Data Sheet
FIAM™
Filter Input Attenuator Module

Features
- RoHS Compliant (with F or G pin style)
- EMI filtering-Class B
- Transient protection
- Low profile mounting options
- 10 and 20 Ampere versions
- UL, CSA, EN compliance
- Mini-size package
- Inrush current limiting

Product Highlights
The FIAM is a DC front-end module providing transient protection, inrush current limiting and Class B EMI filtering in a Mini-size package. The FIAM enables designers using Vicor 48 Vin Mini, Micro, or Maxi DC-DC converters to meet the transient immunity and EMI requirements of Bellcore, FCC, ETSI and European Norms while protecting system hardware from inrush current. The FIAM accepts an input voltage of 36 – 76 Vdc, is available in 10 or 20 A versions and provides reverse polarity protection and remote on/off.

FIAM is housed in an industry standard "half brick" module measuring 2.28" x 2.2" x 0.5" and depending upon model selected, may be mounted on-board or in-board for height critical applications.

Compatible Products
- Mini, Micro, Maxi 48 V Input DC-DC converters

Shown actual size:
2.28 x 2.2 x 0.5 in
57,9 x 55,9 x 12,7 mm

Absolute Maximum Rating

Parameter	Rating	Unit	Notes
+In to –In	80	Vdc	Continuous
	100	V	100 ms
+Out to –Out	75	Vdc	Continuous
Mounting torque	5(0.57)	in-lbs	6 each, #4-40 or M3
Operating temperature	–40 to +100	°C	T-Grade
Storage temperature	–40 to +125	°C	T-Grade
Pin soldering temperature	500 (260)	°F(°C)	<5 sec; wave solder
	750 (390)	°F(°C)	<7 sec; hand solder

Thermal Resistance

Parameter	Min	Typ	Max	Unit
Baseplate to sink				
flat, greased surface		0.16		°C/Watt
thermal pad (P/N 20264)		0.14		°C/Watt
Baseplate to ambient				
Free Convection		8.0		°C/Watt
1000 LFM		1.9		°C/Watt

Part Numbering

FIAM	1	C	1	1
Product	Type 1 = 10 A 2 = 20 A	Product Grade Temperatures (°C) Grade Operating Storage C = –20 to +100 –40 to 125 T = –40 to +100 –40 to 125	Pin Style 1 = Short 2 = Long S = Short ModuMate N = Long ModuMate F = Short RoHS G = Long RoHS	Baseplate 1 = Slotted 2 = Threaded 3 = Thru-hole

SPECIFICATIONS

(typical at T_{BP} = 25°C, nominal line and 75% load, unless otherwise specified)

■ INPUT SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
Input voltage	36	48	76	Vdc	Continuous
Inrush limiting			0.014	A/µF	

■ OUTPUT SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
Output current					
FIAM1xxx			10	A	
FIAM2xxx			20	A	
Efficiency	96.0	97.5			Internal voltage drop is 1.4 max. @ 20 A, 100 °C baseplate
External capacitance					See illustration on page 3.
FIAM1xxx	10		150	µF	100 V
FIAM2xxx	100		330	µF	100 V

■ CONTROL PIN SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
ON/OFF control					
Enable (ON)	0.0		1.0		Referenced to –Vout
Disable (OFF)	3.5		5.0	Vdc	100kΩ internal pull-up resistor

■ ELECTROMAGNETIC COMPATIBILITY

Parameter	Min	Typ	Max	Unit	Notes
Transient immunity					
Bellcore TR-NWT-000499			200	V	1 µsec duration
ETS 300 386-1 Class 2			200	V	5.0 µsec rise time, 50 µsec duration surge
			250	V	1 – 100 nsec burst

■ SAFETY SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
Dielectric withstand (I/O to baseplate)		1,500		V_{RMS}	
		2,121		Vdc	

■ AGENCY APPROVALS

Safety Standards	Markings	Notes
UL 1950, CSA 22.2-950, EN60950		
EMI		
Bellcore GR-001089-Core		Issue 2
EN 55022		Level B; When used with Vicor Mini, Maxi, Micro 48 Vin DC-DC converter
FCC Part 15		Level B

