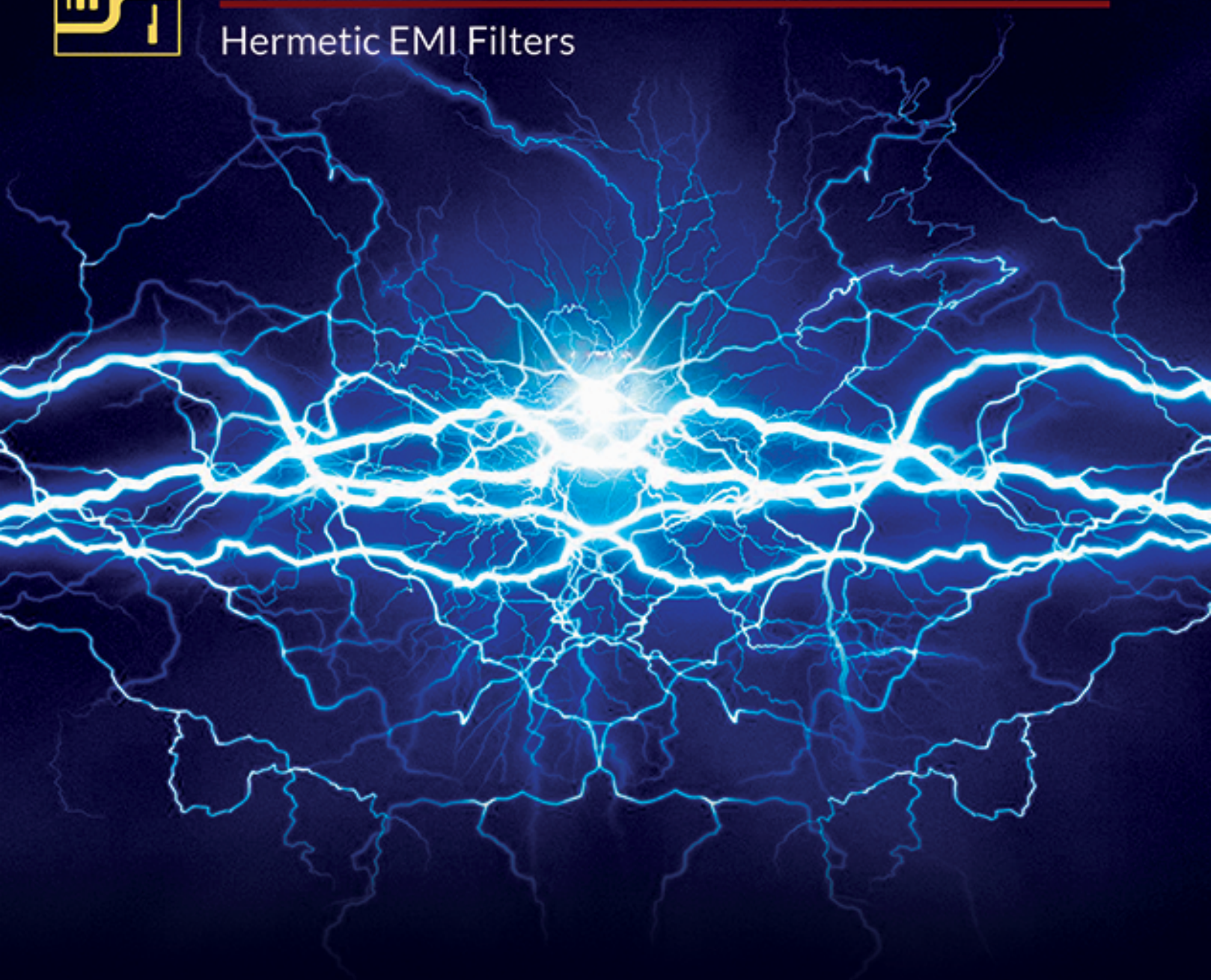




# Modular Devices, Inc.

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Hermetic EMI Filters



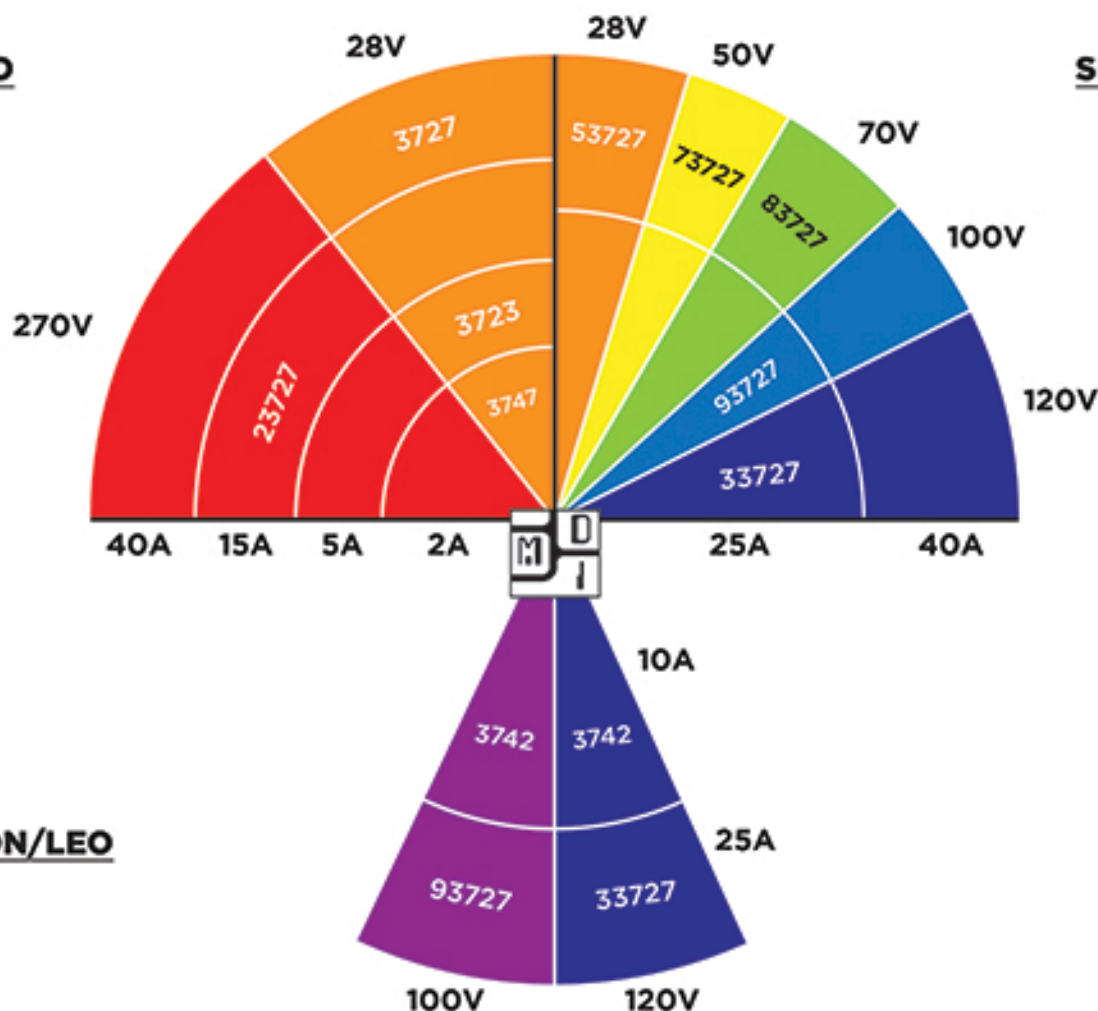
- **Rugged Hermetic Packaging**
- **High Capacitance Ceramic MLC's**
- **High Flux Density Magnetic Core Materials**
- **High Noise Attenuation**
- **Multi-staged for Maximized Filter Damping**



