



MI-AIMTM

Military COTS 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 front-end modules accept 115 Vac and provide 250 W 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/E 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 12,7 mm) modules meet the environmental test requirements of MIL-STD-810.

Features

- ✦ Inputs: 115 Vac; 60/400 Hz
- ✦ Output power: 250 W
- ✦ Compatible with MI-x7x family modules
- ✦ MIL-STD-461D/E 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 12,7 mm)

Specifications

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

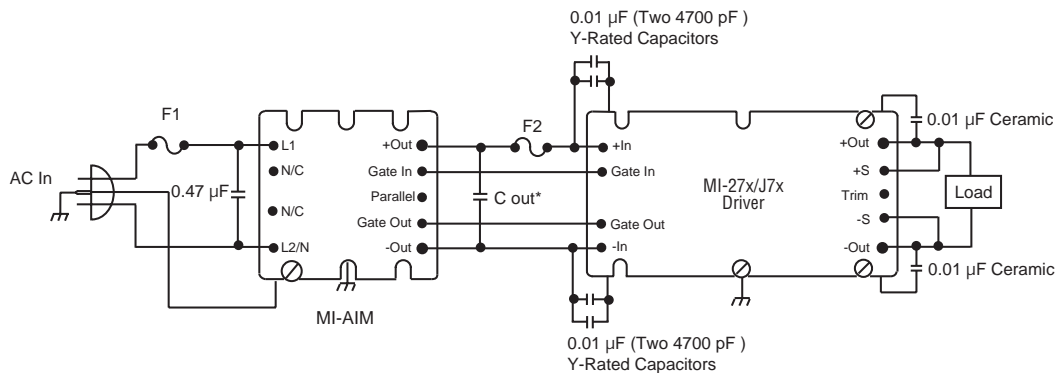
PARAMETER	MIN	TYP	MAX	UNITS	NOTES
Input Characteristics (per MIL-STD-704A)					
Steady state input	(V)	85	115	140	V_{rms}
	(f)	47	60/400	440	Hz
Transient input	(V)	80			V_{rms}
				180	V_{rms}
	(f)			480	Hz
Inrush current			40	A, peak	125 Vac
Conducted EMI	CE102 per MIL-STD-461D/E				100-125 Vac; 60 Hz
Efficiency		95		%	115 Vac; 60/400 Hz
Spikes			±50	%	Nominal line voltage, 50 μs
Output Characteristics					
Power		250		W	100°C
Short circuit protection		no damage			100-125 Vac
Ext. capacitance (C1)			1200	μF	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 (MI-AIM-M1)					
25°C Ground Benign: G.B.		4,277		1,000 hours	
50°C Naval Sheltered: N.S.		770		1,000 hours	
65°C Airborne Inhabited Cargo: A.I.C.		603		1,000 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

