



Size: 116.30mm x 60.45mm x 12.70mm
(4.58in. x 2.38in. x 0.50in.)

World's Most Advanced Ultra High Density DC-DC Converters.

MODEL SELECTION

Model Name	Vin(Vdc)	Vout(Vdc)	Io(Amps)	Watts	API P/N
MV28-28-300-8	18-30	28	10	280	API2DC40-008

DESCRIPTION

The MegaVerter MV28-28-300 module is a high power density and high efficiency DC-DC converter designed for use in telecom, centralized modular, and distributed power applications. The surface mount construction uses a metal baseplate and planar transformers to produce up to 300W peak and 280W continuous power in a full brick package.

OPTION

- ▶ Choice Of Remote On/off Logic Configuration
- ▶ Heat Sink Available For Extended Operation

SPECIFICATION

ABSOLUTE MAXIMUM RATINGS:

Exceeding absolute maximum ratings may cause permanent damage and reduce reliability

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
Input Voltage (+In to -In)	-0.3		50	V	Continuous
Enable Voltage (Enable to -In)	-0.3		6.0	A	$V_i = 0V$ to 30V $I_o = I_{o,max}$
Parallel Pin Voltage (Parallel Pin to -In)	-0.3		5.0	V	
Storage Temperature	-55		+125	°C	
Operating Temperature	-40		+100	°C	Baseplate
Soldering Temperature: Wave Solder			260	°C	< 5 sec.
Hand Solder			390	°C	< 7 sec.

- Electrical Specifications: Unless otherwise indicated specifications apply over all operating input voltage, resistive load, and temperature conditions.

INPUT SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
Operation Input Voltage (V_i)	18	28	30	V	
Maximum Input Current ($I_{i,max}$)			21A	A	$V_i = 0V$ to 30V $I_o = I_{o,max}$
Inrush Transient			1	A ² s	
Input Ripple Rejection		60		dB	@ 120Hz

● Caution: This power module is not internally fused. An input line fuse must always be used.

OUTPUT SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
Output Voltage Set Point ($V_{o,set}$)	27.72	28.00	28.28	V	$T_c = 25^\circ\text{C}$, $V_i = 24\text{V}$, $I_o = I_{o,max}$
Line Regulation		0.01	0.2	%	$V_i = 18\text{V}$ to 30V $I_o = I_{min}$ to 10A
Load Regulation		0.05	0.2	%	$I_o = 0.5\text{A}$ to 10A
Temperature Drift			0.015	%/ $^\circ\text{C}$	$T_c = -40$ to 100°C
Output Ripple and Noise Voltage Peak to Peak			500	mVp-p	Bandwidth 5Hz to 20MHz. With 220uF/35V output capacitor
Output Current (I_o)	0.5		10	A	At $I_o < I_{o,min}$, the modules may exceed output ripple specifications
Maximum Output Current ($I_{o,max}$)			11	A	For 5 minutes with $V_{in} = 18\text{V}$ to 30V
Output Current limit	11.5	12.5	14	A	$V_o = 90\%$ of $V_{o,set}$
Output Short Circuit Current			170	% $I_{o,max}$	$V_o = 250\text{mV}$
Switching Frequency		400		KHZ	
Efficiency	86	89		% %	$T_c = 90^\circ\text{C}$ at $I_o = 10\text{A}$
Dynamic Response Peak Deviation Settling Time		3	300	% $V_{o,set}$ μs	25%-50%-75% load, 0.1A/ μs ; With 220uF/35V Capacitor / 35V $T_c = 25^\circ\text{C}$, $V_i = 24\text{V}$

CONTROL SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
Turn-On Time		60	200	ms	$I_o = 20\%$ of $I_{o,max}$ V_o with +/- 1% $V_{o,set}$
Output Voltage Adjustment Output Voltage Trim Range	75		103	% $V_{o,set}$	Within 220uF/35V Capacitor,
Output Over Voltage Clamp	31		39	V	
Over Temperature shutdown	100	105	110	$^\circ\text{C}$	Auto. recovery
Over Temperature turn on	90	95	100	$^\circ\text{C}$	Auto. recovery

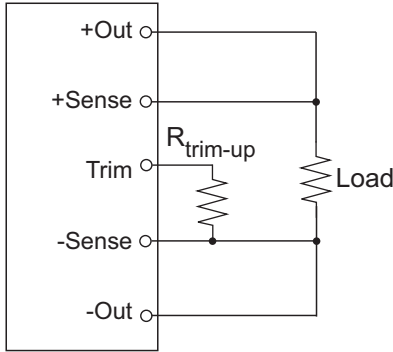
ISOLATION SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
Input to Case		1500		Vdc	
Output to Case		500		Vdc	
Input to Output Capacitance		470		pF	
Isolation Resistance	10			Mohm	

