼ = Momentary

SERIES KO SWITCHES

KEYLOCK SWITCHES

KO 130



FEATURES & BENEFITS

- Lock: bright nickel plated zinc alloy with nickel facing (black and polished chrome facing available)
- Tumbler mechanism: 4-disc tumbler cylinder
- Keys: brass with code no.
- Contacts: silver plated copper alloy
- Terminals: silver plated copper alloy
- Contact spring: piano wire
- Mounting nut: nickel plated zinc alloy



SPECIFICATIONS

Ratings: 4A @ 125 VAC
2A @ 250 VAC

Contact Resistance: 20 mΩ max. initial @ 2-4 VDC, 100 mA

Insulation Resistance: 200 MΩ min.

Dielectric Strength: 1,500 V rms @ sea level

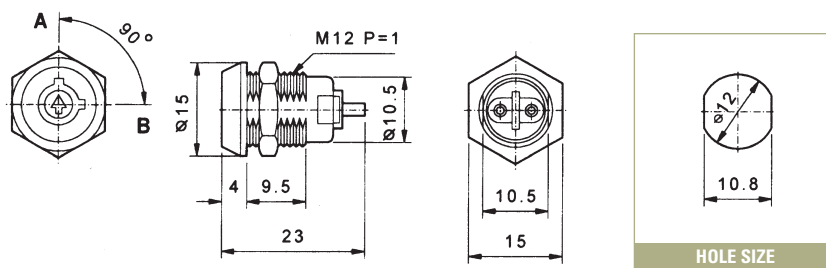
*Anti-static models exceed 20kv DC static resistance also available

Part Number	Lock Configuration (as viewed from key end)	Pos. 1	Pos. 2	Pos. 3	Pos. 4	Pos. 5	Key Pull Possible
KO130A (SP)	45°-45° indexing			8-1	1-2	2-3	Pos. 3
KO130B (DP)	45°-45° indexing			8-1, 4-5	1-2, 5-6	2-3, 6-7	Pos. 3
KO130C (SP)	45°-45° indexing			8-1	1-2	2-3	Pos. 5
KO130D (DP)	45°-45° indexing			8-1, 4-5	1-2, 5-6	2-3, 6-7	Pos. 5
KO130E (SP)	45°-45° indexing			8-1	1-2	2-3	Pos. 3, Pos. 5
KO130F (DP)	45°-45° indexing			8-1, 4-5	1-2, 5-6	2-3, 6-7	Pos. 3, Pos. 5
KO130G (SP)	45°-45° indexing		8-1	1-2	7-8		Pos. 3
KO130H (DP)	45°-45° indexing		8-1, 4-5	1-2, 5-6	7-8, 3-4		Pos. 3
KO130I (SP)	45°-45° indexing		8-1	1-2	7-8		Pos. 2, Pos. 3, Pos. 4
KO130J (DP)	45°-45° indexing		8-1, 4-5	1-2, 5-6	7-8, 3-4		Pos. 2, Pos. 3, Pos. 4
KO130K (SP)	45°-45°-45°-45° indexing	6-7	7-8	8-1	1-2	2-3	Pos. 3
KO130L (SP)	45°-45°-45°-45° indexing	6-7	7-8	8-1	1-2	2-3	Pos. 1, Pos. 5
KO130M (SP)	45°-45°-45°-45° indexing	6-7	7-8	8-1	1-2	2-3	Pos. 1, Pos. 3, Pos. 5
KO130N (SP)	90° indexing			8-1		1-3	Pos. 3
KO130O (DP)	90° indexing			8-1, 4-5		1-3, 5-7	Pos. 3
KO130P (SP)	90° indexing			8-1		1-3	Pos. 5
KO130Q (DP)	90° indexing			8-1, 4-5		1-3, 5-7	Pos. 5
KO130R (SP)	90° indexing			8-1		1-3	Pos. 3, Pos. 5
KO130S (DP)	90° indexing			8-1, 4-5		1-3, 5-7	Pos. 3, Pos. 5
KO130T (SP)	45°-45°-90° indexing	6-7	7-8	8-1		1-3	Pos. 3
KO130U (SP)	45°-45°-90° indexing	6-7	7-8	8-1		1-3	Pos. 1, Pos. 5
KO130V (SP)	45°-45°-90° indexing	6-7	7-8	8-1		1-3	Pos. 1, Pos. 3, Pos. 5
KO130Y (SP)	90°-45°-45° indexing	6-7		7-1	1-2	2-3	Pos. 3
KO130Z (SP)	90°-45°-45° indexing	6-7		7-1	1-2	2-3	Pos. 1, Pos. 5
KO130Z1 (SP)	90°-45°-45° indexing	6-7		7-1	1-2	2-3	Pos. 1, Pos. 3, Pos. 5
KO130Z2 (SP)	90°-90° indexing	6-7		7-1		1-3	Pos. 3
KO130Z3 (SP)	90°-90° indexing	6-7		7-1		1-3	Pos. 1, Pos. 5
KO130Z4 (SP)	90°-90° indexing	6-7		7-1		1-3	Pos. 1, Pos. 3, Pos. 5

• = Detent Position ⊙ = Keypull Possible ▼ = Momentary



KO 131



FEATURES & BENEFITS

- Zinc alloy die cast housing and cylinder, chrome plated
- Zinc alloy keys, chrome plated
- Silver plated contacts and terminals
- 1 combination available

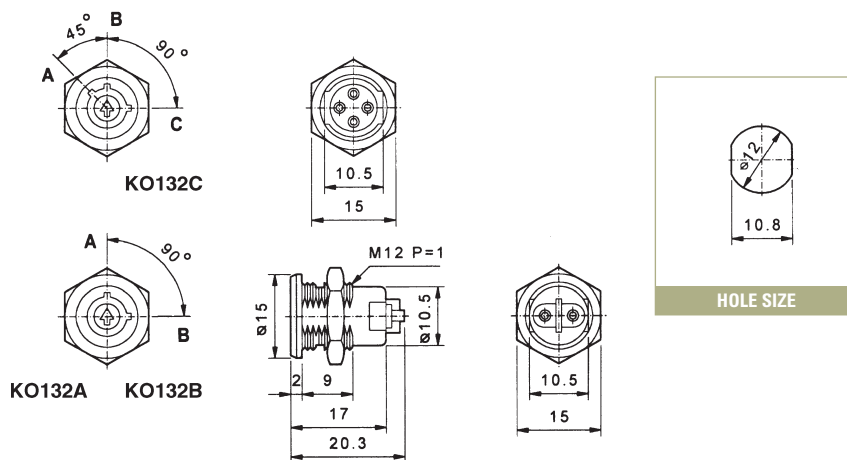
SPECIFICATIONS

Ratings:	1A @ 125 VAC
	0.5A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

Part Number	Lock Configuration (as viewed from key end)	Connected Terminals				Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	Pos. 4	
KO131A	90° indexing	OFF	1-2			Pos. 1, Pos. 2

