



DESCRIPTION:

The MEGAVERTER® MV24-28-600S dc/dc converter is a high density, feature rich module packaged in the industry standard “full brick” size (2.4 x 4.59 x 0.5 inches) for circuit board mounting. It is designed for use in a 24/28 Vdc (18-36Vdc) input applications where large blocks of DC power are required. The MV24-28-600S utilizes an insulated metal substrate and is therefore well suited for the most rigorous requirements of COTS and thermally challenging industrial applications.

- Industry Standard 4.59” x 2.4” x 0.5” Package
- High Power Density up to 109.29W/ Inch³
- High Typical Efficiency of 91%
- Low Output Noise
- Metal Baseplate
- Thermal Protection
- Over Voltage and Over Current Protection
- Output Under Voltage Protection
- Adjustable Output Voltage
- Remote Sense
- Auxiliary Voltage of 8V, +/-1V
- I.O.G (DC Good): Open Collector Output
- Remote ON/OFF Control

Model Number	Output Voltage	Output Amps	Input Range	Max. Iin FL	Efficiency	Max Output Power
MV24-28-600S	28 VDC	21.5	18-36 VDC	28.9A	91%	600 Watts

ABSOLUTE MAXIMUM RATINGS (MIN TO MAX.)

Input Voltage (+In to -In)	-0.3 to 50VDC (<100mS)
	-0.3 to 36VDC (Continuous)
Storage Temperature	-55 to +125°C
Storage Humidity	10 to 95%
Operating Temperature	-40 to 100°C
	Temperature measurement shall be taken from the baseplate (Tb). See Fig. 3 for location definition
Operating Humidity	30 to 95%

INPUT SPECIFICATIONS

Input Operation Voltage:	18-36 VDC
Input Current FL	28.9A max. @ 24Vin, Full Load (FL)
Inrush Transient	2A ² s
Input Ripple Rejection	60dB@120Hz

OUTPUT SPECIFICATIONS

Output Voltage	28VDC
Output Current (Io, max.)	21.5A (Note 1)
Output Set Point (Vo,set)	27.95-28.05V @ Tb=25°C, 24Vin, FL
Output Voltage Accuracy	27.72-28.28 @ 24Vin, FL
Load Regulation (0% to FL)	+/-0.2%, max.
Line Regulation (HL-LL)	+/-0.2%, max.
Temperature Coefficient	+/-0.02%/°C, -40 to 100°C
Ripple/Noise	250mV p-p max. (Note 2)
Dynamic Response:	
Peak Deviation	3%Vo, set (Note 4)
Settling Time	300uS
Over Voltage Protection	115-135% of Output, Io=0.5A
Output Under Voltage Protection	12V, Output Overload & Short Circuit
Over Temperature Protection	105-115°C, Auto Recover @ 100°C
Current Limit	105-140% of Rated Load (Note 3)
Efficiency	91% @ 24Vin, 28Vo, 80%L Tb=25°C

ISOLATION SPECIFICATIONS

Input-Output, Input-Case	1500VDC, 60S
Output-Case	500VDC, 60S
Input-Output Capacitance	2000pF
Isolation Resistance	100MΩ @ Tb=25°C & 70%RH
	Output to Baseplate-500VDC

STRUCTURAL DYNAMICS

Vibration	(Note 5)
Shock	20g, 166in/sec, Square Wave

GENERAL SPECIFICATIONS

MTBF	1.2Mhrs Tb=40°C, 80%FL, 24Vin
Weight	7.94 oz (225g)
Dimensions	4.59" x 2.4" x 0.5" (116.59 x 60.96 x 12.7mm)

CONTROL SPECIFICATIONS

Turn-On Time	200mS @ 80%FL, max. Vo with ± 1%Vo set
Trim Adjustment Range	60-100% with Cap, 440uF/35V Tb=25°C See TRIM CIRCUITS Figs 1 & 2

