



Military COTS 270V_{IN} Filter

M-FIAM3

Example Model Number **M-FIAM3M21**

Actual size:
2.28 x 2.2 x 0.5in
[57,9 x 55,9 x 12,7mm]

Input Attenuator Module

Features & Benefits

- EMI filtering: MIL-STD-461E ^[b]
- Transient protection: MIL-STD-704E/F
- Environments: MIL-STD-810, MIL-STD-202
- Environmental stress screening
- Low-profile mounting options
- Output current up to 3A
- Mini-sized package
- Inrush current limiting

Product Highlights

The M-FIAM3 is a DC front-end module that provides EMI filtering and transient protection. The M-FIAM3 enables designers using Vicor Maxi, Mini, Micro Series 300V DC-DC converters to meet conducted emission/ conducted susceptibility per MIL-STD-461E; and input transients per MIL-STD-704E/F. The M-FIAM3 accepts an input voltage of 180 – 375V_{DC} and delivers output current up to 3A.

M-FIAM3 is housed in an industry-standard “half-brick” module measuring 2.28 x 2.2 x 0.5in and depending upon model selected, may be mounted onboard or inboard for height-critical applications.

Compatible Products

- Maxi, Mini, Micro Series 300V Input DC-DC converters

Absolute Maximum Rating

| Parameter | Rating | Unit | Notes |
|---------------------------|-----------|-----------------|---------------------|
| +IN to -IN | 375 | V _{DC} | Continuous |
| | 400 | V _{DC} | 100ms |
| Mounting torque | 5 [0.57] | in·lbs [N·m] | 6 each, #4-40 or M3 |
| Pin Soldering temperature | 500 [260] | °F [°C] | <5sec; wave solder |
| | 750 [390] | °F [°C] | <7sec; hand solder |

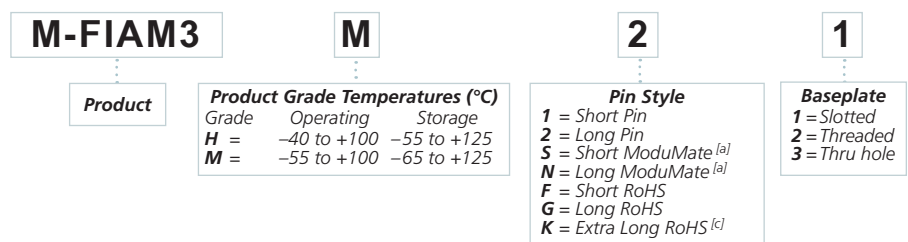
Thermal Resistance and Capacity

| Parameter | Min | Typ | Max | Unit |
|------------------------------|-----|------|-----|---------|
| Baseplate to sink | | | | |
| flat, greased surface | | 0.16 | | °C/Watt |
| with thermal pad (P/N 20264) | | 0.1 | | °C/Watt |
| Baseplate to ambient | | | | |
| Free convection | | 7.9 | | °C/Watt |
| 1000LFM | | 2.2 | | °C/Watt |

MTBF per MIL-HDBK-217F (M-FIAM3M21)

| Temperature | Environment | MTBF | Unit |
|-------------|----------------------------------|--------|----------|
| 25°C | Ground Benign: G.B. | 13,291 | 1,000Hrs |
| 50°C | Naval Sheltered: N.S. | 2,392 | 1,000Hrs |
| 65°C | Airborne Inhabited Cargo: A.I.C. | 1,874 | 1,000Hrs |

Part Numbering



^[a] Compatible with SurfMate and InMate socketing system

^[b] EMI performance is subject to a wide variety of external influences such as PCB construction, circuit layout etc. External components in addition to those listed herein may be required in specific instances to gain full compliance to the standards specified at various line and load conditions.

^[c] Not intended for socket or Surfmate mounting

Note: Product images may not highlight current product markings.

