

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

Specifications



Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), Compliant PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

Capacitance Range: 0.25 μF to 50.0 μF Voltage Range: 200 Vpk to 2000 Vpk

Capacitance Tolerance: ±10%

Temperature Range: -40 °C to +65 °C

Surface Temperature: +80 °C

Ratings

(µF) Part Number Code (In.) (65 °C) (Arm 200 Vpk (Paper Dielectric) 3 SCRN201R-F A 2.13 400 60 5 SCRN202R-F A 2.63 465 60 10 SCRN203R-F A 3.88 625 60 15 SCRN205R-F A 4.75 765 60 20 SCRN206R-F B 4.25 875 60 30 SCRN208R-F C 5.25 1200 60 40 SCRN209R-F C 6.75 1500 60 40 SCRN210R-F D 5.75 1590 60 400 Vpk (Film and Paper Dielectric) 2 SCRN211R-F A 2.63 790 60 3 SCRN213R-F A 3.88 1130 60 5 SCRN213R-F A 3.88 1130 60 10 SCRN215R-F C 4.75 <th></th>	
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20 SCRN216R-F C 6.25 2800 60	1
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30 SCRN217R-F D 6.75 3720 60	
40 SCRN218R-F D 8.00 4330 60	1
50 SCRN219R-F E 6.25 6050 100)
600 Vpk (Film and Paper Dielectric)	
2 SCRN220R-F A 2.63 815 60	1
3 SCRN221R-F A 3.13 1200 60	1
5 SCRN222R-F A 4.25 1420 60	1
10 SCRN224R-F C 4.25 2040 60	
15 SCRN226R-F C 5.75 2800 60	1
20 SCRN227R-F D 5.75 3260 60	1
25 SCRN229R-F D 6.75 3720 60	
30 SCRN230R-F D 8.00 4330 60	,
40 SCRN231R-F E 6.25 6060 100	C
50 SCRN232R-F E 7.25 6850 100	_

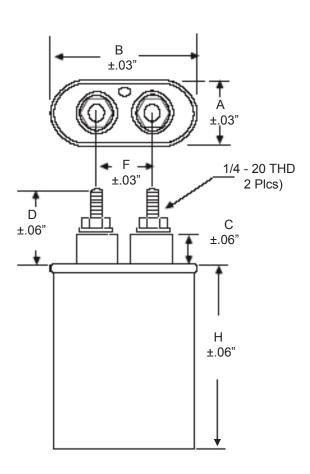
	Catalog									
(µF)	Part Number	Code	(ln.)	(65 °C)	(Arms)					
600 Vpk (Film Dielectric for Low-loss)										
1	SCRN262R-F	Α	2.38	2200	60					
2	SCRN263R-F	Α	2.38	2060	60					
3	SCRN264R-F	Α	3.88	3190	60					
	SCRN265R-F			4380	60					
10	SCRN266R-F	С	4.25	6060	60					
1000 Vpk (Film and Paper Dielectric)										
1	SCRN233R-F	Α	2.13	790	60					
2	SCRN234R-F	Α			60					
3	SCRN235R-F	Α	3.88	1455	60					
5	SCRN236R-F	В	4.25	1785	60					
10	SCRN237R-F	С	5.75	2570	60					
15	SCRN238R-F	D	5.75	3170	60					
20	SCRN239R-F	E	5.13	5200	100					
	1500 Vpk (Film and Paper Dielectric)									
.5	SCRN240R-F	Α	2.13	990	60					
1	SCRN241R-F	Α	2.88	1240	60					
	SCRN242R-F				60					
3	SCRN243R-F	С	4.25	2550	60					
5	SCRN244R-F	С	5.75	3250	60					
10	SCRN245R-F	E	5.13	6500	100					
- 2	2000 Vpk (Filr	n and	Pape	r Dielect	ric)					
.25	SCRN246R-F	Α	2.13	990	60					
.33	SCRN257R-F	Α	2.13	1000	60					
.5	SCRN247R-F	Α	2.63	1180	60					
1	SCRN248R-F	Α	3.13	1300	60					
2	SCRN249R-F	В	4.25	2230	60					
3	SCRN251R-F	С	4.75	2800	60					
5	SCRN253R-F	D	5.75	4020	60					
10	SCRN256R-F	F	5.75	7600	100					



Type SCR Commutating Capacitors

Outline Drawings

RoHS Compliant



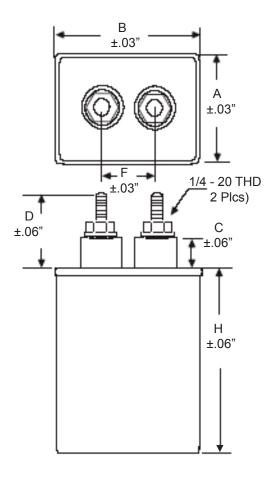


Figure 1 Figure 2

Case	Dimensions Inches						
Code	Α	В	С	D	F	Н	Figure
Α	1.31	2.16	0.56	1.19	0.81	see table	Fig. 1
В	1.56	2.69	0.50	1.13	1.25	see table	Fig. 1
С	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

Mounting Hardware

See catalog page 5.000 for hardware



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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 Vrms 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 Vrms 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 capacitors 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:

Irms = 2π fCVrmsX10⁻⁶

and for a squarewave the current is:

Irms = $C\Delta V/[0.64(tT)^{0.5}]$ = Ipeak(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:

Ipeak = $C\Delta V/0.64t$