■ GENERAL SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Remarks
Reverse polarity protection					No damage to module, external fuse required
Weight		3.1 (88)	4 (113)	ounces (grams)	
Warranty			2	years	

Conducted Noise

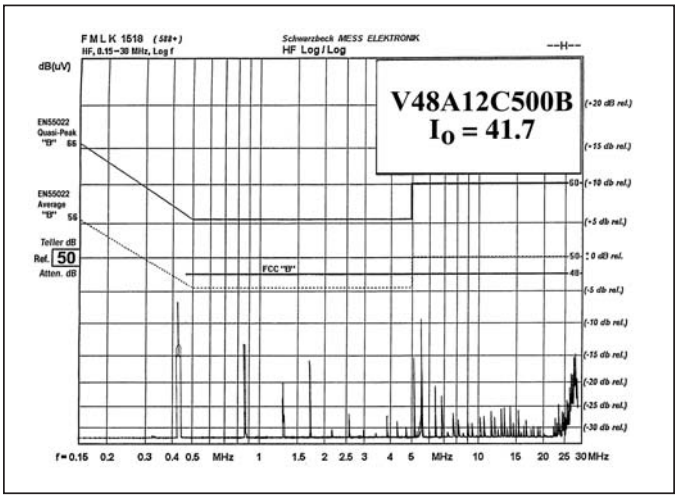


Figure 1 *— FIAM and Model V48A12C500 DC-DC converter.*

