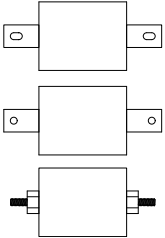
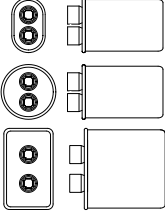
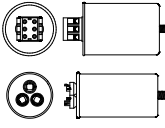
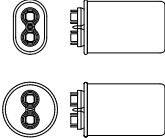
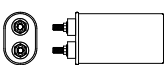


AC Film Capacitors



AC Film Selector Guide

Type	Form Factor	Capacitance Range	Voltage Range	Temperature Range	Applications	Highlights	Service Life	Page
ACF		5.0 μ F to 250 μ F	300 Vac to 900 Vac 50/60 Hz	-55 °C to 85 °C Full rated voltage @ 85 °C, derate linearly to 50% rated voltage @ 105 °C	- Filtering - Snubber - Power Supply	- High capacitance - High current - Low ESR - Low inductance - Terminal/mounting options - Self healing	60 khrs w/94% survival rate	6
HV		1.0 μ F to 13 μ F	1000 Vac to 4000 Vac 50/60 Hz	-40 to 70 °C	- AC Filters - Power Supply Filter/Regulator - CVT Filter/Snubber	- Self Healing - High Voltage - Internally Protected	60 khrs w/94% survival rate	8
PFC		0.5 KVar to 30.2 KVar	240 Vac to 600 Vac	-40 °C to 55 °C	- Automatic PFC Equipment - Wind Turbine Applications - Individual and Group Fixed PFC - Tuned and Detuned Capacitor Banks - Power Line Conditioning	- Self Healing - Internally Protected - UL/cUL	60 khrs w/94% survival rate	10
SF		1 μ F to 100 μ F	240 Vac to 660 Vac	-40 to 70 °C (85 and 90 °C available)	- Split Phase Motor - Voltage Regulation - Power Supply Filtering - UPS - Power Line Conditioning - Variable Speed Drives - Ferro Resonant Power Supplies	- Metalized Polypropylene Film - Self Healing - Low Loss - Meet EIA-456-A - Protected - UL/cUL E71645 - CSA 23507	60 khrs w/94% survival rate	16
SCR		0.25 μ F to 50 μ F	200 Vpk to 2000 Vpk	-40 to 65 °C	- Snubber - Frequency Changers - Motor Speed Controls - Static Power Supplies - SCR Commutation - High Frequency Pulse	- High Peak Current Handling - High rms Current Handling - Conforms to EIA RS-401	40 khrs w/95% survival rate	13

AC Capacitor Application Guide

This guide covers Cornell Dubilier's AC capacitor types in depth and discloses the latest information on performance and application.

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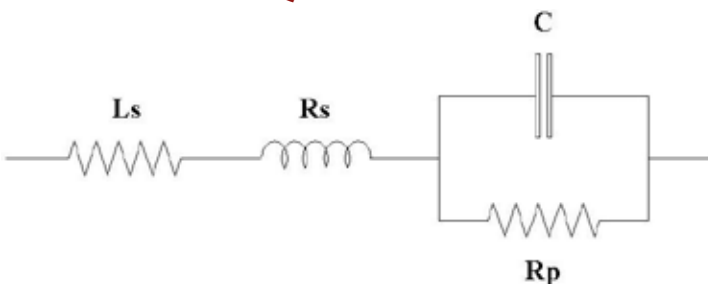
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AC CAPACITOR CONSTRUCTION

Cornell Dubilier's AC capacitors are constructed with biaxially oriented metallized polypropylene film wound into a cylindrical roll. End contact is formed by zinc metal spraying all of the layers on each side of the winding which assures low ESR and low inductance. Metallized polypropylene film provides a self healing mechanism in which a dielectric breakdown "clears" away the metallization and isolates that area of the capacitor

within microseconds. These capacitors boast low losses where very low Dissipation Factor and ESR allow for relatively high current density.

CAPACITOR SERIES EQUIVALENT CIRCUIT MODEL



PARAMETRIC CHARACTERIZATION

The table below shows useful capacitor parameters for the series equivalent-circuit model shown schematically in **Figure 1**.

Parameter	Unit	Symbol	Formula	Approx.
Capacitance	farads (F)	C		
Capacitive Reactance	ohms (Ω)	X_c	$1/(2\pi fC)$	Z
Current	amperes (A)	I	$C(dV/dt)$, V_z/Z	
Dissipation Factor	none	DF	R_s/X_c , $2\pi fCR_s$, $\tan(\delta)$, $\cot(\theta)$	PF
Energy	Joules (J)	E	$\frac{1}{2}CV^2$	
Equivalent Series Resistance	ohms (Ω)	R_s	$DF/(2\pi fC)$	
Frequency	hertz (Hz)	f		
Impedance	ohms (Ω)	Z	$[R_s^2 + (X_c - X_L)^2]^{1/2}$	X_c
Inductance	henries (H)	L_s		
Inductive Reactance	ohms (Ω)	X_L	$2\pi fL_s$	
Loss Angle	degrees ($^\circ$)	δ	$\tan^{-1}(DF)$	
Phase Angle	degrees ($^\circ$)	θ	$\cot^{-1}(DF)$	
Power	watts (W)	P	I^2R_s	
Power Factor	none	PF	R_s/Z , $\sin(\delta)$, $\cos(\theta)$	DF
Quality Factor	none	Q	X_c/R_s , $1/DF$, $\cot(\delta)$, $\tan(\theta)$	$1/PF$
Self-Resonant Frequency	hertz (Hz)	ω_o	$1/[2\pi(LC)^{1/2}]$	
Voltage	volts (V)	V	$V_c = IX_c$, $V_z = IZ$	
Volt-Amperes	V-A	VA	IV_z , I^2Z	

DEFINITIONS

RATED TEMPERATURE

The rated temperature is the range in temperature in which the capacitors will perform to their full rated service life objective. Typically AC capacitors will have a rated temperature of -40 to $+70$ $^\circ\text{C}$ for a motor run application and -40 to $+90$ $^\circ\text{C}$ for a power supply type application.

RATED CAPACITANCE

The rated capacitance is the nominal capacitance and it is specified between 50Hz to 120Hz and a temperature of 25 °C. The rated capacitance is also the capacitance marked on the unit.

DISSIPATION FACTOR (DF)

Dissipation factor is the measurement of the tangent of the loss angle ($\tan \delta$) expressed as a percentage. It is also the ratio of the ESR to the capacitive reactance and is thus related to ESR by this equation:

$$DF = 2\pi fC(ESR)/10,000$$

Where DF is a unit-less number expressed in percent, test frequency f is in Hz, capacitance C is in μF and ESR is in Ω .

EQUIVALENT SERIES RESISTANCE (ESR)

The equivalent series resistance (ESR) is a single resistance representing all of the ohmic losses of the capacitor and connected in series with the capacitance.

RMS CURRENT

AC capacitors with ¼" x 0.032" blade style terminals can handle a maximum RMS current of 15 Arms, including harmonics, 60Arms for the enclosed block terminals.

LEAKAGE CURRENT

When energized between their shorted terminals and the capacitor case at a potential of 115 Vac 60 Hz their leakage current shall not exceed the following:

Nominal Capacitance	Leakage Current
0 - 14 μF	60 μA
14.1 - 20 μF	70 μA
20.1 - 35 μF	100 μA
35.1 - 80 μF	150 μA

INSULATION AND GROUNDING

AC capacitors are manufactured to minimize electrical leakage from terminal to terminal and terminal to case. Due to the non ideal nature of all insulating materials a maximum allowable leakage current to the case as well as between terminals has been established.

Grounding of the metal case is recommended.

VOLTAGE WITHSTAND TESTS

AC capacitors are designed and 100% tested to withstand a potential difference equal to 1.75 X rated AC voltage between terminals and 2 X rated AC voltage plus 1,000 volts for one

second between terminals and case.

SELF RESONANT FREQUENCY

The self-resonant frequency is the frequency at which the capacitive reactance ($1/2\pi fC$) equals the inductive reactance ($2\pi fL$). At this point, where its impedance approaches zero, the capacitor can be considered to be purely resistive. At frequencies above self resonance, the capacitor is inductive.

