MI-200

Product Highlights

The MI Series is designed for Military applications and is based on Vicor's second generation family of zero-current-switching, component level DC-DC converters. Operating at frequencies in excess of 1MHz, the MI Series offers state-of-the-art performance in terms of power density, efficiency, noise, ease of use, and reliability.

All units are manufactured under a quality system approved to MIL-I-45208 and in ISO 9001-registered facilities. Full epoxy encapsulation in Vicor's industry standard package enables the MI Series to meet MIL-STD-810 environmental requirements for humidity, fungus, salt fog, explosive atmosphere, acceleration, vibration, and shock. (See page 21.)

Standard features such as wide output trimming/programming, current limiting, remote sense, output inhibit and latching OVP and OTP combine to offer a high degree of protection, versatility and reliability for military power systems.

Military High-Density DC-DC Converters 50 to 100W



Features:

➤ Inputs:

PARAMETER

- 28Vdc per MIL-STD-704D/E 155Vdc per DOD-STD-1399A 270Vdc per MIL-STD-704D/E
- Single Output: 1 to 95Vdc
- ➤ Up to 23 W/in³
- ➤ MIL-STD-810 Environments
- ➤ 80-90% Efficiency

- Remote Sense
- Current Limit
- OVP and Thermal Shutdown
- Power Boosters for Higher Power Outputs
- ZCS Power Architecture
- ➤ Low Noise FM Control

HAUTE

TEST CONDITIONS

Converter/Booster Specifications

(Typical at $T_{\rm RP} = 25^{\circ}$ C, nominal line and 75% load, unless otherwise specified)

PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
		de La Chie			and the state of the state of the state of
Input Voltage Range	Se	e Input Voltage C			
No Load Power Dissipation		1.35	2	Watts	
	Head House	PROFESSION OF	College of		iding (jarin dan jiji ji ()
Set Point Accuracy		0.5%	1%	V _{NOM}	
Load/Line Regulation		0.05% 0.2%	0.2%	Mon	LL to HL, 10% to FL LL to HL NL to 10%
Output Temperature Drift		0.2%	0.5% 0.02	V _{NOM} %℃	LL TO HL. NL TO 10%
Output Noise - pp		1.0%	1.5%	V _{NOM}]	Whichever is greater
омранион рр		100	150	mV }	20MHz BW
Output Voltage Trimming	50%		110%	V _{NOM}	
Remote Sense Compensation	0.5			Volts	
OVP Set Point	115%	125%	135%	V _{NOM}	Latching
Current Limit	105%		125%	NOM	Auto restart
Short Circuit Current	105%		130%	NOM [∫]	Auto restart
	数数数数		翻毛线		COLOR CALABORA
Gate In High Threshold		6		Volts	
Gate In Low Threshold	0.65			Volts	
Gate In Low Current Power Sharing Accuracy	0.95		6 1.05	mA	
Fower Sharing Accuracy	0.53	- English de Salain (Salain Salain	UU. I		
		i ali ettera ali enem	Professional State	MERCANDA MATERIAL SANCES SERVICES AND AND AND ADDRESS OF THE PROPERTY OF THE P	
Isolation (Input to Output) Isolation (Output to Baseplate)	3,000 500			V _{RMS}	
Isolation (Input to Baseplate)	1,500			V _{RMS} V _{RMS}	
Input/Output Capacitance	1,000	50	75	PF PF	
					Care designed to the state of
Altitude - Method 500.2	70,000			feet	Procedure II
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			gis	Procedure 1, Category 6
Shock - Method 516.3	40			g's	Procedure 1
			(Automor	Magazine e de la companya de la comp	
25°C Ground Benign: G.B.		864,000		hours	
50°C Naval Sheltered: N.S.		111,000		hours	
65°C Airborne Inhabited Cargo: A	A.I.C.	81,000		hours	
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Efficiency		80-90%			
Baseplate to Sink	00	0.2		°C/W	With Thermal Pads
Shutdown Temperature	90	95	105	°C °C	Latching See Product Grade
Baseplate Operating Temperature	:		+85		
Storage jemnerature			±100	٥٢	See Product Grade
Storage Temperature			+100	°C	See Product Grade
		4.05	+100		See Product Grade
		4.35 6.0 (170)		°C in ³ lunces (Grams)	See Product Grade

¹¹²V and 15V outputs, standard trim range ± 10%. Consult factory for wider trim range.

Converter Selection Chart

MI-2 3 - 3 5

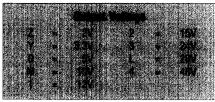
Semi-custom driver and booster modules available: Inputs from 10 to 500Vdc; outputs from 1 to 95Vdc.

- (1) 16V operation at 75% load.
- (2) These units rated at 75% load from 125-150Vin; 5V @ 100W; 2V and 3.3V @ 30A.

28Vdc input per MIL-STD 704D/E 155Vdc input per DOD-STD-1399A 270Vdc input per MIL-STD-704D/E

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The second secon	4 mm m4 m4 1	mmns 1
5 = 155V	100 - 210V	230V
U - 100T	TWO LIVY	2001
0701/	TOE ADDITION	(9) A7EM
6 = 270V	125 - 400V	(2) 475V
7 4001	100 0401	 Industry of the constitution of t
7 = 165V	100 - 310V	
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Hard and 100 1 (2007) 19 10 10 10 10 10 10 10 10 10 10 10 10 10		
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	V =			30A
For ad	ditional pov	rer, 100W	and 75W B	ooster
modulae	audioble C	honne tdi .:	Dav_www.toc.fit	H. Mary . ww

Product Grade Specifications

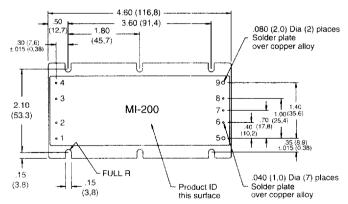
Parameter Product Grade

Storage Temperature	-55°C to +100°C	-65°C to +100°C
Operating Temperature (baseplate)	-40°C to +85°C	-55°C to +85°C
Power Cycling Burn-in	12 hours, 25 cycles	96 hours, 200 cycles
Temperature Cycled with Power Off	48 hours, 12-16 cycles	48 hours, 12-16 cycles
	-55°C to +100°C	-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
Derating	NAVMAT P-4855-1A	NAVMAT P-4855-1A

Mechanical Drawing

Alternative Mechanical Packaging Available

See Package Options page 23



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

Booster modules

