



Size:
1.91 x 1.09 x 0.37 in
48,6 x 27,7 x 9,5 mm

Features

- -55°C to 100°C baseplate operation
- Vin range: 16.5 – 50 Vdc
- EMI filtering: MIL-STD-461E/F
- Transient protection MIL-STD-1275 A/B/D and MIL-STD-704A/E/F
- Height above board: 0.37 in (9.5 mm)
- Low weight: 1.07 oz (30.4g)
- Typical efficiency: 99%
- Architectural flexibility

Product Overview

The MIL-COTS filter is a DC front-end module that provides EMI filtering and transient protection. The filter enables designers using Vicor's MIL-COTS PRM VI Bricks and V•I Chips to meet conducted emission / conducted susceptibility per MIL-STD-461E; and input transients per MIL-STD-704A/E/F and MIL-STD-1275A/B/D. The MIL-COTS PRM filter accepts an input voltage of 16.5 –50 Vdc and delivers output power up to 120 W.

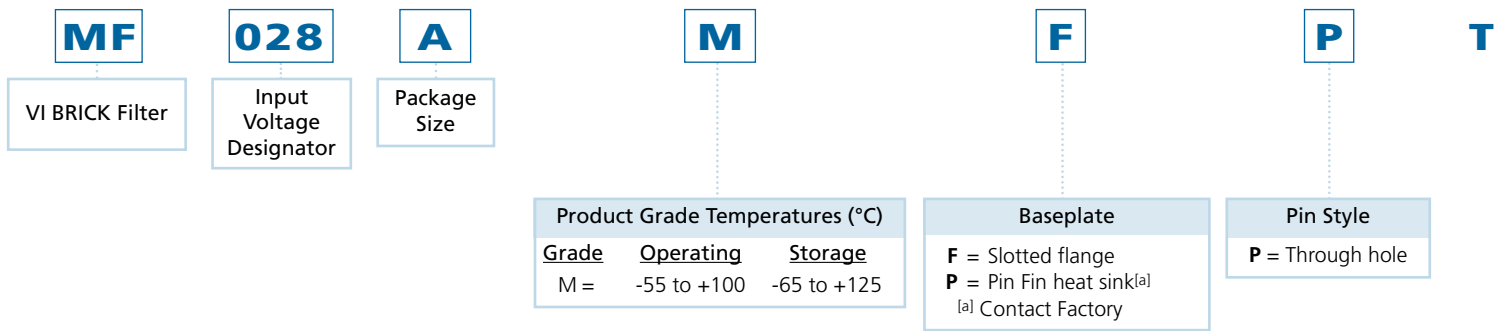
Absolute Maximum Ratings

Parameter	Values	Unit	Notes
+In to -In	-1.0 to 60.0	Vdc	Continuous
+Out to -Out	-1.0 to 60.0	Vdc	Continuous
Continuous output power	120	W	
Operating temperature	-55 to +100	°C	M-Grade; baseplate
Storage temperature	-65 to +125	°C	M-Grade

Note: Stresses in excess of the maximum ratings can cause permanent damage to the device. Operation of the device is not implied at these or any other conditions in excess of those given in the specification. Exposure to absolute maximum ratings can adversely affect device reliability.

SPECIFICATIONS

PART NUMBERING



Input Specifications (Conditions are at 28 Vin, full load, and 25°C baseplate unless otherwise specified)

Parameter	Min	Typ	Max	Unit	Notes
Input voltage range	16.5	28	50	Vdc	Operation to 13.5 V after start up \geq 16.5 V
Input current			8	Adc	
Recommended external input capacitance		10		μ F	C1 Figure 6
Transient Immunity			100	Vdc	50 ms per MIL-STD-1275A/B/D continuous operation
			250	Vdc	70 μ s per MIL-STD-1275A/B/D continuous operation
			70	Vdc	20 ms per MIL-STD-704A continuous operation
			80	Vdc	100 ms per D0-160 E, sec.16, Cat. z cont. operation
		50	Vdc		12.5 ms per MIL-STD-704E/F continuous operation

Output Specifications (Conditions are at 28 Vin, full load, and 25°C baseplate unless otherwise specified)

Parameter	Min	Typ	Max	Unit	Note
Output voltage range	16.0	28	49.6	Vdc	
Internal voltage drop		0.4	0.85	Vdc	
Output current	0		8	Adc	Over input range
Efficiency		99		%	
	Full load				
External output capacitance		1000		μ F	Figure 6 C _{IN}