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 |
|--------------------|-----|-----|-------|------------------|----------------------------------|
| Input voltage | 180 | 270 | 375 | V_{DC} | Continuous |
| Inrush limiting | | | 0.018 | A/ μF | |
| Transient immunity | | | | | Exceeds limits of MIL-STD-704E/F |

Output Specifications

| Parameter | Min | Typ | Max | Unit | Notes |
|-----------------------|-----|-----|-----|---------------|---------------------------------|
| Output current | | | 3 | A | |
| Efficiency | 96 | 98 | | % | |
| Internal voltage drop | | 3.0 | 5.0 | V | @ 3A, 100°C baseplate |
| External capacitance | 10 | | 22 | μF | See Figure 5 on page 4. 400V |

Control Pin Specifications

| Parameter | Min | Typ | Max | Unit | Notes |
|----------------|-----|-----|-----|----------|---|
| ON/OFF control | | | | | |
| Enable (ON) | 0.0 | | 1.0 | V_{DC} | Referenced to $-V_{OUT}$ |
| Disable (OFF) | 3.5 | | 5.0 | V_{DC} | 100k Ω internal pull-up resistor |

Safety Specifications

| Parameter | Min | Typ | Max | Unit | Notes |
|----------------------|-------|-----|-----|-----------|----------------------|
| Dielectric withstand | 1,500 | | | V_{RMS} | Input/Output to Base |
| | 2,121 | | | V_{DC} | Input/Output to Base |

EMI

| Standard | Test Procedure | Notes |
|---------------------------|----------------------------|-------|
| MIL-STD-461E | | |
| Conducted emissions: | CE101, CE102 | |
| Conducted susceptibility: | CS101, CS114, CS115, CS116 | |

EMI performance is subject to a wide variety of external influences such as PCB construction, circuit layout etc. As such, external components in addition to those listed herein may be required in specific instances to gain full compliance to the standards specified.

Specifications (Cont.)

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

General Specifications

| Parameter | Min | Typ | Max | Unit | Notes |
|-----------|-----|----------|-----|----------------|-------|
| Weight | | 3.3 [94] | | Ounces [grams] | |
| Warranty | | | 2 | Years | |

Environmental Qualification

| | |
|-----------------------------|---|
| Altitude | MIL-STD-810F, Method 500.4, Procedure I & II, 40,000ft. and 70,000ft. Operational. |
| Explosive Atmosphere | MIL-STD-810F, Method 511.4, Procedure I, Operational. |
| Vibration | MIL-STD-810F, Method 514.5, Procedure I, Category 14, Sine and Random vibration per Table 514.5C for Helicopter AH-6J Main Rotor with overall level of 5.6Grms for 4 hours per axis. MIL-STD-810F, Method 514.5C, General Minimum Integrity Curve per Figure 514.5C-17 with overall level of 7.7Grms for 1 hour per axis. |
| Shock | MIL-STD-810F, Method 516.5, Procedure I, Functional Shock, 40g. MIL-S-901D, Lightweight Hammer Shock, 3 impacts/axis, 1,3,5 ft. MIL-STD-202F, Method 213B, 60g, 9ms half sine. MIL-STD-202F, Method 213B, 75g, 11ms Saw Tooth Shock. |
| Acceleration | MIL-STD-810F, Method 513.5, Procedure II, table 513.5-II, Operational, 2-7g, 6 directions. |
| Humidity | MIL-STD-810F, Method 507.4. |
| Solder Test | MIL-STD-202G, Method 208H, 8 hour aging. |

Environmental Stress Screening

| Parameter | H-Grade | M-Grade |
|-------------------------------------|--|--|
| Operating temperature | -40 to +100°C | -55 to +100°C |
| Storage temperature | -55 to +125°C | -65 to +125°C |
| Temperature cycling* | 12 cycles -65 to +100°C | 12 cycles -65 to +100°C |
| Ambient test @ 25°C | Yes | Yes |
| Power cycling burn-in | 12 hours, 29 cycles | 24 hours, 58 cycles |
| Functional and parametric ATE tests | -40 and +100°C | -55 and +100°C |
| Hi-Pot test | Yes | Yes |
| Visual inspection | Yes | Yes |
| Test data | vicorpower.com | vicorpower.com |

*Temperature cycled with power off, 17°C per minute rate of change.

Storage

Vicor products, when not installed in customer units, should be stored in ESD safe packaging in accordance with ANSI/ESD S20.20, "Protection of Electrical and Electronic Parts, Assemblies and Equipment" and should be maintained in a temperature controlled factory/warehouse environment not exposed to outside elements controlled between the temperature ranges of 15°C and 38°C. Humidity shall not be condensing, no minimum humidity when stored in an ESD compliant package.

