



Data Sheet



MegaMod & MegaMod Jr. Family

25 to 600 Watts DC-DC Converters

Single, Dual, Triple Output Chassis Mount



Features

- RoHS compliant (VE versions)
- Inputs: 10 to 400 Vdc
- Any output, 1 to 95 Vdc
- cULus, cTUVus, CE Marked
- 80 – 90% Efficiency (Typical)
- Up to 27 W/In³
- 1 Up:
 - 2.58" x 2.5" x 0.62" (Junior)
 - 4.9" x 2.5" x 0.62" (Full Size)
- 2 Up:
 - 2.58" x 4.9" x 0.62" (Junior)
 - 4.9" x 4.9" x 0.62" (Full Size)
- 3 Up:
 - 2.58" x 7.3" x 0.62" (Junior)
 - 4.9" x 7.3" x 0.62" (Full Size)
- Low noise ZCS power architecture
- Booster versions available for expanded output power – full size only (add B to part number Example: VI-LBxx-xx)

Product Highlights

Vicor's MegaMod and MegaMod Jr. Families 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 VI-200 or VI-J00 Family converters in rugged, chassis mount packages, MegaMod and MegaMod Jr.'s can be ordered with single, dual or triple outputs, having a combined output power of up to 600 W. Totally isolated outputs eliminate efficiency penalties and output interaction problems.

Configuration Chart

Substitute VE- for VI- for RoHS compliant versions					
Full-Size Modules – MegaMod			Junior-Size Modules – MegaMod Jr		
Configuration	Output Power	# of Modules	Configuration	Output Power	# of Modules
Single Output			Single Output		
VI-L [] [] - [] [] []	50 – 200 W	1	VI-LJ [] [] - [] [] []	25 – 100 W	1
VI-M [] [] - [] [] []	100 – 400 W	2			
VI-N [] [] - [] [] []	300 – 600 W	3			
Dual Output			Dual Output		
VI-P [] [] - [] [] [] []	100 – 400 W	2	VI-PJ [] [] - [] [] [] []	50 – 200 W	2
VI-Q [] [] - [] [] [] []	150 – 600 W	3			
Triple Output			Triple Output		
VI-R [] [] - [] [] [] [] []	150 – 600 W	3	VI-RJ [] [] - [] [] [] [] []	75 – 300 W	3

Input Voltage

Nominal	Input Range Full Power	Maximum Power ^(a) (see chart below)		Low Line 75% Max Power	Transient ^[a]
		MegaMod	MegaMod Jr.		
0 = 12 V ^[b]	10 – 20 V	(4)	(1)	n/a	22
V = 24 V ^[b]	10 – 36 V	(2)	(11)	n/a	n/a
1 = 24 V ^[b]	21 – 32 V	(8)	(5)	18 V	36
W = 24 V ^[b]	18 – 36 V	(8)	(5)	n/a	n/a
2 = 36 V	21 – 56 V	(6)	(1)	18 V	60
3 = 48 V	42 – 60 V	(10)	(5)	36 V	72
N = 48 V	36 – 76 V	(10)	(5)	n/a	n/a
4 = 72 V	55 – 100 V	(9)	(4)	45 V	110
T = 110 V	66 – 160 V	(8)	(5)	n/a	n/a
5 = 150 V	100 – 200 V	(9)	(5)	85 V	215
6 = 300 V	200 – 400 V	(10)	(6)	170 V	425
7 = 150/300 V	100 – 375 V	(5)	(1)	90 V	n/a

Max. Output Per Module	5 – 7.5 V Outputs	>7.5 V Outputs	<5 V Outputs
(1)	50 W	75 W	10 A
(2)	50 W ^[c]	75 W	15 A
(4)	75 W	75 W	15 A
(5)	75 W	100 W	20 A
(6)	100 W	100 W	20 A
(7)	100 W	150 W	30 A
(8)	150 W	150 W	30 A
(9)	150 W	200 W	40 A
(10)	200 W	200 W	40 A
(11)	50 W	50 W	10 A

Output Voltage

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

[a] Transient voltage for 1 second.

[b] Total MegaMod output power for 225 W, "0", "V" input models and 450 W, "1", "W" input models are limited to 55°C ambient, and are available by special order.

