MPE-320CM

320W, Enclosed, High Isolation AC/DC Power Supplies

Key Features:

- 320W Output Power
- 85-305 VAC Input
- 4,000 VAC Isolation
- Efficiency to 91.5%
- -30°C to +70°C Temp
- Meets EN 55032 B
- >250 kHour MBTF
- Reinforced Insulation

Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

Input

Parameter	Conditions		Min.	Typ.	Max.	Units
Input Voltage Range		AC Input	85		305	VAC
		DC Input	120		430	VDC
Input Frequency			47		63	Hz
Input Current		115 VAC		4	4.2	A
		230 VAC		2	2.1	
Inrush Current (Cold Start)		115 VAC		35		A
		230 VAC		65		
Power Factor	Full Load	115 VAC	0.98			-
		230 VAC	0.95			

Output

Parameter	Conditions		Min.	Typ.	Max.	Units
Output Voltage Accuracy	Full Load	4/5V Outputs		±2		%
		Other Outputs		±1		
Line Regulation	Rated Load	4/5V Outputs		±0.5		%
		12/15V Outputs		±0.3		
		Other Outputs		±0.2		
Load Regulation	0-100% Load	4/5V Outputs		±1		%
		Other Outputs		±0.5		
Ripple & Noise (20 MHz)		4/5/12/15/24V Outputs		60	150	mV P - P
		Other Outputs		60	200	
Hold-Up Time		115/230 VAC		12		ms
Temperature Coefficient				±0.03		%/°C
Temperature Derating	+40 to 85°C		2.5			%/°C
Input Voltage Derating	85 - 100 VAC 50Hz		2.0			%/VAC
	85 - 100 VAC 60Hz		1.33			
	120 - 140 VDC		1.25			
Over Temperature Protection	Output voltage turn off, self-recovery					
Over Load Protection	Self-Recovery		105		180	%Io
Short Circuit Protection	Recovery time <5s after short circuit removed		Continuous, Self-Recovery			

General

Parameter	Conditions		Min.	Typ.	Max.	Units
Isolation Voltage	See Note 4	Input - Output	4000			VAC
		Input - Ground	2000			
		Output - Ground	500			
Isolation Resistance		See Note 8	100			MΩ
Size	8.46 x 4.53 x 1.18 in (See Mechanical Drawing on Page 4)					
Case Material	Metal (AL1100, SGCC)					
Weight	21.87 oz (620g) (See Mechanical Drawing on Page 4)					

Environmental

Parameter	Conditions		Min.	Typ.	Max.	Units
Operating Temperature Range		Ambient	-30		+70	°C
Storage Temperature Range			-40		+85	°C
Cooling Method	Forced Air Convection					
Operating Humidity	Non-condensing		20		90	%RH
Storage Humidity			10		95	

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	250			kHours
Safety Standards	See Model Selection Guide				
Safety Class	Class I				

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Model Selection Guide

UL	Model Number	Input		Output			Over Voltage Protection (VDC) See Note 5	Output Capacitive Load (μF Max)	Efficiency (%, Typ)
		Current (A)		Voltage (VDC)	Current (A, Max)	Power (W)			
		115 VAC	230 VAC						
	MPE-320CM-04	4	2	4	60	240	4	5000	83
	MPE-320CM-05	4	2	5	60	300	5	5000	84
	MPE-320CM-12	4	2	12	26.7	320.4	12	5000	87.5
	MPE-120CM-15	4	2	15	21.4	321	15	5000	89
▪	MPE-320CM-24	4	2	24	13.4	321.6	24	5000	91
	MPE-320CM-27	4	2	27	11.9	321.3	27	5000	91
	MPE-320CM-36	4	2	36	8.9	320.4	36	5000	91.5
	MPE-320CM-48	4	2	48	6.7	321.6	48	5000	91.5
	* MPE-320CM-24 has UL/cUL 62368 recognition (UL certificate). Contact factory for safety standard status of other models.								