EMI

Standard	Test Procedure	Notes	
MIL-STD-461E/F	Conducted Emissions		
		CE101-4	Navy ASW & Army Aircraft, Curve #2 (28 Vdc)
		CE102-1	Basic curve, for all applications
Conducted Susceptibility		CS101-1	Curve #2, for all applications (28 Vdc)
		CS114-1	Conducted susceptibility, bulk cable injection, 10 KHz - 200 MHz, Curve #4
		CS115-1	Conducted susceptibility, bulk cable injection, impulse excitation, all applications

General Specifications

Parameter	Min	Typ	Max	Unit	Notes
MTBF					
MIL-HDBK-217F		12,933,333		hrs	25°C, GB
		2,327,752		hrs	50°C, NS
		1,823,912		hrs	65°C, AIC
Agency approvals		CE Mark			Low voltage directive (10 A external fuse required), EN60950-1
Mechanical parameters					See Mechanical Drawings, Figures 2 & 3
Weight		1.07/30,4		oz/g	
Dimensions					
Length		1.91/46,6		in/mm	
Width		1.09/27,7		in/mm	
Height		0.37/9,5		in/mm	
Thermal					
Thermal capacity		23.8		Ws/°C	
Baseplate to ambient		8.8		°C/W	
Baseplate to ambient; 1000 LFM		3.0		°C/W	
Baseplate to sink; flat, greased surface		0.40		°C/W	
Baseplate to sink; thermal pad		0.36		°C/W	

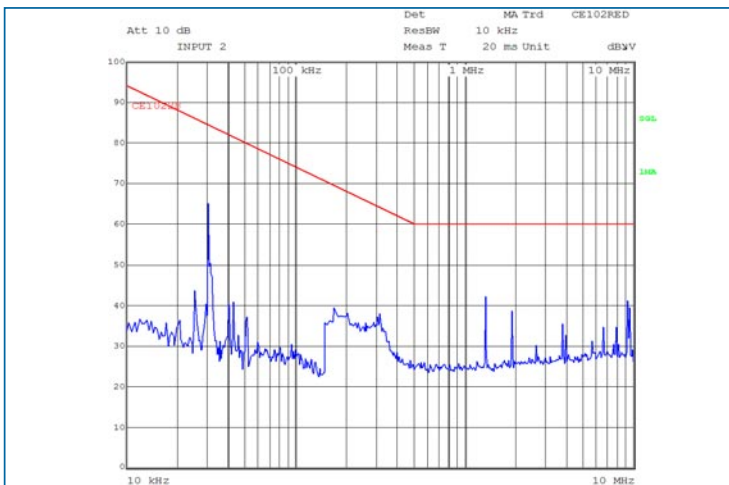


Figure 1 — Conducted Noise (CE 102); MF028AMFPT with PRM and VTM, 28 Vdc input, 12 Vdc output, 90% load.

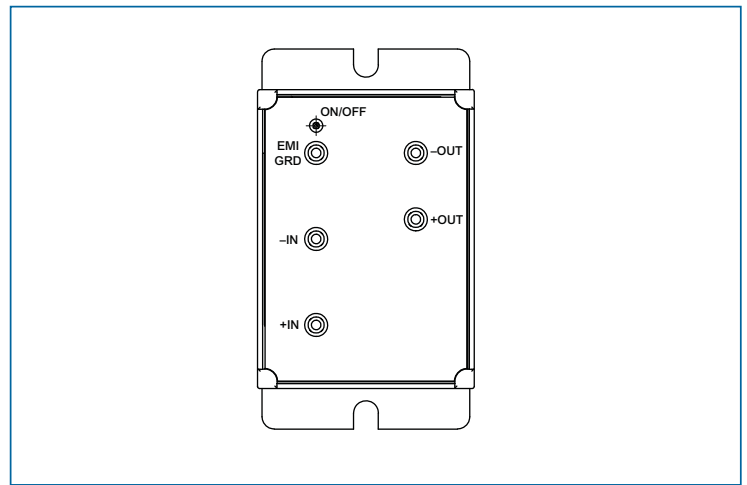


Figure 2 — MF028AMFPT pin configuration (viewed from pin side)