[c] 7.5 V output is 75 W

Product Grade Temperature (°C)

MegaMod	MegaMod Jr.
E = -10 to +85	-10 to +100
C = -25 to +85	-25 to +100
I = -40 to +85	-40 to +100
M = -55 to +85	-55 to +100

Refers to Baseplate Temperature

Output Power/Current

Vout ≥ 5 V	Vout < 5 V
W = 100 W	W = 20 A
V = 150 W	V = 30 A
U = 200 W	U = 40 A
S = 300 W	S = 60 A
Q = 400 W	Q = 80 A

Output Power/Current

MegaMod		MegaMod Jr.	
Vout ≥ 5 V	Vout < 5 V	Vout ≥ 5 V	Vout < 5 V
Y = 50 W	Y = 10 A	Z = 25 W	Z = 5 A
X = 75 W	X = 15 A	Y = 50 W	Y = 10 A
W = 100 W	W = 20 A	X = 75 W	X = 15 A
V = 150 W	V = 30 A	W = 100 W	W = 20 A
U = 200 W	U = 40 A		

Output Power/Current

Vout ≥ 5 V	Vout < 5 V
S = 300 W	S = 60 A
P = 450 W	P = 90 A
M = 600 W	M = 120 A

MEGAMOD SPECIFICATIONS

(typical at $T_{BP} = 25^{\circ}\text{C}$, nominal line, 75% load, unless otherwise specified)

INPUT SPECIFICATIONS

Parameter	MegaMod (E-Grade)			MegaMod (C-, I-, M-Grade)			Unit	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Inrush charge		120x10 ⁻⁶			120x10 ⁻⁶	200x10 ⁻⁶	Coulombs	Nom. line, per module
Input reflected ripple current – pp		10%			10%		I _{IN}	Nom. line, full load
Input ripple rejection		25+20Log($\frac{V_{in}}{V_{out}}$)			30+20Log($\frac{V_{in}}{V_{out}}$)		dB	120 Hz, nom. line
					20+20Log($\frac{V_{in}}{V_{out}}$)		dB	2400 Hz, nom. line
No load power dissipation		1.35	2		1.35	2	Watts	Per module

OUTPUT SPECIFICATIONS

Parameter	MegaMod (E-Grade)			MegaMod (C-, I-, M-Grade)			Units	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
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 FL
			1%		0.2%	0.5%	V _{NOM}	LL to HL, NL to 10%
Output temperature drift		0.02			0.01	0.02	% / °C	Over rated temp.
Long term drift		0.02			0.02		%/1K hours	
Output ripple - pp								
2 V, 3.3 V			150		60	100	mV	20 MHz bandwidth
5 V			5%		2%	3%	V _{NOM}	20 MHz bandwidth
10 – 95 V			3%		0.75%	1.5%	V _{NOM}	20 MHz bandwidth
Output voltage trimming ^[a]	50%		110%	50%		110%	V _{NOM}	
Total remote sense compensation	0.5			0.5			Volts	0.25 V max. neg. leg
OVP setpoint ^[b]		125%		115%	125%	135%	V _{NOM}	Recycle power
Current limit	105%		135%	105%		125%	I _{NOM}	Automatic restart
Short circuit current ^[c]	20%		140%	20%		130%	I _{NOM}	

^[a] 10 V, 12 V and 15 V outputs, standard trim range $\pm 10\%$. Consult factory for wider trim range. 95 V_{out} cannot be trimmed up.

^[b] 131% typical for booster modules.

^[c] Output voltages of 5 V or less incorporate foldback current limiting; outputs of 10 V and above contain straight-line limiting.

CONTROL PIN SPECIFICATIONS

Parameter	MegaMod (E-Grade)			MegaMod (C-, I-, M-Grade)			Units	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Gate out impedance		50			50		Ohms	
Gate in impedance		10 ³			10 ³		Ohms	
Gate in open circuit voltage		6			6		Volts	Use open collector
Gate in low threshold	0.65			0.65			Volts	
Gate in low current			6			6	mA	
Power sharing accuracy	0.95		1.05	0.95		1.05		

MEGAMOD SPECIFICATIONS (cont.)

■ DIELECTRIC WITHSTAND CHARACTERISTICS

Parameter	MegaMod (E-Grade)			MegaMod (C-, I-, M-Grade)			Unit	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
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

Parameter	MegaMod (E-Grade)			MegaMod (C-, I-, M-Grade)			Units	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Efficiency		78-88%			80 – 90%			
Baseplate to chassis		0.1			0.1		°C/Watt	
Thermal Shutdown (drivers only)	90	95	105	90	95	105	°C	Baseplate (Cool and recycle power to restart)

■ MECHANICAL SPECIFICATIONS

Parameter	MegaMod (E-Grade)			MegaMod (C-, I-, M-Grade)			Units	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Weight								
1 Up		9.0 (255)			9.0 (255)		Ounces (Grams)	
2 Up		1.2 (545)			1.2 (545)		Lbs. (Grams)	
3 Up		1.7 (772)			1.7 (772)		Lbs. (Grams)	