• = Detent Position ⊙ = Keypull Possible ▼ = Momentary

KO 132



FEATURES & BENEFITS

- Zinc alloy die cast housing and cylinder, chrome plated
- Zinc alloy keys, chrome plated
- Silver plated contacts and terminals
- 6 combination available

SPECIFICATIONS

Ratings:	1A @ 125 VAC
	0.5A @ 250 VAC
Contact Resistance:	20 mΩ max. initial @ 2-4 VDC, 100 mA
Insulation Resistance:	200 MΩ min.
Dielectric Strength:	1,500 V rms @ sea level

Part Number	Lock Configuration (as viewed from key end)	Connected Terminals				Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	Pos. 4	
KO132A	90° indexing		OFF	1-2		Pos. 1, Pos. 2
KO132B	90° indexing		1-2	3-4		Pos. 1, Pos. 2
KO132C	45°-90° indexing	OFF	1-2	3-4		Pos. 1, Pos. 2, Pos. 3

• = Detent Position ⊙ = Keypull Possible ▼ = Momentary

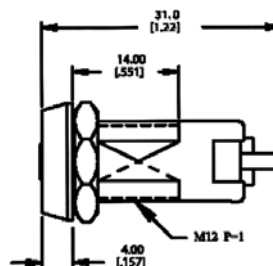
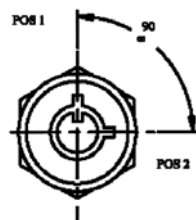


SERIES KO SWITCHES

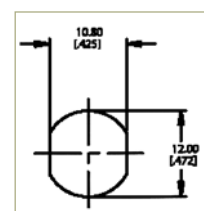
KEYLOCK SWITCHES

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

KO 133



SHOWN: KO133A



HOLE SIZE

FEATURES & BENEFITS

- ▶ Zinc alloy die cast housing and cylinder, chrome plated
- ▶ Zinc alloy keys, chrome plated with plastic cover
- ▶ Silver plated contacts and terminals
- ▶ 4 pins tumbler mechanism
- ▶ 200 combinations available

SPECIFICATIONS

Ratings: 1A @ 125 VAC
0.5A @ 250 VAC

Contact Resistance: 20 mΩ max. initial @ 2-4 VDC, 100 mA

Insulation Resistance: 200 MΩ min.

Dielectric Strength: 1,500 V rms @ sea level

Part Number	Lock Configuration (as viewed from key end)	Connected Terminals				Key Pull Possible
		Pos. 1	Pos. 2	Pos. 3	Pos. 4	
KO133A	90° indexing	OFF	1-2			Pos. 1
KO133B	90° indexing	OFF	1-2			Pos. 1, Pos. 2
KO133C	90° indexing	OFF	1-2			Pos. 1

• = Detent Position ◯ = Keypull Possible ▼ = Momentary



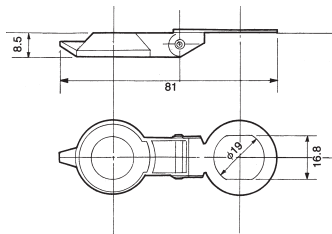
E-SWITCH®

SERIES KO SWITCHES

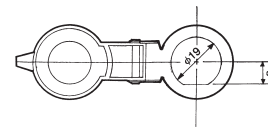
KEYLOCK COVERS

KOM

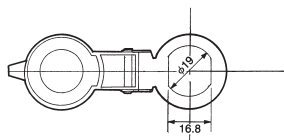
1 DIE CAST ZINC



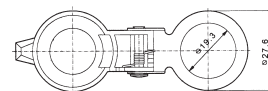
3 DIE CAST ZINC



2 DIE CAST ZINC

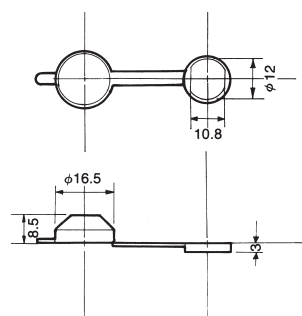


4 DIE CAST ZINC

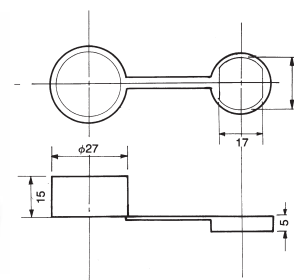


KOC

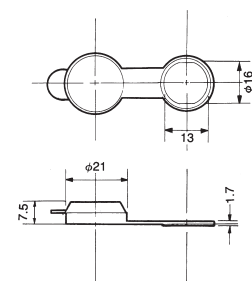
1 RUBBER



3 RUBBER



2 PLASTIC



Model No.

Used for:

KOC1	KO 103, KO 131, KO 132
KOC2	KO 104
KOC3	KO 113, KO 114, KO 119, KO 120
KOM1-4	KO 113, KO 114

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES KC SWITCHES

ROTARY SWITCHES



FEATURES & BENEFITS

- ▶ 1 to 4 poles
- ▶ 1 to 12 positions
- ▶ No stop option

APPLICATIONS/MARKETS

- ▶ Industrial controls
- ▶ Test & instrumentation
- ▶ Appliance
- ▶ HVAC

SPECIFICATIONS

Ratings:	350 mA @ 125 VAC
	150 mA @ 250 VAC
Life Expectancy:	10,000 cycles typical
Contact Resistance:	25mΩ initial @ 2-4 VDC, 100mA
Dielectric Strength:	1,500 max V rms at sea level
Insulation Resistance:	100MΩ min.
Operating Force:	8.6 N/cm

MATERIALS

Housing, Base, Shaft:	Glass filled nylon
Contact:	Silver plated copper alloy Gold flash over silver plate
Hardware:	Nut-Zinc, nickel plated Lockwasher-Steel, zinc plated Stop ring-Brass, nickel plated



HOW TO ORDER

SERIES KC	MODEL NO. 	ACTUATOR 	ACTUATOR LENGTH 	BUSHING 	TIMING 	TERMINATION 	CONTACT MATERIAL 
	See Model Options Table	A=Flat B=Round D=Slotted	See Actuator Option Chart	01 02*	N=Non-Short S=Shorting	P=PC Pin L=Solder Lug	S F



Example Ordering Number

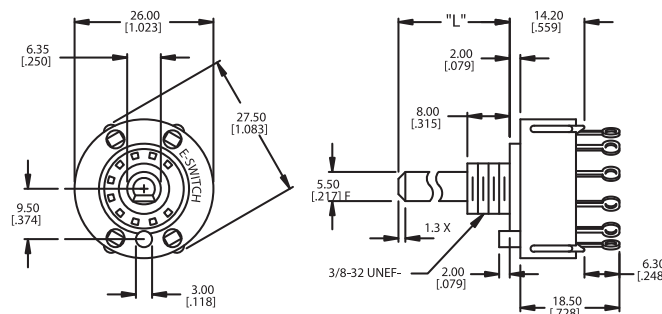
KC-13-B-7.0-02-N-L-S

* Not available with #10 model.

