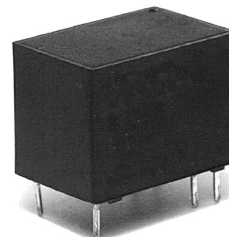


Greenwich Electronics, Inc.

LS1 Series

- Subminiature package switching to 5A
- Three coil sensitivities available
- Gold flashed contacts
- Industry standard footprint (5 and 6 pin)
- Approvals:  (E197070)
- Applications: telecommunications, timers



COIL DATA

Nominal Voltage (DC)	Nominal Coil Current (mA) ($\pm 10\%$ at 20°C)			Coil Resistance (Ω) ($\pm 10\%$ at 20°C)		
	Low sens. (L)	Std coil	High sens. (H)	Low sens. (L)	Std coil	High sens. (H)
3	150	120	67	20	25	45
5	91	71	40	56	70	120
6	75	60	33	80	100	180
9	50	41	23	180	220	400
12	38	30	17	320	400	700
24	19	15	9	1280	1600	2800

Pick-up Voltage	$\leq 75\%$ nominal
Drop-out Voltage	$\geq 10\%$ nominal
Max. Coil Voltage	110% nominal
Coil Consumption	L: $\sim 0.45\text{W}$, Std: $\sim 0.36\text{W}$, H: $\sim 0.2\text{W}$

Contact

Configuration	C: 1 form C (SPDT)
Material	Silver (Ag) alloy with Gold (Au) flash
Rated Load	1: 1A@30VDC / 125VAC 3: 3A@30VDC / 125VAC 5: 5A@14VDC / 125VAC (Type "L" coil only)
Max. Carry Current	5A
Max. Switching Voltage	60VDC / 220VAC
Max. Switching Current	5A
Max. Switching Power	90W / 625VA

Greenwich Electronics, Inc.

CHARACTERISTICS

Contact Resistance	Max. 50mΩ
Operate Time	≤5ms
Release Time	≤5ms
Insulation Resistance	100MΩ (@500VDC)
Dielectric Strength:	
• Between coil and contacts	500VAC - one minute
• Between open contacts	500VAC - one minute
Vibration Resistance	10-55Hz, 1.5mm, double amplitude
Shock Resistance	10g
Ambient Temperature	
• Operate	-25°C to 75°C
• Storage	-25°C to 125°C
Relative Humidity	35% - 85% @ 20°C
Life Expectancy:	
• Mechanical	1 x 10 ⁷
• Electrical	1 x 10 ⁵ (at rated load)
Weight	Approx. 4 grams

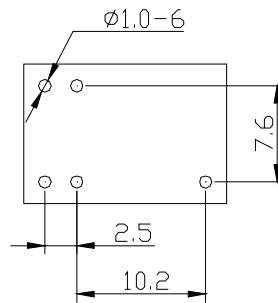
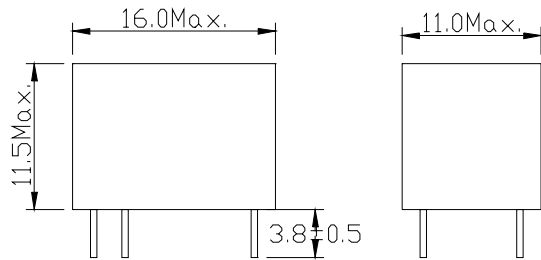
ORDERING INFORMATION

	<u>LS1</u>	-	<u>XXX</u>	-	<u>6</u>	<u>H</u>	<u>3</u>	<u>S</u>
	I		II		III	IV	V	VI
I.	Series				LS1			
II.	Coil Voltage (VDC)				003, 005, 006, 009, 012, 024			
III.	Pin-out				5 - 5 pin, 6 - 6 pin			
IV.	Coil Sensitivity				nil - Standard, L - Low sensitivity, H - High Sensitivity			
V.	Contact Rating				1 - 1A, 3 - 3A, 5 - 5A (Type "L" coil, 6 pin only)			
VI.	Package Type				D - Dust Cover, S - Sealed			

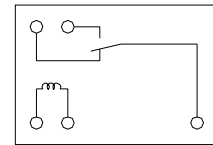
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LS1 Series Dimensions and Schematics (in mm)