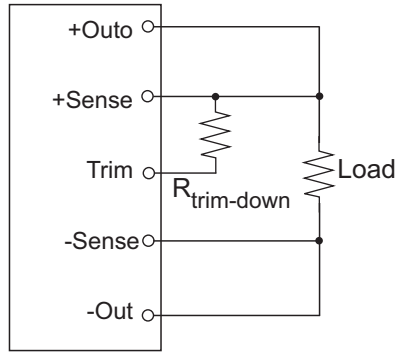
GENERAL SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
MTBF		1.4		Mhrs	$T_c = 40^\circ\text{C}$, $I_o = 9\text{A}$, $V_{in} = 24\text{V}$
Weight		225		g	
Size		4.58x2.38x0.50		in^3	

TRIM CIRCUIT



Trim-Up



Trim-Down

$$R_{\text{trim-up}} = \left(\frac{32.8047}{V_o - 26.031} \right) \text{ kohms}$$

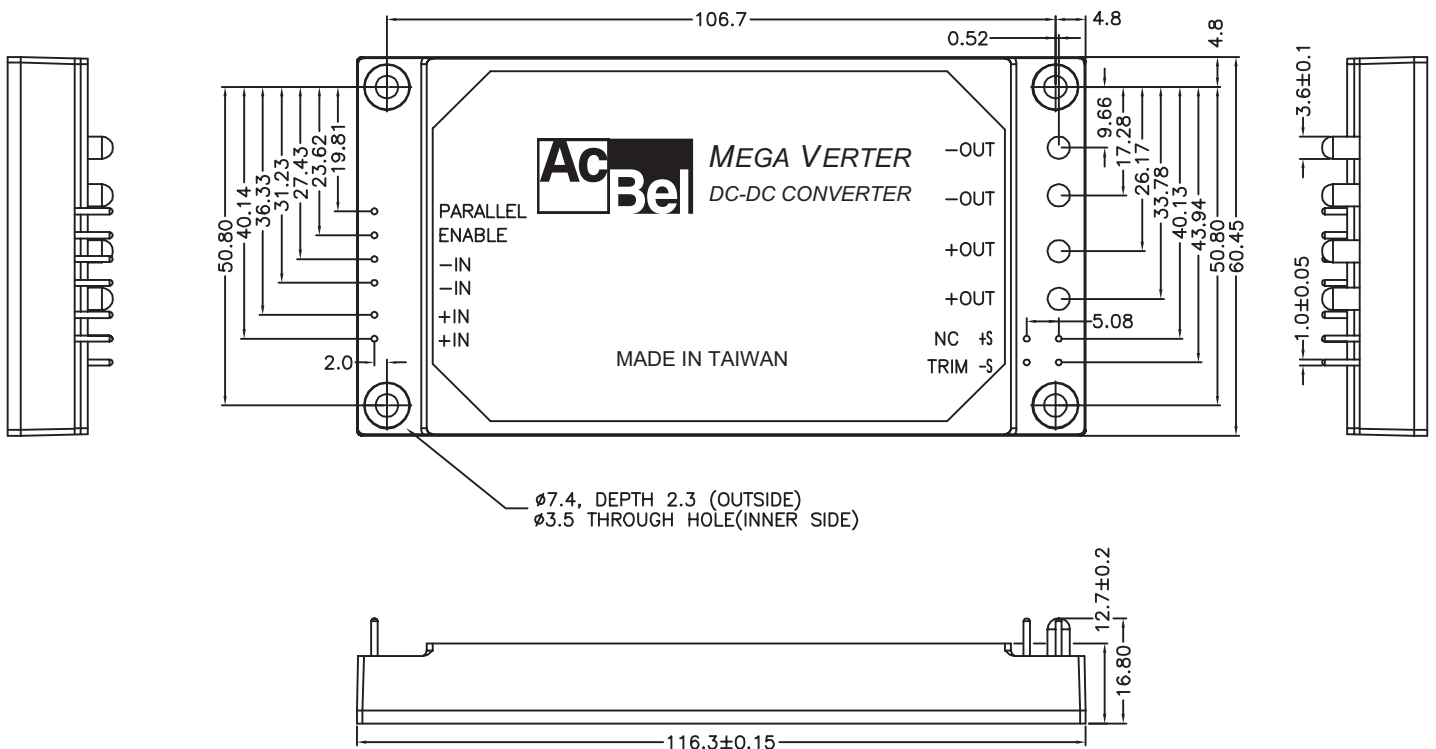
$$R_{\text{trim-down}} = \left(\frac{32.7645 - 13.1058V_o}{V_o - 26} \right) \text{ kohms}$$

V_o = Desired Output Voltage

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

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

OUTLINE DRAWING



DIMENSION TOLERANCE: ± 0.1 MM (GENERAL)
UNIT:MM