Specifications subject to change without notice.

KC

GENERAL INFORMATION





MODEL NUMBER OPTIONS

(SP Models)		
Model	Sw. Func.	Terms
10	12-pos.-No stops	A, 1-12
11	ST	A, 2*
12	DT	A, 1,2*
13	3 pos.	A, 1-3*
14	4 pos.	A, 1-4*
15	5 pos.	A, 1-5*
16	6 pos.	A, 1-6*
17	7 pos.	A, 1-7
18	8 pos.	A, 1-8
19	9 pos.	A, 1-9
50	10 pos.	A, 1-10
51	11 pos.	A, 1-11
52	12 pos.	A, 1-12
53	2 pos. -60° index	A, 1,3*
54	2 pos. -90° index	A, 1,4*
55	3 pos. -60° index	A, 1,3,5*
56	3 pos. -90° index	A, 1,4,7
57	4 pos. -60° index	A, 1,3,5,7
58	4 pos. -90° index	A, 1,4,7,10**
59	5 pos. -60° index	A, 1,3,5,7,9
60	6 pos. -60° index	A, 1,3,5,7,9,11

(DP Models)		
Model	Sw. Func.	Terms
20	6-pos.-No stops	A,C,1-12
21	ST	A, C,2,8
22	DT	A,C,1,2,7,8
23	3 pos.	A,C 1-3, 7-9
24	4 pos.	A,C,1-4,7-10
25	5 pos.	A,C,1-5, 7-11
26	6 pos.	A,C,1-12
70	2 pos. 60° index	A,C,1,3,7,9
71	2 pos. 90° index	A,C,1,4,7,10
72	2 pos. 60° index	A,C,1,3,5,7,9,11

* Note: Switches with P terminations (PC pins) have additional terminal no. 9 as switch support only. This terminal is not connected electrically inside switch.

** Note: Standard with stops

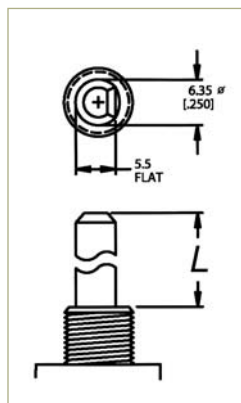
All models 30° indexing unless otherwise noted.

(3P Models)		
Model	Sw. Func.	Terms
30	4-pos.-No stops	A,B,C,1-12
31	ST	A,B,C,2,6,10
32	DT	A,B,C,1,2,5,6,9,10
33	3 pos.	A,B,C,1-3,5,7,9-11
34	4 pos.	A,B,C,1-12
80	2 pos. 60° index	A,B,C,1,3,5,7,9,11
81	2 pos. 90° index	A,B,C,1,4,5,8,9,12

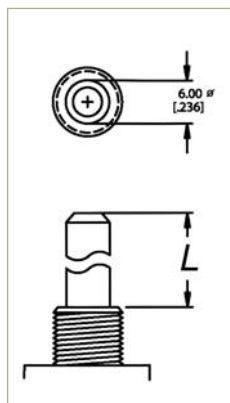
(4P Models)		
Model	Sw. Func.	Terms
40	3-pos.-No stops	all terms
41	ST	A,B,C,D,2,5,8,11
42	DT	A,B,C,D,1,2,4,5,7,8,10,11
43	3 pos.	all terms
91	2 pos. 60° index	A,B,C,D,1,3,4,6,7,9,10,12

ACTUATOR OPTIONS

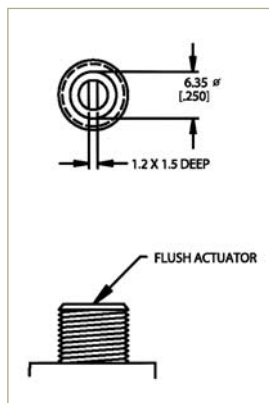
A FLAT



B ROUND



D SLOTTED

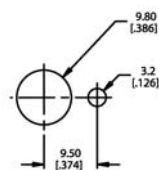
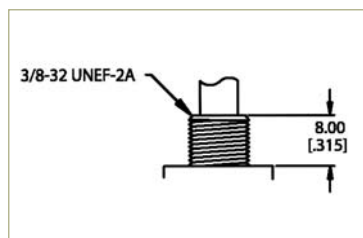


Actuator	Available Actuator Lengths (mm)					
A	30.0	38.0	9.5	7.0	10.0	13.0
B	30.0	10.0	7.0			
D	0.0					

*All actuators shown in Pos. 1, fully CCW..

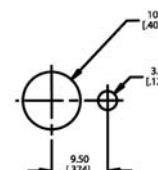
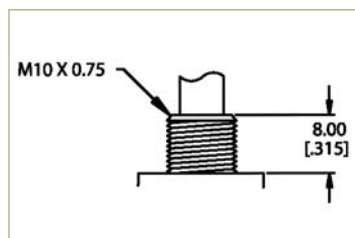
BUSHING OPTIONS

01 STANDARD



PANEL MOUNTING

02 METRIC



PANEL MOUNTING

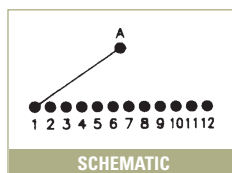
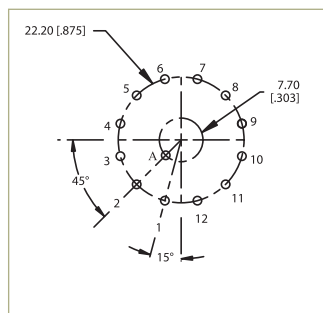
TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES KC SWITCHES