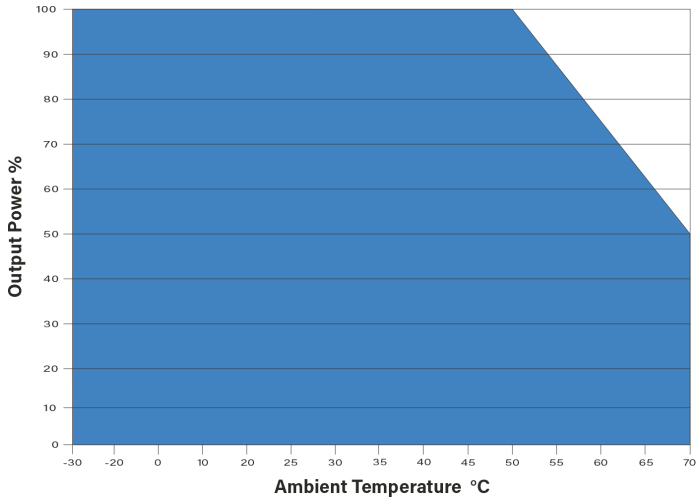
Notes:

1. The "tip and barrel method" is used for ripple and noise test, output parallel 10uF electrolytic capacitor and 1uF ceramic capacitor.
2. EMC performance indicators are on page 4.
3. Output short circuit protection is provided by a "hiccup mode" circuit. The unit recovers automatically when the fault condition is removed.
4. Input-output isolation is tested for 60 seconds with a leakage current of <5 mA.
5. A temperature derating of 5°C/1000m is required for operating altitude greater than 2000m.
6. The output voltage can be adjusted by the ADJ knob. Turn clockwise to increase and counterclockwise to decrease.
7. At light load an audible noise is generated in order to improve efficiency. This does not affect performance or reliability.
8. Isolation resistance is given for input - output, input - ground and output - ground. It is tested at 500VDC, ambient temperature 25°C, relative humidity <95%RH, non-condensing.
9. Minimum load: when the product is working at a temperature above 50°C the minimum load is 5% of the rated load so that the fan will work at high temperatures to reduce the temperatur rise of the product.

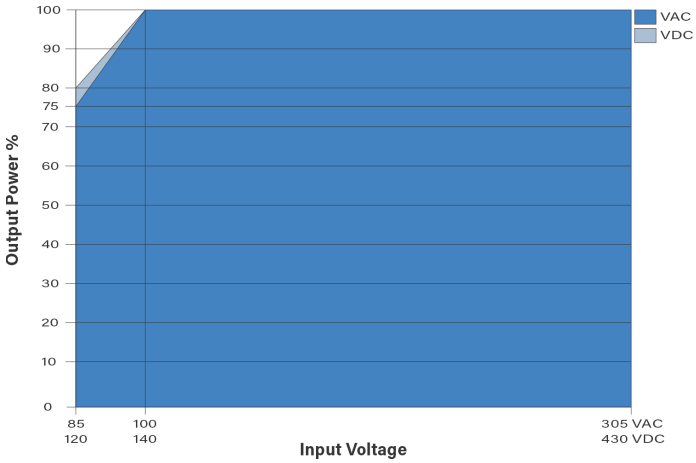
For the bottom conformal coating option, add the suffix "**-CC**" to the model number (i.e. **MPE-320CM-24-CC**).

For the protective terminal cover option, add the suffix "**-TC**" to the model number (i.e. **MPE-320CM-24-TC**).

