

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

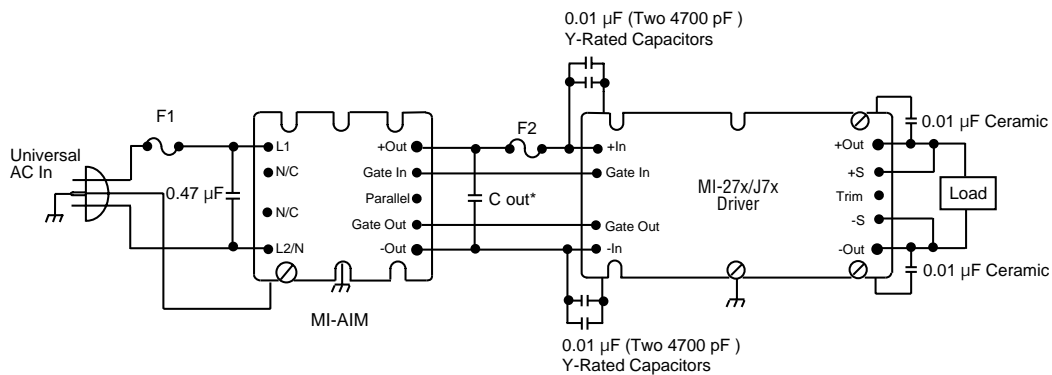
| PARAMETER | MIN | TYP | MAX | UNITS | NOTES |
|---|------------------------|-----------|--------|----------------|-------------------------------------|
| Input Characteristics (per MIL-STD-704A) | | | | | |
| Steady state input | (V) | 85 | 115 | 140 | V_{rms} |
| | (f) | 47 | 60/400 | 440 | Hz |
| 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, 50µs |
| Output Characteristics | | | | | |
| Power | | 250 | | W | 100°C |
| Short circuit protection | | no damage | | | 100-125Vac |
| 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) | | | | | |
| 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