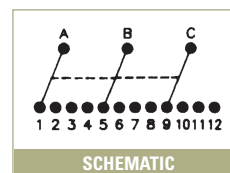
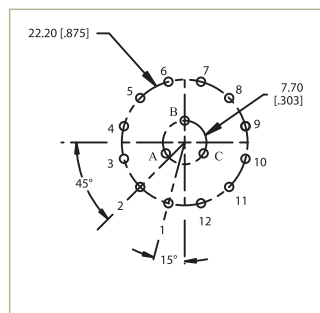
ROTARY SWITCHES

SCHEMATICS AND PC MOUNTING

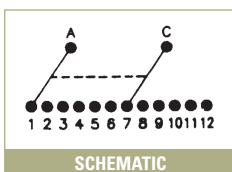
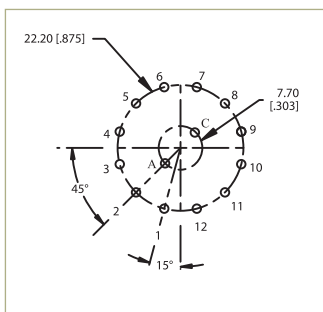
SP 1 POLE, 12 POSITIONS



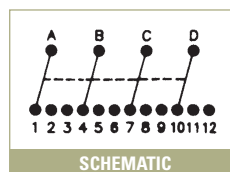
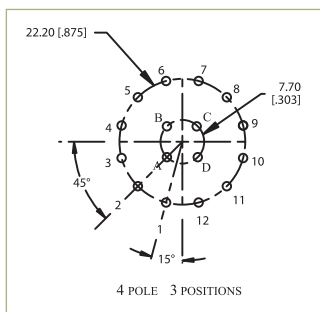
3P 3 POLE, 4 POSITIONS



DP 2 POLE, 6 POSITION



4P 4 POLE, 3 POSITIONS



TIMING OPTIONS

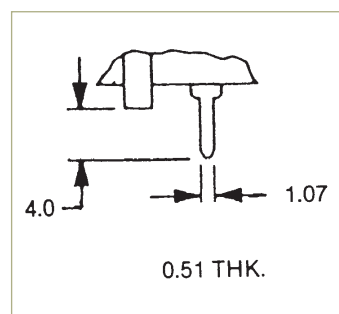
N= (STD.) Non-shorting – break before make

S = Shorting – make before break

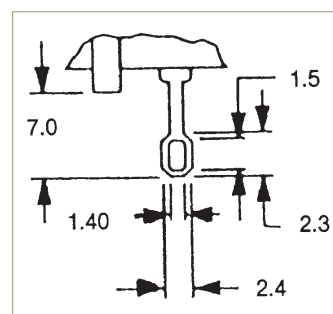
Note: (S) shorting contacts available only with 30° indexing

TERMINATION OPTIONS

P PC PIN



L SOLDER LUG



CONTACT MATERIAL OPTIONS

S = Standard Silver over copper alloy

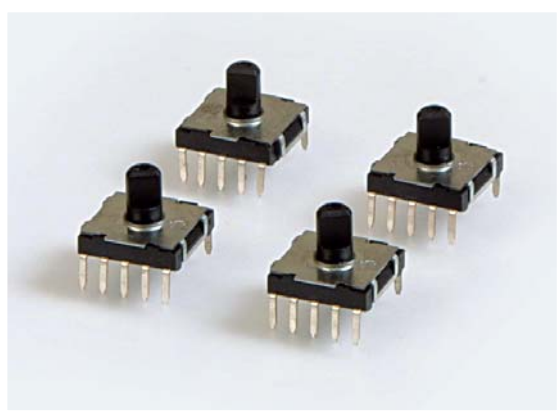
F = Gold Flash over silver plate over copper alloy

SERIES KC 1901 SWITCHES

ROTARY SWITCHES



E-SWITCH®



SPECIFICATIONS

Rating:	100 mA @ 16 VDC
Life Expectancy:	10,000 cycles typical
Contact Resistance:	50 mΩ initial @ 2-4 VDC, 100mA
Dielectric Strength:	1,000 max V rms at sea level
Insulation Resistance:	100 MΩ min.
Operating Force:	0.5 N/cm

MATERIALS

Cover:	Stainless steel
Contact:	Silver-plated copper alloy
Terminals:	Silver-plated copper alloy

FEATURES & BENEFITS

- ▶ 9-position rotary
- ▶ Thru-hole termination
- ▶ Positive detents

APPLICATIONS/MARKETS

- ▶ Industrial controls
- ▶ Test & instrumentation
- ▶ Appliance
- ▶ HVAC



HOW TO ORDER

SERIES	MODEL NO.	ACTUATOR LENGTH
KC	1901	N = 7.7mm A = 9.8mm

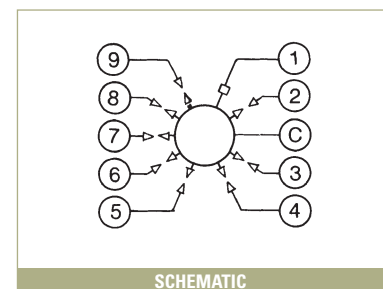
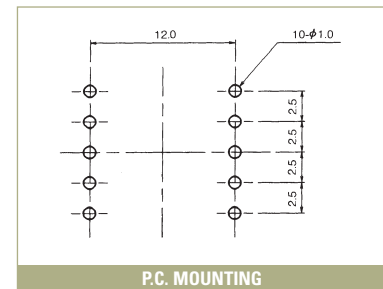
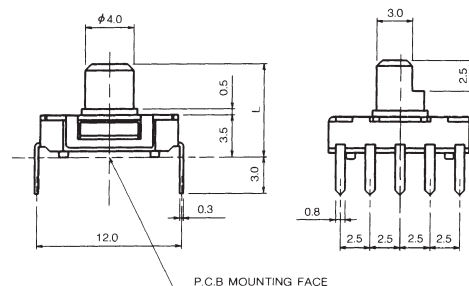
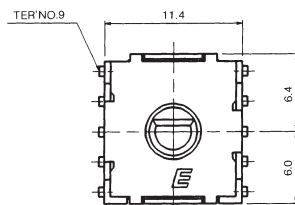


Example Ordering Number
KC-1901-A

Specifications subject to change without notice.

