MPE-100C

100W, High Isolation AC/DC Power Supplies

Key Features:

- 100W Output Power
- 85-264 VAC Input
- 4,000 VAC Isolation
- Efficiency to 90.5%
- -30°C to +70°C Temp
- Meets EN 55032 B
- >300 kHour MBTF
- OVC Class III
- UL 62368 Approval

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		264	VAC
	DC Input	120		370	VDC
Input Frequency		47		63	Hz
Input Current	115 VAC			3.0	A
	230 VAC			1.5	
Inrush Current (Cold Start)	115 VAC		35		A
	230 VAC		65		
Leakage Current	240 VAC			0.75	mA

Output

Parameter	Conditions		Min.	Typ.	Max.	Units
Output Voltage Accuracy	Full Load	5V Output		±2		%
		Other Outputs		±1		
Line Regulation	Rated Load			±0.5		%
Load Regulation	0-100% Load	5V Output		±1		%
		Other Outputs		±0.5		
Ripple & Noise (20 MHz)	5V Output				100	mV P - P
	12, 15V Outputs				120	
	24V Output				150	
	36, 48V Outputs				200	
Hold-Up Time	115 VAC		5	10		ms
	230 VAC		45	55		
Standby Power Consumption	230VAC				0.5	W
Operating Temp Derating	5V Output	+45 to +70°C	1.6			%/°C
	Other Outputs	+50 to +70°C	2			
Input Voltage Derating	85 - 115 VAC		0.67			%/VAC
Temperature Coefficient				±0.03		%/°C
Short Circuit Protection	5V constant current for more than 5 seconds, turn off output voltage input, restart & restore		150			%Io
	Other Models recovery time <5s after short circuit removed		Hiccup, Continuous, Self-Recovery			
Over Current Protection	For more than 5 seconds, turn off output, restart		110			%Io
Switching Frequency				65		kHz

General

Parameter	Conditions			Min.	Typ.	Max.	Units
Isolation Voltage	Input - Ground	Leakage <3mA	24/36V	2,000			VAC
	Input - Output	Leakage <5mA		4,000			
	Output - Ground	Leakage <5mA		1,250			
	Input - Ground	Leakage <10mA	5/12/ 15/48V	2,000			
	Input - Output			4,000			
	Output - Ground			1,250			
Isolation Resistance	See Note 6			100			MΩ

EMI Characteristics

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

Environmental

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

Physical

Case Size	5.08 x 3.82 x 1.18 in (See Mechanical Drawing on Page 4)	
Case Material	Metal (AL1100, SGCC)	
Weight	5V	11.46 oz (325g) (See Mechanical Drawing on Page 4)
	Other Outputs	10.76 oz (305g) (See Mechanical Drawing on Page 4)

Reliability Specifications

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

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MICROPOWER DIRECT

Model Selection Guide

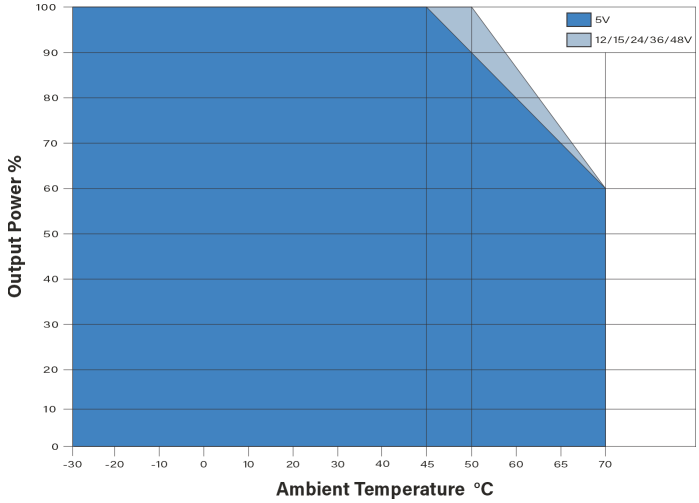
Model Number	Input		Output				Over Voltage Protection (Max) (VDC)	Output Capacitive Load (μF Max)	Efficiency (%, Typ)
	Current (mA)		Voltage (VDC)	Voltage Adjustable Range (VDC)	Current (A, Max)	Power (W)			
	115 VAC	230 VAC							
MPE-100C-05	3000	1500	5	4.4 - 5.5	18	90	7.5	10000	85
MPE-100C-12	3000	1500	12	10.2 - 13.8	8.5	102	19.2	6800	86.5
MPE-100C-15	3000	1500	15	13.5 - 18	7	105	24	3300	86.5
MPE-100C-24	3000	1500	24	21.6 - 28.8	4.5	108	38.4	2200	89.5
MPE-100C-36	3000	1500	36	32.4 - 39.6	2.8	100.8	57.6	1000	89.5
MPE-100C-48	3000	1500	48	43.2 - 52.8	2.3	110.4	60	470	90.5

