MEGAVERTER®

480 WATT DC-DC CONVERTER
MODEL: *MV48-12*
ADVANCE DATA SHEET

Full Input Range Bus Converter For Telecom, Wireless, & Computer Applications

INPUT: 48VDC • OUTPUT: 12VDC @ 40A • 480 WATTS

Size: 2.4 x 4.6 x 0.5 inches

FEATURES

- High Efficiency: 90%
- Constant Frequency
- -40 to +100°C Operation
- Remote Sense
- Low Noise
- Low Profile: 0.41" Height with Recessed Mounting
- High Power Density: 87 W/cu. in.
- Encapsulated
- Non-Shutdown Over Voltage Protection
- 105°C Over Temperature Protection
- Safety Agency Compliant

MODEL SELECTION

Model Number	Input Voltage	Output Voltage	Output Current
MV48-12	36-75Vdc	12Vdc	40A

Application Notes and Evaluation Boards are Available

DESCRIPTION

The MEGAVERTER 48-12 is a high power, feature rich module packaged in the industry standard "full brick" size (2.4 x 4.6 x 0.5 inches) for circuit board mounting. It is ideal for applications requiring large blocks of 12VDC power. For example, operating over the full 36-75V (48V) input voltage range and producing a fully regulated 12V output, the MV48-12 can provide up to 480 Watts of power to multiple point-of-load modules in a 12V intermediate bus architecture.

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www.roassoc.com

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MV48-12

ABSOLUTE MAXIMUM RATINGS

Exceeding absolute maximum ratings may cause permanent damage and may reduce reliability.

PARAMETER	MIN	MAX	UNITS	CONDITIONS
Input Voltage (+In to –In)	-0.3	100	Vdc	
Enable Voltage (Enable to –In)	-0.3	6.0	Vdc	
Parallel Pin Voltage (Parallel Pin to –In)	-0.3	5.0	Vdc	
Output Voltage (+Out to –Out)	-0.5	8.0	Vdc	
Sense Voltage (+Sense to –Sense)	-0.5	8.0	Vdc	
Input/Output Isolation		3000	Vdc	
Sense/Output Isolation		500	Vdc	
Input/Baseplate Isolation		1500	Vdc	
Output/Baseplate Isolation		500	Vdc	
Sense/Baseplate Isolation		500	Vdc	
Storage Temperature	-55	+125	°C	
Operating Temperature	-40	+100	°C	Baseplate
Soldering Temperature (Wave Solder)		260	°C	< 5 sec.
Soldering Temperature (Hand Solder)		390	°C	< 7 sec.

ELECTRICAL SPECIFICATIONS

Electrical specifications apply over the entire range of input voltage, output current, and temperature unless indicated.

INPUT PARAMETERS	MIN	TYP	MAX	UNITS	CONDITIONS
Input Voltage	36	48	75	Vdc	
Maximum Input Current			20	A	See Input Characteristic Curve
Input Ripple Rejection		60		dB	@120Hz

OUTPUT PARAMETERS	MIN	TYP	MAX	UNITS	CONDITIONS
Voltage Set Point	11.90	12	12.10	Vdc	48V_{in}, 25°C, Full Load
Load Regulation		12	24	mV	0A to 40A
Line Regulation		12	24	mV	Over V_{in} Range
Voltage Drift w/Temperature			0.02	%/°C	-40 to +100°C
Ripple		100	240	mV p-p	5Hz to 30MHz
Rated Current	0		40	A	
Output Power			480	W	
Current Limit Inception	43	46		A	V_{out} = 11.4Vdc, See Output Characteristic Curve
Short Circuit Current		51	56	A	V_{out} = 250 mV, See Output Characteristic Curve
Transient Response Peak Deviation (1.0A/µsec slew rate)		3		%	8A Load to 32A Load
Transient Response Settling Time (1.0A/µsec slew rate)		100		µsec	V_{out} Within 120mV of Steady State
Efficiency:		90		%	V_{in} = 48V, 3/4 Load, 25°C Case

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ELECTRICAL SPECIFICATIONS (continued)

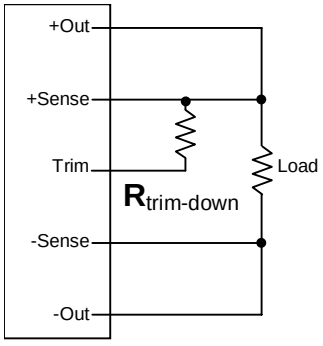
ISOLATION PARAMETERS	MIN	TYP	MAX	UNITS	CONDITIONS
Input to Output Capacitance		470		pF	Case Floating
Input to Output Resistance	10			M ohms	