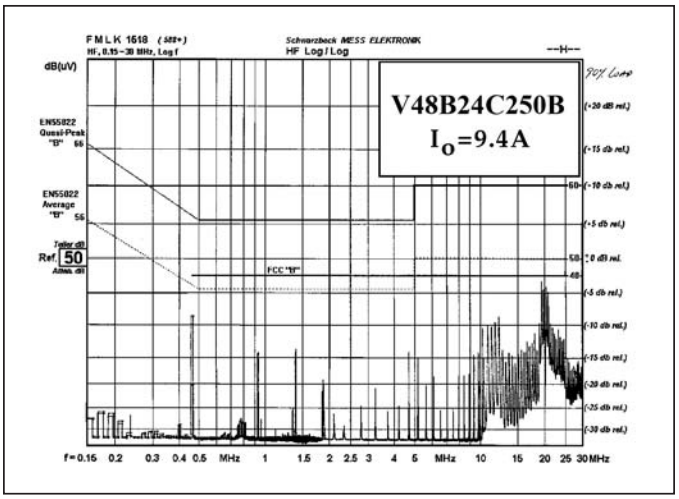


Figure 2 *— FIAM and Model V48B24C250 DC-DC converter.*

Inrush Limiting

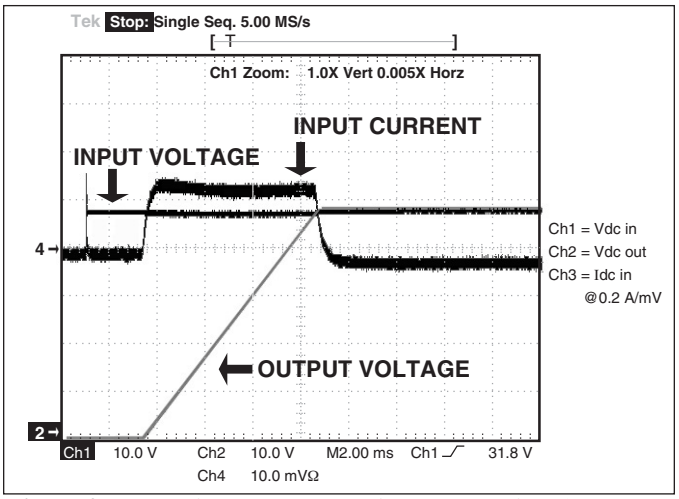


Figure 3 *— Inrush Limiting: Inrush current with 330 µF external capacitance.*

Transient Immunity

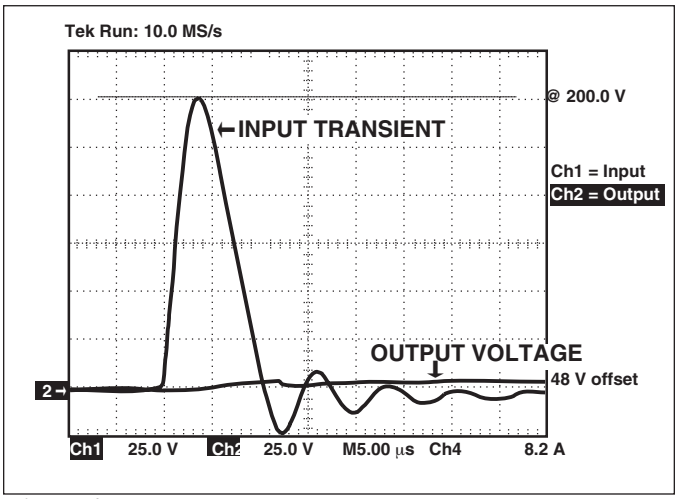
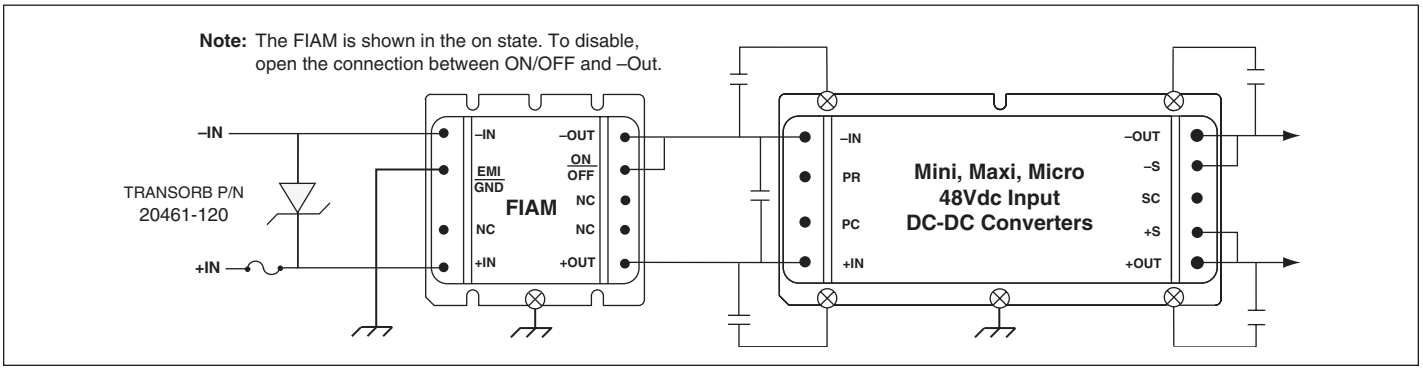