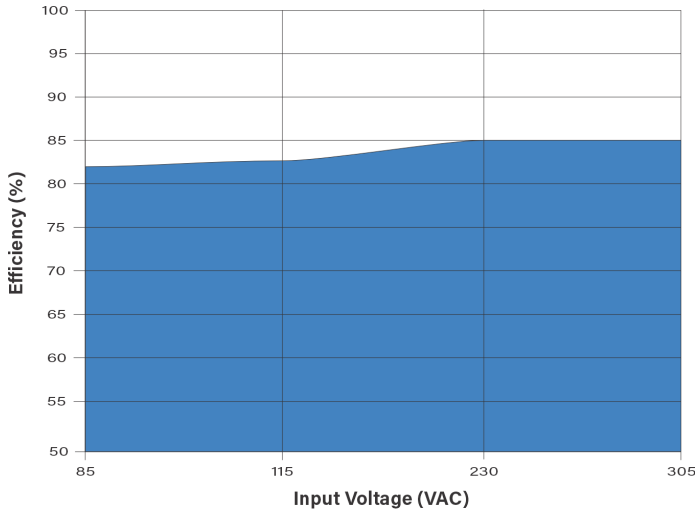
Temperature Derating



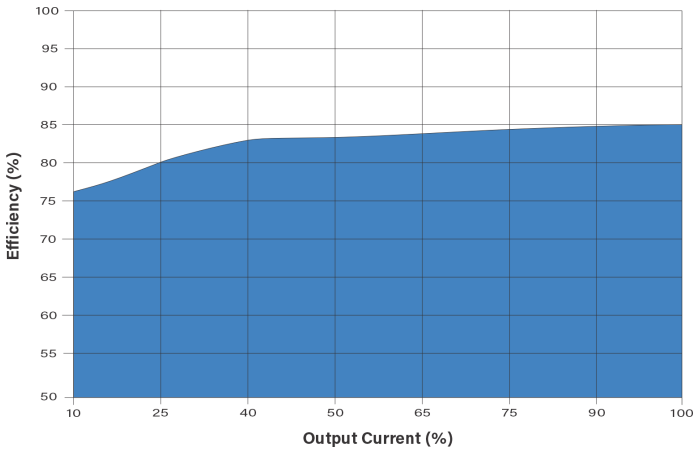
Input Voltage Derating



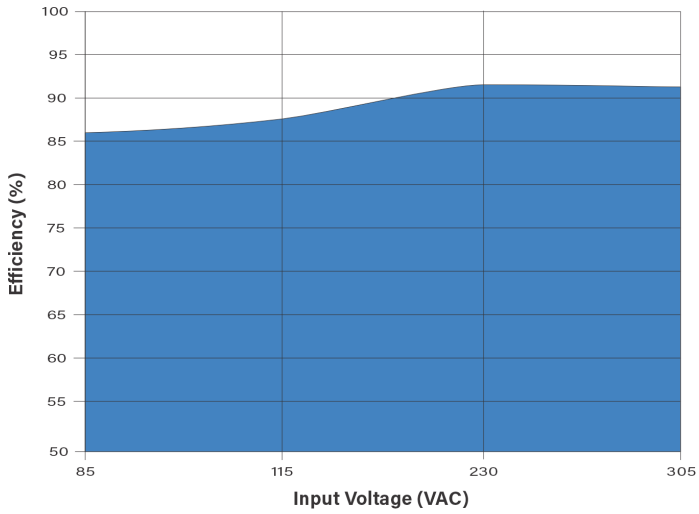
Efficiency vs Input Voltage: 5V (Full Load)



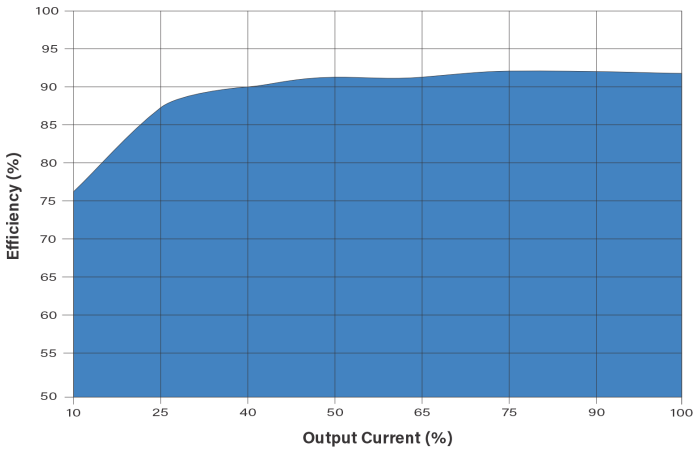
Efficiency vs Output Load: 5V (230VAC)