MEGAMOD JR. SPECIFICATIONS

(typical at $T_{BP} = 25^{\circ}\text{C}$, nominal line, 75% load, unless otherwise specified)

INPUT SPECIFICATIONS

Parameter	MegaMod Jr. (E-Grade)			MegaMod Jr. (C-, I-, M-Grade)			Unit	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Inrush charge		60×10^{-6}	100×10^{-6}		60×10^{-6}	100×10^{-6}	Coulombs	Nom. line, per module
Input reflected ripple current — pp		10%			10%		IIN	Nom. line, full load
Input ripple rejection		$25 + 20 \text{Log} \left(\frac{V_{in}}{V_{out}} \right)$			$30 + 20 \text{Log} \left(\frac{V_{in}}{V_{out}} \right)$		dB	120 Hz, nom. line
					$20 + 20 \text{Log} \left(\frac{V_{in}}{V_{out}} \right)$		dB	2400 Hz, nom. line
No load power dissipation		1.35	2		1.35	2	Watts	Per module

OUTPUT SPECIFICATIONS

Parameter	MegaMod Jr. (E-Grade)			MegaMod Jr. (C-, I-, M-Grade)			Units	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Setpoint accuracy		1.0%	2.0%		0.5%	1%	VNOM	
Load/line regulation			0.5%		0.05%	0.2%	VNOM	LL to HL, 10% to FL
			1.0%		0.2%	0.5%	VNOM	LL to HL, NL to 10%
Output temperature drift		0.02			0.01		%/°C	Over rated temp.
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%	VNOM	20 MHz bandwidth
10 V – 95 V		3%			0.75%	1.5%	VNOM	20 MHz bandwidth
Output voltage trimming ^[a]	50%		110%	50%		110%	VNOM	
Total remote sense compensation	0.5			0.5			Volts	0.25V max. neg. leg
OVP setpoint		N/A			N/A			
Current limit	105%		135%	105%		125%	INOM	Automatic restart
Short circuit current	105%		140%	105%		130%	INOM	

^[a] 10 V, 12 V and 15 V outputs, standard trim range $\pm 10\%$. Consult factory for wider trim range. 95 Vout cannot be trimmed up.

CONTROL PIN SPECIFICATIONS

Parameter	MegaMod Jr. (E-Grade)			MegaMod Jr. (C-, I-, M-Grade)			Units	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Gate out impedance		50			50		Ohms	
Gate in impedance		1,000			1,000		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	

MEGAMOD JR. SPECIFICATIONS (cont.)

■ DIELECTRIC WITHSTAND CHARACTERISTICS

Parameter	MegaMod Jr. (E-Grade)			MegaMod Jr. (C-, I-, M-Grade)			Unit	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
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

Parameter	MegaMod Jr. (E-Grade)			MegaMod Jr. (C-, I-, M-Grade)			Units	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Efficiency		78 – 88%			80 – 90%			
Baseplate to chassis		0.2			0.2		°C/Watt	

■ MECHANICAL SPECIFICATIONS

Parameter	MegaMod Jr. (E-Grade)			MegaMod Jr. (C-, I-, M-Grade)			Units	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Weight								
1 Up		4.5 (127)			4.5 (127)		Ounces (Grams)	
2 Up		8.8 (250)			8.8 (250)		Ounces (Grams)	
3 Up		13.3 (377)			13.3 (377)		Ounces (Grams)	

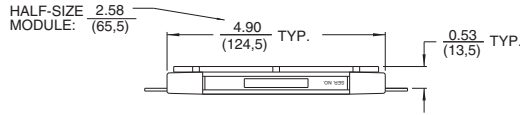
MEGAMOD MECHANICAL SPECIFICATIONS

Inputs	
1 -Input	5 Gate Out #2
2 Gate Out #1	6 Gate In #2
3 Gate In #1	7 Gate Out #3
4 +Input	8 Gate In #3

Outputs		
Output #1	Output #2	Output #3
A -Output	F -Output	L -Output
B -Sense*	G -Sense	M -Sense
C Trim*	H Trim	N Trim
D +Sense*	J +Sense	P +Sense
E +Output	K +Output	Q +Output