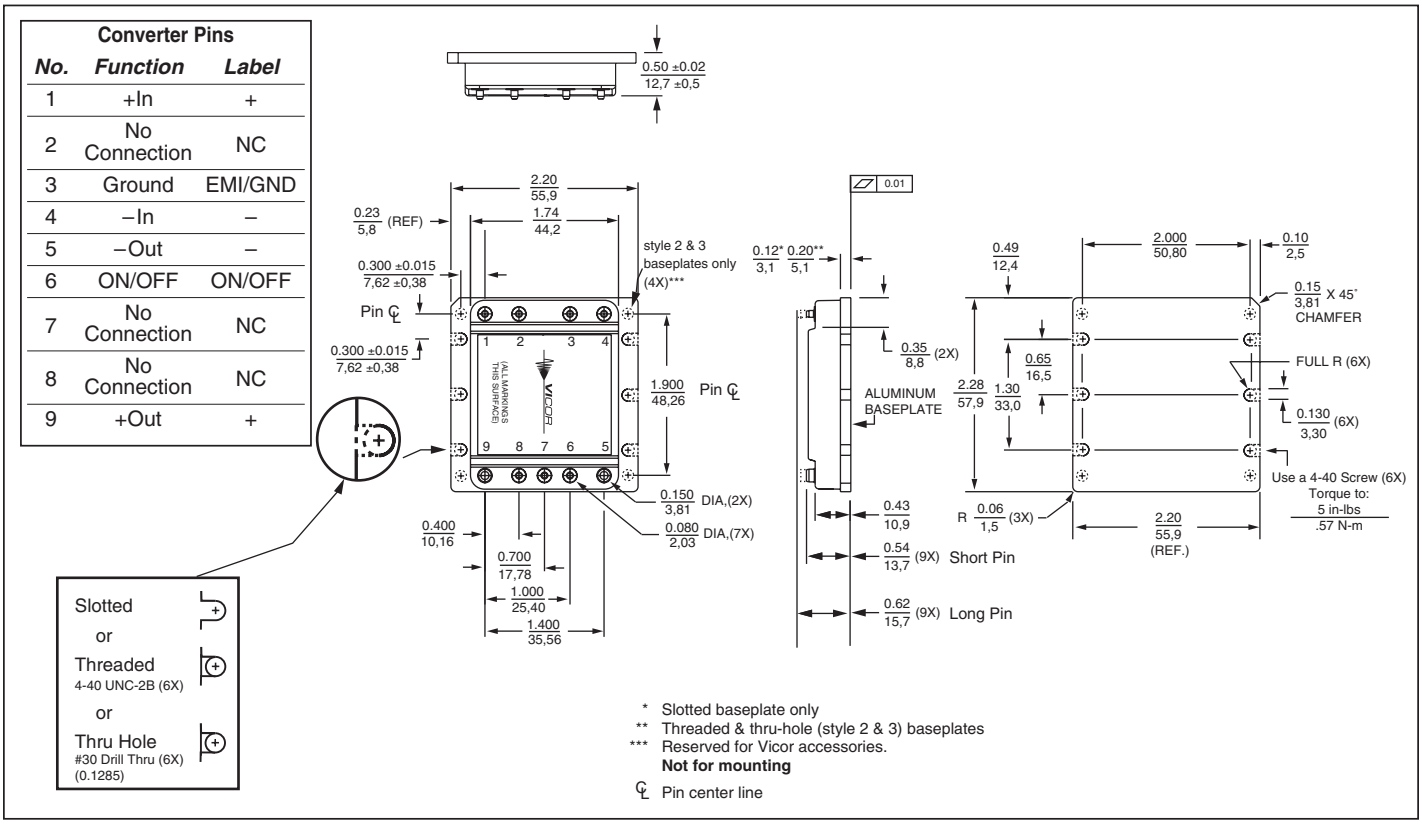
Figure 4 *— Transient Immunity: FIAM output response to an input transient.*