KC

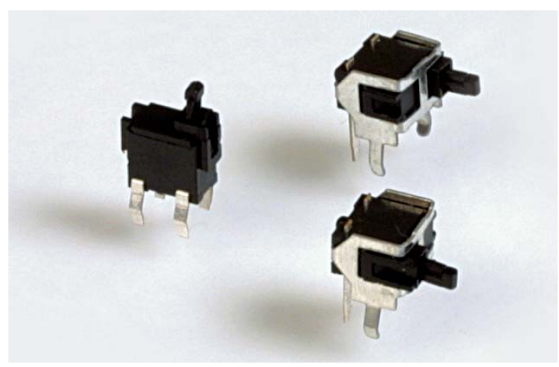
1901



TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES TD SWITCHES

DETECTOR SWITCHES



SPECIFICATIONS

Ratings:	As per individual model number
Life Expectancy:	As per individual model number
Contact Resistance:	As per individual model number
Insulation Resistance:	100 MΩ min.
Dielectric Strength:	1,000 V rms @ sea level
Actuation Force:	As per individual model number
Operating Force:	As per individual model number
Operating Temperature:	-20°C to +85°C

FEATURES & BENEFITS

- ▶ Long travel
- ▶ Smooth operation

APPLICATIONS/MARKETS

- ▶ Consumer Electronics
- ▶ Computer / Peripherals



HOW TO ORDER

SERIES
TD

MODEL NO.



1104

1105 A =
Actuator Right

1105 B =
Actuator Left

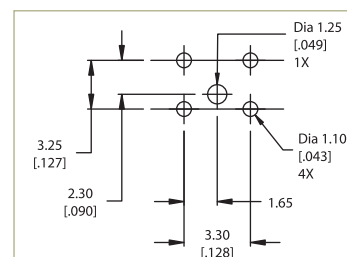
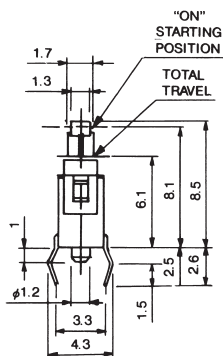
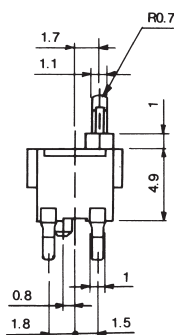


Example Ordering Number
TD-1105A

Specifications subject to change without notice.

TD

1104



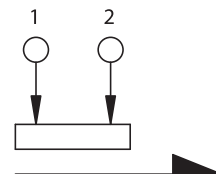
P.C. MOUNTING

SPECIFICATIONS

Ratings:	100mA @ 30 VDC
Electrical Life:	50,000 cycles typical
Contact Resistance:	1 Ω max.
Operating Force:	36 gf max.

MATERIALS

Housing:	4/6 Nylon
Cover:	6/6 Nylon
Actuator:	6/6 Nylon
Contacts:	Silver-plated phosphor bronze
Terminals:	Silver-plated brass

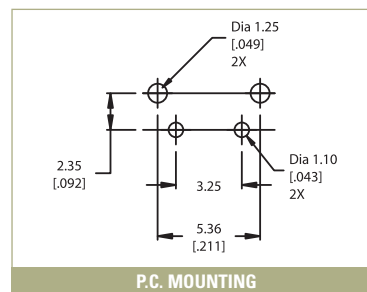
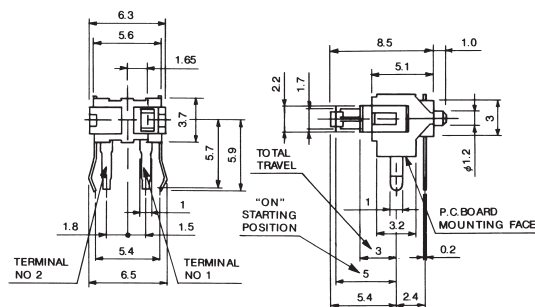


SCHEMATIC



TD

1105 A

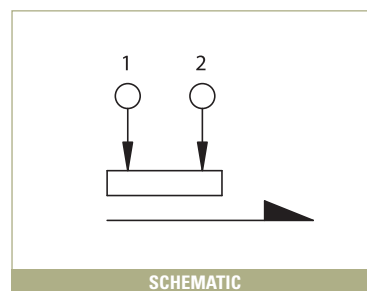


SPECIFICATIONS

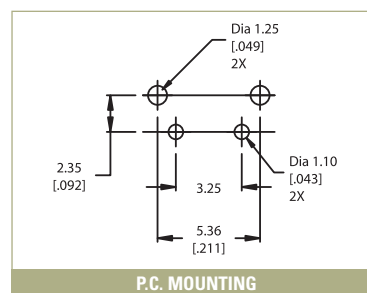
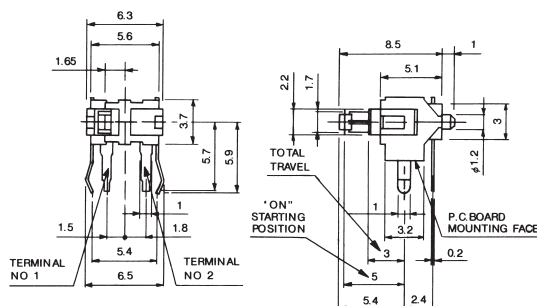
Ratings:	100mA @ 30 VDC
Life Expectancy:	50,000 cycles typical
Contact Resistance:	1 Ω max.
Operating Force:	36 gf max.

MATERIALS

Housing:	4/6 Nylon
Cover:	6/6 Nylon
Actuator:	6/6 Nylon
Brackets:	Tin-plated steel
Contacts:	Silver-plated phosphor bronze
Terminals:	Silver-plated brass



1105 B

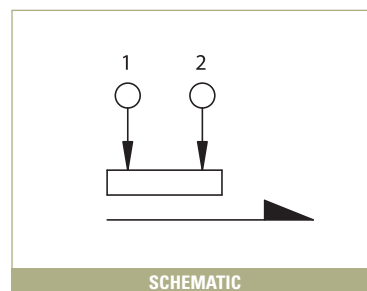


SPECIFICATIONS

Ratings:	100mA @ 30 VDC
Life Expectancy:	50,000 cycles typical
Contact Resistance:	1 Ω max.
Operating Force:	36 gf max.

