MPE-450C

450W, High Isolation AC/DC Power Supplies

Key Features:

- 450W Output Power
- 180-264 VAC Input
- 4,000 VAC Isolation
- Efficiency to 92%
- -40°C to +70°C Temp
- Meets EN 55032 A
- >300 kHour MBTF

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	Rated input (certified voltage)		100		120	VAC
			200		240	
	AC Input	Low Voltage (switch position 115)	90		132	
		High Voltage (switch position 230)	180		264	
	DC Input	Switch position 230	255		370	VDC
Input Frequency			47		63	Hz
Input Current	See Model Selection Guide					
Inrush Current (Cold Start)	115 VAC			35		A
	230 VAC			60		
Start-Up Time	115 VAC 230 VAC, rated load			1500		ms
Input Fuse, Built-In				16		A

Output

Parameter	Conditions		Min.	Typ.	Max.	Units
Output Voltage Accuracy	Full Load Range	12V Output		±1.5		%
		Other Outputs		±1.0		
Line Regulation	Rated Load			±0.5		%
Load Regulation	0-100% Load	12V Output		±1		%
		Other Outputs		±0.5		
Ripple & Noise (20 MHz)	12, 15V Outputs				200	mV P - P
	24V Output				240	
	27V Output				270	
	36, 42, 48V Outputs				360	
Hold-Up Time	Room temperature, full load	115 VAC		12		ms
		230 VAC		16		
Standby Power Consumption	Room temperature, 230 VAC input			5		W
Temperature Derating	-40°C to -20°C		3			%/°C
	+50°C to +70°C		2			
Input Voltage Derating	90 - 100 VAC		2			%/VAC
	180 - 200 VAC		1			
Temperature Coefficient	0 to 50°C, 230 VAC			±0.03		%/°C
Short Circuit Protection	Recovery time <10s after short circuit removed		Hiccup, Continuous, Self-Recovery			
Over Current Protection	230 VAC, constant current mode, shut down after 1s, self-recover		105		200	%Io
Over Temperature Protection			Hiccup, Self-Recover			

General

Parameter	Conditions		Min.	Typ.	Max.	Units
Isolation Voltage	Input - Ground	Leakage <5 mA	2,000			VAC
	Input - Output		4,000			
	Output - Ground		500			
Isolation Resistance	See Note 6		50			MΩ
Leakage Current	240 VAC, 60Hz	Touch Current			0.75	mA

EMI Characteristics

Parameter	Standard	Criteria	Level
Radiated Emissions, See Page 3	CISPR32/EN 55032		Class A
Conducted Emissions	CISPR32/EN 55032		Class A

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25ºC, Gnd Benign	0.3			MHours
Safety Standards	UL/cUL 62368-1 Recognition (UL Certificate)				
Safety Class	Class I				

Environmental

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

Physical

Case Size	8.86 x 4.88 x 1.38 in (See Mechanical Drawing on Page 4)
Case Material	Metal (AL1100, SGCC)
Weight	29.98 oz (850g) (See Mechanical Drawing on Page 4)

MicroPower Direct
46 Eastman Street
Unit 1
Easton, MA 02375
USA

T: (781) 344-8226
F: (781) 344-8481
E: sales@micropowerdirect.com
W: www.micropowerdirect.com