DIELECTRIC ABSORPTION

Is a property of an imperfect dielectric material that allows the capacitor utilizing this material to absorb and accumulate a certain amount of energy even after being completely discharged. These charges will accumulate in the dielectric body and not on the capacitor plates (electrodes). Dielectric absorption can be approximated by the ratio of the voltage before discharge to the self recharged (absorbed) voltage level.

VIBRATION WITHSTANDING CAPABILITY

AC capacitors are manufactured to withstand a test outlined in the EIA 186-7E STD of (10 to 55Hz per plane) test method III with modification to the duration time which is reduced to 30 minutes from of 120 minutes equating to 5G.

SAFETY CONSIDERATIONS

The built in protection mechanism requires that there is a minimum of 0.5" of clearance above the capacitors terminals to allow for case expansion. This clearance distance should be carefully observed.

RELIABILITY AND LIFETIME

AC capacitors are rated for a full service life of 60,000 h with an estimated 94% survival rate when operated at full rated voltage, 60 Hz and rated ambient temperature.

FAILURE MODES

AC capacitors feature an internal mechanical pressure Interrupter that disconnects the capacitor winding from the voltage source in the event of failure. Failure occurs in open circuit mode.

In either event the capacitor will remain in an open circuit mode.

EARLY LIFE FAILURES

Early-life failures are mostly associated with short-circuit failures from imperfections in the dielectric system. Incidences can be reduced with extended aging or burn-in.

WEAR-OUT

Wear-out failures are mostly open-circuit failures where the integral Pressure Interrupter mechanism has been activated due to material fatigue (wear-out).

OPERATING LIFE

Onset of wear-out is determined mainly by the capacitor's rated voltage and temperature and is relative to the actual applied

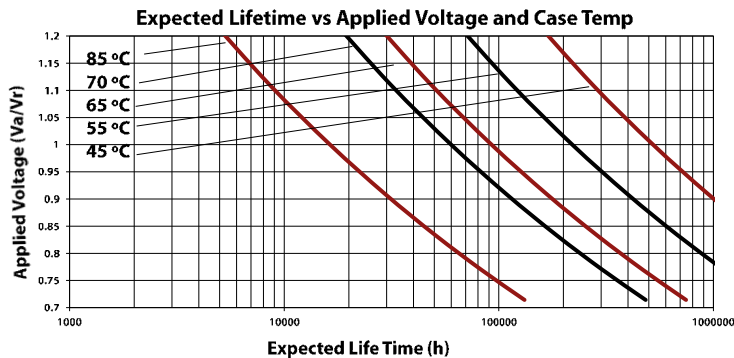
voltage (both at the fundamental frequency and any harmonic content) and ambient temperature. Operating life can be expressed as

$$L_o = L_r \times 2^{\frac{(T_r - T_o)/10}{\left(\frac{V_r}{V_o}\right)^6}}$$

Where

L_{rated} is the rated operating life in h, (60,000 h)
 $L_{operation}$ is the expected operating life in h,
 T_{rated} is the rated operating temperature in °C,
 $T_{applied}$ is the actual temperature applied to the capacitor in °C,
 V_{rated} is the capacitor's rated voltage in Vrms,
 $V_{applied}$ is the actual voltage applied to the capacitor in Vrms.

In addition the chart below can be utilized to estimate service life when AC capacitors are to operate at specific conditions outside of the rated specified conditions.



SHELF LIFE

AC capacitors are expected to perform for their full service life objective after being exposed to a maximum shelf life of 10+ years when stored in a controlled environment.

MOUNTING

AC capacitors are manufactured in round and oval metal cases which can be fastened and mounted by a variety of methods. These capacitors can be secured to a chassis or mounting plate by means of a mounting bracket (hardware) or by an optional M8 or M12 mounting stud provided at the bottom of the capacitor case. Please note that the capacitor case will be at the voltage potential of the chassis or mounting plate. A minimum of 0.5" of clearance above the capacitors terminals is required to allow for proper activation of the mechanical pressure interrupter in the event of failure, end of life or over load.

TYPICAL APPLICATIONS

Motor Run

AC capacitors are utilized to provide the necessary starting torque to split phase motors by introducing a phase shift on a secondary motor winding. Motor-run capacitors also provide the necessary power factor correction during the run stage for a more energy efficient motor operation.

Power Supply

AC capacitors are utilized in power supply circuits where noise suppression, voltage regulation and line current reduction is required. These applications typically expose the capacitor to higher order harmonics. The sum of the fundamental and all

harmonic currents must not exceed the capacitor's maximum current rating.

Power Factor Correction

AC capacitors are also utilized in power factor correction circuits where they supply leading reactive power (KVAR) to correct the lagging current caused by inductive loads. The circuit is said to be running at unity power factor if the capacitive reactance of the applied capacitors exactly matches the inductive reactance of the load.

$$PF = KW / KVA$$

$$KW = (HP \times 0.746) / \% \text{ efficiency}$$

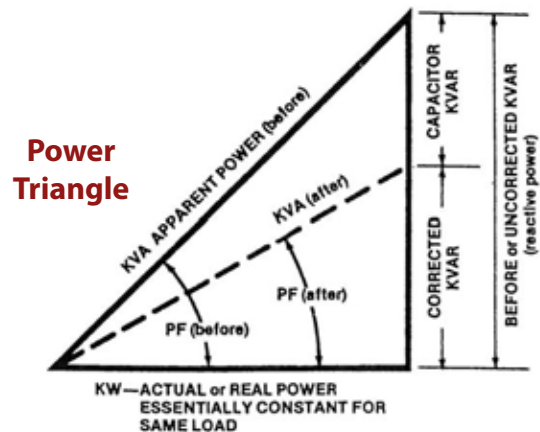
$$KVA = KW / PF = \sqrt{(KW)^2 + (KVAR)^2}$$

$$KVA = V I / 1000 \quad (\text{single phase})$$

$$KVA = V I / 577 \quad (\text{three phase})$$

$$C = (KVAR \times 10^3) / (2 \pi F (KV)^2)$$

$$KVAR = (2 F C (KV)^2) / 1000$$



Type ACF, Metallized Polypropylene Capacitors for AC Filtering

High Current, High Capacitance, Low ESR, Low Inductance



Type ACF capacitors offer several robust terminal options for AC Filtering applications. ACF is designed to give high capacitance in a small package for high current and low ESR requirements. The metallized polypropylene construction inherently gives the advantage of low DF and stable performance over the rated temperature range.