Notes:

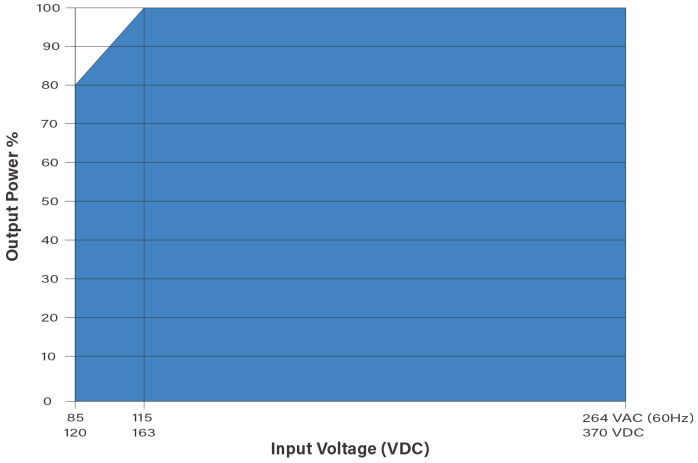
1. The "tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor.
2. Output short circuit protection is provided by a "hiccup mode" circuit. The unit recovers automatically when the fault condition is removed.
3. Input-output isolation 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-100C-05-CC**).

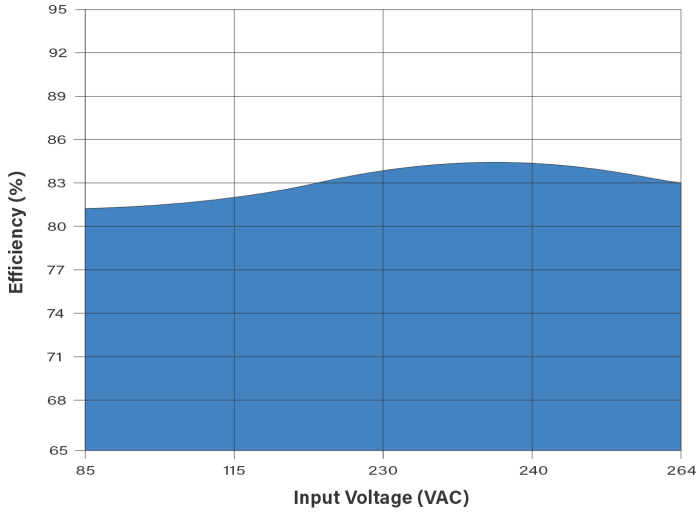