We proudly manufacture  
our products in Shirley, NY.

**MIL-AERO**

**SPACE**



## High Attenuation EMI Filters

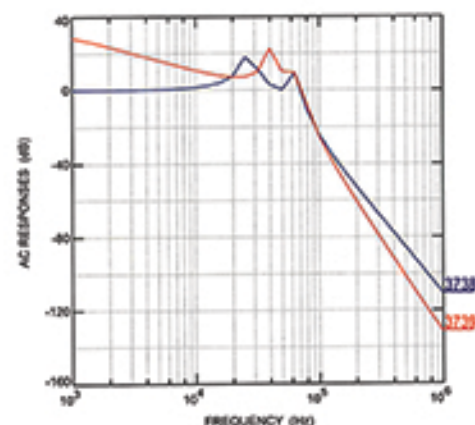
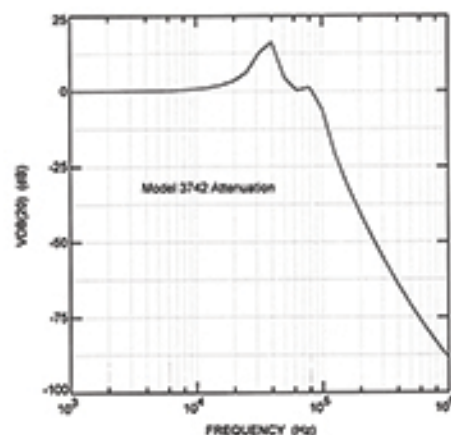
MDI EMI filter models, shown above, meet the latest MIL-STD-461D, E, F, G CE 102 test method requirements when used with most unfiltered DC-DC converters.