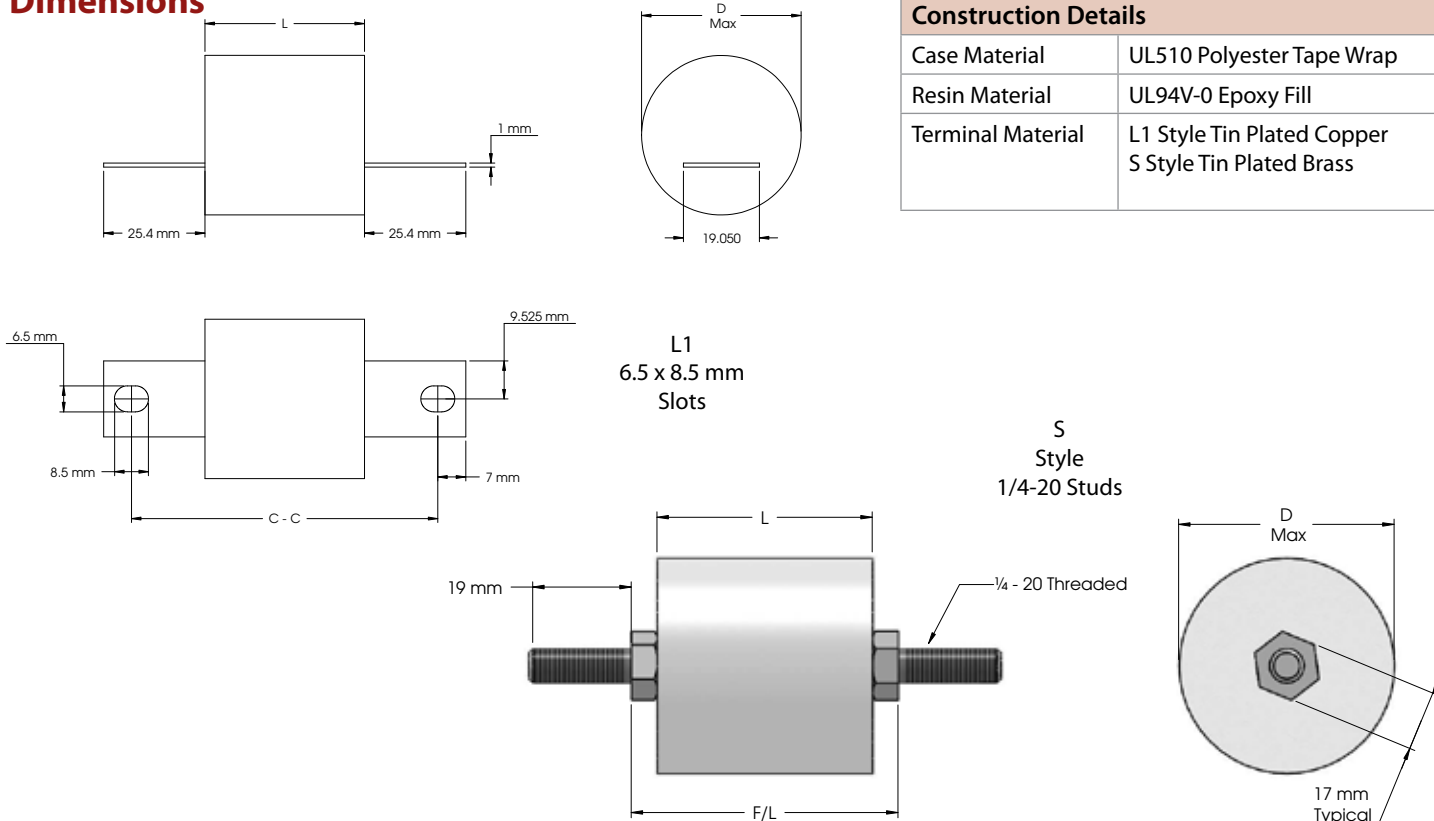
Highlights

- High capacitance
- High current
- Low ESR
- Low inductance
- Terminal/mounting options
- Self healing

Specifications

Capacitance Range	5.0 to 250 μ F
Capacitance Tolerance	$\pm 10\%$ (K) standard, $\pm 5\%$ (J) optional
Rated Voltage	300 to 900 Vac, 50/60 Hz
Operating Temperature Range	-55 °C to 85 °C Full rated voltage @ +85 °C, derate linearly to 50% rated voltage @ 105 °C
Maximum rms Current	Check tables for values
Insulation Resistance	25,000 M Ω x μ F @ 25 °C, after 5 minutes of charge
Test Voltage between Terminals @ 25 °C	130% rated DC voltage for 60 s
Test Voltage between Terminals & Case @ 25 °C	3 kVac 50/60Hz for 60 s
Life Expectancy	60,000 h @ rated Vac, 70 °C
RoHS Compliant	

Dimensions



Type ACF, Metallized Polypropylene Capacitors for AC Filtering

High Current, High Capacitance, Low ESR, Low Inductance

Part Numbering System

ACF	550	K	301	L1/S	-F
Type	Capacitance	Tolerance	Voltage	Terminals	RoHS
ACF	505 = 5 μ F 106 = 10 μ F 107 = 100 μ F	K = ± 10 % J = ± 5 %	301 = 300 Vdc 531 = 530 Vdc 901 = 900 Vdc	L1 = Lugs S = Studs	Compliant

Ratings

Other ratings available upon request, as well as other terminations

Catalog Number	CAP. (μF)	DIAMETER (Max) mm	LENGTH mm ±2.5	F/L and/or C-C HOLE Dimension ±1.5mm	Ripple Current (Amps rms)				Typical ESR (mΩ)	Typical ESL (nH)	f _r (KHz)	I _{pk} (Amps)	dv/dt (V/μs)
					25 °C	45 °C	65 °C	85 °C					
300 Vac50/60Hz 450 Vdc													
ACF506K301L1-F	50	63	50	86.5	64	54	43	27	1.4	40	112	2571	52
ACF756K301L1-F	75	62	68	104	61	52	40	24	1.8	59	75	2465	33
ACF107K301L1-F	100	71	68	104	72	61	47	28	1.5	59	65	3286	33
ACF157K301L1-F	150	73	88	124	72	61	46	24	1.8	79	46	3490	23
ACF207K301L1-F	200	72	112	149	68	56	41	13	2.2	105	34	3409	17
ACF257K301L1-F	250	82	112	149	75	65	46	9	1.9	105	31	5261	17
530 Vac 50/60Hz 750 Vdc													
ACF505K531S-F	5	38	63	82.5	31	27	21	13	3.6	54	306	822	164
ACF106K531S-F	10	51	63	82.5	49	42	33	21	2.1	54	216	1643	164
ACF206K531S-F	20	71	63	82.5	75	64	50	32	1.4	54	153	3286	164
ACF306K531S-F	30	68.5	87	106.5	70	59	47	29	1.9	79	103	3036	89
ACF406K531S-F	40	73.5	96	115.5	76	65	51	31	1.9	88	84	3542	89
ACF506K531S-F	50	81.3	96	115.5	77	66	55	39	1.5	88	75	3629	73
ACF606K531S-F	60	81.5	112	130.5	78	68	56	40	1.7	110	62	3811	64
ACF756K531S-F	75	82.5	137	130.5	85	71	55	31	2.2	130	50	4231	56
ACF107K531S-F	100	93.5	137	130.5	100	84	65	35	1.8	130	44	5642	56
900 Vac 50/60Hz 1300 Vdc													
ACF505K901S-F	5	34.5	137	156.5	24	20	16	10	10.2	130	197	661	132
ACF106K901S-F	10	46.5	137	156.5	39	33	26	16	5.5	130	139	1322	132
ACF206K901S-F	20	64	137	156.5	62	53	41	25	3.1	130	98	2644	132
ACF306K901S-F	30	79.5	137	156.5	82	70	54	32	2.3	130	80	3966	132
ACF406K901S-F	40	90.5	137	156.5	98	83	64	37	1.9	130	70	5288	132
ACF506K901S-F	50	100	137	156.5	100	94	73	41	1.7	130	62	6610	132

ESR measured at resonant frequency

Type HV High Voltage Capacitors

Oil Filled/Impregnated, AC Rated, Metallized Polypropylene Capacitors



Type HV capacitors are constructed with low loss self healing metallized polypropylene film. Packaged in a cylindrical, oval and rectangular metal cases. Type HV capacitors are ideal for AC filtering, CVT filtering/snubbing, line current reduction and voltage regulation in power supply applications.

Highlights

- Self healing
- Protected
- Low energy consumption
- AC filtering
- Power supply filter/regulator
- CVT filter/snubber

Specifications

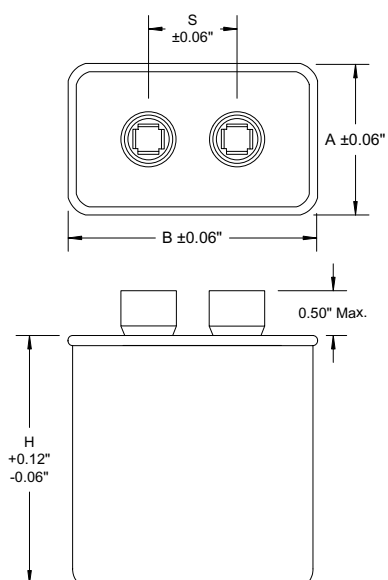
Capacitance Range	0.5 μ F to 13 μ F
Capacitance Tolerance	$\pm 5\%$ standard, $\pm 10\%$, $\pm 6\%$ and $\pm 3\%$ available
Rated Voltage	1000 Vac, 2000 Vac, 2500 Vac and 4000 Vac
Operating Temperature Range with Ripple	-40 °C to 70 °C
Rated Frequency	50 Hz and 60 Hz
Rated Current	15 A _{rms} , fundamental plus any harmonics
Life	60,000 h with 94% survival rate
RoHS Compliant	

Dimensions

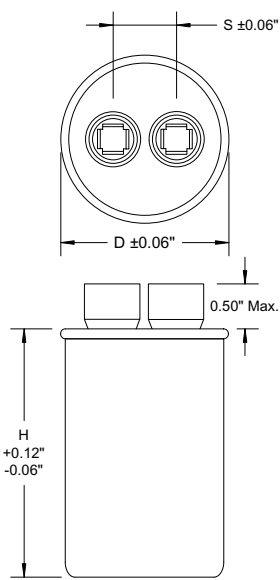
Construction Details

Case Material	Tin Plated Steel or Aluminum
Encapsulation	Environmentally Safe Dielectric Fluid
Terminal Material	Tin Plated Steel