Temperature Derating



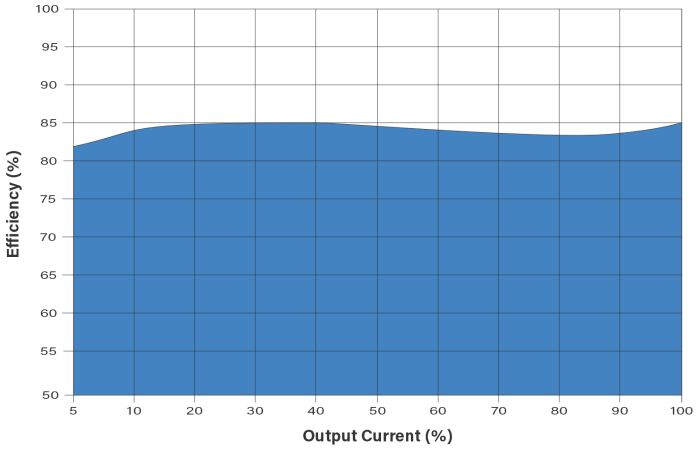
Input Voltage Derating



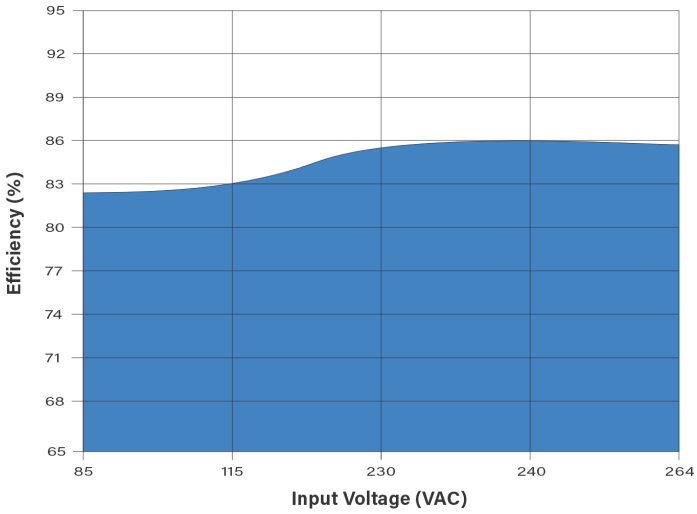
Efficiency vs Input Voltage: 5V



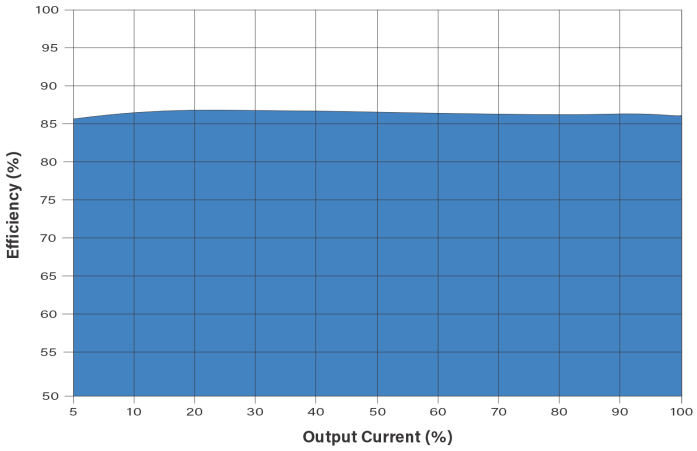
Efficiency vs Output Load: 5V (230VAC)



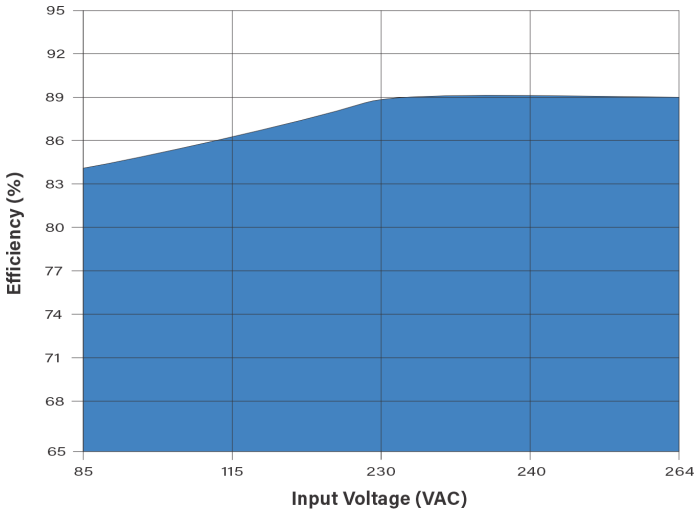
Efficiency vs Input Voltage: 12V



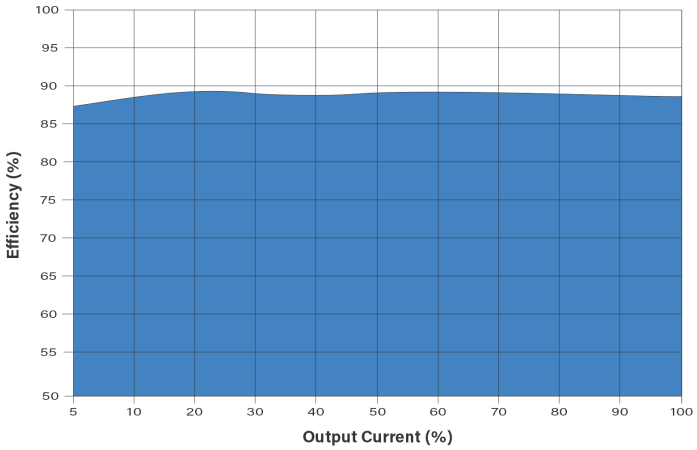
Efficiency vs Output Load: 12V (230VAC)