MDI filters offer hermetic, compact standalone, high attenuation, low  $I^2R$  loss solutions that permit users to meet CE 102 limits with legacy converters.

In applications where low reflected noise currents are needed to meet MIL-STD 461, power line filtering provides attenuation to reduce common mode (line to ground) and differential mode (line to line) currents. MDI's EMI filters provide such filtration in both modes to provide compliance whether measured in  $\text{dB}\mu\text{A}$  or  $\text{dB}\mu\text{V}$  test modes.

The filters are rated as completely compatible with all normal, abnormal, emergency, over/under voltage and transient conditions listed in MIL-STD-704A-F.

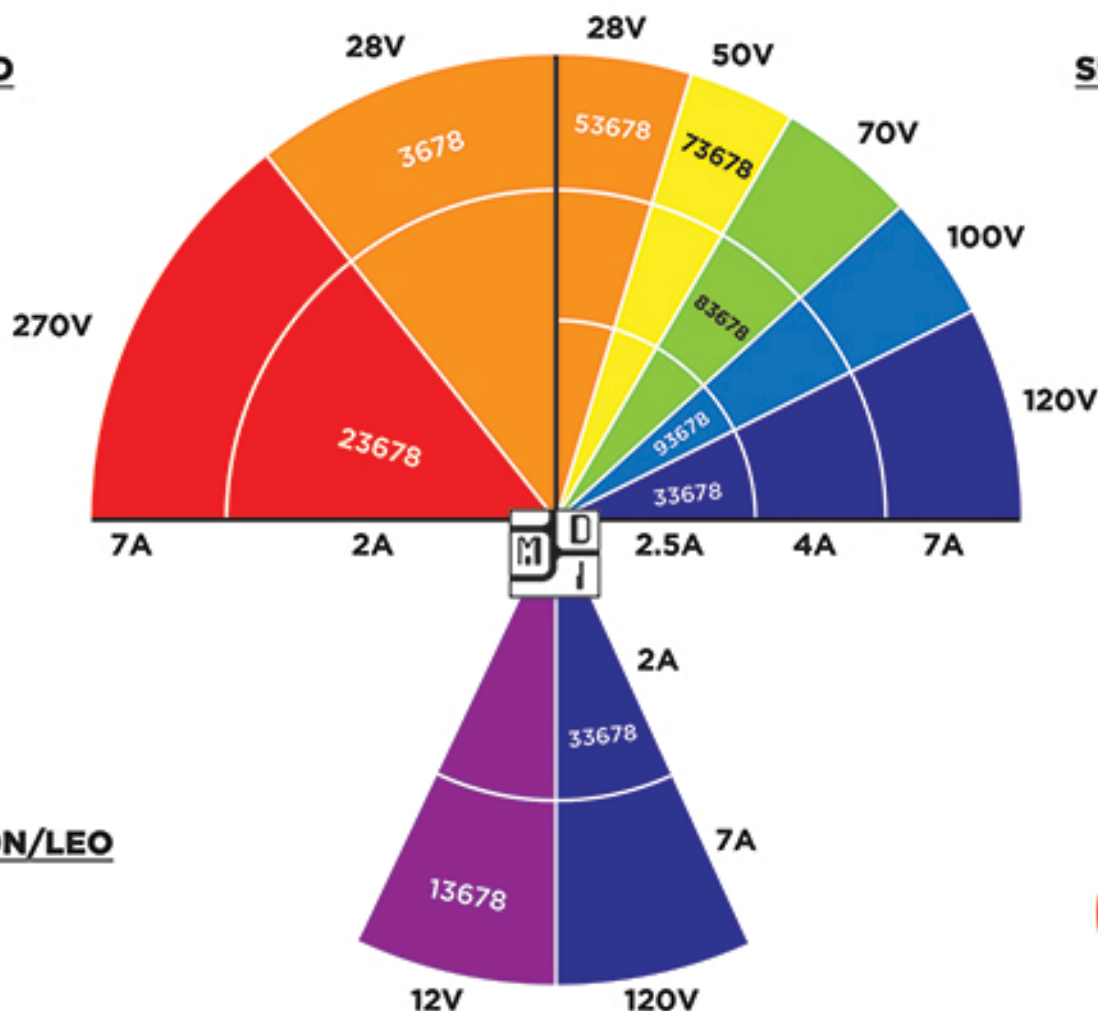
A single filter can serve several DC-DC converters, up to the rated maximums and two or more filters may be used in parallel to serve multiple DC-DC converters sharing the same input bus.