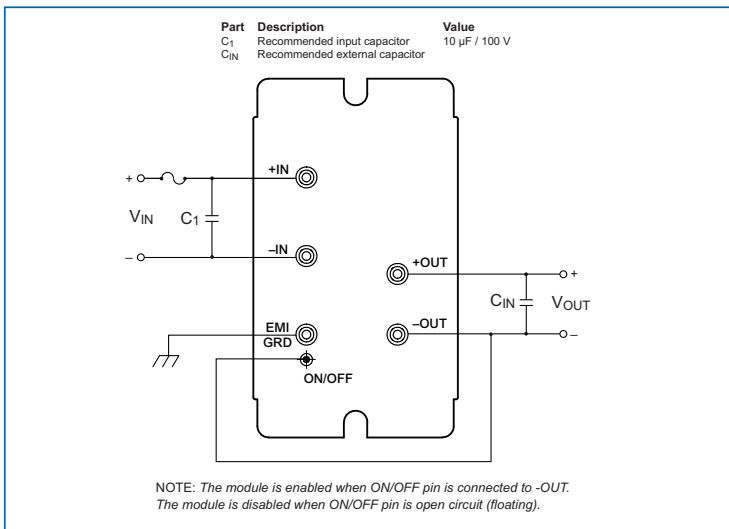


Figure 3 — Connection for filter enabled at turn on

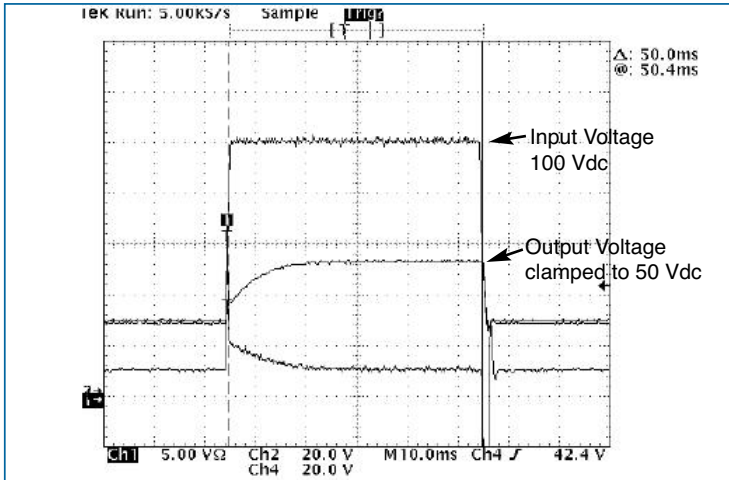


Figure 4 — Transient immunity; MF028AMFPT output response to an input transient. (28 VIN full load initial conditions, trace 1.5 A/div)

