

MI-AIMTM

Military Component Front End Modules

Product Highlights

The MI-AIM AC input module interfaces directly with AC mains to provide line rectification, EMI filtering, transient protection, and inrush limiting. These military front end modules accept 115Vac and provide 250W of output power for any of Vicor's MI-x7x family of standard and junior size modules.

The MI-AIM meets CE102 conducted emissions requirements of MIL-STD-461D and the transient and spike requirements of MIL-STD-704A.

Produced in ISO 9001-registered facilities, the fully epoxy encapsulated 2.28" x 2.4" x 0.5" (57,9 x 61,0 x 12,7mm) modules meet the environmental test requirements of MIL-STD-810.

Features

- ✦ Inputs: 115Vac; 60/400Hz
- ✦ Output power: 250W
- ✦ Compatible with MI-x7x family modules
- ✦ MIL-STD-461D EMI compliance
- ✦ MIL-STD-810 environments
- ✦ MIL-STD-704A input transient protection
- ✦ 95% efficiency
- ✦ Operating temperature to 100°C
- ✦ Size: 2.28" x 2.4" x 0.5" (57,9 x 61,0 x 12,7mm)

Specifications

(At $T_{BP} = 25^{\circ}\text{C}$, unless otherwise specified)

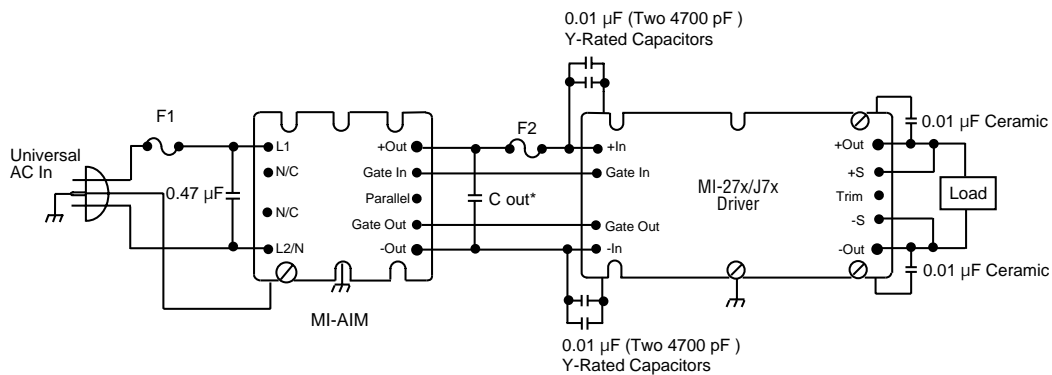
PARAMETER	MIN	TYP	MAX	UNITS	NOTES
Input Characteristics (per MIL-STD-704A)					
Steady state input	(V)	85	115	140	V_{rms}
	(f)	47	60/400	440	Hz
Transient input	(V)	80			V_{rms}
				180	V_{rms}
	(f)			480	Hz
Inrush current			40	A, peak	125Vac
Conducted EMI	CE102 per MIL-STD-461D				100-125Vac; 60Hz
Efficiency		95		%	115Vac; 60/400Hz
Spikes			±50	%	Nominal line voltage, 50 μ s
Output Characteristics					
Power		250		W	100°C
Short circuit protection		no damage			100-125Vac
Ext. capacitance (C1)			1200	μ F	See connection diagram
Isolation					
Input to output		none			Provided by converter
Input to baseplate		1500		V_{rms}	
Environmental (MIL-STD-810)					
Altitude - method 500.2		40,000		feet	Procedure 3
Humidity - method 507.2		86/240		%/hours	Procedure 1, cycle 1
Acceleration - method 513.3		9		g's	Procedure 2
Vibration - method 514.3		20		g's	Procedure 1, category 6
Shock - method 516.3		40		g's	Procedure 1
Reliability (MIL-HDBK-217F)					
25°C Ground Benign: G.B.		4,699,223		hours	
50°C Naval Sheltered: N.S.		1,109,016		hours	
65°C Airborne Inhabited Cargo: A.I.C.		916,348		hours	
Mechanical Characteristics					
Thermal resistance		0.14		°C/W	Baseplate to sink, with thermal pad
Weight		3 (85)		ounces (grams)	

Product Grade Specifications

PARAMETER	PRODUCT GRADE	
	I-Grade	M-Grade
Part Number	MI-AIM-I1	MI-AIM-M1
Storage temperature	-55°C to +125°C	-65°C to +125°C
Operating temperature (baseplate)	-40°C to +100°C	-55°C to +100°C
Power cycling burn-in	12 hours, 25 cycles	96 hours, 200 cycles
Temperature cycled with power off 17°C per minute rate of change	12 cycles -65°C to +100°C	12 cycles -65°C to +100°C
Test data supplied at these temperatures*	-40°C, +80°C	-55°C, +80°C
Warranty	2 years	2 years
Environmental compliance	MIL-STD-810	MIL-STD-810

*Test data available for review or download from vicorpower.com

Connection Diagram



* 1200µF Max. (See Vicor's Applications Manual, page 12-2, Selecting Capacitors for AIM Modules.)

Fuse 1: 7A F03A type recommended.
Fuse 2: For MI-x7x-xx – Buss PC-Tron 2.5A (450V)

Mechanical Drawing