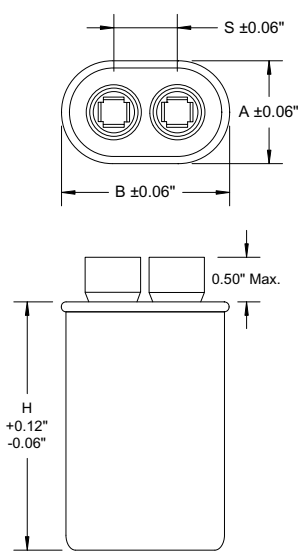
Rectangular Case Style



Round Case Style



Oval Case Style



Dimensions (Inches)				
Case Code	A	B	S	H
A	1.31	2.16	0.81	See Ratings Table
C	1.91	2.91	0.81	
D	1.97	3.66	1.624	
R	2.84	4.56	1.624	

Dimensions (inches)			
Case Code	D	S	H
P	1.87	0.81	See Ratings Table
T	2.62	0.81	

Type HV High Voltage Capacitors

Oil Filled/Impregnated, AC Rated, Metallized Polypropylene Capacitors

Part Numbering System

HV Series	C Case	KA AC Volt	S Case Material	35 Cap	J Tol. ±%	291 Can Height	B VAR
HV	A = 1 1/4" Oval C = 1 3/4" Oval D = 2.0" Oval P = 1 3/4" Round R = Rectangular T = 2 1/2" Round	KA = 1000 Vac LA = 2000 Vac LL = 2500 Vac MA = 3000 Vac NA = 4000 Vac	S = Steel T = Aluminum w/steel cover	7 = 7.0 µF 35 = 35.0 µF	J = ±5% L = ±3% H = ±6% K = ±10%	238 = 2.38" 291 = 2.91" 388 = 3.88" 475 = 4.75" 488 = 4.88"	B = 4 way 70 °C D = 4 way 90 °C Z = Other

Ratings

CDE Catalog Number	Cn (µF)	Case Code	Case Height	
			(in)	(mm)
1000 Vrms				
HVPKAS3J475B	3	P	4.75	121
HVPKAS5J475B	5	P	4.75	121
HVTKAS8J475B	8	T	4.75	121
HVTKAS10J475B	10	T	4.75	121
HVTKAS13J603B	13	T	6.03	153
HVAKAS3J288B	3	A	2.88	73
HVAKAS5J475B	5	A	4.75	121
HVCKAS8J291B	8	C	2.91	74
HVCKAS10J491B	10	C	4.91	125
HVDKAS13J491B	13	D	4.91	125
2000Vrms				
HVALAS1J475B	1	A	4.75	121
HVDLAS3J491B	3	D	4.91	125
HVDLAS5J578B	5	D	5.78	147
2500Vrms				
HVCLCS1J391B	1	C	3.91	99
HVCLCS2J491B	2	C	4.91	125
HVDLCS3J578B	3	D	5.78	147
3000Vrms				
HVCMA51J391B	1	C	3.91	99
HVDMAS2J491B	2	D	4.91	125
HVDMAS3J753B	3	D	7.53	191
4000Vrms				
HVCNAS0.5J491B	0.5	C	4.91	125
HVDNAS1J578B	1	D	5.78	147
HVRNAS1.8J603B	1.8	R	6.03	153

Options

Tinplated steel or aluminum cans, with and without studs, are available upon request.

Additional tolerances such as ±3%, ±6% and ±10% are available.

+90 °C ratings are available

Discharge resistors are available.

Type PFC Power Factor Correction Capacitors



Type PFC capacitors are constructed with low loss self healing metallized polypropylene, delta connected internally for 3-phase operation and packaged in a cylindrical metal case with an easy-access terminal with built-in-bleeder resistors. Type PFC is safety protected with an internal pressure interrupter that disengages all 3 phases in the event of capacitor overload or end of life.

Highlights

- Automatic PFC equipment
- Wind turbine applications
- Individual and group fixed PFC
- Tuned and detuned capacitor banks
- Power line conditioning

Specifications

Capacitance Tolerance	0 to +10%
Rated Voltage	240 Vac, 480 Vac, 600 Vac
Operating Temperature Range with Ripple	-40 °C to +55 °C
kvar Range	0.5 kvar to 30.2 kvar
Maximum Permissible Voltage (Vmax)	110% of rated rms voltage 120% of rated peak voltage ($1.2 \times \sqrt{2} \times V_{rms}$)
Internal Connection	Delta (Δ)
Maximum Permissible Current (Imax)	135% of nominal rms current based on rated kvar and rated voltage - (up to 150% of I_R including combined effects of harmonics, over voltages and capacitances, tolerance)
Life	60,000 h w/94% survival rate
International Standards	Meets IEEE18, Standard (ANSI/IEEE Standard 18)
FIT (Failure In Time)	$\leq 300 \times 10^9$ component h
Maximum Short Circuit Current	10 kA (according to UL 810)

Dimensions

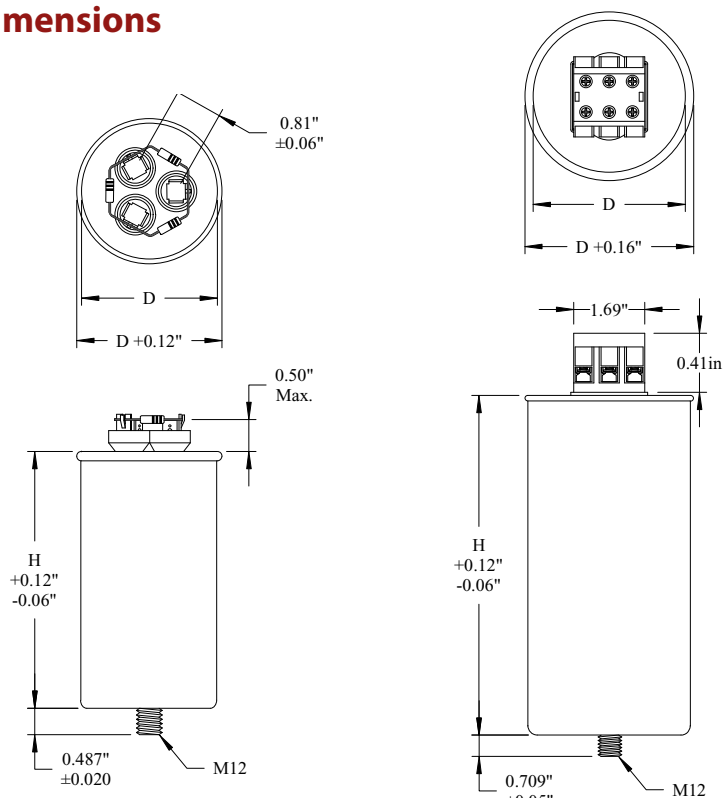


Figure 1

Figure 2

Construction Details

Case Material	Extruded aluminum with steel or aluminum cover
Encapsulation	Environmentally safe dielectric fluid
Terminal Material	Tin plated copper, brass or steel

Type PFC Power Factor Correction Capacitors

Part Numbering System

PFC Type	H	T Base Type	480 Voltage (Vac)	C Case Material	6 kvar	S Tolerance (%)	779 Can Height (inches)	T Phases
PFC	S = Std. H = Harmonic	S = 2" Round T = 2½" Round V = 3" Round X = 3.5" Round	24 = 240 48 = 480 60 = 600	C = Aluminum case w/steel cover M12 Stud D = Aluminum case w/aluminum cover M12 Stud	Full kvar value including decimals @ 60 Hz and	S = -0/+10%	Expressed as 3 digit number of the case height from base to top of lip (including seam) rounded and displayed without decimal point	T = 3-Phase

Ratings

NOTE: Other ratings, sizes and performance specifications are available. Contact us.