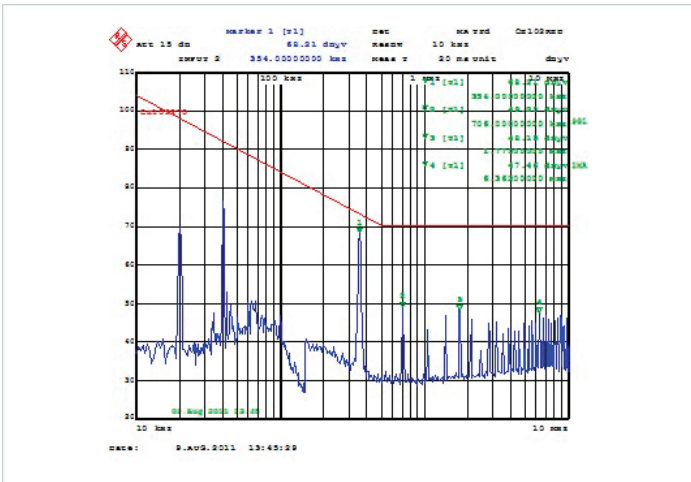


Figure 1 — Conducted noise; M-FIAM3 and V300A48C500BG DC-DC converter operating at 270V_{DC} input at 450W

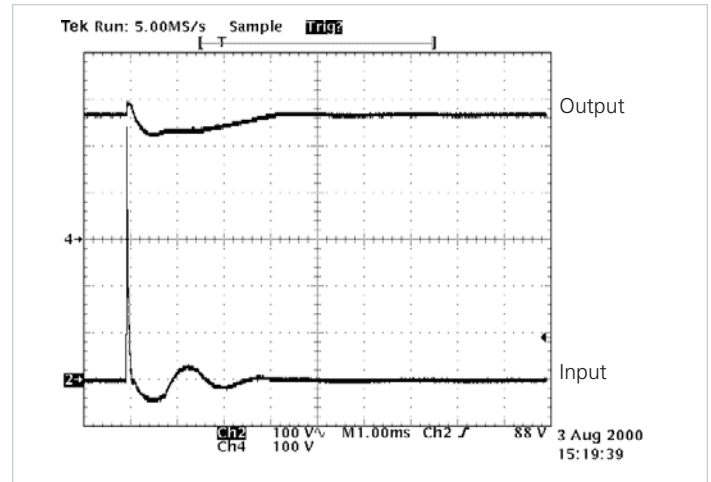


Figure 2 — Transient immunity; M-FIAM3 output response to an input transient

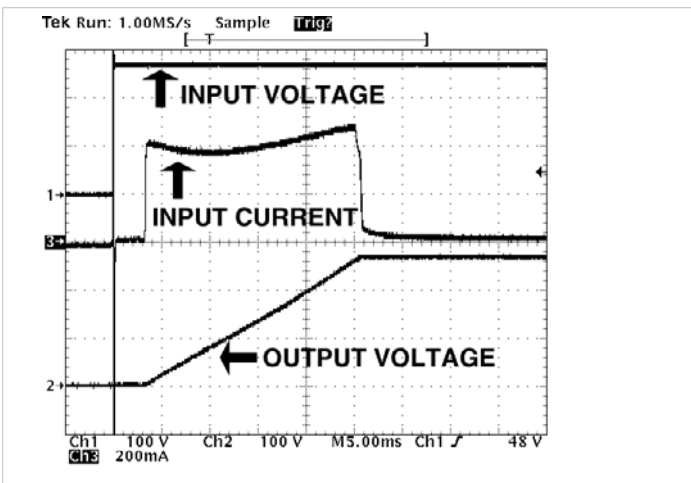


Figure 3 — Inrush limiting; inrush current with 22 μ F external capacitance, (C1 in Figure 5)