Transient and Surge Protection



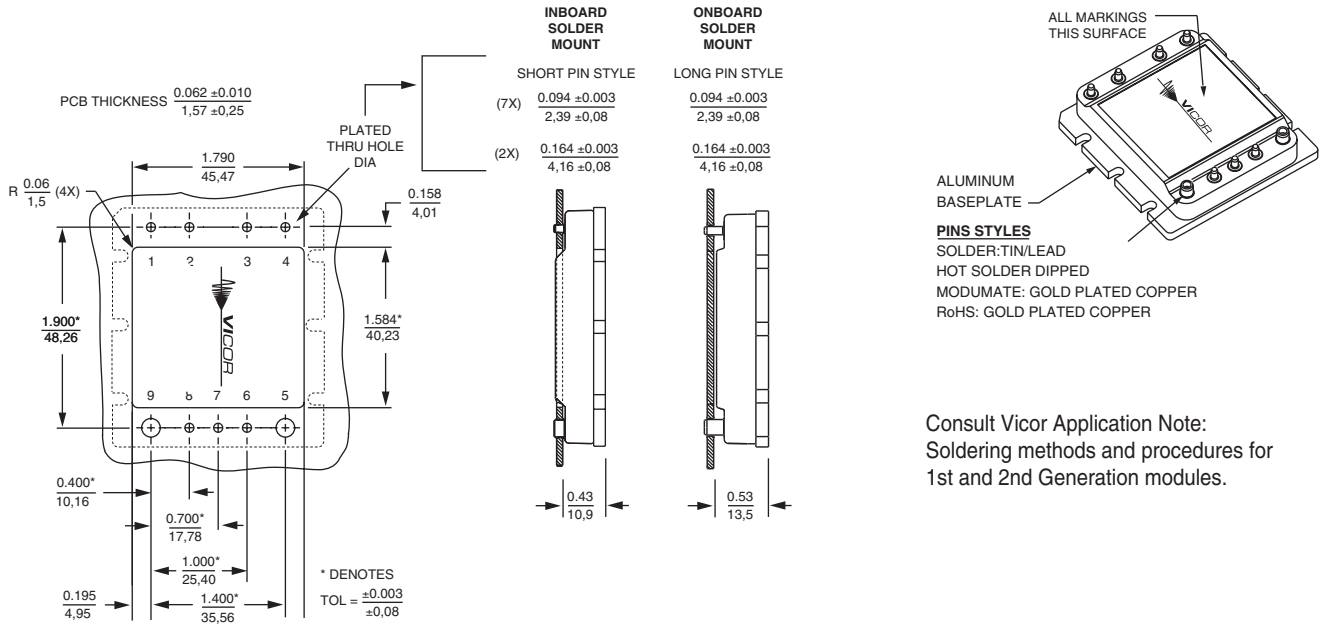
Mechanical Diagram

Converter Pins		
No.	***Function***	***Label***
1	+In	+
2	No Connection	NC
3	Ground	EMI/GND
4	–In	–
5	–Out	–
6	ON/OFF	ON/OFF
7	No Connection	NC
8	No Connection	NC
9	+Out	+



* Slotted baseplate only
** Threaded & thru-hole (style 2 & 3) baseplates
*** Reserved for Vicor accessories.
Not for mounting
℄ Pin center line

PCB Mounting Specifications



Consult Vicor Application Note:
Soldering methods and procedures for
1st and 2nd Generation modules.

Warranty

Vicor products are guaranteed for two years from date of shipment against defects in material or workmanship when in normal use and service. This warranty does not extend to products subjected to misuse, accident, or improper application or maintenance. Vicor shall not be liable for collateral or consequential damage. This warranty is extended to the original purchaser only.

EXCEPT FOR THE FOREGOING EXPRESS WARRANTY, VICOR MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Vicor will repair or replace defective products in accordance with its own best judgement. For service under this warranty, the buyer must contact Vicor to obtain a Return Material Authorization (RMA) number and shipping instructions. Products returned without prior authorization will be returned to the buyer. The buyer will pay all charges incurred in returning the product to the factory. Vicor will pay all reshipment charges if the product was defective within the terms of this warranty.

Information published by Vicor has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Vicor reserves the right to make changes to any products without further notice to improve reliability, function, or design. Vicor does not assume any liability arising out of the application or use of any product or circuit; neither does it convey any license under its patent rights nor the rights of others. Vicor general policy does not recommend the use of its components in life support applications wherein a failure or malfunction may directly threaten life or injury. Per Vicor Terms and Conditions of Sale, the user of Vicor components in life support applications assumes all risks of such use and indemnifies Vicor against all damages.

Vicor's comprehensive line of power solutions includes high density AC-DC and DC-DC modules and accessory components, fully configurable AC-DC and DC-DC power supplies, and complete custom power systems.

Information furnished by Vicor is believed to be accurate and reliable. However, no responsibility is assumed by Vicor for its use. Vicor components are not designed to be used in applications, such as life support systems, wherein a failure or malfunction could result in injury or death. All sales are subject to Vicor's Terms and Conditions of Sale, which are available upon request.

Specifications are subject to change without notice.

Intellectual Property Notice

Vicor and its subsidiaries own Intellectual Property (including issued U.S. and Foreign Patents and pending patent applications) relating to the products described in this data sheet. Interested parties should contact Vicor's Intellectual Property Department.

Vicor Corporation
25 Frontage Road
Andover, MA, USA 01810
Tel: 800-735-6200
Fax: 978-475-6715

email
Vicor Express: vicorexp@vicr.com
Technical Support: apps@vicr.com