CDE Catalog Number	60Hz Output Kvar	50Hz Output Kvar	Capacitance (µF)	R _s (mΩ)	R _{th} (°C/W)	Max. I _R (55°C)	Diameter (in)	Case Height (in)	Style
240 Vac									Fig. 1
PFCHS24C0.5S572T	0.5	0.4	3 x 7.7	4.8	4.6	15.0	2.0	5.72	
PFCHS24C1S572T	1	0.8	3 x 15.4	3.3	4.6	15.0	2.0	5.72	
PFCHS24C1.5S572T	1.5	1.3	3 x 23.0	2.8	4.6	15.0	2.0	5.72	
PFCHT24C2S572T	2	1.7	3 x 30.7	2.5	3.6	15.0	2.5	5.72	
PFCHT24C2.5S572T	2.5	2.1	3 x 38.4	2.4	3.6	15.0	2.5	5.72	
PFCHT24C3S572T	3	2.5	3 x 46.1	2.3	3.6	15.0	2.5	5.72	
PFCHT24C4S778T	4	3.3	3 x 61.4	3.0	2.8	15.0	2.5	7.78	Fig. 2
PFCHV24D5S842T	5	4.2	3 x 76.8	2.8	2.1	57.0	3.0	8.42	
PFCHV24D6S842T	6	5.0	3 x 92.1	2.7	2.1	58.0	3.0	8.42	
PFCHV24D6.3S842T	6.3	5.3	3 x 96.7	2.6	2.1	58.0	3.0	8.42	
PFCHV24D7.5S108T	7.5	6.3	3 x 115.1	3.3	1.7	57.0	3.0	10.78	
PFCHV24D8.3S108T	8.3	6.9	3 x 127.4	3.2	1.7	57.0	3.0	10.78	
PFCHX24D10S108T	10	8.3	3 x 153.5	3.1	1.4	63.0	3.5	10.78	
PFCHX24D12.5S108T	12.5	10.4	3 x 191.9	3.0	1.4	63.0	3.5	10.78	
PFCHX24D15S137T	15	12.5	3 x 230.3	3.7	1.2	61.0	3.5	13.73	
PFCHX24D16.7S137T	16.7	13.9	3 x 256.4	3.6	1.2	60.0	3.5	13.73	
PFCHX24D17.5S137T	17.5	14.6	3 x 268.6	3.5	1.2	59.0	3.5	13.73	
480 Vac									Fig. 1
PFCHS48C0.5S572T	0.5	0.4	3 x 1.9	10.0	4.6	15.0	2.0	5.72	
PFCHS48C1S572T	1	0.8	3 x 3.8	5.9	4.6	15.0	2.0	5.72	
PFCHS48C1.5S572T	1.5	1.3	3 x 5.8	4.4	4.6	15.0	2.0	5.72	
PFCHS48C2S572T	2	1.7	3 x 7.7	3.8	4.6	15.0	2.0	5.72	
PFCHS48C2.5S572T	2.5	2.1	3 x 9.6	3.4	4.6	15.0	2.0	5.72	
PFCHS48C3S572T	3	2.5	3 x 11.5	3.1	4.6	15.0	2.0	5.72	
PFCHT48C4S572T	4	3.3	3 x 15.4	2.8	3.6	15.0	2.5	5.72	
PFCHT48C5S572T	5	4.2	3 x 19.2	2.6	3.6	15.0	2.5	5.72	
PFCHT48C6S778T	6	5.0	3 x 23.0	3.7	2.8	15.0	2.5	7.78	
PFCHT48C7.5S778T	7.5	6.3	3 x 28.8	3.3	2.8	15.0	2.5	7.78	
PFCHT48C8.3S778T	8.3	6.9	3 x 31.9	2.0	2.8	15.0	2.5	7.78	

Type PFC Power Factor Correction Capacitors

CDE Catalog Number	60Hz Output Kvar	50Hz Output Kvar	Capacitance (μF)	R _s (mΩ)	R _{th} (°C/W)	Max. I _R (55°C)	Diameter (in)	Case Height (in)	Style
480 Vac									
PFCHV48D9S842T	9	7.5	3 x 34.5	3.1	2.1	53.0	3.0	8.42	Fig. 2
PFCHV48D10S842T	10	8.3	3 x 38.4	3.0	2.1	54.0	3.0	8.42	
PFCHV48D12.5S108T	12.5	10.4	3 x 48.0	3.9	1.7	52.0	3.0	10.78	
PFCHV48D15S108T	15	12.5	3 x 57.6	3.6	1.7	53.0	3.0	10.78	
PFCHX48D16.7S108T	16.7	13.9	3 x 64.1	3.5	1.4	59.0	3.5	10.78	
PFCHX48D18S108T	18	15.0	3 x 69.1	3.4	1.4	59.0	3.5	10.78	
PFCHX48D20S108T	20	16.7	3 x 76.8	3.3	1.4	59.0	3.5	10.78	
PFCHX48D25S137T	25	20.8	3 x 95.9	4.2	1.2	57.0	3.5	13.73	
PFCHX48D30S137T	30	25.0	3 x 115.1	4.0	1.2	56.0	3.5	13.73	
600 Vac									
PFCHS60C1S572T	1	0.8	3 x 2.5	6.3	4.6	15.0	2.0	5.72	Fig. 1
PFCHS60C1.5S572T	2	1.3	3 x 3.7	4.8	4.6	15.0	2.0	5.72	
PFCHS60C2S572T	2.0	1.7	3 x 4.9	4.1	4.6	15.0	2.0	5.72	
PFCHS60C2.5S572T	3	2.1	3 x 6.1	3.6	4.6	15.0	2.0	5.72	
PFCHT60C3S572T	3.0	2.5	3 x 7.4	3.3	3.6	15.0	2.5	5.72	
PFCHT60C4S572T	4	3.3	3 x 9.8	2.9	3.6	15.0	2.5	5.72	
PFCHT60C5S778T	5	4.2	3 x 12.3	4.3	2.8	15.0	2.5	7.78	
PFCHT60C6S778T	6	5.0	3 x 14.7	3.9	2.8	15.0	2.5	7.78	
PFCHT60C6.1S778T	6	5.1	3 x 15.0	3.9	2.8	15.0	2.5	7.78	
PFCHT60C6.3S778T	6	5.3	3 x 15.5	3.8	2.8	15.0	2.5	7.78	
PFCHT60C6.9S778T	7	5.8	3 x 16.9	3.7	2.8	15.0	2.5	7.78	
PFCHV60D7.5S842T	7.5	6.3	3 x 18.4	3.5	2.1	51.0	3.0	8.42	Fig. 2
PFCHV60D8.1S842T	8	6.8	3 x 19.9	3.4	2.1	51.0	3.0	8.42	
PFCHV60D8.3S842T	8.3	6.9	3 x 20.4	3.4	2.1	52.0	3.0	8.42	
PFCHV60D10S108T	10	8.3	3 x 24.6	4.5	1.7	49.0	3.0	10.78	
PFCHV60D12.2S108T	12	10.2	3 x 30.0	4.2	1.7	51.0	3.0	10.78	
PFCHV60D12.5S108T	13	10.4	3 x 30.7	4.1	1.7	51.0	3.0	10.78	
PFCHX60D13.8S108T	14	11.5	3 x 33.9	4.0	1.4	57.0	3.5	10.78	
PFCHX60D14.6S108T	15	12.2	3 x 35.9	3.9	1.4	57.0	3.5	10.78	
PFCHX60D15S108T	15	12.5	3 x 36.8	3.8	1.4	58.0	3.5	10.78	
PFCHX60D16.7S108T	16.7	13.9	3 x 41.0	3.7	1.4	58.0	3.5	10.78	
PFCHX60D17.5S108T	18	14.6	3 x 43.0	3.6	1.4	59.0	3.5	10.78	
PFCHX60D20S137T	20.0	16.7	3 x 49.1	4.8	1.2	56.0	3.5	13.73	
PFCHX60D22.5S137T	23	18.8	3 x 55.3	4.6	1.2	57.0	3.5	13.73	
PFCHX60D25S137T	25	20.8	3 x 61.4	4.4	1.2	57.0	3.5	13.73	

Type SCR, Commutating Capacitors

Type SCRN Film-Paper/Extended Foil Commutating Capacitor



Type SCRN capacitors are for SCR (silicon controlled rectifier) commutating applications that require high peak and rms current capability. These capacitors are ideal for other high frequency and pulsed applications. The SCRN is supplied in oval or rectangular metal cases with 1/4 x 20 threaded stud and insulated terminals to withstand high current and high peak voltages.