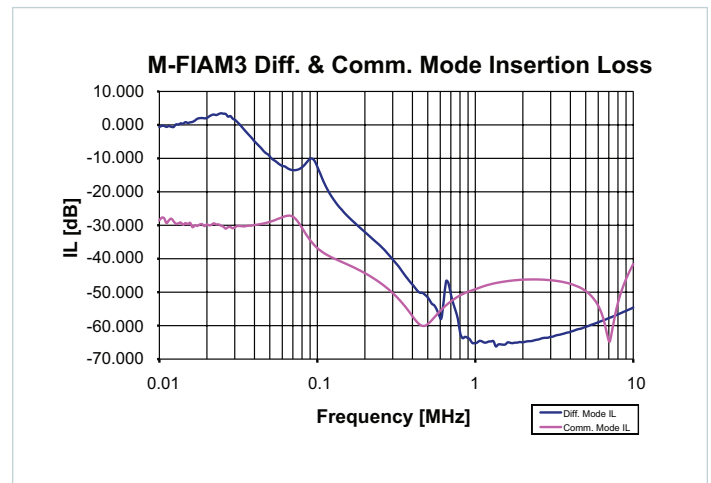


Figure 4 — Insertion loss curve

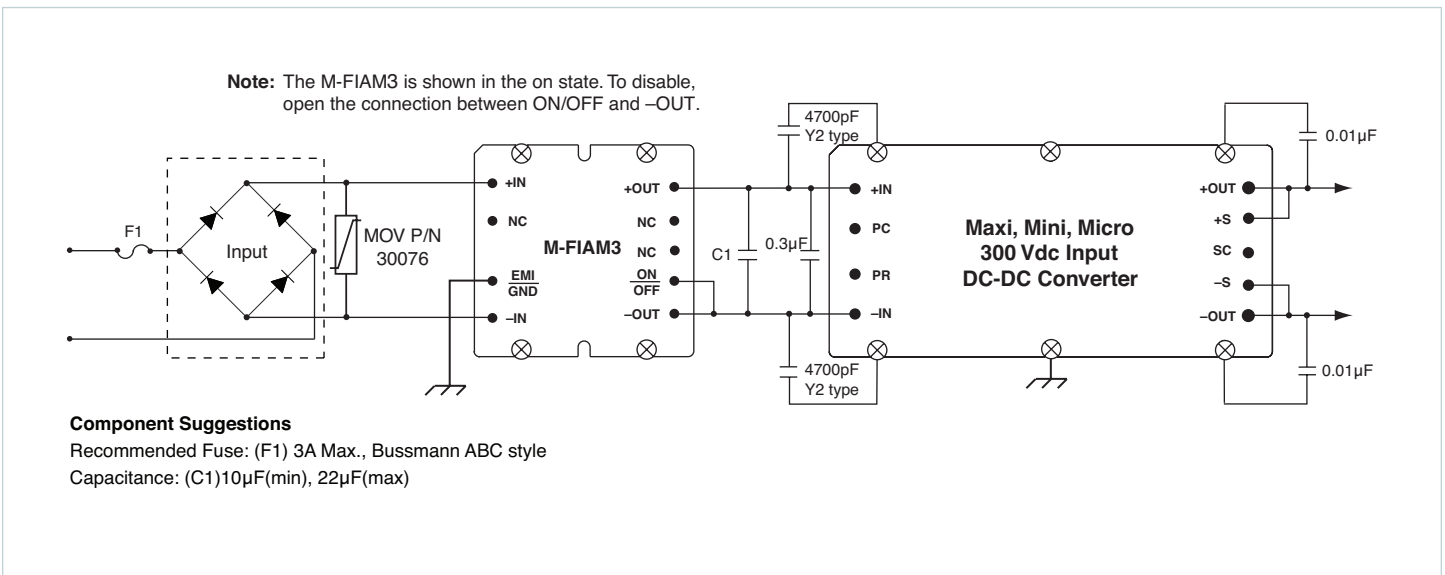


Figure 5 — Basic connection diagram with transient, surge protection and recommended reverse-polarity protection