MATERIALS

Housing:	4/6 Nylon
Cover:	6/6 Nylon
Actuator:	6/6 Nylon
Brackets:	Tin-plated steel
Contacts:	Silver-plated phosphor bronze
Terminals:	Silver-plated brass



TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

SERIES 900 SWITCHES

DETECTOR SWITCHES - SUB-MINIATURE SMT



FEATURES & BENEFITS

- ▶ Right angle SMT detector switch
- ▶ Tape & reel packaging

APPLICATIONS/MARKETS

- ▶ Telecommunications
- ▶ Networking
- ▶ Computers/servers
- ▶ Performance audio
- ▶ Instrumentation
- ▶ Low power on/off designs
- ▶ External hard drives and modems

SPECIFICATIONS

Contact Rating:	100mA @ 50 VDC
Life Expectancy:	50,000 cycles typical
Contact Resistance:	80mΩ max. typical @ 2-4 VDC 100mA
Insulation Resistance:	100MΩ min.
Dielectric Strength:	>1,000 Vrms at sea level
Actuation Force:	50 gf max.
Operating Temperature:	-25°C to +85°C
Travel:	2.0

MATERIALS

Housing:	4/6 Nylon
Actuator:	6T Nylon
Cover:	Stainless steel
Contacts:	Silver plated phosphor bronze
Terminals:	Silver plated brass
Spring:	Stainless steel



HOW TO ORDER

SERIES
900**MOUNTING**A = None
B = Mounting Tabs**CIRCUIT**

G = Normally Open

CONTACT MATERIAL

Q = Silver

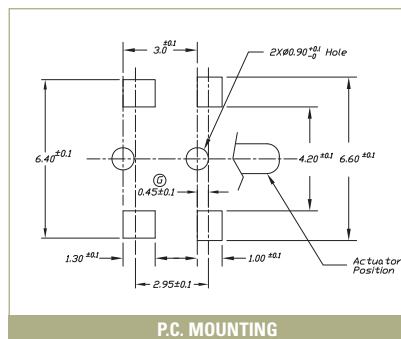
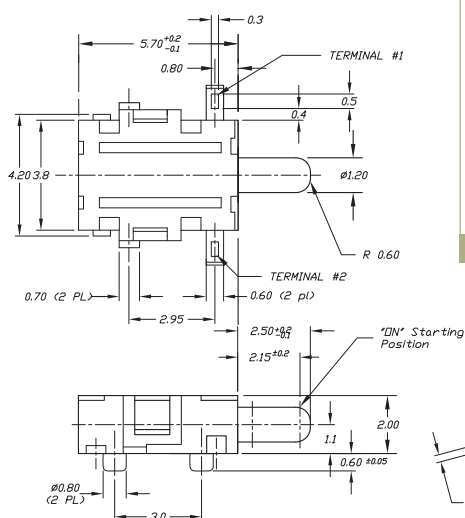
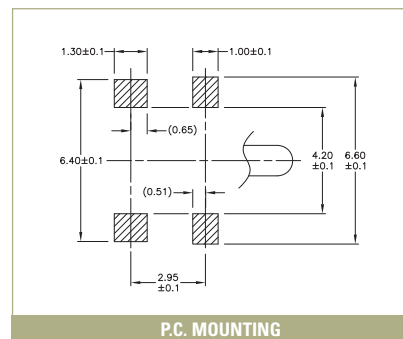
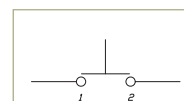


Example Ordering Number

900-A-G-Q

Specifications subject to change without notice.

900 AGQ

**P.C. MOUNTING****P.C. MOUNTING****SCHEMATIC**

Cap Reference:

Product Series	Cap Options
TL1105SP TL1105JA	1C, 1D, 1S, 1R, WT**
TL59SP TL3301SP	1C, 1D, 1S, 1R, WT**
TL1100	.08, .09, .094, 4J, 5J, 6J
TL1240	1J, 2J, 3J
TL2201 (Z ACTUATOR) TL4201 (Z ACTUATOR)	1C, 1D, 1S, 1R
TL2201 (Y ACTUATOR) TL4201 (Y ACTUATOR)	TAC, TAD, TAG, TAM, TA2800, TA12, .08, .09, .094, 4J, 5J, 6J
TL6100	TL6100.01, .02, & .03
PBH	1C, 1D, 1S, 1R
LC1257	1C, 1D, 1S, 1R
LC1258	1C, 1D, 1S, 1R
LC2251	1C, 1D, 1S, 1R
LC2255	TAC, TAD, TAG, TAM, TA2800, TA12, .08, .09, .094, 4J, 5J, 6J
LC2256	TAC, TAD, TAG, TAM, TA2800, TA12, .08, .09, .094, 4J, 5J, 6J
LC2258	1C, 1D, 1S, 1R, WT**
LC2259	1C, 1D, 1S, 1R, WT**
P197 P227	TAM, TA2800, TA12, .08, .09, .094, 4J, 5J, 6J
320.02	.08, .09, .094, 4J, 5J, 6J
320.03	.08, .09, .094, 4J, 5J, 6J
700	700C1, 700C2, 700C3, 700C4
800	800C1, 800C2
800A	800AC1, 800AC2
800B	800AC1, 800AC2
JN	TAM, .08, .09, .094, 4J, 5J, 6J

** Contact E-Switch for details.

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS



CAPS

PUSHBUTTON CAPS

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

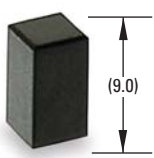
DIP
SWITCHES

KEYLOCK
SWITCHES

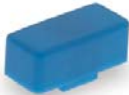
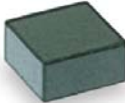
ROTARY
SWITCHES

DETECTOR
SWITCHES

CAP
OPTIONS

CAP	COLORS	AVAILABILITY		
.08 	Black (BLK), Grey (GRY), White (WHT), Blue (BLU), Red (RED), Yellow (YEL), Green (GRN)	320.03 TL2201Y P227	320.02 TL1100C P297	TL4201Y TL1100 P197
.09 	Black (BLK), Grey (GRY), White (WHT), Blue (BLU), Red (RED), Yellow (YEL), Green (GRN)	320.03 TL2201Y P227	320.02 TL1100C P297	TL4201Y TL1100 P197
.094 	Black (BLK), Grey (GRY)	320.03 TL2201Y P227	320.02 TL1100C P297	TL4201Y TL1100 P197
1C 	Black (BLK), Light Grey (LGR), Dark Grey (DGR), White (WHT), Blue (BLU), Red (RED)	PBH TL 4201Z TL1105JA	TL 2230 TL2201Z TL1105SP	TL 2285 TL3301SP
1D 	Black (BLK), Light Grey (LGR), Dark Grey (DGR), White (WHT), Blue (BLU), Red (RED)	PBH TL 4201Z TL1105JA	TL 2230 TL2201Z TL1105SP	TL 2285 TL3301SP
1J 	Black (BLK), White (WHT), Clear (CLR)	TL1240		
1R 	Black (BLK), White (WHT), Red (RED)	PBH TL3301SP	TL4201Z TL1105JA	TL2201Z TL1105SP
1S 	Black (BLK), White (WHT), Red (RED)	PBH TL3301SP	TL4201Z TL1105JA	TL2201Z TL1105SP
2J 	Black (BLK), Red (RED)	TL1240		