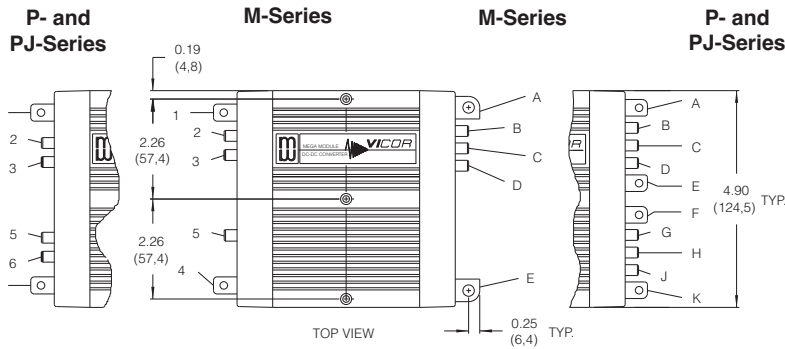
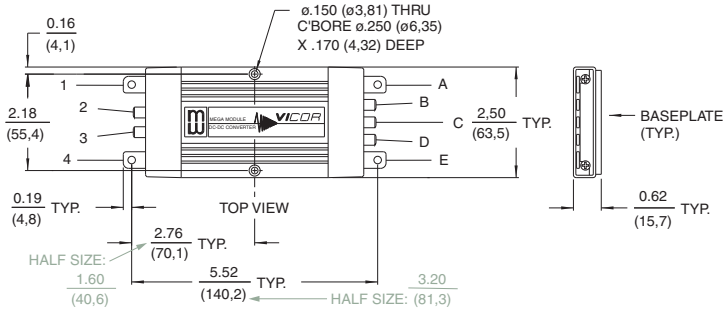
*For Units with BatMod
 B-IMON
 C-ITRIM
 D-VTRIM

Inputs Outputs

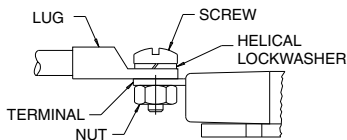
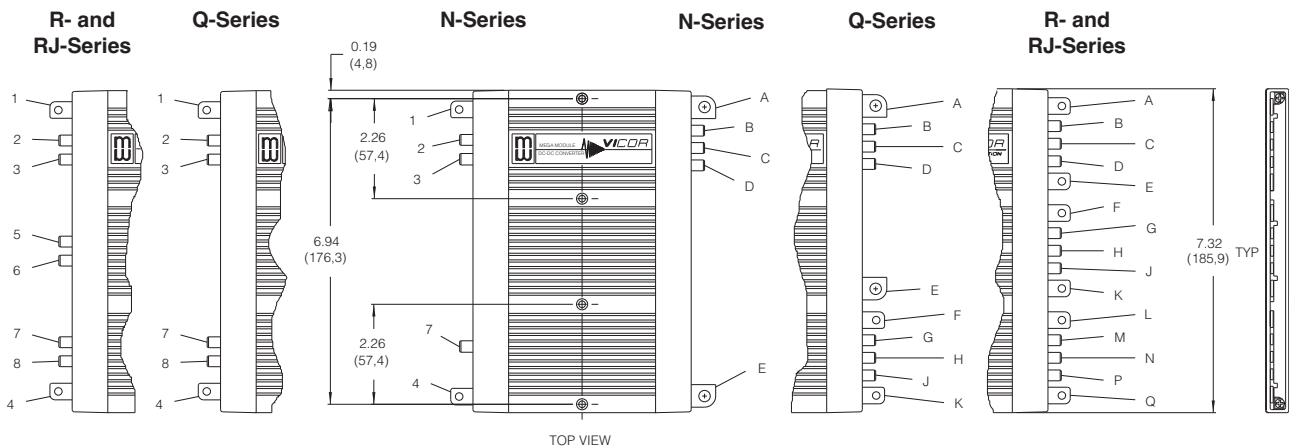


Side view (all models)

L- and LJ-Series L- and LJ-Series



Mounting Information
 Use #6 machine hardware torqued to 5-7 in-lbs.



Terminal and Product Model	Terminal Style	Screw Size	Recommended Torque
-Input, +Input All models	PCB	8-32 UNC	10 in-lb (1.1 N-m)
-Output, +Output L-, P-, R-, LJ-, PJ- & RJ-Series	PCB	8-32 UNC	10 in-lb (1.1 N-m)
M- & N-Series	Metal	1/4-20 UNC	65 in-lb (7.2 N-m)
Q-Series	PCB	8-32 UNC	10 in-lb (1.1 N-m)
Supervisory All models	Metal	1/4-20 UNC	65 in-lb (7.2 N-m)

Sized to accept AMP Faston® insulated receptacle #2-520184-2

Warranty

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