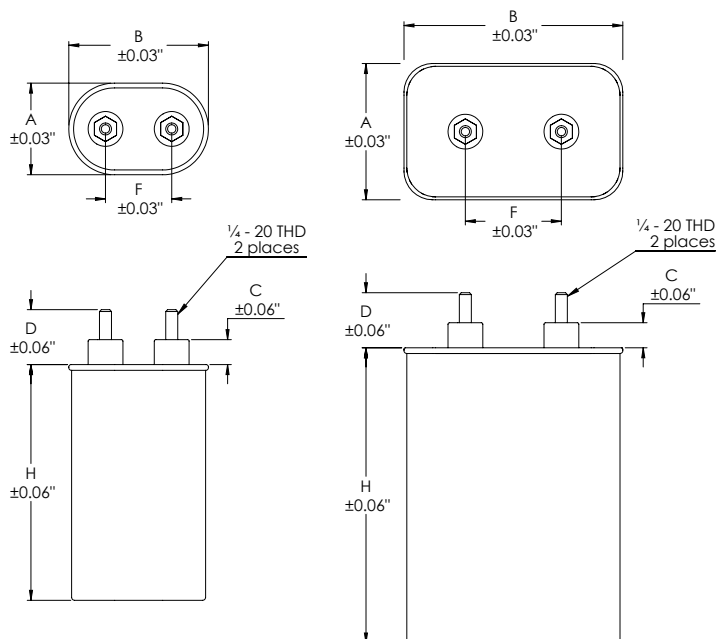
Highlights

- Conforms to EIA RS401 for power semiconductor applications
- Non ferrous covers available for high frequency applications
- 40,000 hours life at full rated voltage and temperature
- High voltage, high current and high frequency
- Custom designs available

Specifications

Capacitance Range	0.25 μ F to 50.0 μ F
Capacitance Tolerance	$\pm 10\%$
Rated Voltage	200 Vpk to 2000 Vpk
Operating Temperature Range with Ripple	-40 °C to +80 °C
Maximum rms Current	Case codes: A, B, C, D = 60 Irms max. E and F = 100 Irms max.
Maximum rms Voltage	see application guide
Test Voltage between Terminal @ 25°C	DC voltage 2 x rated peak for 60 s
Test Voltage between Terminals & Case @ 25°C	2 x reference AC voltage +1000 Vac for 60 s
Life Test	EIA RS401
Life Expectancy	40,000 h life at full rated voltage, current, case temperature and VA
Reliability	Minimum of 95% survival
Standards	EIA RS401
Rohs Compliant	

Dimensions



Construction Details

Case Material	Tin Plated Steel Aluminum Available
Encapsulation	Biodegradeable, Environmentally Compatible Fluid
Terminal Material	Electro-tin plated copper stud and molded pillar insulator

Case Code	Dimensions Inches						Figure
	A	B	C	D	F	H	
A	1.31	2.16	0.56	1.19	0.81	see table	Fig. 1
B	1.56	2.69	0.50	1.13	1.25	see table	Fig. 1
C	1.91	2.91	0.50	1.13	1.38	see table	Fig. 1
D	1.97	3.66	0.50	1.13	1.38	see table	Fig. 1
E	2.84	4.56	0.50	1.13	2.00	see table	Fig. 2
F	3.75	4.56	0.56	1.19	2.00	see table	Fig. 2

Type SCR, Commutating Capacitors

Type SCRN Film-Paper/Extended Foil Commutating Capacitor

Ratings

Cap (μF)	Catalog Part Number	Case Code	H (Inches)	Max VA (65 °C)	Max (Arms)	Cap (μF)	Catalog Part Number	Case Code	H (Inches)	Max VA (65 °C)	Max (Arms)
200 Vpk (Paper Dielectric)						600 Vpk (Film Dielectric for Low-loss)					
3	SCRN201R-F	A	2.13	400	60	1	SCRN262R-F	A	2.38	2200	60
5	SCRN202R-F	A	2.63	465	60	2	SCRN263R-F	A	2.38	2060	60
10	SCRN203R-F	A	3.88	625	60	3	SCRN264R-F	A	3.88	3190	60
15	SCRN205R-F	A	4.75	765	60	5	SCRN265R-F	A	4.25	4380	60
20	SCRN206R-F	B	4.25	875	60	10	SCRN266R-F	C	4.25	6060	60
30	SCRN208R-F	C	5.25	1200	60	1000 Vpk (Film and Paper Dielectric)					
40	SCRN209R-F	C	6.75	1500	60	1	SCRN233R-F	A	2.13	790	60
50	SCRN210R-F	D	5.75	1590	60	2	SCRN234R-F	A	3.13	1070	60
400 Vpk (Film and Paper Dielectric)						3	SCRN235R-F	A	3.88	1455	60
2	SCRN211R-F	A	2.63	790	60	5	SCRN236R-F	B	4.25	1785	60
3	SCRN212R-F	A	2.63	970	60	10	SCRN237R-F	C	5.75	2570	60
5	SCRN213R-F	A	3.88	1130	60	15	SCRN238R-F	D	5.75	3170	60
10	SCRN214R-F	B	4.75	1930	60	20	SCRN239R-F	E	5.13	5200	100
15	SCRN215R-F	C	4.75	2240	60	1500 Vpk (Film and Paper Dielectric)					
20	SCRN216R-F	C	6.25	2800	60	.5	SCRN240R-F	A	2.13	990	60
30	SCRN217R-F	D	6.75	3720	60	1	SCRN241R-F	A	2.88	1240	60
40	SCRN218R-F	D	8.00	4330	60	2	SCRN242R-F	B	3.50	1890	60
50	SCRN219R-F	E	6.25	6050	100	3	SCRN243R-F	C	4.25	2550	60
600 Vpk (Film and Paper Dielectric)						5	SCRN244R-F	C	5.75	3250	60
2	SCRN220R-F	A	2.63	815	60	10	SCRN245R-F	E	5.13	6500	100
3	SCRN221R-F	A	3.13	1200	60	2000 Vpk (Film and Paper Dielectric)					
5	SCRN222R-F	A	4.25	1420	60	.25	SCRN246R-F	A	2.13	990	60
10	SCRN224R-F	C	4.25	2040	60	.33	SCRN257R-F	A	2.13	1000	60
15	SCRN226R-F	C	5.75	2800	60	.5	SCRN247R-F	A	2.63	1180	60
20	SCRN227R-F	D	5.75	3260	60	1	SCRN248R-F	A	3.13	1300	60
25	SCRN229R-F	D	6.75	3720	60	2	SCRN249R-F	B	4.25	2230	60
30	SCRN230R-F	D	8.00	4330	60	3	SCRN251R-F	C	4.75	2800	60
40	SCRN231R-F	E	6.25	6060	100	5	SCRN253R-F	D	5.75	4020	60
50	SCRN232R-F	E	7.25	6850	100	10	SCRN256R-F	F	5.75	7600	100

Type SCR, Commutating Capacitors

Type SCRN Film-Paper/Extended Foil Commutating Capacitor

Application Guide

How to Choose a Commutating Capacitor

1. From circuit analysis or measurement, determine application values for these six parameters:

Nominal capacitance in μF
Current pulse width in μs
Current pulse period in μs
Maximum peak voltage
Continuous AC voltage in V_{rms}
Maximum volt-amps (VA)

2. Choose a capacitor from the ratings table of the desired nominal capacitance with a peak voltage rating no less than your maximum peak voltage.

3. Check that your application's rms current is no more than the capacitor's Max. Amps RMS. You can calculate the current from your V_{rms} using the equations in the following section.

4. Check that your application's volt-amperes is not more than the capacitor's VA capability. The VA capability is the max VA rating times the Volt-Ampere multiplier from Figure 2 (Current Pulse Width) and that times the Volt-Ampere Multiplier from Figure 3 (Ambient Temperature). See the following section for more on using volt-ampere multipliers.

If you need a greater VA capability, repeat these steps for a higher peak voltage capacitor or consider connecting units in parallel to divide the VA required. For up to peak voltage of 600 V, you may also consider polypropylene film dielectric units, Catalog Numbers SCRN262R through SCRN266R, with higher VA capability.

Using Volt-Ampere Ratings

The capacitor's maximum VA rating is the maximum product of the sine wave voltage and current that may be applied at 65 °C without overheating the capacitor and reducing its expected life. For other temperatures and pulsed current, use the multipliers of Figures 2 and 3 to derate the Max VA rating.

