

MI-MegaMod

CHASSIS - MOUNT DC-DC CONVERTER

MILITARY

FEATURES

- Inputs: 28, 155, 165 and 270 Vdc
- One, two, or three outputs
- Output from 2 to 48 Vdc
- Up to 13.5 W/in³
- High efficiency
- Remote sense
- ZCS power architecture
- Low noise FM control



PRODUCT INFORMATION

Vicor's **MI-MegaMod** family of single, dual, and triple output DC-DC converters provide power system designers with cost-effective, high-performance, off-the-shelf solutions to applications that might otherwise require a custom supply.

Incorporating standard MI-200 or MI-J00 family converters in rugged, chassis-mount packages, MegaMods can be ordered with single, dual, or triple outputs, having a combined output power of up to 300 W. Totally isolated outputs eliminate efficiency penalties and output interaction problems.

FULL-SIZE MEGAMOD

PARAMETER INPUT	MIN	TYP	MAX	UNIT	NOTE
Inrush charge	120 x 10 ⁻⁶	200 x 10 ⁻⁶		Coulombs	Nominal line, per module
Input reflected ripple current – pp		10		% I _{in}	Nominal line, full load
No load power dissipation	1.35	2.0		Watts	Per module
OUTPUT					
Set point accuracy		0.5	1.0	% V _{nom}	
Load / line regulation		0.05	0.2	% V _{nom}	LL to HL, 10% to FL
Load / line regulation		0.2	0.5	% V _{nom}	LL to HL, NL to 10%
Output temperature drift		0.01	0.02	% / °C	Over rated temperature
Long term drift		0.02		% / 1K hrs	
Output ripple – p-p: <10 V 12 – 48 V		80	150	mV	20 MHz bandwidth
		0.75	1.5	%	20 MHz bandwidth
Output voltage trimming ^[a]	50		110	% V _{nom}	
Total remote sense compensation	0.5			Vdc	0.25 V max. neg. leg
OVP set point	115	125	135	% V _{nom}	Recycle power
Current limit	105		125	% I _{nom}	Automatic restart
Short circuit current			130	% I _{nom}	

PARAMETER	MIN	TYP	MAX	UNIT	NOTE
ISOLATION					
Isolation (input to output)	3,000			Vrms	
Isolation (output to baseplate)	500			Vrms	
Isolation (input to baseplate)	1,500			Vrms	
THERMAL					
Efficiency		80 – 90		%	
Baseplate to chassis		0.1		°C/Watt	
Thermal shut down	+90	+95	+105	°C	

HALF-SIZE MEGAMOD

PARAMETER INPUT	MIN	TYP	MAX	UNIT	NOTE
Inrush charge		60 x 10 ⁻⁶	100 x 10 ⁻⁶	Coulombs	Nominal line, per module
Input reflected ripple current – pp		10		% I _{in}	Nominal line, full load
No load power dissipation		1.35	2.0	Watts	Per module
OUTPUT					
Set point accuracy		0.5	1.0	% V _{nom}	
Load / line regulation		0.05	0.2	% V _{nom}	LL to HL, 10% to FL
Load / line regulation		0.2	0.5	% V _{nom}	LL to HL, NL to 10%
Output temperature drift		0.01	0.02	% / °C	Over rated temperature
Long term drift		0.02		% / 1K hrs	
Output ripple – p-p: <10 V		80	150	mV	20 MHz bandwidth
12 – 48 V bandwidth		0.75	1.5	%	20 MHz
Output voltage trimming ^[a]	50		110	% V _{nom}	
Total remote sense compensation	0.5			Vdc	0.25 V max. neg. leg
Current limit	105	125	135	% I _{nom}	Automatic restart
ISOLATION					
Isolation (input to output)	3,000			Vrms	
Isolation (output to baseplate)	500			Vrms	
Isolation (input to baseplate)	1,500			Vrms	
THERMALS					
Efficiency		80 – 90		%	
Baseplate to chassis		0.1		°C / Watt	

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







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CONFIGURATION CHART

FULL-SIZE MEGAMODS

SINGLE OUTPUT	POWER	SIZE	WEIGHT	# OF MI-200
MI-L 	50 – 100 W	4.9" x 2.5" x 0.62" 124,5 x 63,5 x 15,7 mm	9.0 oz. (255 g)	1
MI-M 	150 – 200 W	4.9" x 4.9" x 0.62" 124,5 x 124,5 x 15,7 mm	1.2 oz. (525 g)	2
MI-N 	300 W	4.9" x 7.3" x 0.62" 124,5 x 185,4 x 15,7 mm	1.7 oz. (780 g)	3
DUAL OUTPUTS				
MI-P 	100 – 200 W	4.9" x 4.9" x 0.62" 124,5 x 124,5 x 15,7 mm	1.2 oz. (525 g)	2
MI-Q 	200 – 300 W	4.9" x 7.3" x 0.62" 124,5 x 185,4 x 15,7 mm	1.7 oz. (780 g)	3
TRIPLE OUTPUTS				
MI-R 	150 – 300 W	4.9" x 7.3" x 0.62" 124,5 x 185,4 x 15,7 mm	1.7 oz. (780 g)	3