Efficiency vs Input Voltage: 24V



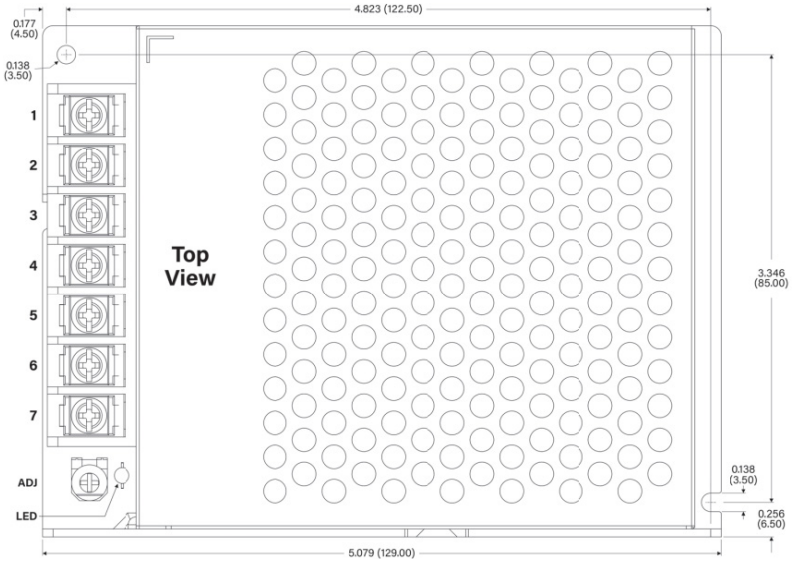
Efficiency vs Output Load: 24V (230VAC)

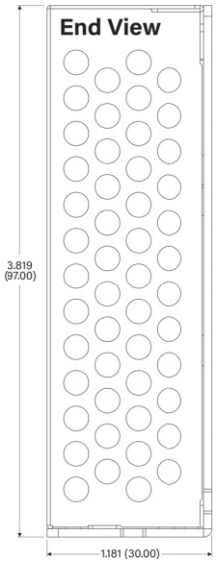


EMI Characteristics

Parameter	Standard	Criteria	Level
Radiated Emissions (RE)	CISPR32/EN55032		B
Conducted Emissions (CE)	CISPR32/EN55032		B
Harmonic Current	IEC/EN61000-3-2		A
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	100% dip 1 period, 30% dip 25 periods, 100% interruption 250 periods

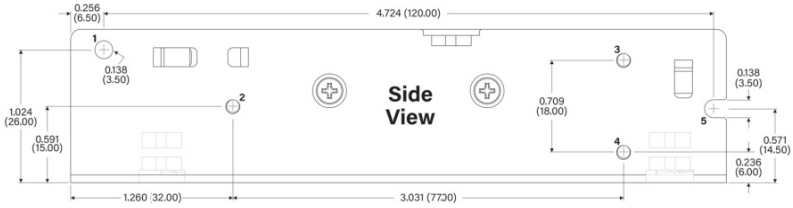
Mechanical Diagrams



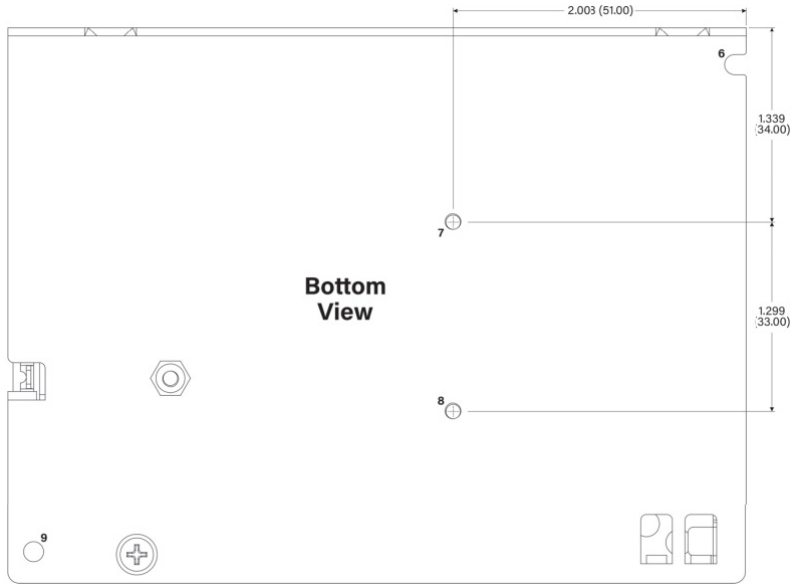


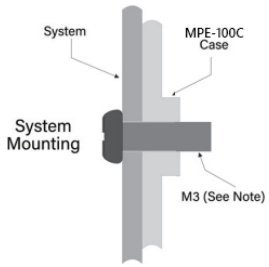
THIRD ANGLE PROJECTION

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



Position	Screw Spec	Length of Locking Screw L (max)	Torque (max)
2 - 4	M3	5mm	0.4N · m
7 - 8	M3	3mm	0.4N · m





Notes:

- All dimensions are typical in inches (mm)
- ADJ: Output voltage adjustable
- Wire range: Input: 22-12AWG
- Connector tightening torque: M3.5, Max 0.8N · m Max
- General tolerances: ±0.039 (±1.00)
- 1 - 9 any position must be connected to PE

Weight:

- 5V Model: 11.46 oz (325g)
- Other Models: 10.76 oz (305g)