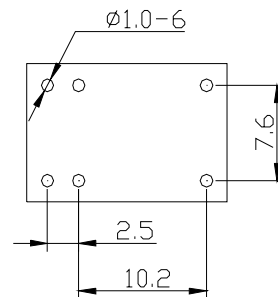
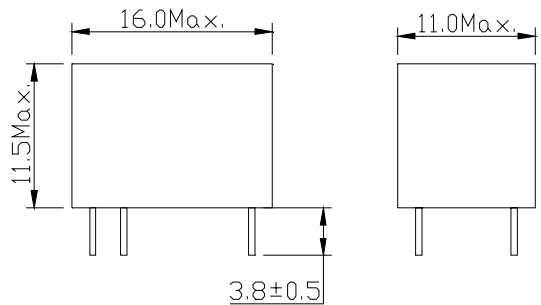
LS1 – 5 pin



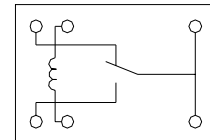
Terminal arrangement
and wiring diagram



LS1 – 6 pin



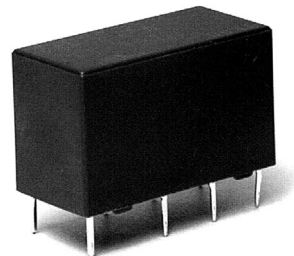
Terminal arrangement
and wiring diagram



Greenwich Electronics, Inc.

LS3 Series

- DPDT (2 form C) carries to 5A
- Single and dual coil latching
- Gold flashed contacts
- Long operation life
- Applications: Telecommunications, test equipment



COIL DATA

LS3 (Single Side Stable):

Nominal Voltage (DC)	Nominal Coil Current (mA) (± 10% at 20°C)		Coil Resistance (Ω) (± 10% at 20°C)	
	Std coil	Sensitive coil (H)	Std coil	Sensitive coil (H)
5	40	30	125	167
6	33	25	180	240
9	22	17	405	540
12	17	13	720	960
15	13	10	1125	1500
24	8	6	2880	3840
48	4	---	11520	-----

Pick-up Voltage	Std: ≤70% nominal, H: ≤80% nominal
Drop-out Voltage	Std/H: ≤10% nominal
Max. Coil Voltage	Std: 200% nominal, H: 230% nominal
Coil Consumption	Std: Approx. 0.2W, H: Approx. 0.15W

LS3-1L (Single latching coil):

Nominal Voltage (DC)	Nominal Coil Current (mA) (± 10% at 20°C)		Coil Resistance (Ω) (± 10% at 20°C)	
	Std coil	Sensitive coil (H)	Std coil	Sensitive coil (H)
5	20	15	250	330
6	17	13	360	480
9	11	8	810	1080
12	8	6	1440	1920
15	7	5	2220	3000
24	6	3	4000	7680

Set / Reset Voltage	Std: ≤75% nominal, H: ≤80% nominal
Max. Coil Voltage	Std: 280% nom. (230% for 24VDC), H: 320% nom.
Coil Consumption	Std: ~ 0.1W, H: ~ 0.075W

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LS3-2L (Dual latching Coils):

Nominal Voltage (DC)	Nominal Coil Current (mA) (± 10% at 20°C)		Coil Resistance (Ω) (± 10% at 20°C)	
	Std coil	Sensitive coil (H)	Std coil	Sensitive coil (H)
5	40	30	125	167
6	33	25	180	240
9	22	17	405	540
12	17	13	720	960
15	13	10	1125	1500
24	12	6	2040	3840

Set / Reset Voltage

Std: ≤75% nominal, **H:** ≤80% nominal

Max. Coil Voltage

Std: 200% nominal, **H:** 230% nominal

Coil Consumption

Std: Approx. 0.2W, **H:** Approx. 0.15W

Contact

Configuration

2C: 2 form C (DPDT)

Material

Silver (Ag) alloy, Gold (Au) clad

Rated Load

2A@30VDC, 1A@125VAC

Max. Carry Current

5A

Max. Switching Voltage

220VDC / 250VAC

Max. Switching Current

2A

Max. Switching Power

60W / 125VA

CHARACTERISTICS

Contact Resistance

Max. 50mΩ

Operate Time

≤4ms

Release Time

≤3ms

Bounce Time

1.5ms

Set / reset Time

3ms

Insulation Resistance

1000MΩ (@500VDC)

Dielectric Strength:

- Between coil and contacts 1500VRMS - one minute (single side stable only)
1000VRMS - one minute (single and dual coil latch only)
- Between open contacts 1000VRMS - one minute
- Between contact sets 1500VRMS - one minute

