Power Ring Film Capacitor
1500 µF, 900 Vdc

The 700D509 Power Ring is a 900Vdc, 1500 µF DC Link Capacitor with an ESR of 150 micro-Ohms at 20kHz and an ESL of less than 5nH.

Electrical Speci ications

Part #: 700D509

Capacitance/Tolerance: 1500 µF ±10%

DC Voltage Rating: 900 Vdc

Dielectric/Construction: Metallized polypropylene. Single section design

Dielectric Withstand: Units 100% tested at DC potential of 1125 Volts for two minutes at 25°C

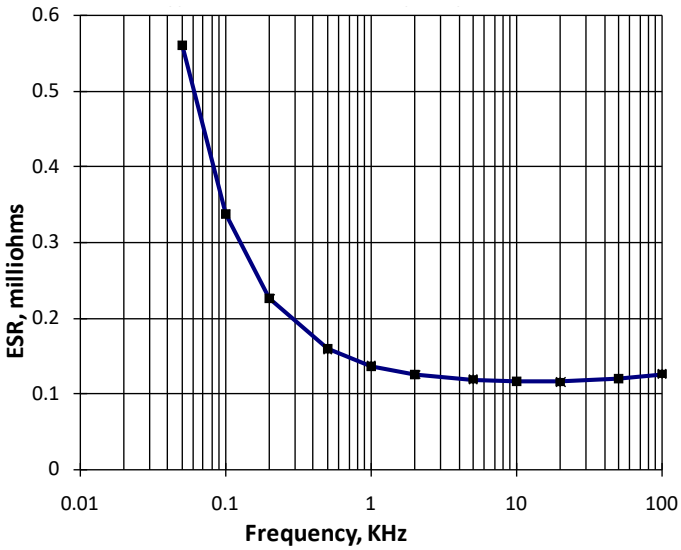
ESL: Less than 5 nH when mounted on a suitable bus structure

Operating Temperature: -40°C to +85°C at full DC voltage rating

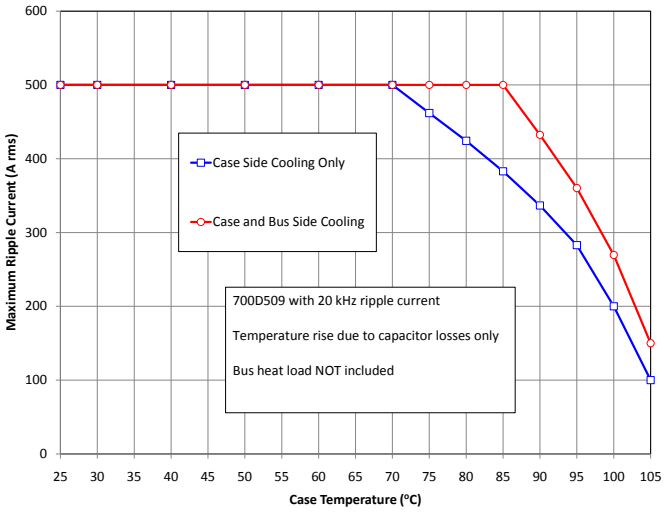
Voltage, Temperature De-rating: Contact Advanced Conversion for applications above 85°C

System Fault Current Rating (external to the capacitor): 10,000 Amps maximum

Typical ESR vs. Frequency:



RMS Current Rating:



