Data Sheet
VI-J00, VE-J00
Half Brick DC-DC Converters
25 to 100 Watts

Features
- RoHS compliant (VE versions)
- Up to 50 Watts per cubic inch
- cULus, cTÜVus
- CE Marked
- Up to 90% efficiency
- Size: 2.28" x 2.4" x 0.5" (57,9 x 61,0 x 12,7)
- Remote sense and current limit
- Logic disable
- Wide range output adjust
- ZCS power architecture
- Low noise FM control

Product Highlights

The VI-J00 MiniMod family established a new standard in component-level DC-DC converters. This "junior" size complement to the higher power VI-200 family offers up to 100W of isolated and regulated power in a board mounted package. With thousands of input/output/power combinations, and with a maximum operating temperature rating of 100˚C, the MiniMod provides nearly unlimited flexibiliy for power system designers to meet demanding time to market requirements .

Utilizing Vicor's "zero-current-switching" forward converter technology, proven by an installed base of over 8 million units, the MiniMod family combines state of the art power density with the efficiency, low noise and reliability required by next generation power systems.

Packaging Options

SlimMods™ , high power density, flangeless packages and FinMods™ , featuring integral finned heatsinks.

SlimMod: Option suffix: **- S**
Example: VI - JXX - XX **- S**
FinMod: Option suffix: **- F1** and **- F2**
Examples:
VI - JXX - XX -**F1**, 0.75" height
VI - JXX - XX -**F2**, 1.00" height

Converter Selection Chart

V I* -J ▫ ▫ ▫ ▫

*E for RoHS compliant

▫ Input Voltage

Nominal	Range	Max Power**	Brownout***	Transient***
0 = 12V	10 – 20V	(5)	n/a	22V
1 = 24V	21 – 32V	(2)	18V	36V
W = 24V	18 – 36V	(2)	n/a	n/a
2 = 36V	21 – 56V	(6)	18V	60V
3 = 48V	42 – 60V	(3)	36V	72V
N = 48V	36 – 76V	(2)	n/a	n/a
4 = 72V	55 – 100V	(2)	45V	110V
T = 110V	66 – 160V	(2)	n/a	n/a
5 = 150V	100 – 200V	(2)	85V	215V
6 = 300V	200 – 400V	(3)	170V	425V
7 = 150/300V	100 – 375V	(6)	90V	n/a

**Maximum Power	5 V Outputs	>5 V Outputs	<5 V Outputs
(1)	50W	50W	10A
(2)	75W	100W	20A
(3)	100W	100W	20A
(4)	75W	75W	15A
(5)	50W	75W	15A
(6)	50W	75W	10A

****Brownout 75% of rated load; transient voltage for 1 second.*

▫ Output Voltage

Z = 2 V	**2** = 15 V
Y = 3.3 V	**N** = 18.5 V
0 = 5 V	**3** = 24 V
X = 5.2 V	**L** = 28 V
W = 5.5 V	**J** = 36 V
V = 5.8 V	**K** = 40 V
T = 6.5 V	**4** = 48 V
R = 7.5 V	**H** = 52 V
M = 10 V	**F** = 72 V
1 = 12 V	**D** = 85 V
P = 13.8 V	**B** = 95 V

▫ Product Grade Temperatures (°C)

Operating	Storage
E = –10 to +100	**E** = –20 to +105
C = –25 to +100	**C** = –40 to +105
I = –40 to +100	**I** = –55 to +105
M = –55 to +100	**M** = –65 to +105

▫ Output Power/Current Vout

≥ 5 V	< 5V
Z = 25 W	**Z** = 5 A
Y = 50 W	**Y** = 10 A
X = 75 W	**X** = 15 A
W = 100 W	**W** = 20 A

Set your site on VICOR at www.vicorpower.com

CONVERTER SPECIFICATIONS

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

■ INPUT CHARACTERISTICS

Parameter	VI-J00 E-Grade Min	Typ	Max	VI-J00 C-, I-, M-Grade Min	Typ	Max	Units	Test Conditions
Inrush charge		60×10^{-6}			60×10^{-6}	100×10^{-6}	Coulombs	Nominal line
Input reflected ripple current – pp		10%			10%		I_{IN}	Nominal line, full load
Input ripple rejection		$25+20\,\mathrm{Log}\left(\frac{Vin}{Vout}\right)$			$30+20\,\mathrm{Log}\left(\frac{Vin}{Vout}\right)$		dB	120 Hz, nominal line
					$20+20\,\mathrm{Log}\left(\frac{Vin}{Vout}\right)$		dB	2400 Hz, nominal line
No load power dissipation		1.35	2		1.35	2	Watts	