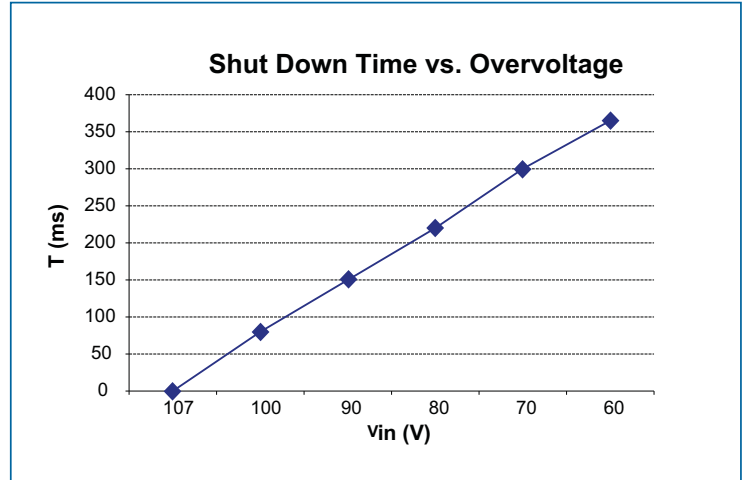


Figure 5 — Shutdown time vs. overvoltage

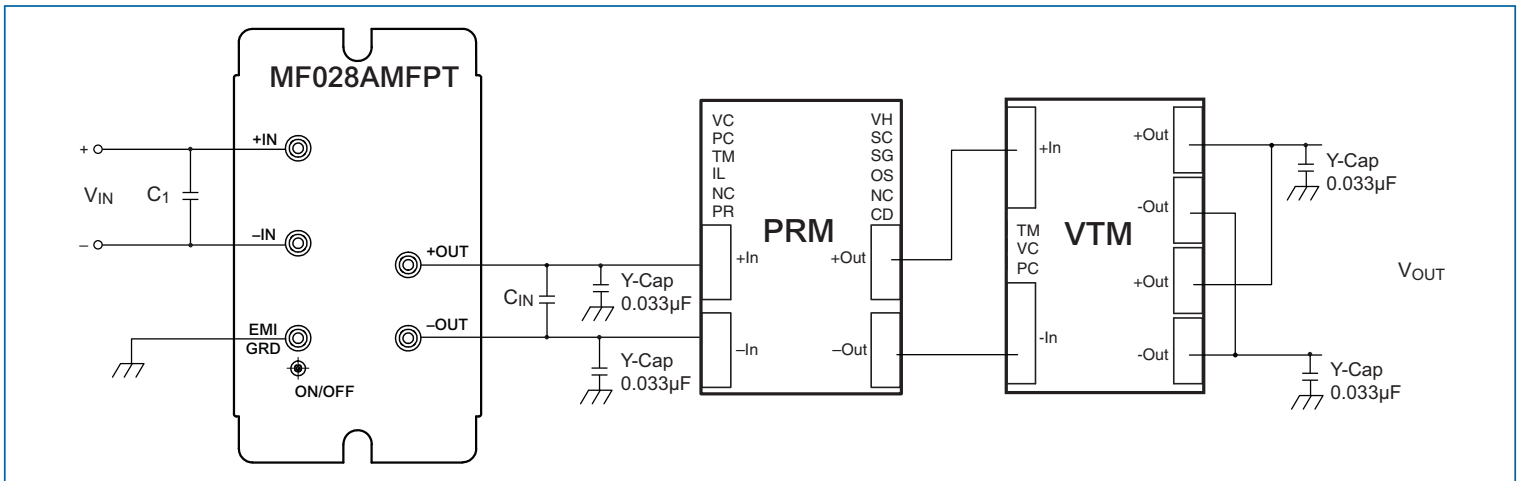


Figure 6 — Recommended circuit for EMI

Baseplate - Slotted Flange

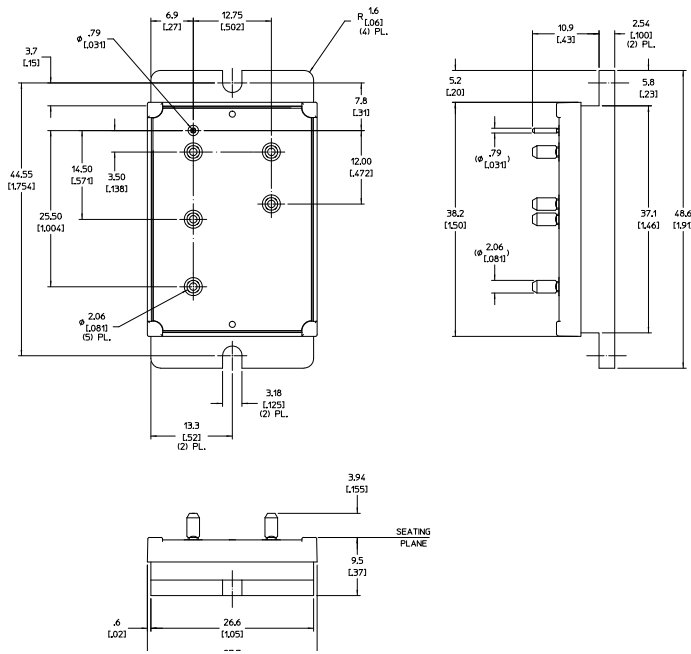


Figure 7 — Module outline

Recommended PCB Pattern
(Component side shown)

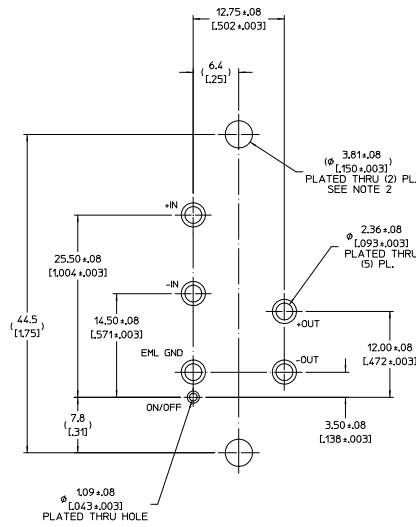


Figure 8 — PCB mounting specifications

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