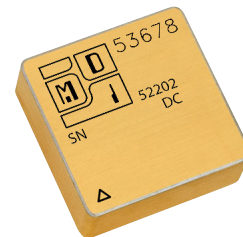


# Series \*3678 Hybrid EMI Filter

## Meets MIL-STD-461D,E,F,G CE102 Requirements

### Features/Benefits

- Compact standalone hybrid solution enables CE03 converters to meet CE102 requirements without retrofit
- Low attenuation, multi-stage filters minimize risk of converter instability and Middlebrook effects
- Easily incorporated into new or existing system design layouts as an "add-on" module
- Choice of package styles, all rugged full hermetic hybrid construction
- Several grade and screening levels available to suit any reliability requirement
- Available in all popular bus voltages



Model Number	Input Nominal Volts DC	Input Range Volts DC	Rated Current Amperes	Rated Power Dissipation (Pd) Watts
13678	12	4.6-16	7	1.4
53678	28	16-50	7	1.4
73678	50	30-75	7	1.4
83678	70	55-90	4	1.4
93678	100	80-120	2.5	0.7
33678	120	86-158	2.5	0.7
23678	270	185-335	1	0.5

MDI model \*3678 Hybrid EMI Filters upgrade legacy converters with internal MIL-STD-461C CE03 EMI filters to meet the latest MIL-STD-461D,E,F,G test method requirements.

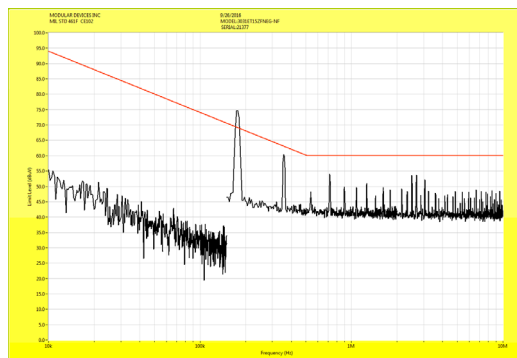
MDI introduced the industry's first hybrid DC-DC converters featuring built-in MIL-STD-461C CE03 EMI filters. 461C CE03 is a recognized EMI specification in widespread use that uses feed-through capacitors and a current probe to measure conducted emissions on power lines in dBμA units.

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 units. Also, after adjusting for a 34dB measurement differential, CE102 uses a newer slope-adjusted limit curve as compared to CE03. In the frequency range of 100-400kHz, where many hybrid DC-DC converters operate, the newer CE102 limits can be up to 24dB lower than corresponding CE03 limits.

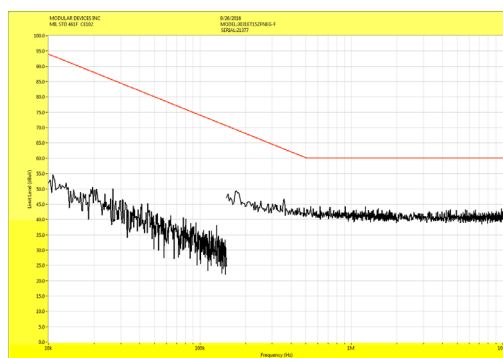
MDI offers the model \*3678, a compact standalone, low attenuation solution that permits users to meet newer MIL-STD-461D,E,F,G CE102 limits with legacy converters having built-in 461C CE03 filters.

The \*3678 family of filters, sized to accommodate a broad range of popular satellite, ISS/Orion, airframe and vehicle input voltage buses, incorporate a common mode stage and two low attenuation, low resonance differential mode stages. The resulting design achieves the necessary attenuation for CE102 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 \*3678 filters may be used in parallel to serve multiple DC-DC converters sharing the same input bus. Please see our application notes for insertion loss curves and full technical details.