Vibration Resistance

20g, 10-55Hz

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Shock Resistance	50g (functional)
Ambient Temperature	
• Operate	-40°C to +85°C
• Storage	-40°C to +125°C
Relative Humidity	5% - 85%
Life Expectancy:	
• Mechanical	1 x 10 ⁸
• Electrical	1 x 10 ⁵ (2A@30VDC), 5 x 10 ⁵ (1A@30VDC)
Weight	Approx. 8 grams

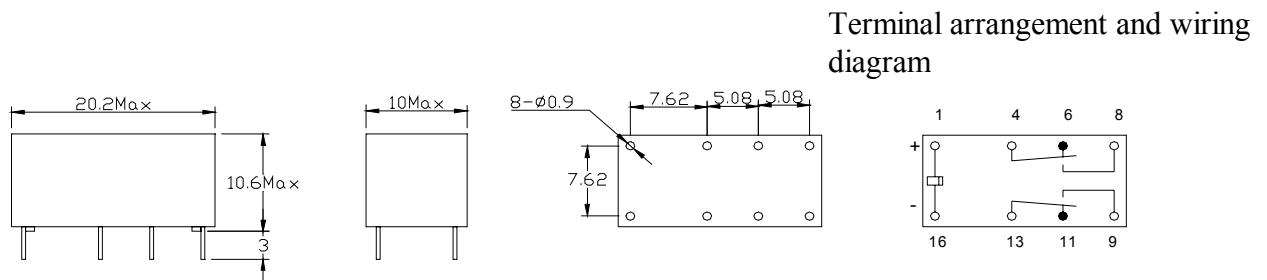
ORDERING INFORMATION

	<u>LS3</u>	-	<u>XXX</u>	-	<u>H</u>	<u>1L</u>	<u>S</u>
	I		II		III	IV	V
I.	Series				LS3		
II.	Coil Voltage (VDC)				005, 006, 009, 012, 015, 024, 048		
III.	Coil Sensitivity				nil - Standard, H - High Sensitivity		
IV.	Coil Type				nil - Single side stable, 1L - Single latching coil, 2L - Dual latching coils		
V.	Package Type				S - Sealed		

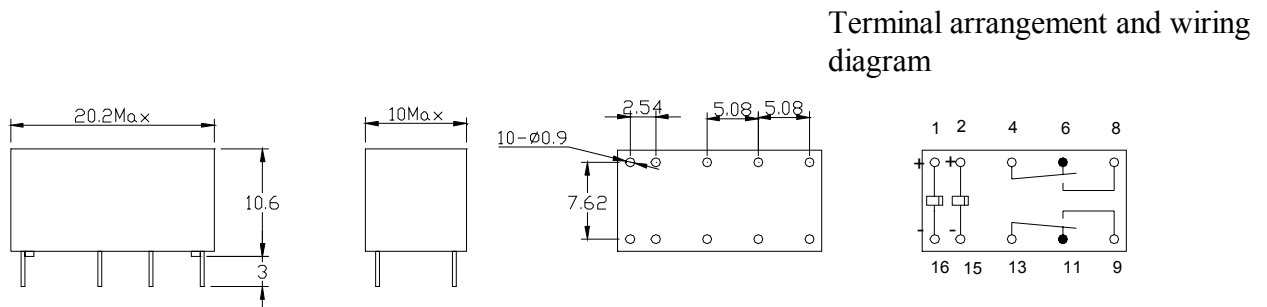
Greenwich Electronics, Inc.

LS3 Series Dimensions and Schematics (in mm)

LS3 – Single side stable and single coil latching (1L) styles



LS3 – Dual coil latching (2L) style

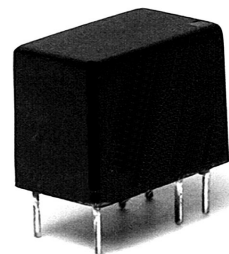


Latching options are shown in “reset” mode. For single coil latch, energize pins 1 and 16 to “set”, reverse current to “reset”. For dual coil latch, energize pins 1 and 16 to “set”, energize pins 2 and 15 to “reset”.