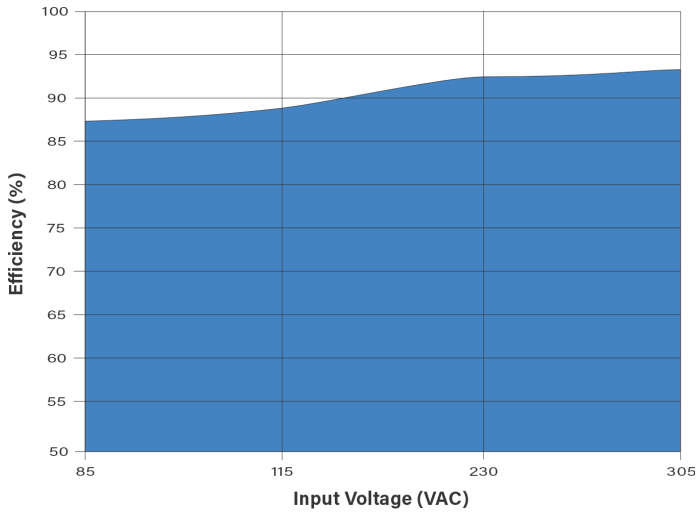
Efficiency vs Input Voltage: 24V (Full Load)



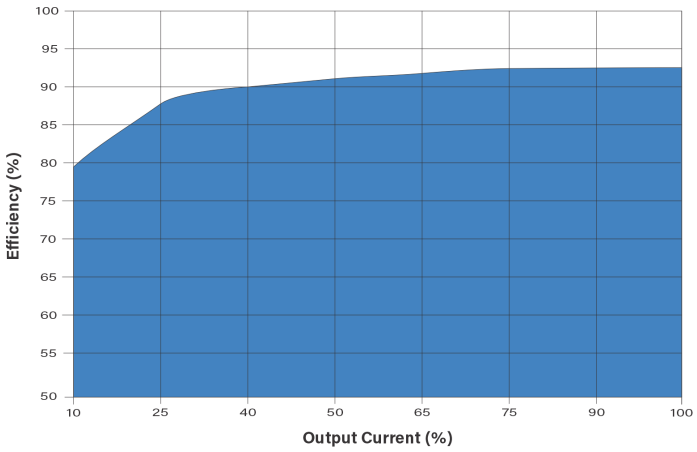
Efficiency vs Output Load: 24V (230VAC)



Efficiency vs Input Voltage: 48V (Full Load)