MECHANICAL PARAMETERS	MIN	TYP	MAX	UNITS	CONDITIONS
Weight		250 (8.8)		g (oz.)	
Size		0.5 x 2.4 x 4.6		Inches	See Outline Drawing
Thermal Resistance, Case to Ambient		3.3		°C/W	Case Temperature = 100°C

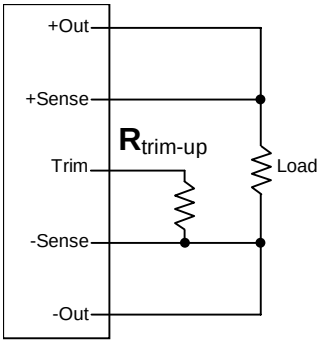
FEATURE PARAMETERS	MIN	TYP	MAX	UNITS	CONDITIONS
Remote Sense Compensation			0.5	Vdc	
Over Voltage Protection (Non-Shutdown, Auto. Recovery)		14		Vdc	25°C Case
Over Temperature Shut-down	+100	+105	+110	°C	Case Temperature
Enable *					
Logic Off Threshold	0.8			V	V_{out} = 0
Enable Current (Logic Off)			1.0	mA	@ V_{enable} = 0V
Logic On Threshold			2.4	V	
Turn-On Time			2	msec	F.L., V_{out} within 1% of Steady State

* An open collector connection or equivalent is recommended for on/off control.

TRIM CIRCUIT CONFIGURATIONS



Trim Down



Trim Up

TRIM RESISTOR CALCULATIONS

$$R_{trim-up} = \frac{13.08}{\Delta V_o} \text{ kohms}$$

$$R_{trim-down} = \left(\frac{49.71 - 5.233 \times \Delta V_o}{\Delta V_o} \right) \text{kohms}$$

ΔV_o = Desired Output Voltage Change (Volts)

$R_{trim-down}$ = External Resistor Value to Decrease V_o

$R_{trim-up}$ = External Resistor Value to Increase V_o

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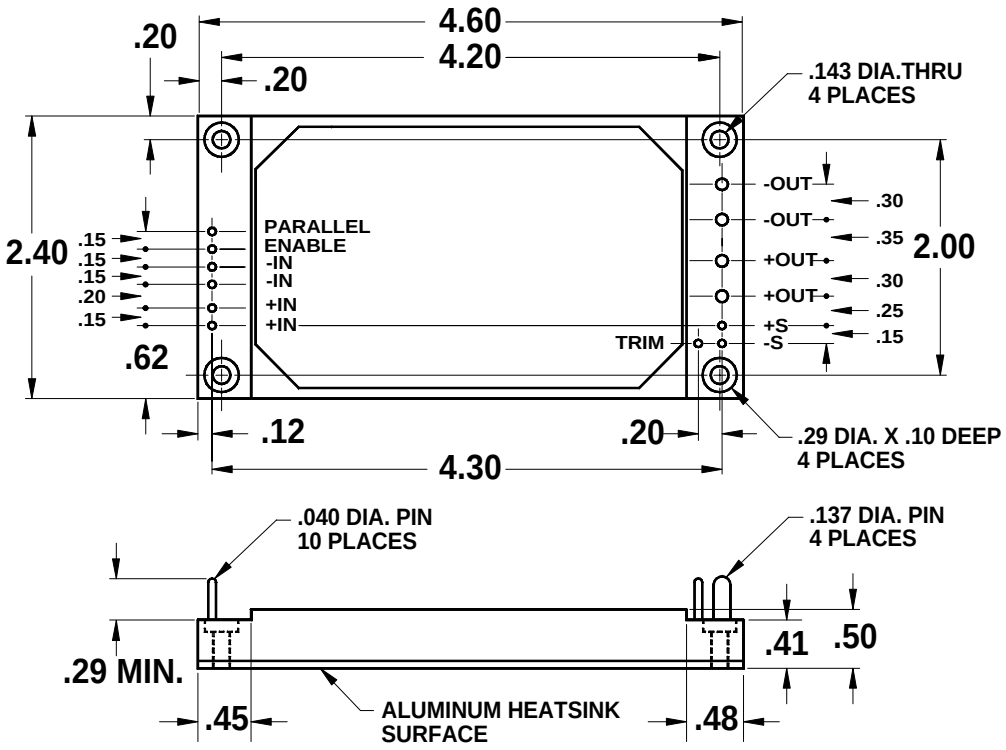
Outline Drawing



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