HALF-SIZE MEGAMODS

SINGLE OUTPUT	POWER	SIZE	WEIGHT	# of MI-J00
MI-LJ 	10 – 50 W	2.58" x 2.5" x 0.62" 65,5 x 63,5 x 15,7 mm	4.5 oz. (127 g)	1
DUAL OUTPUTS				
MI-PJ 	20 – 100 W	2.58" x 4.9" x 0.62" 65,5 x 124,5 x 15,7 mm	8.8 oz. (250 g)	2
TRIPLE OUTPUTS				
MI-RJ 	30 – 150 W	2.58" x 7.3" x 0.62" 65,5 x 185,4 x 15,7 mm	13.3 oz. (377 g)	3

Input Voltage		
Nominal	Range	Transient
2 = 28 Vdc	18 – 50 V ^[b]	60 V
5 = 155 Vdc	100 – 210 V	230 V
6 = 270 Vdc	125 – 400 V ^[c]	475 V
7 = 165 Vdc	100 – 310 V ^[d]	

Output Voltage		
Z = 2 V	T = 6.5 V ^[e]	N = 18.5 V
Y = 3.3 V	R = 7.5 V ^[e]	3 = 24 V
O = 5 V	M = 10 V	L = 28 V
X = 5.2 V	1 = 12 V	J = 36 V
W = 5.5 V	P = 13.8 V	K = 40 V
V = 5.8 V	2 = 15 V	4 = 48 V

Product Grade
Full Size I = -40°C to +85°C M = -55°C to +85°C
Half Size I = -40°C to +100°C M = -55°C to +100°C

Output Power / Current			
Full Size		Half Size	
≥5 V	<5 V	≥5 V	<5 V
Y = 50 W	10 A	A = 10 W	—
X = 75 W	15 A	Z = 25 W	5 A
W = 100 W	20 A	Y = 50 W	10 A
V = —	30 A		

Output Power / Current		
	≥5 V	<5 V
V =	150 W	30 A
U =	200 W	—
S =	—	60 A

Output Power / Current		
	≥5 V	<5 V
S =	300 W	—
P =	—	90 A

^[b] 16 V operation at 75% load

^[c] These units rated at 75% load from

125 – 150 Vin: Full-size – 5 Vout @

100 W; 2 Vout and 3.3 Vout @ 30 A:

Half-Size – 5 Vout @ 50 W; 2 V and 3.3 V @ 10 A

^[d] For use with Vicor's MI-AIM

^[e] 75 W max module power for 28 V input

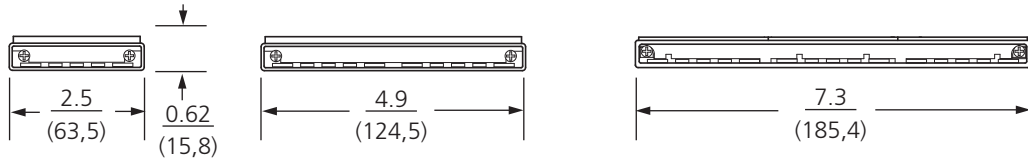
MI-MegaMod

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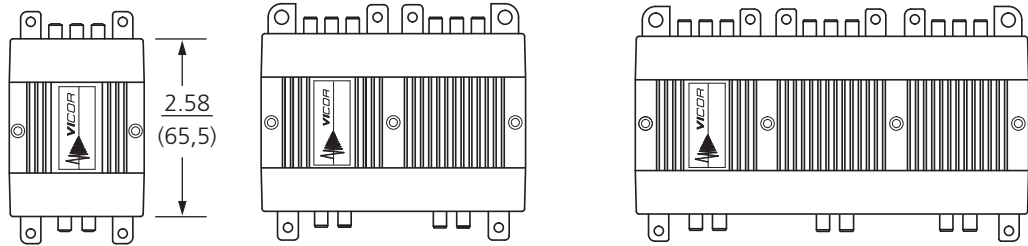
MILITARY

MECHANICAL

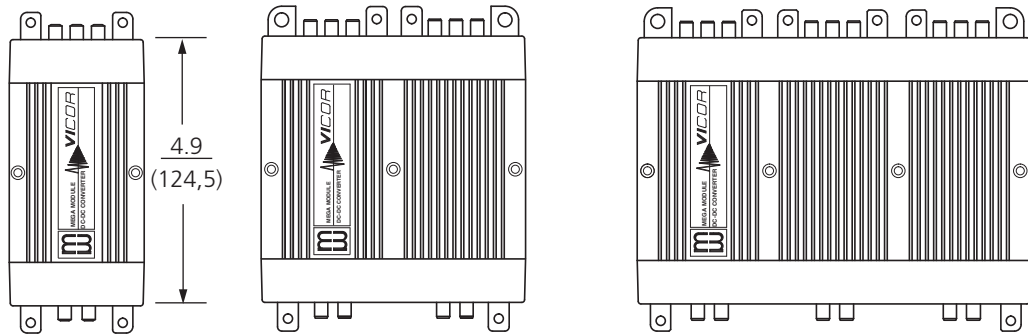
$\frac{in}{(mm)}$



**Half-size
MegaMod**



**Full-size
MegaMod**



Single

Single or Dual

Single, Dual or Triple