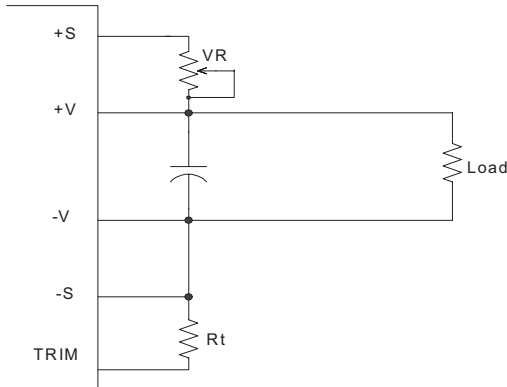
NOTES

- At Vo = 28V. If Vo > 28V, Output Power (Po) should be ≤ 602W
- Bandwidth 5Hz to 20MHz and with filter 0.1uF MLCC series 100Ω min. Output Capacitor: 220uF*2, Tc≥20°C, 220uF*4, Tc≤-20°C.
- Current Limit inception point Vo=90% of Vo, set @ Tb=25°C.
- 25%-50%-75% load, 0.1A/uS; With Cap. 440uF/35V Tb=25°C, 24Vin
- Sine Wave, 10-55Hz (Sweep for 1 min.), Amplitude 0.825mm Constant (Max. 0.5g) X, Y, Z 1 Hour each, at No Operation

All specifications are typical at nominal input, full load, and 25DegC unless otherwise noted

TRIM CIRCUIT:

A. Output Voltage Adjusted by using an external resistor and/or variable resistor:



The output voltage can be determined by below equations:

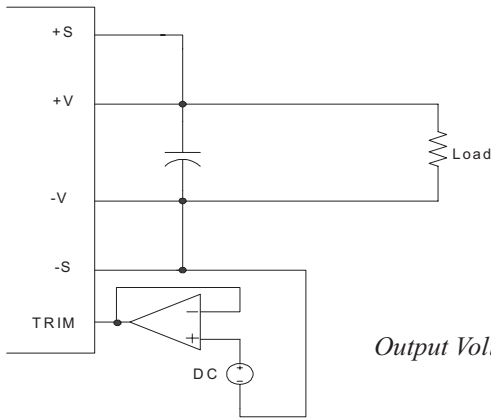
$$V_f = \frac{1.225 * (R_t // 32.4)}{7.32 + (R_t // 32.4)} \text{ (V)}$$

$$V_{out} = (28 + VR) * V_f \text{ (V)}$$

Rt: +/-5% tolerance
 VR: +/-20% tolerance
 Unit: KΩ

Fig. 1 Schematic of output voltage adjusted by using an external resistor and/or variable resistor.

B. Output Voltage Adjustment by Using an External DC Voltage:



$$\text{Output Voltage} = \text{TRIM Terminal Voltage} * \text{Nominal Output Voltage (V)}$$

Fig. 2 Schematic of output voltage adjusted by using an external DC voltage.

BASEPLATE MEASURE POINT:

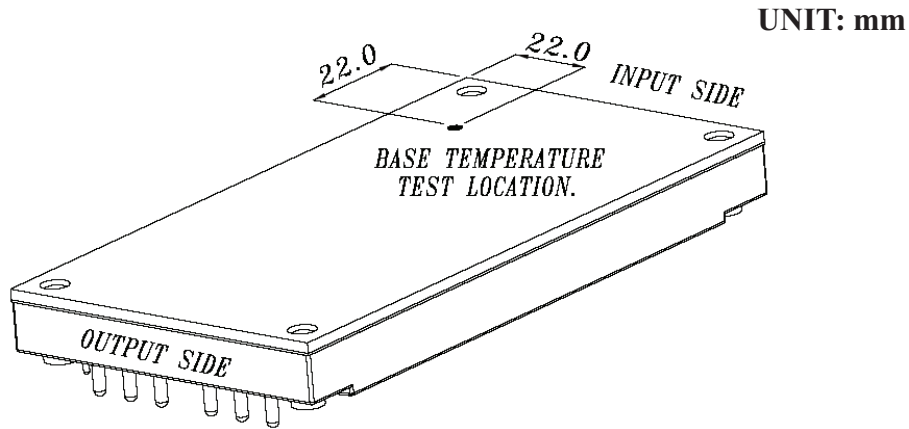
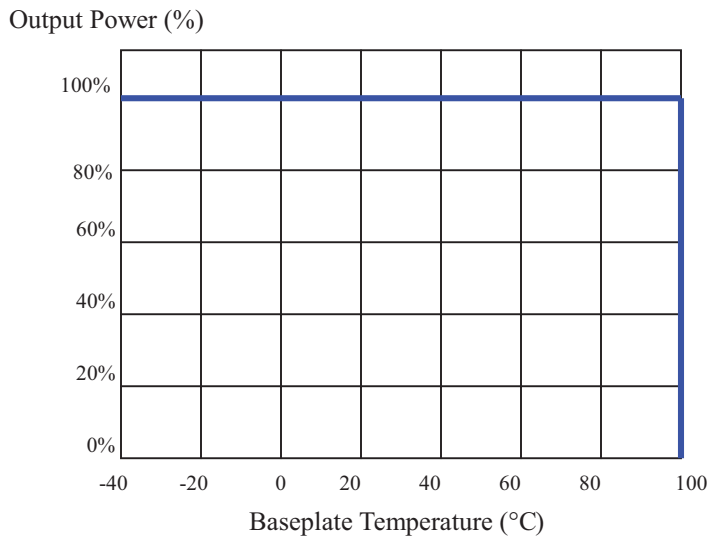
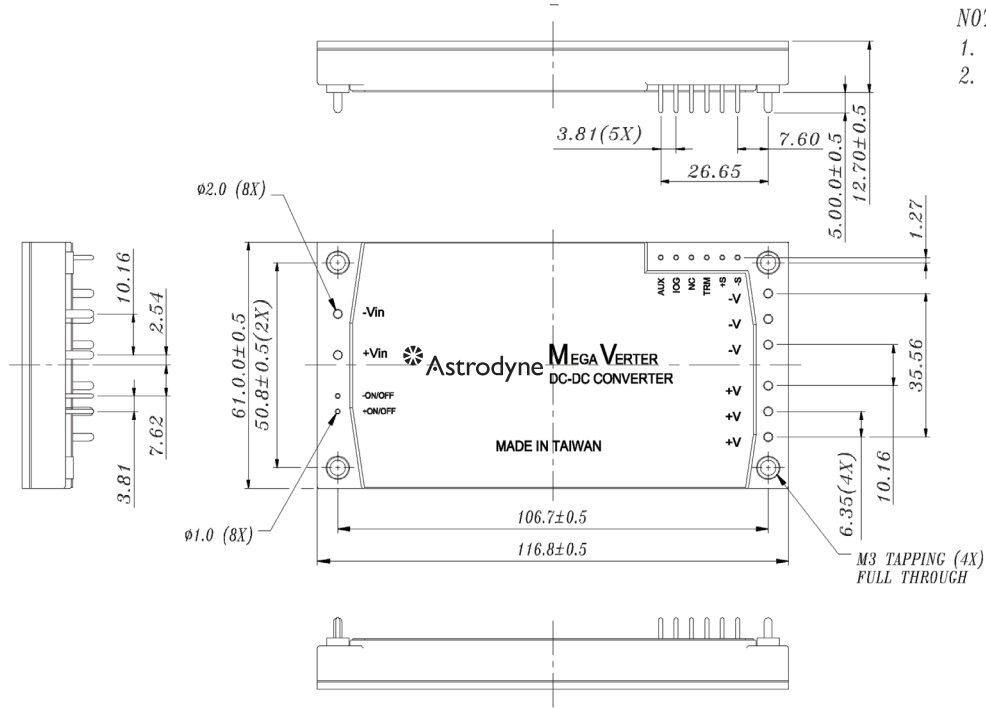


Fig. 3 Baseplate Temperature Measurement Point.

DERATING CURVE:



OUTLINE DRAWING:



NOTE :
 1. UNIT : mm
 2. TOLREANCE : ±0.3