MICROPOWER DIRECT

Model Selection Guide

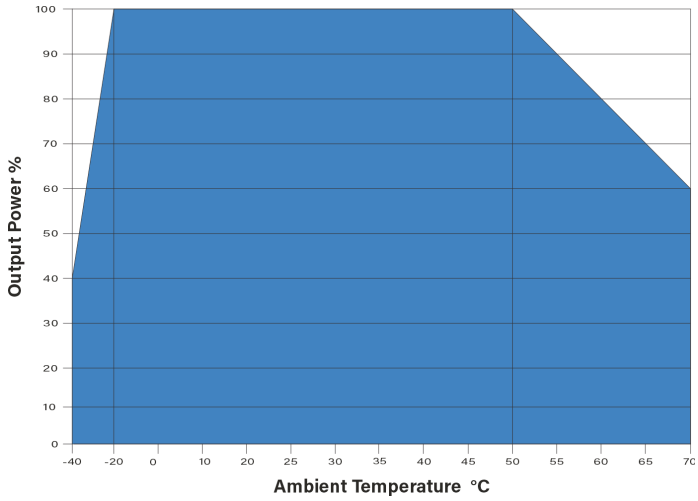
UL	Model Number	Input Current (A) 115 VAC	Input Current (A) 230 VAC	Output Voltage (VDC)	Output Voltage Adjustable Range (VDC)	Output Current (A, Max)	Output Power (W)	Over Voltage Protection (Max) (VDC)	Output Capacitive Load (μF Max)	Efficiency (%, Typ)
	MPE-450C-12	10	6	12	11.4 - 13.2	37.5	450	18	20000	90
	MPE-450C-15	10	6	15	14.25 - 16.5	30	450	21	10000	90
▪	MPE-450C-24	10	6	24	22.8 - 26.4	18.8	451.2	32.4	8000	91
	MPE-450C-27	10	6	27	25.65 - 29.7	16.7	450.9	36.5	8000	91
	MPE-450C-36	10	6	36	34.2 - 39.6	12.5	450	48.6	6000	92
	MPE-450C-42	10	6	42	39.9 - 46.2	10.7	449.4	60	5000	92
	MPE-450C-48	10	6	48	45.6 - 52.8	9.4	451.2	64.8	4000	92
	* MPE-450C-24 has UL/cUL 62368-1 recognition (UL certificate). Contact factory for safety standard status of other models.									

Notes:

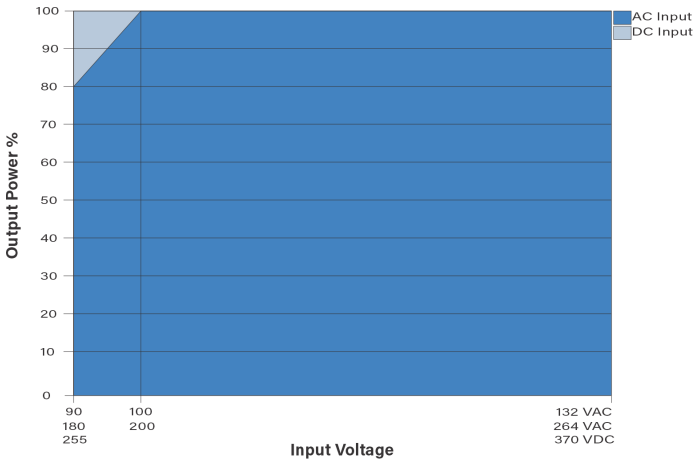
1. The "tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor.
2. Output short circuit protection is provided by a "hiccup mode" circuit. The unit recovers automatically when the fault condition is removed.
3. Input-output isolation is tested for 60 seconds.
4. A temperature derating of 5°C/1000m is required for operating altitude greater than 2000m.
5. The output voltage can be adjusted by the ADJ knob. Turn clockwise to increase and counterclockwise to decrease.
6. Isolation resistance is given for input - output, input - ground and output - ground. It is tested at 500VDC.

For conformal coating option, add the suffix "**-CC**" to the model number (e.g. **MPE-450C-12-CC**).