■ OUTPUT CHARACTERISTICS

Parameter	VI-J00 E-Grade Min	Typ	Max	VI-J00 C-, I-, M-Grade Min	Typ	Max	Units	Test Conditions
Setpoint accuracy		1%	2%		0.5%	1%	V_{NOM}	
Load/line regulation			0.5%		0.05%	0.2%	V_{NOM}	LL to HL, 10% to Full Load
			1%		0.2%	0.5%	V_{NOM}	LL to HL, No Load to 10%
Output temperature drift		0.02			0.01	0.02	% / °C	Over rated temperature
Long term drift		0.02			0.02		%/1K hours	
Output ripple – pp:								
2 V, 3.3 V			200		100	150	mV	20 MHz bandwidth
5 V			5%		2%	3%	V_{NOM}	20 MHz bandwidth
10 – 48 V			3%		0.75%	1.5%	V_{NOM}	20 MHz bandwidth
Trim range[1]	50%		110%	50%		110%	V_{NOM}	
Total remote sense compensation	0.5			0.5			Volts	0.25 V max. neg. leg
Current limit	105%		135%	105%		125%	I_{NOM}	Automatic restart
Short circuit current	105%		140%	105%		130%	I_{NOM}	

■ CONTROL PIN SPECIFICATIONS

Parameter	VI-J00 E-Grade Min	Typ	Max	VI-J00 C-, I-, M-Grade Min	Typ	Max	Units	Test Conditions
Gate out impedance		50			50		Ohms	
Gate in impedance		1000			1000		Ohms	
Gate in high threshold		6				6	Volts	Use open collector
Gate in low threshold	0.65			0.65			Volts	
Gate in low current			6			6	mA	

CONVERTER SPECIFICATIONS

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

■ DIELECTRIC WITHSTAND CHARACTERISTICS

	VI-J00 E-Grade			VI-J00 C-, I-, M-Grade				
Parameter	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Units**	**Test Conditions**
Input to output	3,000			3,000			VRMS	Baseplate earthed
Output to baseplate	500			500			VRMS	
Input to baseplate	1,500			1,500			VRMS	

■ THERMAL CHARACTERISTICS

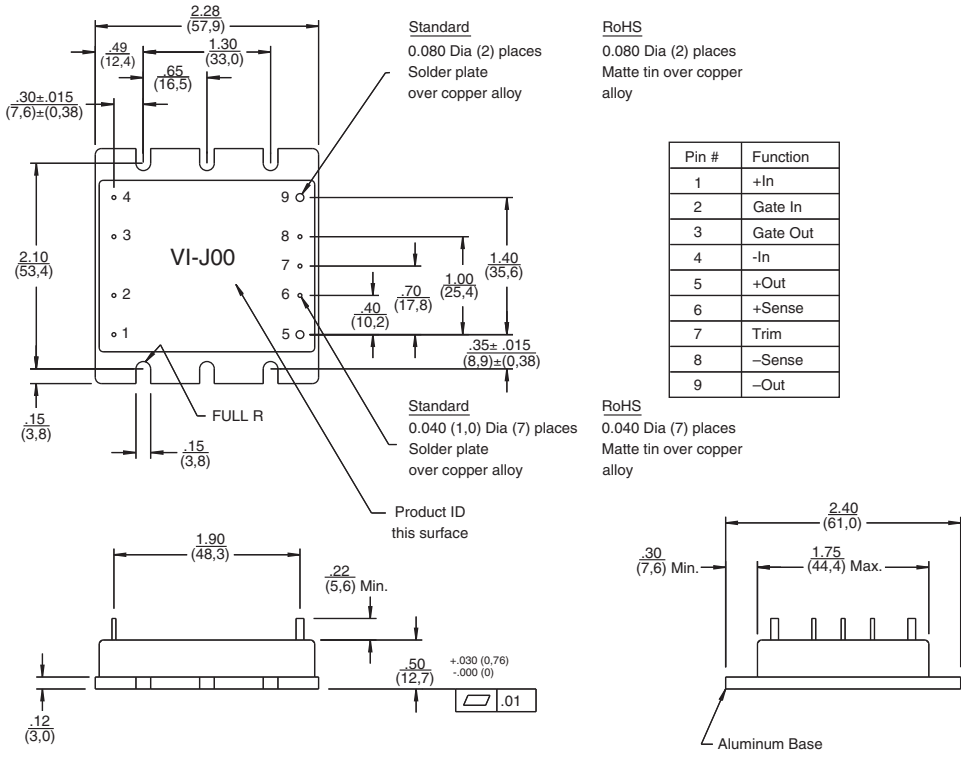
	VI-J00 E-Grade			VI-J00 C-, I-, M-Grade				
Parameter	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Units**	**Test Conditions**
Efficiency		78 – 88%			80 – 90%			
Baseplate to sink		0.4			0.4		°C/Watt	With Vicor P/N 04308

■ MECHANICAL SPECIFICATIONS

	VI-J00 E-Grade			VI-J00 C-, I-, M-Grade				
Parameter	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Units**	**Test Conditions**
Weight		3.0 (85)			3.0 (85)		Ounces (Grams)	

[1] 10V, 12V and 15V outputs, standard trim range ±10%. Consult factory for wider trim range.

MECHANICAL DRAWING



Pin #	Function
1	+In
2	Gate In
3	Gate Out
4	-In
5	+Out
6	+Sense
7	Trim
8	–Sense
9	–Out

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