The Max Amps RMS rating is set by the capability of the capacitor terminals. Exceeding this limit can damage the terminals and cause capacitor failure.

Calculate the capacitor's actual VA load as the product of the rms voltage across the capacitor and the rms current through the capacitor. To calculate rms current for an applied sine wave or squarewave voltage, use these equations.

For a sinewave voltage the current is:

$$I_{\text{rms}} = 2\pi f C V_{\text{rms}} \times 10^{-6}$$

and for a squarewave the current is:

$$I_{\text{rms}} = C \Delta V / [0.64(t/T)^{0.5}] = I_{\text{peak}}(t/T)^{0.5}$$

where (f) is repetition frequency in Hz, C is nominal capacitance in μF , ΔV the peak-to-peak squarewave amplitude in volts, (t) is the pulse width in μs and T is the pulse period in μs .

The peak current for the square wave voltage is:

$$I_{\text{peak}} = C \Delta V / 0.64t$$

Pulse Wave Applications

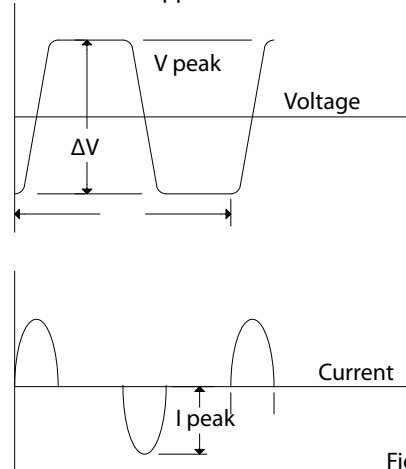


Figure 1

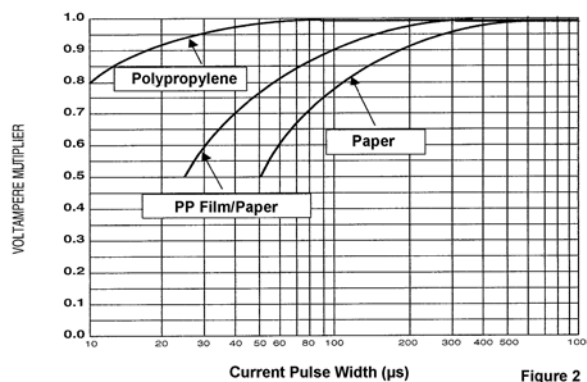


Figure 2

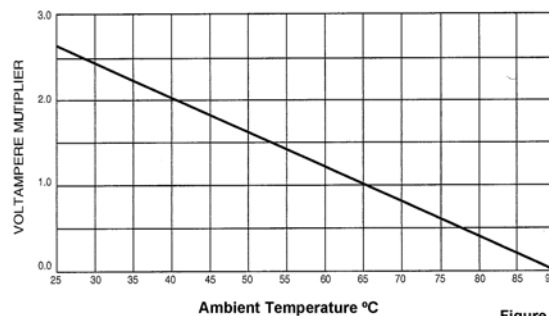


Figure 3

Type SF Motor-Run and Power Supply Capacitors

Oil Filled/Impregnated, AC Rated, Metallized Polypropylene Capacitors



Type SF, AC rated metallized polypropylene capacitors provide starting torque and power factor correction for split phase motors typically used in refrigeration and air conditioning motor-run applications. Type SF also may be used to provide noise suppression, voltage regulation and line current reduction in power supply applications.

Highlights

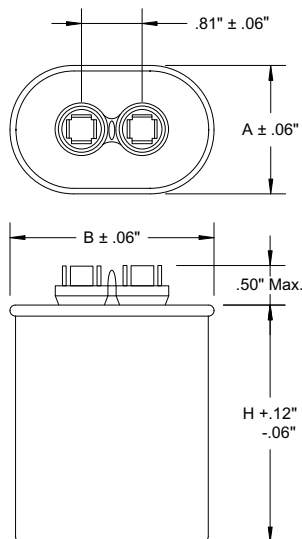
- Self healing
- Fault current protection up to 10,000 amps AFC
- Low energy consumption
- 4 - tine, 1/4" quick connect lug terminals are standard
- Meets EIA Standard EIA-456-A
- UL recognized File Number E71645
- CSA File Number 223507

Specifications

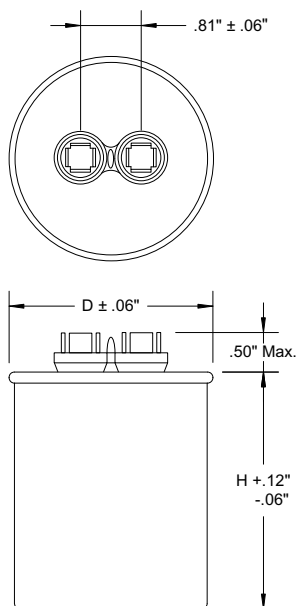
Capacitance Range	5.0 μ F to 120.0 μ F
Capacitance Tolerance	\pm 10% standard, \pm 6% and \pm 3% available
Rated Voltage	240 Vac to 660 Vac
Operating Temperature Range with Ripple	-40 $^{\circ}$ C to 70 $^{\circ}$ C standard, 90 $^{\circ}$ C available
Dissipation Factor	<0.1%
Service Life Objective	60,000 h with 94% survival rate
RoHS Compliant	

Dimensions

Oval Case Style



Round Case Style



Construction Details

Case Material	Tin Plated Steel or Aluminum
Encapsulation	Environmentally Safe Dielectric Fluid
Terminal Material	Tin Plated Steel

Case Code	Dimensions (Inches)		
	A	B	H
A	1.31	2.16	See Ratings Table
B	1.56	2.69	
C	1.91	2.91	
D	1.97	3.66	

Case Code	D (Inches)	H
P	1.87	See Ratings Table
S	2.12	
T	2.62	

Type SF Motor-Run and Power Supply Capacitors

Oil Filled/Impregnated, AC Rated, Metallized Polypropylene Capacitors

Part Numbering System

SF	C	37	S	35	K	291	B	-F
Series	Case	AC Volt	Case Material	Cap	Tol. ±%	Can Height	VAR	RoHS
SF	A = 1 1/4" Oval	24 = 240 Vac	S = Steel	7 = 7.0 µF	L = ±3%	238 = 2.38"	A = 2 way 70°C	Compliant
	B = 1 1/2 Oval	37 = 370 Vac	T = Aluminum	35 = 35.0 µF	H = ±6%	291 = 2.91"	B = 4 way 70 °C	-F = Compliant
	C = 1 3/4" Oval	44 = 440 Vac	w/steel cover		K = ±10%	388 = 3.88"	C = 2 way 90 °C	Blank = Not
	D = 2.0" Oval	66 = 660 Vac				475 = 4.75"	D = 4 way 90 °C	Compliant
	P = 1 3/4" Round					488 = 4.88"	E = Dual 2,3,4 70 °C	
	S = 2.0" Round						F = Forks 70 °C	
	T = 2 1/2" Round						G = Forks 90 °C	
							H = Forks 100 °C	
							J = Forks, 70 °C Res.	
							K = Forks, 90 °C Res.	
							L = Forks 100 °C Res.	
							Z = Other	