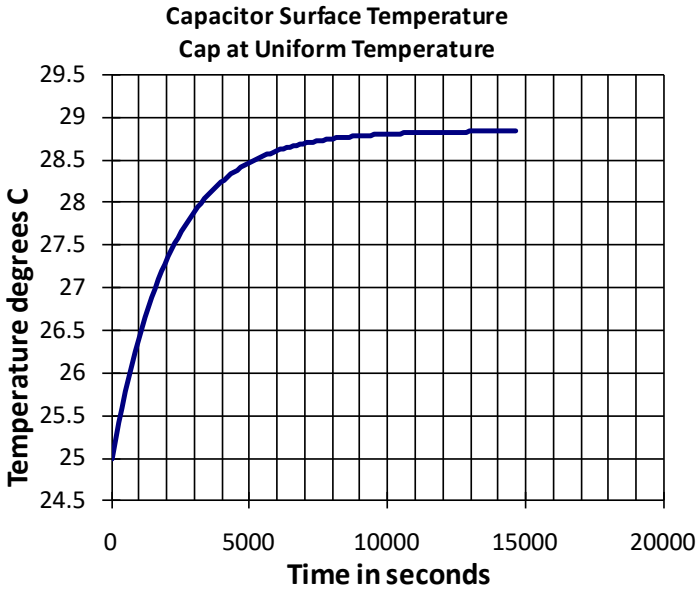
Thermal Specification

Here are two representations of "Capacitor Surface Temperature over Time" for two specific Thermal Resistances of 1°C/W and 0.5°C/W.

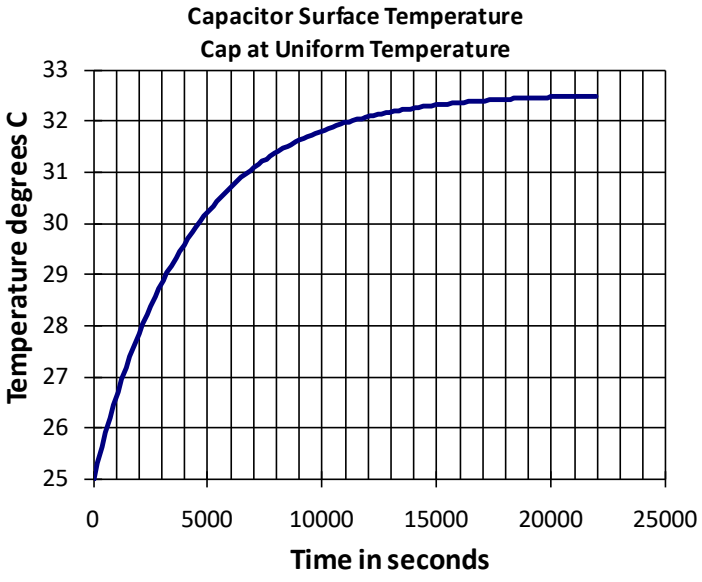
Notes regarding these graphs:

- The thermal resistance is that from capacitor to application. This is a function of the application environment, not the capacitor itself.
- The capacitor can handle extreme current for small duty ratios. Trise occurs very slowly. This is because the capacitor has a high specific heat.
- These charts can be adapted for other currents by multiplying y axis values for any time by $(Iapp/254)^2$
- Internal capacitor Trise is added to the capacitor surface/terminal temperature.
- Terminals are assumed to be at case temperature.

Sample 1.
Capacitor surface temperature rise above application environment @ 254 Amps RMS current load, 10 KHz.
Thermal resistance = 0.5°C/W:



Sample 2.
Capacitor surface temperature rise above application environment @ 254 Amps RMS current load, 10 KHz.
Thermal resistance = 1°C/W:



Mechanical Specification

Dimensions:	Refer to layout details
Terminals:	Tin plated copper, 0.032" thick
Encapsulation:	Molded polymer case, potted with RTV
Marking:	
APCS	company identification
700D509	"short form" part number
1500 µF ±10%	Capacitance value and tolerance
900 Vdc	DC voltage rating
yyww-lot#-unit	12-digit serial number (date code, lot number, unit number)