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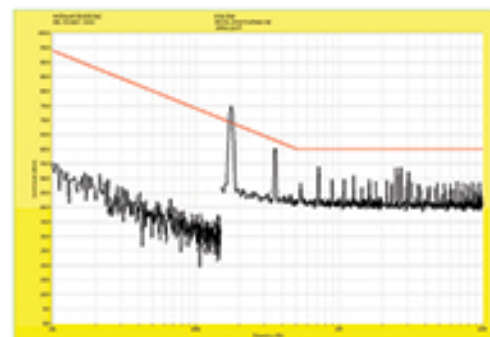
## EMI “Booster” Filters

MDI EMI filter models, shown above, upgrade legacy converters with internal MIL-STD-461C EMI filters to meet the latest MIL-STD-461D, E, F, G test method requirements. MIL-STD-461C CE03 is a recognized and globally used specification that uses feed-through capacitors and a current probe to measure conducted emissions on power lines in dBμA units.

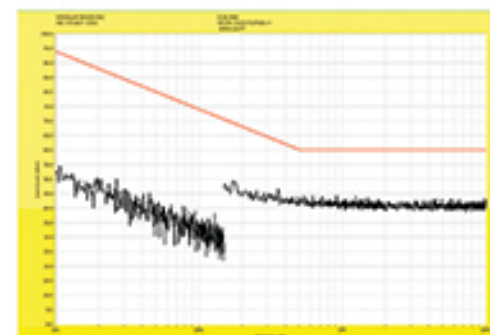
More recent test methods of MIL-STD-461D, E, F, G (CE102) measure conducted emissions in voltage mode using a line impedance stabilization network referenced to a 50 Ohm impedance in dBμV. After adjusting for a 34dB measurement differential, CE 102 uses a newer slope-adjusted limit curve as compared to CE 03. In the frequency range of 100-400kHz, where many hybrid DC-DC converters operate, the newer CE 102 limits can be up to 24dB lower than corresponding CE 03 limits.

MDI offers compact standalone, low attenuation solutions that permit users to meet the newer MIL-STD-461D, E, F, G CE 102 limits. The product family is sized to accommodate a broad range of popular satellite, ISS/ORION, airframe, and vehicle input voltage buses to incorporate a common mode stage and two low attenuation, low resonance differential mode stages. The resulting designs achieve the necessary attenuation for CE 102 compliance while minimizing the possibility of excessive input filter impedance mismatch that might otherwise result in DC-DC converter loop instability.

A single filter can serve several DC-DC converters, up to the rated maximums and two or more filters may be used in parallel to serve multiple DC-DC converters sharing the same input bus.

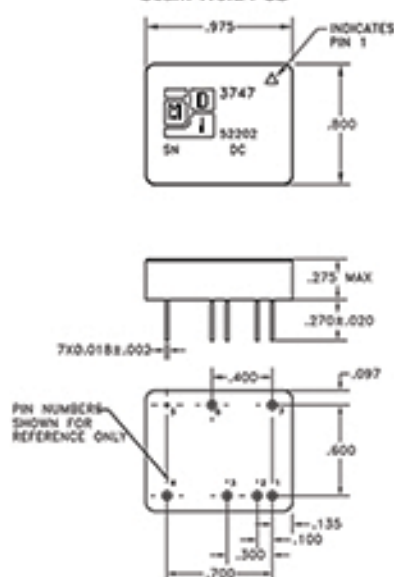


MIL-STD-461C CE03 DC-DC Converter scanned to MIL-STD-461F CE102 Before \*3678 filter applied

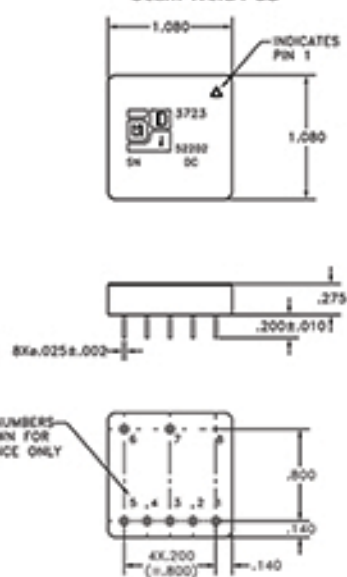


MIL-STD-461C CE03 DC-DC Converter scanned to MIL-STD-461F CE102 After \*3678 filter applied

