



# DC Capacitor for High Current, Power Semiconductor and DC Applications

Joe Lee, Sales Director for PQP (Asia and Pacific)

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# DC Capacitors

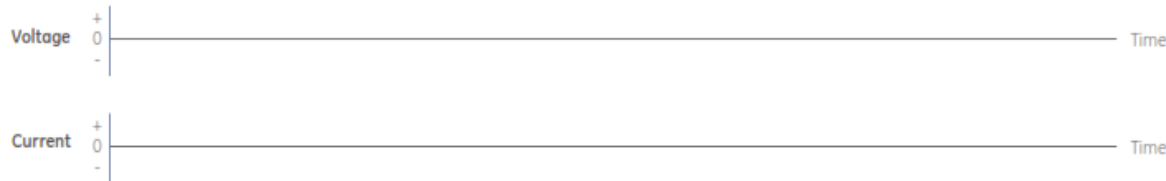
Capacitors for power electronics require special high performance designs for varied applications. This catalog describes capacitors for a number of demanding applications where high currents and/ or high voltages are common. Given the special nature of these types of applications, care must be taken to ensure that the capacitors are correctly applied.



# Capacitor Application Data Sheet

## PRIMARY INFORMATION (Essential)

1. Application
2. Capacitance \_\_\_\_\_ Tolerance: \_\_\_\_\_
3. Peak Voltage \_\_\_\_\_ RMS Voltage \_\_\_\_\_ Voltage Reversal (%) \_\_\_\_\_
4. Peak Current \_\_\_\_\_ RMS Current \_\_\_\_\_
5. Transient Voltage \_\_\_\_\_ Duration \_\_\_\_\_ Freq. of Occurrence \_\_\_\_\_
6. Frequency or Repetition Rate (Hz) \_\_\_\_\_ Duty Cycle \_\_\_\_\_
7. Ambient Temperature \_\_\_\_\_ Max. \_\_\_\_\_ Min. \_\_\_\_\_
8. Capacitor Charge Time \_\_\_\_\_ Discharge Time \_\_\_\_\_
9. Required Operating Life (Hours) \_\_\_\_\_
10. Waveforms Voltage



## SECONDARY INFORMATION (Provide as Appropriate)

11. Physical Size Limitations
12. Mounting Requirements
13. Applicable Specifications
14. Type of Cooling Available
15. Unusual Atmospheric Conditions
16. Other Special Requirements
17. Potential Usage



# SCR Commutation Capacitors

This family of capacitors is designed for high-current applications, such as (1) SCR commutation, (2) snubbers for SCRs, GTOs and other power semiconductors, and (3) for any other circuits where the combination of frequency and voltage results in high RMS currents



A97F8600 / A97F8700 Series  
600 to 1500 Volts Peak

## Specifications

Available Capacitance Range	1 to 50 µF
Capacitance Tolerance	± 10 %
Capacitance Variation with Temperature	± 3% from -55°C to +85°C
Rated Voltage	See Ratings Tables. Rating is the Maximum Peak voltage permissible in either polarity.
Rated Current	See Ratings Tables. The value given is for derating purposes only. Refer to the Application Note on Page 12 to determine the required derating. In no circumstances should the RMS Current rating of the terminals be exceeded.
Operating Temperature	-40°C to +75°C
Storage Temperature	-55°C to +90°C
Operating Life	40,000 hours with 95% survival with proper derating
Dissipation Factor	0.02% maximum
Case Material/Finish	Oval Case & Cover: Unpainted Aluminum Rectangular Case & Cover: Unpainted Steel
Terminations/Hardware	1/4 - 20 screw thread studs (60 A RMS maximum) 3/8 - 16 screw thread studs (100 A RMS maximum) Case Styles C* and D* have 100-A terminals. Nut and washer hardware is supplied in bag
Dielectric Fluid	Dielektrol VII
Internal Protection	These capacitors do not contain an internal protection mechanism. The user is responsible for ensuring that the capacitors are correctly applied for safe use.



# SCR Commutation Capacitors

The 97F7500 Series is a special purpose line designed for applications where a large micro-farad value at low voltage is required in a small size. The dielectric system is self clearing metallized polypropylene. Typical applications are in SCR chopper circuits and low-voltage ac filters



97F7500  
250 Volts Peak

## Specifications

Available Capacitance Range:	25 to 200 uF
Capacitance Tolerance:	± 10 %
Capacitance Variation with Temperature:	± 3% from -20°C to +80°C
Rated Voltage:	250 V Peak. The rating is the Maximum Peak voltage permissible in either polarity.
Rated Current:	See Ratings Tables. The value given is for de-rating purposes only. Refer to the Application Note on Page 12 to determine the required de-rating. In no circumstances should the RMS current rating of the terminals be exceeded.
Operating Temperature:	-40°C to +70°C
Storage Temperature:	-55°C to +90°C
Operating Life:	40,000 hours with 95% survival with proper de-rating
Dissipation Factor:	0.3% maximum @ 1 kHz 0.1% maximum @ 120 Hz
Case Material/Finish:	Oval Case & Cover: Aluminum Unpainted Case & Cover
Terminations/Hardware:	1/4 - 20 screw thread studs (60 A RMS maximum)
Dielectric Fluid:	Epoxidized Soybean Oil



# Snubber Capacitors

The A28F5000S series of Snubber Capacitors are designed for use in power semiconductor circuits to protect the semiconductor by limiting the rate of voltage rise.