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LS4 Series

- Ultra small size
- High switching capacity
- High sensitivity coil available
- Approvals: us pending
- Applications: telecommunications, home audio/video equipment, office equipment



COIL DATA

Nominal Voltage (DC)	Nominal Coil Current (mA) (± 10% at 20°C)		Coil Resistance (Ω) (± 10% at 20°C)	
	Std coil	Sensitive coil (H)	Std coil	Sensitive coil (H)
1.5	133	100	11	15
3	67	50	45	60
5	40	30	125	167
6	33	25	180	240
9	22	17	405	540
12	17	13	720	960
24	8	6	2880	3840

Pick-up Voltage	≤80% nominal
Drop-out Voltage	≥10% nominal
Max. Coil Voltage	120% nominal
Coil Consumption	Std: Approx. 0.2W, H: Approx. 0.15W

Contact

Configuration	A: 1 form A (SPST-NO), C: 1 form C (SPDT)
Material	Silver (Ag) alloy
Rated Load	1A@24VDC, 0.5A@125VAC
Max. Carry Current	1A
Max. Switching Voltage	60VDC / 125VAC
Max. Switching Current	1A
Max. Switching Power	30W / 63VA

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CHARACTERISTICS

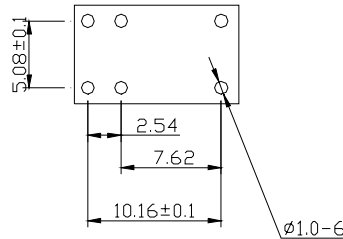
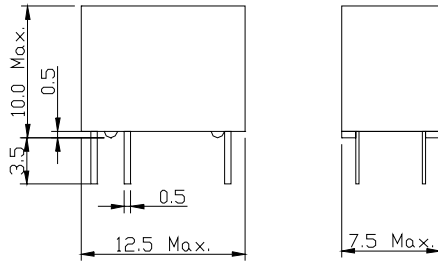
Contact Resistance	Max. 100m Ω (Measured at 1A 6VDC)
Operate Time	≤ 5 ms
Release Time	≤ 5 ms
Insulation Resistance	1000M Ω (@500VDC)
Dielectric Strength:	
• Between coil and contacts	1000VAC - 50Hz / one minute
• Between open contacts	400VAC - 50Hz / one minute
Vibration Resistance	10-55Hz, 3.3mm, double amplitude
Shock Resistance	10m/s ²
Ambient Temperature	
• Operate	-30°C to +70°C
• Storage	-30°C to +125°C
Relative Humidity	35% - 85%
Life Expectancy:	
• Mechanical	5 x 10 ⁶ (3600 ops/hr)
• Electrical	1 x 10 ⁵ (1800 ops/hr)
Weight	Approx. 2.2 grams

ORDERING INFORMATION

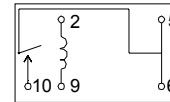
	<u>LS4</u>	-	<u>XXX</u>	-	<u>A</u>	<u>H</u>	<u>D</u>
	I		II		III	IV	V
I.	Series		LS4				
II.	Coil Voltage (VDC)		001, 003, 005, 006, 009, 012, 024				
III.	Contact Configuration		A - 1 form A (SPST-NO), C - 1 form C (SPDT)				
IV.	Coil Sensitivity		nil - Standard, H - High Sensitivity				
V.	Package Type		D - Dust Cover, S - Sealed				

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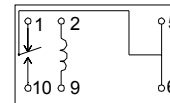
LS4 Series Dimensions and Schematics (in mm)



Terminal arrangement and wiring diagram



SPST-NO - 1 form A

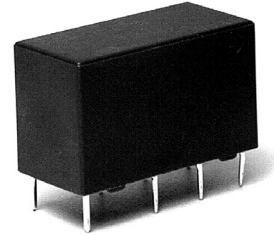


SPDT - 1 form C

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LS5 Series

- Ultra small size
- High switching capacity
- High sensitivity coil available
- Approvals:  (E197070)
- Applications: telecommunications, test equipment, office equipment, security systems



COIL DATA

Nominal Voltage (DC)	Nominal Coil Current (mA) (± 10% at 20°C)			Coil Resistance (Ω) (± 10% at 20°C)		
	Std	Sens (H)	Ultra (U)	Std	Sens (H)	Ultra (U)
3	110	89	77	30	45	60
5	63	54	46	90	125	167
6	53	45	39	130	180	240
9	36	30	26	280	405	540
12	28	22	19	450	720	960
15	24	18	15	625	1125	1500
24	15	11	NA	1600	2880	NA
48	9	NA	NA	4000	NA	NA