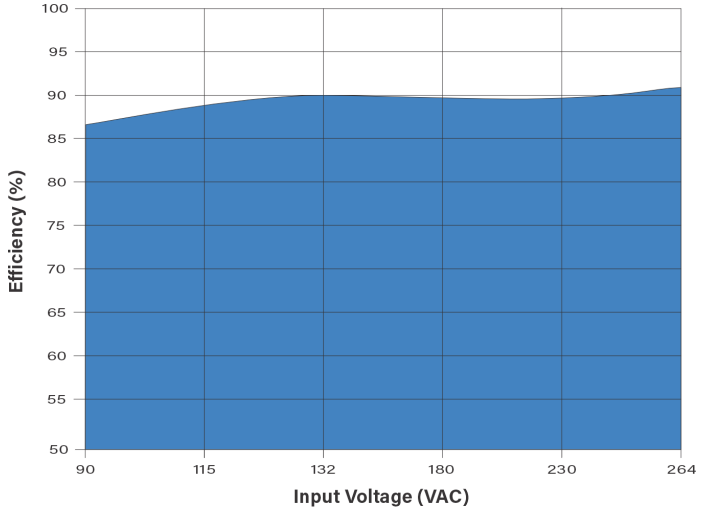
Temperature Derating



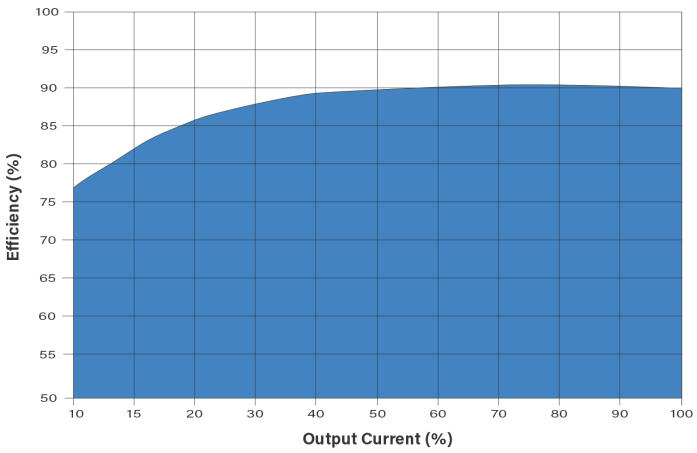
Input Voltage Derating



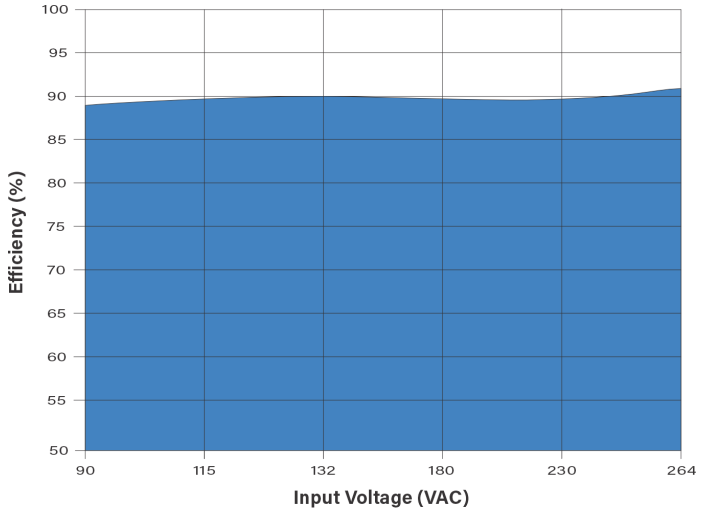
Efficiency vs Input Voltage: 15V (Full Load)



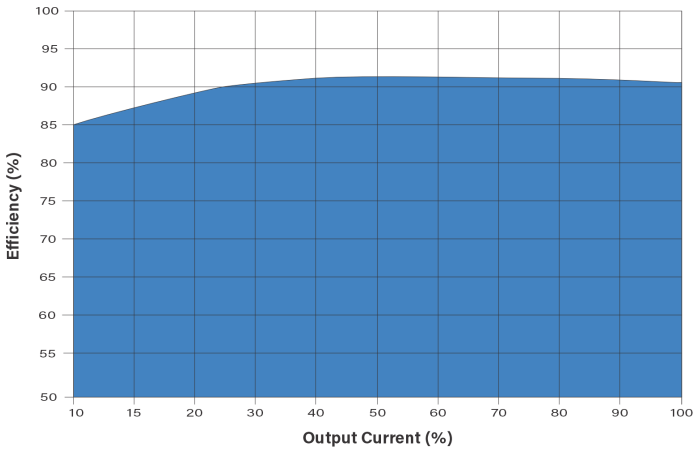
Efficiency vs Output Load: 15V (230VAC)