Round Ratings

Cap (µF)	Stock Items	Catalog Part Number	Case Code	H (Inches)
370 Vac Round 70 °C Case Temperature				
2.0	*	SFP37S2K238B-F	P	2.38
3.0	*	SFP37S3K238B-F	P	2.38
4.0	S	SFP37S4K238B-F	P	2.38
5.0	*	SFP37S5K238B-F	P	2.38
6.0	*	SFP37S6K238B-F	P	2.38
7.5	*	SFP37S7.5K238B-F	P	2.38
10.0	S	SFP37S10K238B-F	P	2.38
12.5	S	SFP37S12.5K238B-F	P	2.38
15.0	S	SFP37S15K238B-F	P	2.38
17.5	*	SFP37S17.5K238B-F	P	2.38
20.0	S	SFP37S20K238B-F	P	2.38
25.0	S	SFP37S25K288B-F	P	2.88
30.0	S	SFP37S30K288B-F	P	2.88
35.0	S	SFS37S35K288B-F	S	2.88
40.0	S	SFS37S40K288B-F	S	2.88
45.0	S	SFS37S45K375B-F	S	3.75
50.0	S	SFS37S50K375B-F	S	3.75
55.0	S	SFS37S55K375B-F	S	3.75
60.0	S	SFT37S60K303B-F	T	3.03
65.0	*	SFT37S65K303B-F	T	3.03
70.0	*	SFT37S70K303B-F	T	3.03
75.0	*	SFT37S75K391B-F	T	3.91
80.0	S	SFT37S80K391B-F	T	3.91
90.0	*	SFT37S90K475B-F	T	4.75
100.0	*	SFT37S100K475B-F	T	4.75
440 Vac Round 70 °C Case Temperature				
2.0	*	SFP44S2K238B-F	P	2.38
3.0	*	SFP44S3K238B-F	P	2.38
4.0	*	SFP44S4K238B-F	P	2.38
5.0	*	SFP44S5K238B-F	P	2.38
6.0	*	SFP44S6K238B-F	P	2.38
7.5	*	SFP44S7.5K238B-F	P	2.38
10.0	*	SFP44S10K238B-F	P	2.38
12.5	*	SFS44S12.5K238B-F	P	2.38
15.0	*	SFS44S15K288B-F	P	2.88
17.5	*	SFP44S17.5K288B-F	P	2.88
20.0	S	SFP44S20K288B-F	P	2.88
25.0	*	SFS44S25K288B-F	S	2.88
30.0	S	SFS44S30K288B-F	S	2.88
35.0	*	SFT44S35K303B-F	T	3.03
40.0	S	SFT44S40K391B-F	T	3.91
45.0	*	SFT44S45K391B-F	T	3.91
50.0	S	SFT44S50K391B-F	T	3.91
55.0	*	SFT44S55K391B-F	T	3.91
60.0	S	SFT44S60K475B-F	T	4.75
660 Vac Round 70 °C Case Temperature				
2.0	*	SFP66S2K238B-F	P	2.38
3.0	*	SFP66S3K238B-F	P	2.38
5.0	*	SFP66S5K238B-F	P	2.38
7.5	*	SFP66S7.5K288B-F	P	2.88
10.0	*	SFP66S10K288B-F	P	2.88
12.5	*	SFS66S12.5K288B-F	S	2.88
15.0	*	SFS66S15K375B-F	S	3.75
17.5	*	SFT66S17.5K391B-F	T	3.91
20.0	*	SFT66S20K391B-F	T	3.91
25.0	*	SFT66S25K491B-F	T	4.91
30.0	*	SFT66S30K491B-F	T	4.91
35.0	*	SFT66S35K491B-F	T	4.91
40.0	*	SFT66S40K491B-F	T	4.91

Options

Tinplated steel or auminum cans, with and without studs, are available upon request.

Tighter capacitance tolerances such as ±3% or ±6% are available.

+90 °C ratings are available for HID lighting and power supply applications.

Discharge resistors are available.

Special terminal lugs such as 2 tines plus 1 fork lug are available.

Dual capacitance values are available for 370 Vac and 440 Vac applications.

Type SF Motor-Run and Power Supply Capacitors

Oil Filled/Impregnated, AC Rated, Metallized Polypropylene Capacitors

Oval Ratings

Cap. (μF)	Stock Items	Catalog Part Number	Case Code	H (inches)
240 Vac Oval 70 °C Case Temperature				
4.0	*	SFA24S4K219B-F	A	2.19
5.0	*	SFA24S5K219B-F	A	2.19
6.0	*	SFA24S6K219B-F	A	2.19
7.5	*	SFA24S7.5K219B-F	A	2.19
10.0	*	SFA24S10K219B-F	A	2.19
15.0	*	SFA24S15K263B-F	A	2.63
20.0	*	SFA24S20K300B-F	A	3.00
25.0	*	SFC24S25K263B-F	C	2.63
30.0	*	SFC24S30K263B-F	C	2.63
35.0	*	SFC24S35K263B-F	C	2.63
40.0	*	SFC24S40K303B-F	C	3.03
45.0	*	SFC24S45K303B-F	C	3.03
50.0	*	SFC24S50K303B-F	C	3.03
60.0	*	SFC24S60K391B-F	C	3.91
70.0	*	SFC24S70K391B-F	C	3.91
370 Vac Oval 70 °C Case Temperature				
2.0	S	SFA37S2K219B-F	A	2.19
2.0	*	SFA37S2K156B-F	A	1.56
3.0	S	SFA37S3K219B-F	A	2.19
3.0	*	SFA37S3K156B-F	A	1.56
4.0	S	SFA37S4K219B-F	A	2.19
4.0	*	SFA37S4K156B-F	A	1.56
5.0	S	SFA37S5K219B-F	A	2.19
5.0	*	SFA37S5K156B-F	A	1.56
6.0	S	SFA37S6K219B-F	A	2.19
6.0	*	SFA37S6K156B-F	A	1.56
7.5	S	SFA37S7.5K219B-F	A	2.19
10.0	S	SFA37S10K288B-F	A	2.88
12.5	S	SFA37S12.5K288B-F	A	2.88
15.0	S	SFA37S15K288B-F	A	2.88
17.5	S	SFC37S17.5K291B-F	C	2.91
20.0	S	SFC37S20K291B-F	C	2.91
20.0	*	SFA37S20K375B-F	A	3.75
25.0	S	SFC37S25K291B-F	C	2.91
30.0	S	SFC37S30K291B-F	C	2.91
35.0	S	SFC37S35K291B-F	C	2.91
40.0	S	SFC37S40K391B-F	C	3.91
45.0	S	SFC37S45K391B-F	C	3.91
50.0	S	SFC37S50K391B-F	C	3.91
440 Vac Oval 70 °C Case Temperature				
2.0	S	SFA44S2K203B-F	A	2.03
2.0	*	SFA44S2K156B-F	A	1.56
3.0	S	SFA44S3K209B-F	A	2.09

Cap. (μF)	Stock Items	Catalog Part Number	Case Code	H (inches)
440 Vac Oval 70 °C Case Temperature				
3.0	*	SFA44S3K156B-F	A	1.56
4.0	S	SFA44S4K209B-F	A	2.09
4.0	*	SFA44S4K156B-F	A	1.56
5.0	S	SFA44S5K219B-F	A	2.19
6.0	S	SFA44S6K288B-F	A	2.88
7.5	S	SFA44S7.5K288B-F	A	2.88
10.0	S	SFA44S10K375B-F	A	3.75
12.5	*	SFA44S12.5K375B-F	A	3.75
12.5	*	SFC44S12.5K291B-F	C	2.91
15.0	S	SFA44S15K375B-F	A	3.75
15.0	*	SFC44S15K291B-F	C	2.91
17.5	*	SFC44S17.5K291B-F	C	2.91
20.0	S	SFC44S20K391B-F	C	3.91
25.0	S	SFC44S25K391B-F	C	3.91
30.0	S	SFC44S30K391B-F	C	3.91
35.0	S	SFD44S35K391B-F	D	3.91
40.0	S	SFD44S40K391B-F	D	3.91
45.0	S	SFD44S45K391B-F	D	3.91
50.0	S	SFD44S50K391B-F	D	3.91
55.0	S	SFD44S55K391B-F	D	3.91
60.0	S	SFD44S60K391B-F	D	3.91
660 Vac Oval 70 °C Case Temperature				
1.0	S	SFA66S1K156B-F	A	1.56
1.0	*	SFA66S1K219B-F	A	2.19
2.0	S	SFA66S2K156B-F	A	1.56
2.0	*	SFA66S2K219B-F	A	2.19
3.0	S	SFA66S3K288B-F	A	2.88
4.0	S	SFA66S4K288B-F	A	2.88
5.0	S	SFA66S5K375B-F	A	3.75
6.0	S	SFA66S6K375B-F	A	3.75
8.0	S	SFA66S8K475B-F	A	4.75
8.0	*	SFC66S8K291B-F	C	2.91
10.0	S	SFA66S10K475B-F	A	4.75
10.0	S	SFC66S10K291B-F	C	2.91
12.0	S	SFC66S12K391B-F	C	3.91
15.0	S	SFC66S15K391B-F	C	3.91
18.0	S	SFC66S18K391B-F	C	3.91
20.0	S	SFD66S20K391B-F	D	3.91
25.0	S	SFD66S25K391B-F	D	3.91
30.0	S	SFD66S30K391B-F	D	3.91
35.0	S	SFD66S35K491B-F	D	4.91
40.0	S	SFD66S40K491B-F	D	4.91

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