



Data Sheet

VI-AIM

Universal AC Input Front End Module



Features

- RoHS compliant (VE versions)
- Universal input: 85 – 264 Vac
- Output power: 250 W
- Operating temperature: 100°C
- Efficiency: 97%
- Integral EMI filtering
- Input transient protection
- Inrush limiting
- CE Marked

Product Highlights

The AIM (Alternating Input Module) is an AC front-end module which interfaces directly with worldwide AC mains. The AIM provides line rectification, EMI/RFI filtering, transient protection and inrush limiting in a half brick package measuring 2.28" x 2.4" x 0.5".

The AIM is used in conjunction with Vicor VI-200 or VI-J00 DC-DC converters to realize a universal AC input, high-density, low-profile switching power supply with outputs from 1 – 95 Vdc and a total power rating up to 200 W. An external capacitor is used to satisfy system hold-up requirements. Internal EMI filtering meets EN55022 and FCC Part 15, Class A emissions limits.



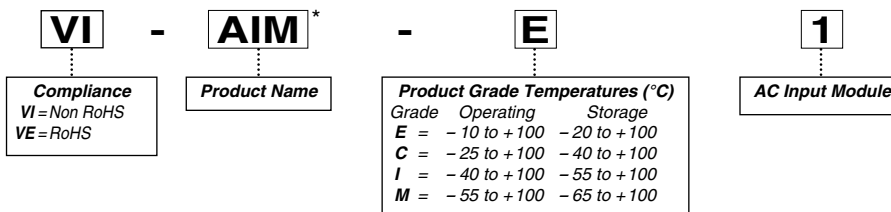
Actual size:
2.28 x 2.4 x 0.5 in
57,9 x 61,0 x 12,7 mm

Absolute Maximum Ratings

Parameter	Rating	Unit	Notes
Maximum value of hold-up capacitance	1200	μ F	
Thermal resistance	0.4	°C/Watt	Baseplate-to-sink
Operating temperature	–55 to +100	°C	M-Grade
Storage temperature	–65 to 105	°C	M-Grade
Transient surge withstand			
Common mode	1.2/50 μ S, 2 kV pulse, 2 joules 0 to 360 degree phase angle		EN61000-4-5 IEC 801-5
Normal mode	1.2/50 μ S, 1 kV pulse, 2 joules 0 to 360 degree phase angle		With external MOV

VI-AIM Input Voltage	Compatible DC-DC Converter	Notes
85 – 132 Vac	VI-x5x-xx	Used with a 100 – 200 Vin converter
180 – 264 Vac	VI-x6x-xx	Used with a 200 – 400 Vin converter
85 – 264 Vac	VI-x7x-xx	Used with a 100 – 375 Vin converter

Part Numbering



* For Mega Module packaging option add an **L** before the product name.
Example: Vx-LAIM-xx

SPECIFICATIONS

(typical at $T_{BP} = 25^{\circ}\text{C}$, nominal line and 75% load, unless otherwise specified)

■ INPUT SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
AC line input		85 – 264 ¹		Vac	No strapping; no damage below low line
		47 – 440		Hz	
Inrush current		<40 A at peak line (264 Vrms)			

¹Dependent upon input range of compatible DC-DC converter.

■ OUTPUT SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
Output voltage		120 – 373		Vdc	Peak of AC line
Output power		250		W	Delivered to converter(s)
Hold-up time		Application specific			A function of external capacitance and power
Efficiency		97%			

■ SAFETY SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
Dielectric withstand					
Input to output		None			Provided by DC-DC converter
Input/output to baseplate		1,500			Vrms

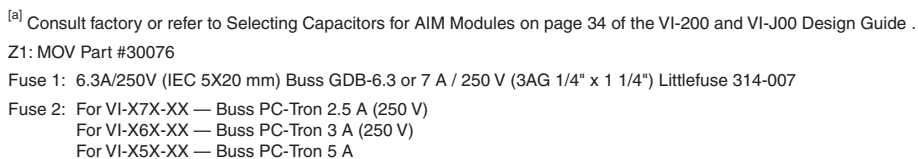
■ AGENCY APPROVALS

Safety Standards	Agency Markings	Notes
Conducted EMI/RFI	VDE 0871/FCC Part 15, Class A EN55022, Class A	With compatible DC-DC converter modules External 0.47 μF capacitor required
UL1950, CSA 22.2-950, EN60950		

■ GENERAL SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
Size		2.28" x 2.4" x 0.5" (57,9 x 61,0 x 12,7)		in (mm)	Mega Module, SlimMod and FinMod packages available
Weight		3.0 (85)		Ounces (Grams)	

VI-AIM Block Diagram



Technical drawing of a VI-AIM component, showing dimensions and callouts for manufacturing specifications.

Top View Dimensions:

- Overall width: 2.28 (57.9)
- Overall height: 2.10 (53.4)
- Top edge features:
 - Left side: $.49$ (12.4)
 - Center: 1.30 (33.0)
 - Right side: $.65$ (16.5)
- Bottom edge features:
 - Left side: $.15$ (3.8)
 - Center: $.15$ (3.8)
- Internal features:
 - Top edge: $.080$ Dia (2) places Solder plate over copper alloy
 - Bottom edge: $.040$ (1.0) Dia (7) places Solder plate over copper alloy
 - Right edge: 1.40 (35.6)
 - Internal hole spacing: $.70$ (17.8), $.40$ (10.2), 1.00 (25.4)
 - Internal hole diameter: $.35 \pm .015$ (8.9) \pm (0.38)

Side View Dimensions:

- Overall width: 1.90 (48.3)
- Overall height: $.50$ (12.7)
- Top edge features:
 - Left side: $.22$ (5.6) Min.
 - Right side: $.030$ (0.76)
- Bottom edge features:
 - Left side: $.12$ (3.0)
 - Right side: $.000$ (0)

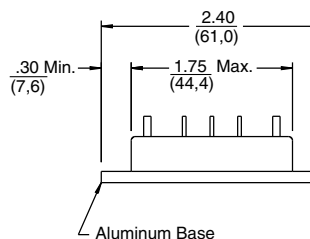
Callouts:

- VI-AIM
- FULL R
- Product ID this surface

Material/Finish: .080 Dia (2) places Solder plate over copper alloy; .040 (1.0) Dia (7) places Solder plate over copper alloy

Surface Finish: $.01$

Pin #	Function
1	L1
2	NC
3	NC
4	L2/N
5	+Out
6	Gate In
7	Parallel
8	Gate Out
9	−Out



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