Pick-up Voltage	≤75% nominal
Drop-out Voltage	≤10% nominal
Max. Coil Voltage	Std: Approx 150% nominal (call for specifics) H: Approx 200% nominal U: Approx. 230% nominal
Coil Consumption	Std: Approx. 0.36W H: Approx. 0.20W U: Approx. 0.15W

CONTACT

Configuration	2C: 2 form C (DPDT)
Material	Silver (Ag) alloy with Gold (Au) clad
Rated Load	2A@30VDC, 1A@125VAC
Max. Carry Current	3A
Max. Switching Voltage	120VDC / 240VAC
Max. Switching Current	2A
Max. Switching Power	60W / 125VA
Min. Permissible Load	10mV@10μA

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CHARACTERISTICS

Initial Contact Resistance	Max. 50mΩ
Operate Time	≤6ms
Release Time	≤4ms
Insulation Resistance	1000MΩ (@500VDC)
Dielectric Strength:	
• Between coil and contacts	1500VAC - one minute
• Between open contacts	1000VAC - one minute
• Between contact springs	1000VAC - one minute
Vibration Resistance	10-55Hz, 1.5mm, double amplitude
Shock Resistance:	
• Functional	Min. 20g
• Destructive	Min. 100g
Ambient Temperature	-40 ⁰ C to 85 ⁰ C
Relative Humidity	40% - 85%
Life Expectancy:	
• Mechanical	1 x 10 ⁸
• Electrical	1 x 10 ⁵ (2A@30VDC) 3 x 10 ⁵ (1A@30VDC)
Solder Temp	Max. 270 ⁰ C for 5 seconds
Solvent Temp	Max. 80 ⁰ C for 30 seconds
Weight	Approx. 5 grams

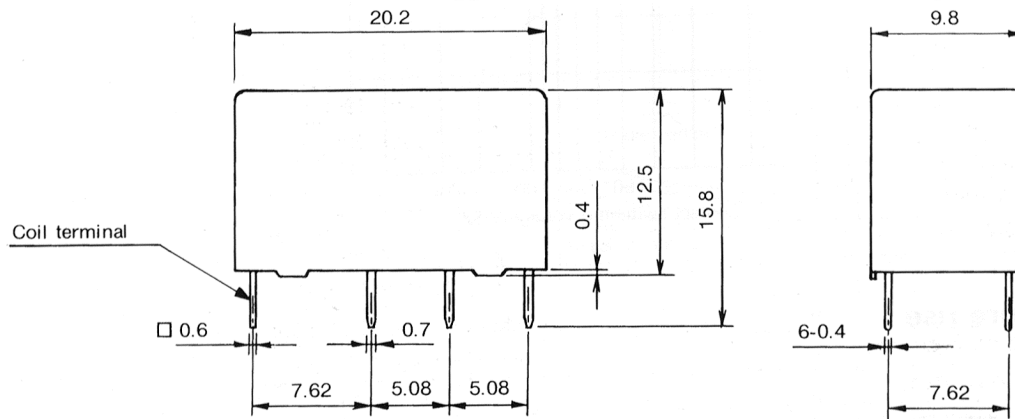
ORDERING INFORMATION

LS5 - 009 - 2C H
I II III IV

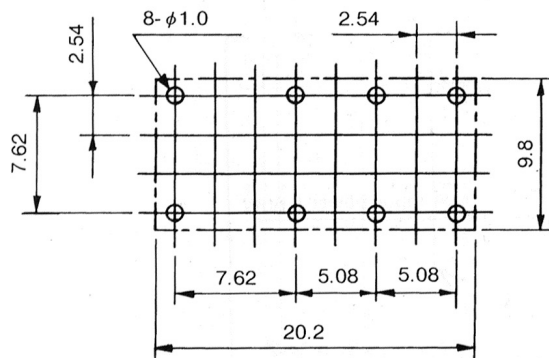
I.	Series	LS5
II.	Coil Voltage (VDC)	003, 005, 006, 009, 012, 015, 024, 048
III.	Contact form	2C - 2 form C (DPDT)
IV.	Coil Sensitivity	nil - Standard, H - High Sensitivity, U - Ultra Sensitive

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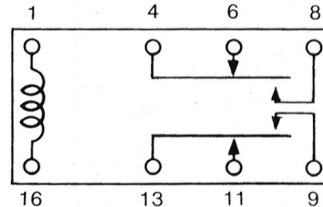
LS5 Series Dimensions and Specifications



Tolerance : ± 0.3



Terminal arrangement and wiring diagram



Tolerance : ± 0.1