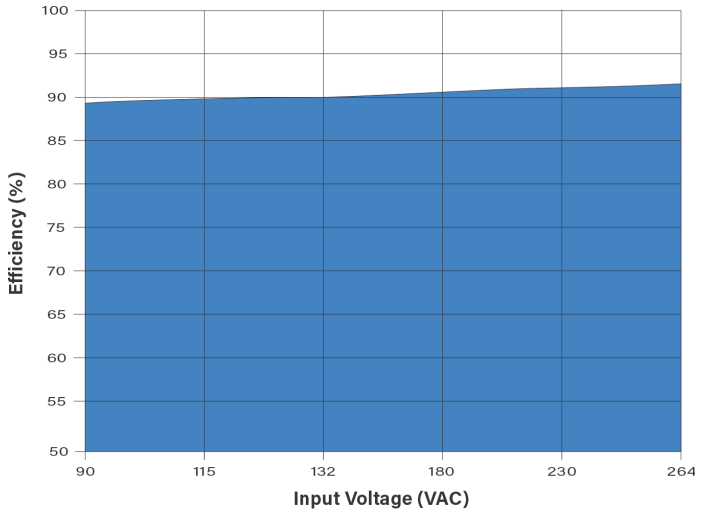
Efficiency vs Input Voltage: 24V (Full Load)



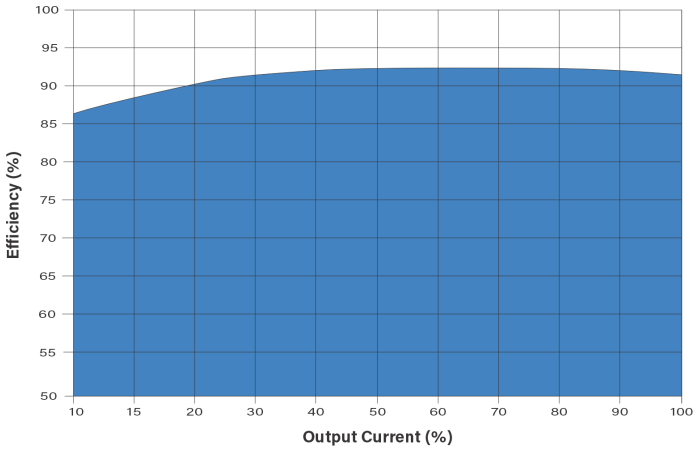
Efficiency vs Output Load: 24V (230VAC)



Efficiency vs Input Voltage: 48V (Full Load)



Efficiency vs Output Load: 48V (230VAC)



EMI Characteristics

Parameter	Standard	Criteria	Level
Radiated Emissions (RE)	CISPR32/EN55032		Class A (30MHz - 1GHz)
Conducted Emissions (CE) (Input Port)	CISPR32/EN55032		Class A (150K - 30MHz)
ESD	IEC/EN61000-4-2	A	Contact ±6kV/Air ±8KV
RS	IEC/EN61000-4-3	A	10V/m
EFT (Input Port)	IEC/EN61000-4-4	A	±4KV
EFT (Output Port)	IEC/EN61000-4-4	A	±2KV
Surge (Input Port)	IEC/EN61000-4-5	A	line to line ±2KV/line to ground ±4KV
Surge (Output Port)	IEC/EN61000-4-5	A	line to line ±0.5KV/line to ground ±1KV
CS	IEC/EN61000-4-6	A	0.15 - 80MHz 10 Vr.m.s
MS	IEC/EN61000-4-8	A	30A/m
Voltage Dips, Short, Interruption	IEC/EN61000-4-11	B	0%, 70%

Notes:

1. The power supply does not meet the requirements of harmonic current stipulated in EN61000-3-2; this power supply is not suitable for the following situations:

(i) The terminal equipment is used in the European Union.

(ii) The terminal equipment is connected to public mains supply with 220VAC or greater rated nominal voltage.