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



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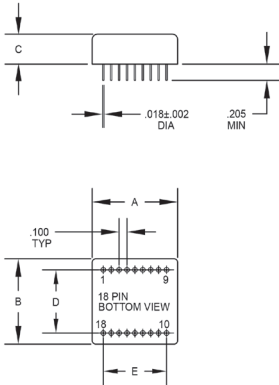
Tel: 631.345.3100 Fax: 631.345.3106

E-mail: sales@mdipower.com

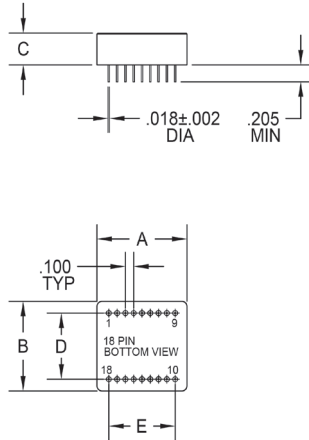
# Series \*3678

Meets MIL-STD-461D,E,F,G CE102 Requirements

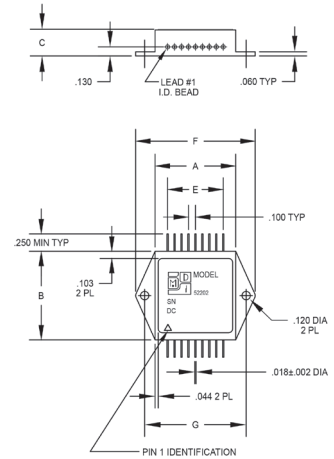
CASE STYLE 1



CASE STYLE 14



CASE STYLE 15



**\*3678, \*3678 D Case Style 1 and 14 Pin Out Chart**

Pin 1	LINE In +	Pin 7	LINE In Rtn	Pin 13	LOAD Out Rtn
Pin 2	LINE In +	Pin 8	LINE In Rtn	Pin 14	Not Connected
Pin 3	LINE In +	Pin 9	LINE In Rtn	Pin 15	LOAD Out +
Pin 4	Chassis	Pin 10	LOAD Out Rtn	Pin 16	LOAD Out +
Pin 5	LINE In +	Pin 11	LOAD Out Rtn	Pin 17	LOAD Out +
Pin 6	LINE In Rtn	Pin 12	LOAD Out Rtn	Pin 18	LOAD Out +

**\*3678 TF Case Style 15 Pin Out Chart**

Pin 1	LINE In +	Pin 7	LINE In Rtn	Pin 13	LOAD Out Rtn
Pin 2	LINE In +	Pin 8	LINE In Rtn	Pin 14	Not Connected
Pin 3	LINE In +	Pin 9	LINE In Rtn	Pin 15	LOAD Out +
Pin 4	LINE In +	Pin 10	LOAD Out Rtn	Pin 16	LOAD Out +
Pin 5	Chassis	Pin 11	LOAD Out Rtn	Pin 17	LOAD Out +
Pin 6	LINE In Rtn	Pin 12	LOAD Out Rtn	Pin 18	LOAD Out +

Model No.	Case Style	Pin Count	Mounting
*3678	1	18	Solder Sealed Flangeless PCB Mount
*3678 D	14	18	Seam Weld Flangeless PCD Mount
*3678 TF	15	18	Seam Weld Chassis Mount with Flange

**Case Dimensions**

Units: inches | millimeters

Case Style	A	B	C	D	E	F	G
1	1.080   27.432	1.080   27.432	0.380   9.652	0.800   20.320	0.800   20.320	—   —	—   —
14 D	1.090   27.686	1.090   27.686	0.380   9.652	0.800   20.320	0.800   20.320	—   —	—   —
15 TF	1.160   29.464	1.283   32.588	0.380   9.652	—   —	0.800   20.320	1.754   44.552	1.460   37.084

TOLERANCES: Drawings in Inches. All dimensions ±0.01 except F = max, C = +0.01/-0.020. For Custom Packages, Contact MDI Engineering



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