CAP	COLORS	AVAILABILITY		
4J 	Black (BLK), Grey (GRY), White (WHT), Red (RED)	320.02 TL1100C	TL4201Y TL1100	TL2201Y TL2202Y
5J 	Black (BLK), Grey (GRY), White (WHT), Blue (BLU), Red (RED)	320.02 TL1100C	TL4201Y TL1100	TL2201Y TL2202Y
6J 	Black (BLK), Grey (GRY), White (WHT), Red (RED)	320.02 TL1100C	TL4201Y TL1100	TL2201Y TL2202Y
700C1 	(7.7ø) Black (BLK), Grey (GRY), White (WHT), Green (GRN), Red (RED)	700		
700C2 	(9.5ø) Black (BLK), Grey (GRY), White (WHT), Red (RED), Green (GRN)	700		
700C3 	[11.7 sq.] Black (BLK), Grey (GRY), White (WHT), Red (RED), Green (GRN)	700		
800C1 	Black (BLK), White (WHT), Red (RED), Green (GRN)	800 (except B8 or B9 bushing)	800A	
800C2 	Black (BLK), White (WHT), Red (RED), Green (GRN)	800 (except B8 or B9 bushing)	800A	

TACT
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SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS



CAPS

PUSHBUTTON CAPS

TACT
SWITCHES

NAVIGATION
SWITCHES

PUSHBUTTON
SWITCHES

TOGGLE
SWITCHES

ROCKER
SWITCHES

SLIDE
SWITCHES

SNAP-ACTION
SWITCHES

DIP
SWITCHES

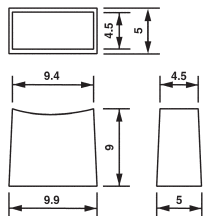
KEYLOCK
SWITCHES

ROTARY
SWITCHES

DETECTOR
SWITCHES

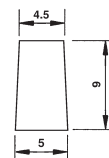
CAP
OPTIONS

CAP	COLORS	AVAILABILITY		
TA12 	Black (BLK), Grey (GRY), White (WHT), Blue (BLU), Red (RED)	P227	P297	P197
TA2800 	Black (BLK), Red (RED)	TL1100 P197	P227	P297
TAC 	Black (BLK), Grey (GRY), White (WHT), Red (RED)	TL1100 P197	P227	P297
TAD 	Black (BLK), Grey (GRY), White (WHT), Red (RED)	TL1100 P197	P227	P297
TAG 	Black (BLK), Grey (GRY), White (WHT), Red (RED)	P227	P297	P197
TAM 	Black (BLK), Grey (GRY), White (WHT)	TL1100C P197	P227	P297

**1C/1CF BUTTON****Colors Available:**

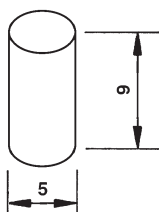
1CF Cap fits
TL2201 / 4201
'X' Actuator only.

1C Cap fits TL2201 / 4201 'Z' Actuator;
also fits TL2230, TL2285, TL1105SP, TL3301SP,
TL1105JA
1C Cap vertical only

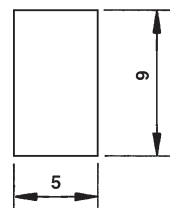
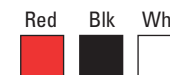
1D/1DF BUTTON**Colors Available:**

1DF Cap fits
TL2201 / 4201
'X' Actuator only.

1D Cap fits TL2201 / 4201 'Z' Actuator;
also fits TL2230, TL2285, TL1105SP, TL3301SP,
TL1105JA

1R BUTTON**Colors Available:**

1R Cap fits TL2201 / 4201 'Z' Actuator;
1R Cap also fits TL1105SP, TL3301SP, TL1105JA

1S BUTTON**Colors Available:**

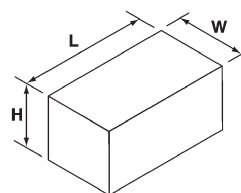
1S Cap fits TL2201 / 4201 'Z' Actuator;
1S Cap also fits TL1105SP, TL3301SP, TL1105JA

TAC 	Length: 9.6mm Width: 5.2mm Height: 11.2mm Colors: Black, White, Grey, Red	TAD 	Length: 12.1mm Width: 7.0mm Height: 10.5mm Colors: Black, White, Grey, Red
TAM 	Diameter: 7.2mm Height: 12.5mm Colors: Black, White, Grey	TAG 	Diameter: 8.8mm Height: 10.5mm Colors: Black, White, Grey, Red
TA 12 	Length: 12.3mm Width: 5.60mm Height: 11.05mm Colors: Black, White, Grey, Red, Blue	TA2800 	Length: 10.67mm Width: 10.67mm Height: 20.43mm Colors: Black, Red

COLOR & MOUNTING OPTIONS

Standard colors shown . . . other colors to match or contrast with your equipment available on special order.

Rectangular buttons can be mounted vertically or horizontally.



DIMENSION KEY

TACT
SWITCHESNAVIGATION
SWITCHESPUSHBUTTON
SWITCHESTOGGLE
SWITCHESROCKER
SWITCHESSLIDE
SWITCHESSNAP-ACTION
SWITCHESDIP
SWITCHESKEYLOCK
SWITCHESROTARY
SWITCHESDETECTOR
SWITCHESCAP
OPTIONS

Switch Glossary of Terms:

Actuator: The mechanical interface between the basic switch contacts and the means of operation, such as the operator's finger.

Actuation Force: The required force to change a circuit's electrical state.

Alternate Action Switch: A Pushbutton style switch where the change of the electrical state is maintained between actuations.

Ampere: A unit of electrical current flow.

Base: (Housing) A base of a switch is the main member to which the conducting parts or insulator unit are attached. It may also have parts of the operating or control mechanism attached.

Bounce: Rebounding of moving contact against fixed contact during transfer.

Break: Interruption of a circuit. Double-break occurs when a single mechanism interrupts two contacts simultaneously.

Break Before Make: The term given to a double throw switch where the first circuit is opened before the second circuit is closed.

Capacity: Usually refers to the current handling capability of a switch.