A28F5000S  
1000 and 2000 Volts Peak/Max DC

## Specifications

Available Capacitance Range:	0.05 to 2 $\mu$ F
Capacitance Tolerance:	$\pm 10\%$
Capacitance Variation with Temperature:	$\pm 3\%$ from $-30^{\circ}\text{C}$ to $+80^{\circ}\text{C}$
Rated Voltage:	See Ratings Table. The rating is the Maximum Peak voltage permissible in either polarity.
Rated Current:	See Ratings Tables. The value given is for de-rating purposes only. Refer to the Application Note on Page 12 to determine the required de-rating. In no circumstances should the 10 Amp RMS Current rating of the eyelet terminals be exceeded. For 1/4-20 threaded terminals, full current less any de-rating may be applied.
Operating Temperature:	$-40^{\circ}\text{C}$ to $+70^{\circ}\text{C}$
Storage Temperature:	$-55^{\circ}\text{C}$ to $+90^{\circ}\text{C}$
Operating Life:	40,000 hours with 95% survival with proper de-rating
Dissipation Factor:	0.02% maximum
Case Material/Finish:	Aluminum Case with Steel Cover for eyelet terminal designs; Aluminum Case with Aluminum Cover for *Threaded terminals.
Terminations:	0.125-in. Solder Eyelets (10 Amp RMS maximum) & 1/4-20 screw thread studs (60 A RMS maximum) For threaded terminal designs, nut and washer hardware is supplied in bag
Dielectric Fluid:	Dielektrol VII
Internal Protection:	Internal Pressure Sensitive Interrupter for eyelet designs. Threaded terminal designs do not contain an internal protection mechanism. The user is responsible for ensuring that the capacitors are correctly applied for safe use.



# General Purpose DC Capacitors

This line of General Purpose DC Capacitors is made with film dielectric technology for 1500V and 2500V ratings. These capacitors are typically used in DC filters at voltages above those served by electrolytic type construction



1500 and 2500 Volts Peak

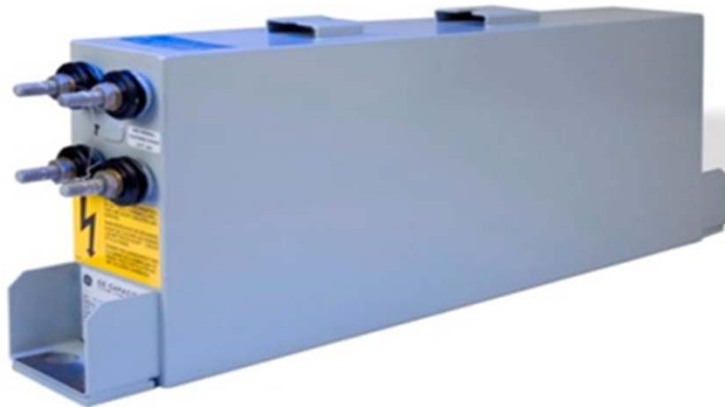
## Specifications

Available Capacitance Range:	0.1 to 50 µF												
Capacitance Tolerance:	26F Series: ± 10 %												
Capacitance Variation with Temperature:	± 5% from -40°C to +70°C												
Rated Voltage:	See Ratings Table. The rating is the Maximum Peak dc voltage.												
Ripple Voltage:	The RMS ripple voltage should not exceed the following percentages of the rated voltage for these frequencies:												
	<table border="1"> <thead> <tr> <th>Frequency</th> <th>% of Rated Voltage</th> </tr> </thead> <tbody> <tr> <td>60 Hz</td> <td>30</td> </tr> <tr> <td>120 Hz</td> <td>20</td> </tr> <tr> <td>400 Hz</td> <td>14</td> </tr> <tr> <td>1,000 Hz</td> <td>8</td> </tr> <tr> <td>10,000 Hz</td> <td>1</td> </tr> </tbody> </table>	Frequency	% of Rated Voltage	60 Hz	30	120 Hz	20	400 Hz	14	1,000 Hz	8	10,000 Hz	1
Frequency	% of Rated Voltage												
60 Hz	30												
120 Hz	20												
400 Hz	14												
1,000 Hz	8												
10,000 Hz	1												
Operating Temperature:	-30°C to +70°C												
Storage Temperature:	-55°C to +90°C												
Operating Life:	60,000 hours with 94% survival with proper derating												
Dissipation Factor:	0.02% maximum												
Case Material/Finish:	Aluminum Case (NO PAINT)												
Terminations:	(2) 0.25% x 0.031 inch quick connect blades, and one fork blade per terminal												
Dielectric Fluid:	Dielektrol VII												
Internal Protection:	Pressure Sensitive Interrupter												



# DC Link for GE Locomotive

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- Metallized self healing dielectric
- Custom configuration
- High Reliability





<http://www.gegridsolutions.com/>