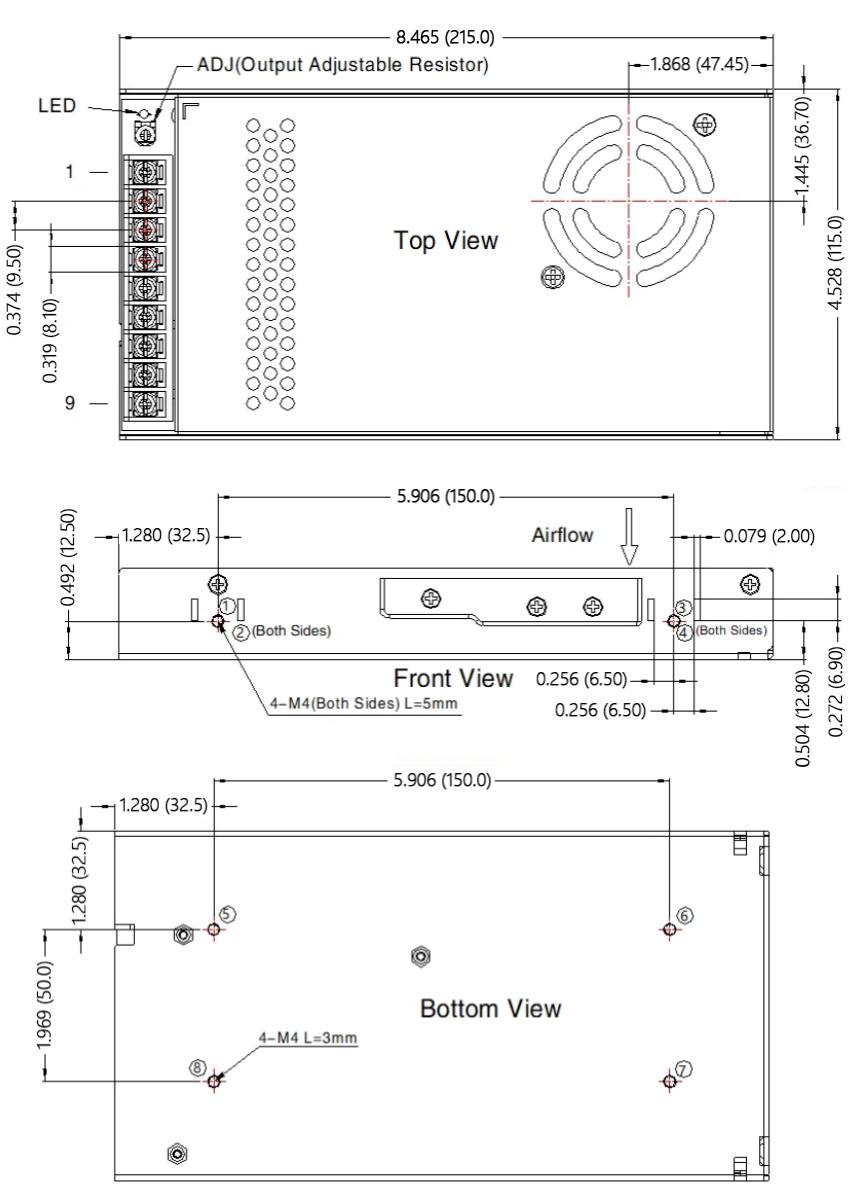
Efficiency vs Output Load: 48V (230VAC)



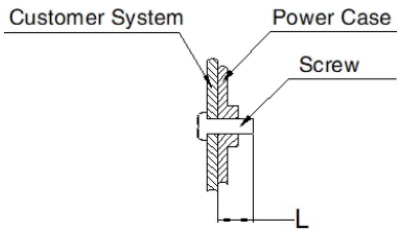
EMI Characteristics

Parameter	Standard	Criteria	Level
Radiated Emissions (RE)	CISPR32/EN55032		B
Conducted Emissions (CE)	CISPR32/EN55032		B
Harmonic Current	IEC/EN61000-3-2		A/D
Voltage Flicker	IEC/EN61000-3-3		
ESD	IEC/EN61000-4-2	A	Contact ±6kV/Air ±8KV
RS	IEC/EN61000-4-3	A	10V/m
EFT	IEC/EN61000-4-4	A	±4KV
Surge	IEC/EN61000-4-5	A	Line to Line ±2KV/Line to Ground ±4KV
CS	IEC/EN61000-4-6	A	10 Vr.m.s
Voltage Dips, Short, Interruption	IEC/EN61000-4-11	B	0%, 70%

Mechanical Diagrams



Pin-Out	
Pin	Function
1	+Vo
2	+Vo
3	+Vo
4	-Vo
5	-Vo
6	-Vo
7	GND
8	AC (N)
9	AC (L)



Notes:
- All dimensions are typical in inches (mm)
- ADJ: Output voltage adjustable
- General tolerances: ±0.039 (±1.00)
- Wire range: 22-12AWG
- Connector tightening torque: M3.5, Max 0.8N•m

Weight:
- 21.87 oz (620g)

Position	Screw Spec.	L (max)	Torque (max)
1 - 4	M4	5mm	0.9N•m
5 - 8	M4	3mm	0.9N•m