(iii) The power supply is installed in terminal equipment with average or continuous input power greater than 75W

(iv) The power supply is part of a lighting system.

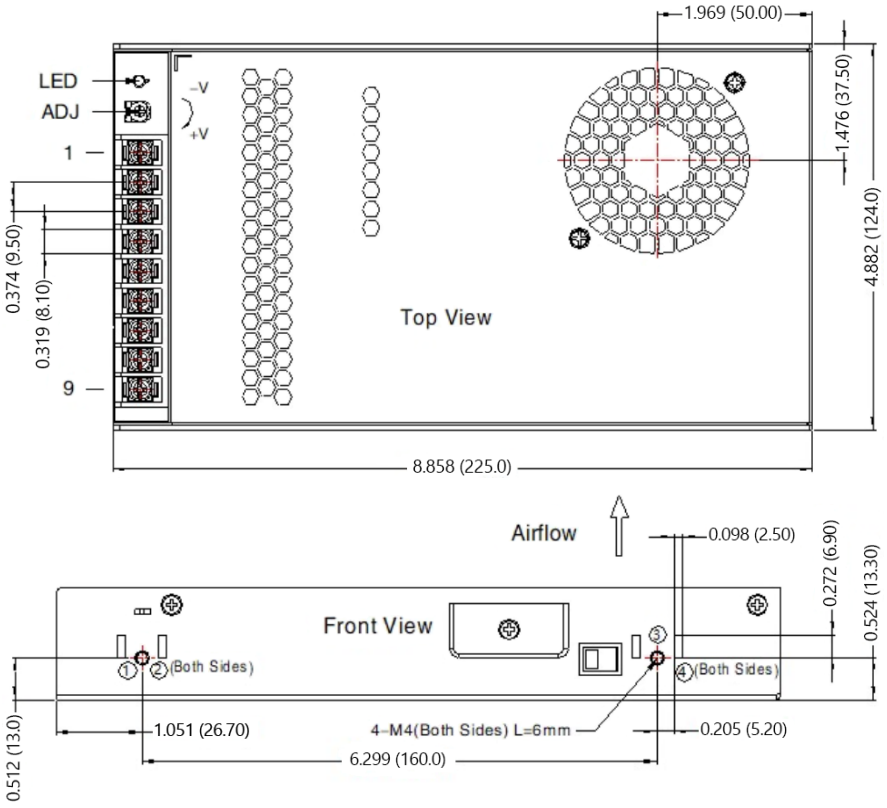
2. In addition, the power supply can be used in the following terminals which do not need to meet EN61000-3-2:

(i) Professional equipment with total fixed input power greater than 100W.

(ii) Symmetrical controlled heating element with rated power less than or equal to 200W.

2. If no hamronic current is required or customers can solve the harmonic current problem by themselves, this product can be used.

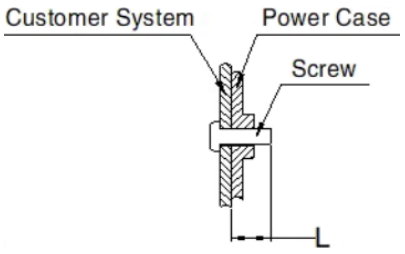
Mechanical Diagrams



THIRD ANGLE PROJECTION

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

Switch	AC Input	DC Input
115V	90 - 132 VAC	-
230V	180 - 264 VAC	255 - 370 VDC



Position	Screw Spec	Length of Locking Screw L (max)	Torque (max)
1 - 4	M4	6mm	0.9N · m
5 - 8	M4	3mm	0.9N · m

Notes:
- All dimensions are typical in inches (mm)
- ADJ: Output voltage adjustable
- Wire range: Input: 16-10AWG
  Output: 12/15V: 14-10AWG (3PCS)
  24/27/36/42V: 16-10AWG (≥2PCS)
  48V: 14-10AWG
- Connector tightening torque: M3.5, Max 0.8N · m Max
- General tolerances: ±0.039 (±1.00)
- 1 - 8 any position must be connected to PE

Weight:
- 29.98 oz (850g)