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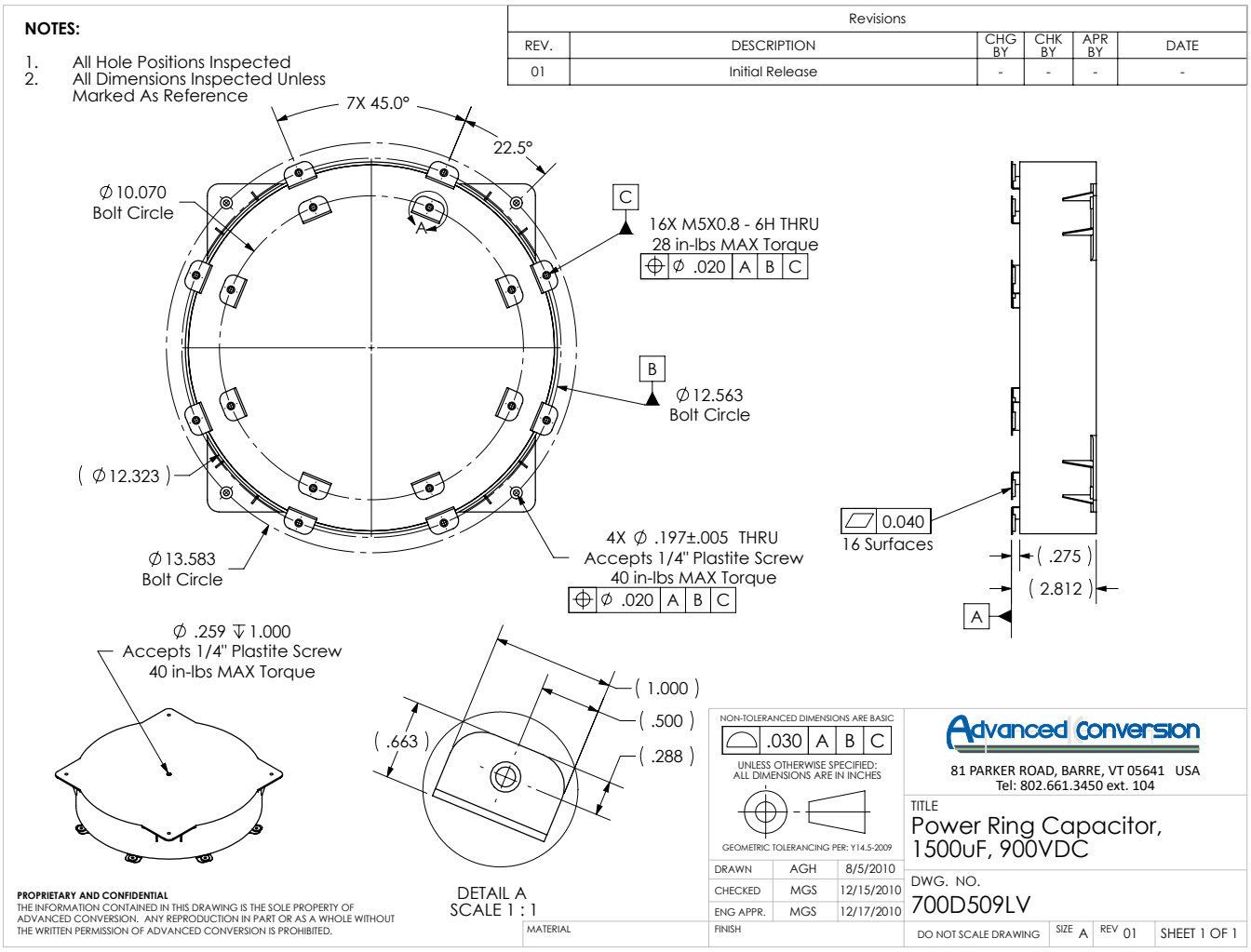
Mechanical Mounting and Additional Thermal Notes:

This capacitor is optimized for extremely low self inductance when connected to a suitable laminar bus structure. When so connected, the capacitor is very rigidly attached to such a structure and thus does not necessarily need to be mounted to a chassis. However, the capacitor case can be attached to an application surface/heat sink, etc. if desired. When so mounted, the capacitor can be part of the bus structure support. Use of thermal interface compound between the capacitor case and application surface/heat sink will assist with removal of capacitor and bus heat. Note that the capacitor internal heating is VERY small, and other bus structure heat sources are very likely significantly higher than the heat added to the bus by the capacitor. Capacitor dissipation is approximately 7.5W at 254Arms, from 1-100KHz. It is highly recommended to use infrared thermal imaging from a system cold start to determine the location and relative magnitude of thermal input to the bus. The capacitor may well function as a thermal conduit for bus structure heat, and it will be very possible that the capacitor internal hot spot is less than the terminal temperature. Thermal contour maps are available for some representative conditions.

Layout Details:



Contact Advanced Conversion to discuss your specific requirements.