Chatter: Rapid opening and closing of contacts, usually exhibited during extreme vibration and/or shock.

Clearance (Spacing): Distance through air between electrically live parts of opposite polarity or to ground.

Contact: The contact is a conducting part designed to be united by pressure to another conducting part for the purpose of carrying current.

Contact Bounce: Oscillation of the movable contact upon closure of the circuit.

Contact Gap: The minimum distance between the fixed and moveable contacts.

Contact Resistance: The resistance of current flow across closed contacts.

Dead-Break: Open circuit condition, usually caused when slowly actuating snap-action switches. Results from low contact pressure or contact lift-off.

Detent: Feature that indicates actuation point has been reached. Can also be referred to as tactile feel.

Dielectric Strength: The ability of an insulating material to resist voltage from arcing across its surface.

Differential: Distance between trip point (or force) and reset point (or force).

Double-Break: A mechanism that breaks the circuit at two points simultaneously by means of a "shorting bar" like device.

Double-Throw: Contact arrangement that alternately transfers normally open and normally closed circuits.

Dust-Tight: Sealed switch will withstand sand and dust contamination.

Electrical Life: Expected cycle life when switch is operated at full rated load.

Free Position: Point at which plunger exists in the un-operated condition.



Insulation Resistance: The resistance to current flow of the insulating materials between contacts.

Lever Actuator: A device, hinged or spring type, applied to a basic switch to facilitate its application.

Make Before Break: The term given to a double throw switch when the second circuit is closed before the first circuit is opened.

Momentary Action Switch: The term given to a switch where a circuit is continuously closed or opened only when force is applied. The electrical state returns to it's normal position when the force is removed.

Normally Closed: The term given to a switch where a circuit is closed in the normal switch position.

Normally Open: The term given to a switch where a circuit is open in the normal switch position.

Operating Point: Point at which contacts transfer. Usually measured from the switch mounting holes.

Over Travel: The distance an actuator travels after the circuit is closed.

Pole: The term to denote a completely separate circuit, which passes through a switch at one time.

Pre Travel: The movement of the actuator prior to closing the circuit. Sometimes identical to "Travel to Make".

Reset Point: Point at which contact resumes normal position. Single-Break: Mechanism that transfers one contact.

Single Throw Switch: A single throw switch is a switch by means of which the circuit can be opened or closed by moving the switch blade into or out of one set of contacts only.

Snap Action: The abrupt transfer of contacts from one position to another. This action is relatively independent of the speed of actuator travel.

Splash Proof: Sealed switch will withstand heavy rain or stream of water.

Switch: A switch is a device for making, breaking, or changing the connections in an electric circuit.

Switch Abbreviations:

N.C.	Normally Closed circuit
N.O.	Normally Open circuit
SPST	Single Pole Single Throw
SPDT	Single Pole Double Throw
DPST	Double Pole Single Throw
DPDT	Double Pole Double Throw
MBB	Make Before Break
BBM	Break Before Make

Throw: The term denotes the number of positions in which a given pole is closed.

Travel to Make: The distance parallel to the designated direction of the actuator movement at which point a circuit is closed.

Watertight: Sealed switch will withstand submersion to various depths depending on specification level.

Wiping Action: Lateral travel of moveable contact over fixed contact while pressure between the two contacts exists. Occurs during plunger travel. This action helps clean the contacts of contamination.

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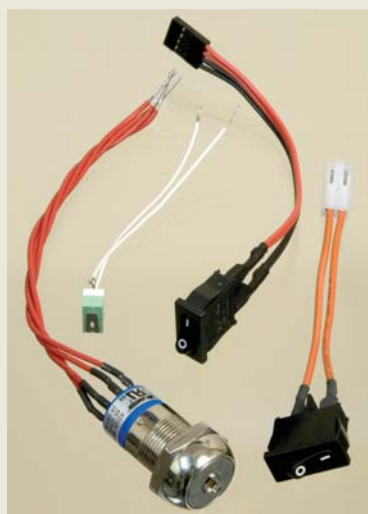
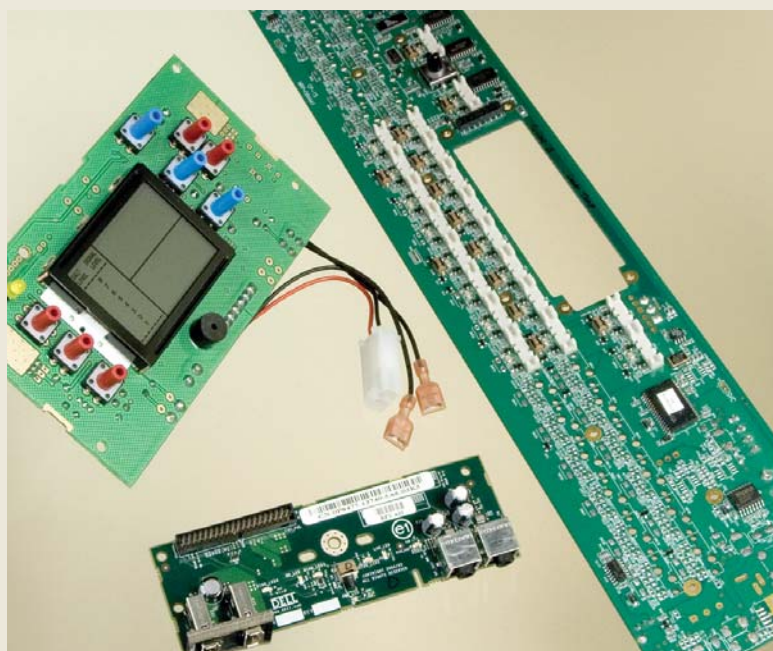
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E-Switch offers custom switch designs for almost any application.

- ▶ Wire assembly for any custom product that requires wire leads and connectors
- ▶ Custom switches and modifications such as markings, special color, actuators and gram force

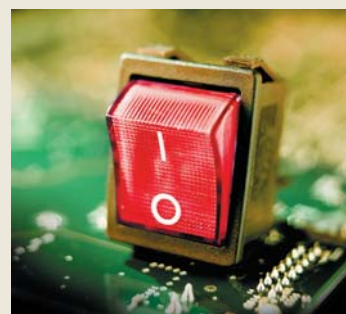
E-Switch uses standard industry rapid prototyping methods and uses 3D solid modeling, stereo lithography and other prototyping technology. Our engineers are phenomenally quick and can get you what you need.

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We take little things – the snap of a switch, a fraction of a penny – very seriously. Because we appreciate how every little detail eventually adds up to your big picture.

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