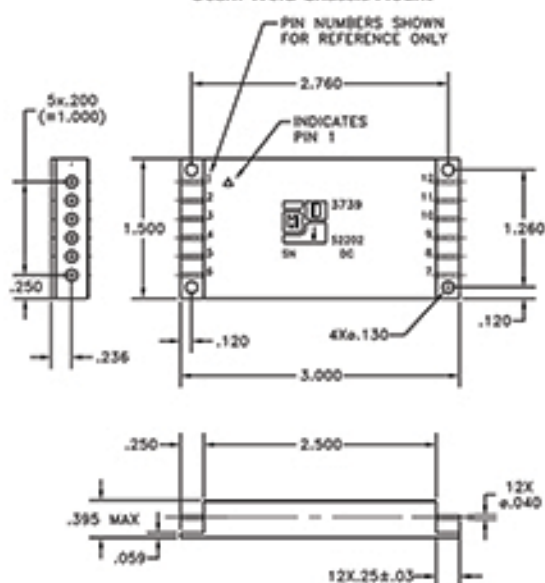
3747 MINI - CASE STYLE 16  
Seam Weld PCB



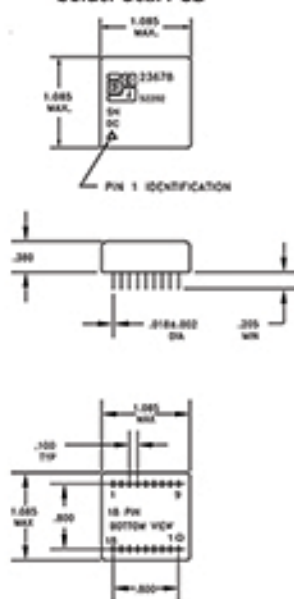
3723 FLATSO - CASE STYLE 17  
Seam Weld PCB



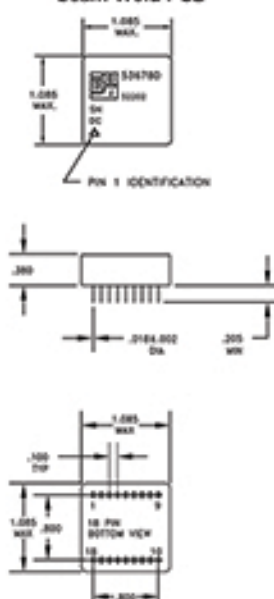
3738/39/42 - LONGFELLOW CASE STYLE  
Seam Weld Chassis Mount



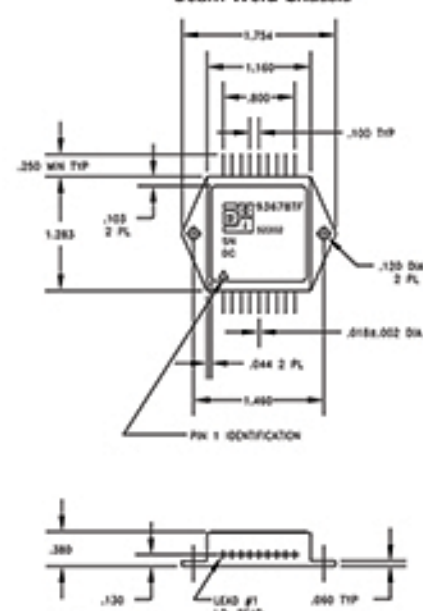
**CASE STYLE 1**  
**Solder Seal PCB**



**CASE STYLE 14**  
Seam Weld PCB

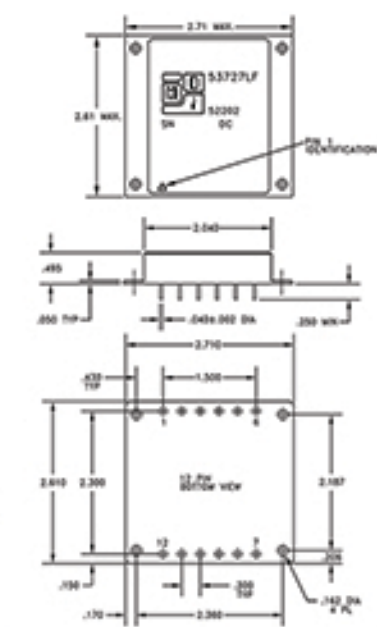


### CASE STYLE 15



### CASE STYLE 7

#### Seam Weld PCB with Flange



**CASE STYLE 9**  
Seam Weld Chassis Mount