Mechanical Drawings

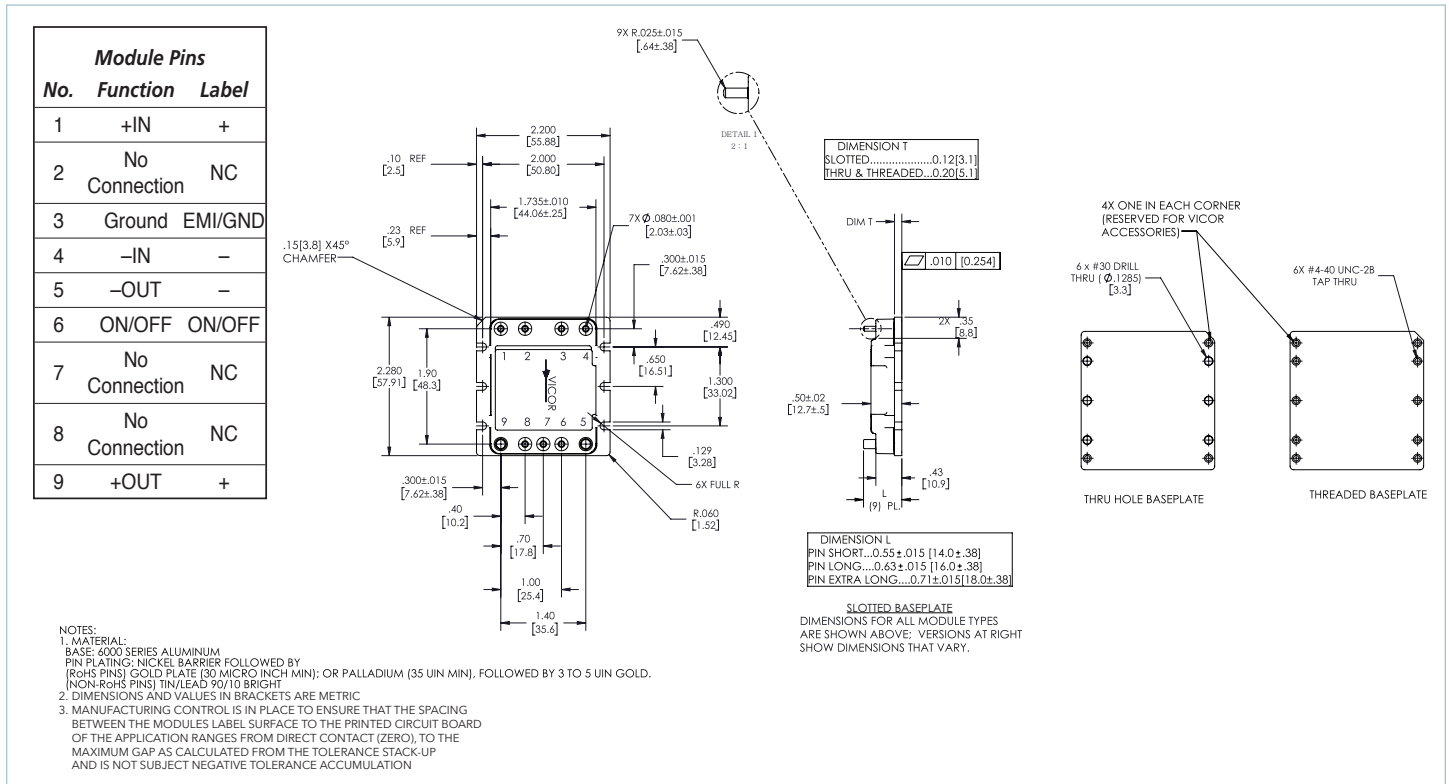


Figure 6 — Mechanical diagram

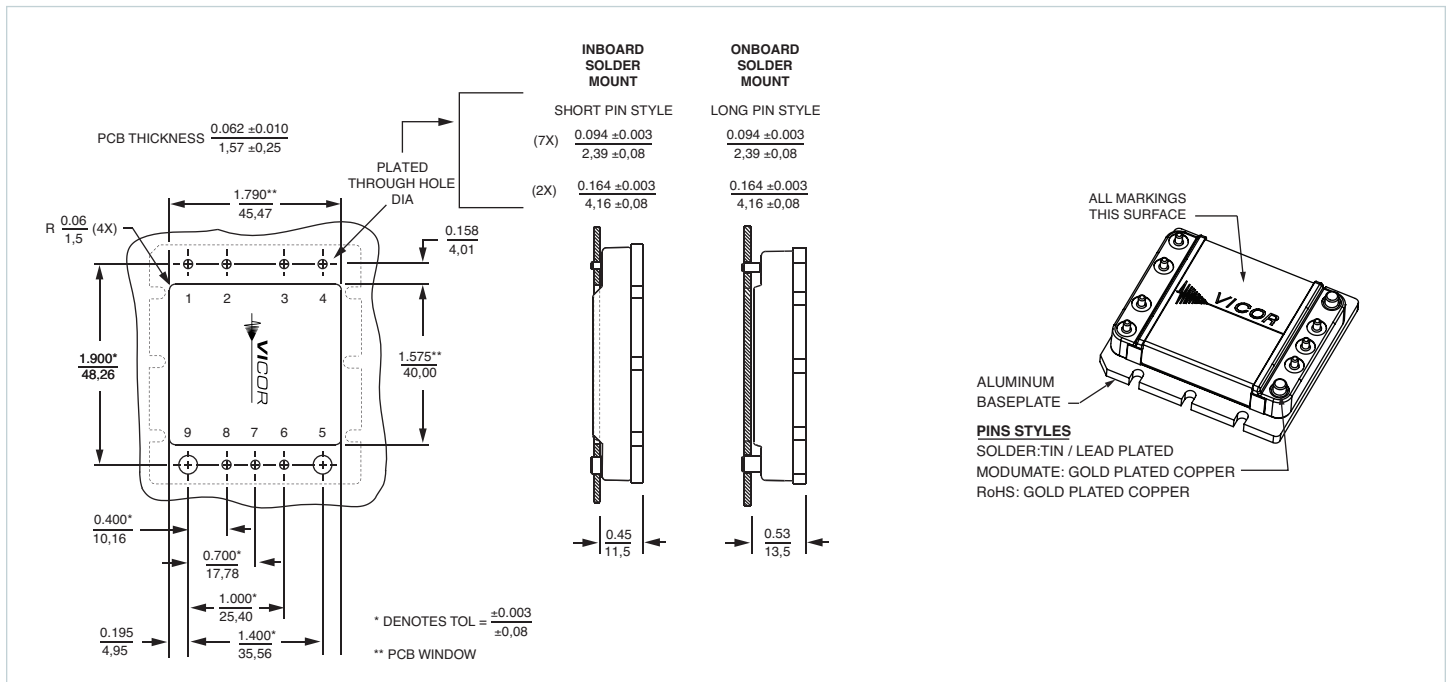


Figure 7 — PCB mounting specifications

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 makes no representations or warranties with respect to the accuracy or completeness of the contents of this publication. Vicor reserves the right to make changes to any products, specifications, and product descriptions at any time without notice. Information published by Vicor has been checked and is believed to be accurate at the time it was printed; however, Vicor assumes no responsibility for inaccuracies. Testing and other quality controls are used to the extent Vicor deems necessary to support Vicor's product warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

Specifications are subject to change without notice.

Visit http://www.vicorpower.com/mil-cots_dc-dc/mil-cots_m-fiam_filter_input_attenuator_module for the latest product information.

Vicor's Standard Terms and Conditions and Product Warranty

All sales are subject to Vicor's Standard Terms and Conditions of Sale, and Product Warranty which are available on Vicor's webpage (<http://www.vicorpower.com/termsconditionswarranty>) or upon request.

Life Support Policy

VICOR'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS PRIOR WRITTEN APPROVAL OF THE CHIEF EXECUTIVE OFFICER AND GENERAL COUNSEL OF VICOR CORPORATION. As used herein, life support devices or systems are devices which (a) are intended for surgical implant into the body, or (b) support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in a significant injury to the user. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system or to affect its safety or effectiveness. Per Vicor Terms and Conditions of Sale, the user of Vicor products and components in life support applications assumes all risks of such use and indemnifies Vicor against all liability and damages.

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. No license, whether express, implied, or arising by estoppel or otherwise, to any intellectual property rights is granted by this document. Interested parties should contact Vicor's Intellectual Property Department.

Contact Us: <http://www.vicorpower.com/contact-us>

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

email

Customer Service: custserv@vicorpower.com
Technical Support: apps@vicorpower.com

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Vicor:](#)

[M-FIAM3H21](#) [M-FIAM3H22](#) [M-FIAM3H22-01](#) [M-FIAM3H23](#) [M-FIAM3HF1](#) [M-FIAM3HG1](#) [M-FIAM3HG2](#) [M-FIAM3HG3](#) [M-FIAM3HK3](#) [M-FIAM3HN1](#) [M-FIAM3HN2](#) [M-FIAM3HN3](#) [M-FIAM3HS1](#) [M-FIAM3HS2](#) [M-FIAM3HS3](#)
[M-FIAM3M11](#) [M-FIAM3M12](#) [M-FIAM3M13](#) [M-FIAM3M21](#) [M-FIAM3M22](#) [M-FIAM3M23](#) [M-FIAM3MG1](#) [M-FIAM3MK1](#)
[M-FIAM3MN1](#) [M-FIAM3MN2](#) [M-FIAM3MN3](#) [M-FIAM3MS1](#) [M-FIAM3H12](#) [M-FIAM3H11](#) [M-FIAM3H13](#)



Стандарт Электрон Связь

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331