MPE-50C

50W, High Isolation AC/DC Power Supplies

Key Features:

- 50W Output Power
- 85-264 VAC Input
- 4,000 VAC Isolation
- Efficiency to 90%
- -30°C to +70°C Temp
- Meets EN 55032 B
- >300 kHour MBTF
- OVC Class III
- Reinforced Insulation
- UL62368 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			1.2	A
	230 VAC			0.8	
Inrush Current (Cold Start)	115 VAC		30		A
	230 VAC		50		
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	Full Load			±0.5		%
Load Regulation	0-100% Load	5V Output		±1		%
		Other Outputs		±0.5		
Ripple & Noise (20 MHz), Note 1	5V Output				80	mV P - P
	12, 15V Outputs				120	
	24V Output				150	
	36, 48V Outputs				200	
Hold-Up Time	115 VAC		8			ms
	230 VAC		30			
Standby Power Consumption	230VAC				0.3	W
Operating Temperature Derating	-30 to -25°C	85 - 100VAC	5			%/°C
	5V +40 to +70°C	85 - 165VAC	1.33			
	5V +50 to +70°C	165 - 264VAC	2			
	Other outputs	+50 to +70°C	2			
Input Voltage Derating	85 - 100VAC		1.33			%/VAC
Temperature Coefficient			±0.03			%/°C
Over Load Protection			120		200	%Io
Short Circuit Protection, Note 2	Recovery time <5s after short circuit removed	Hiccup, Continuous, Self-Recovery				
Switching Frequency				65		kHz

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage, Note 3	Input - Ground	2,000			VAC
	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				95	

Physical

Case Size	3.90 x 3.23 x 1.18 in (See Mechanical Drawing on Page 4)
Case Material	Metal (AL1100, SGCC)
Weight	6.35 oz (180g) (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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Model Selection Guide

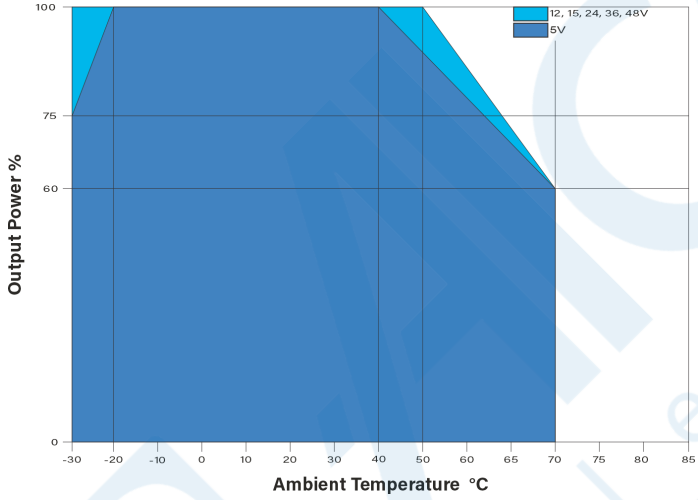
Model Number	Input Current (mA)		Output Voltage (VDC)	Output Voltage Adjustable Range (VDC)	Output Current (A, Max)	Output Power (W)	Over Voltage Protection (VDC)	Output Capacitive Load (μF Max)	Efficiency (%, Typ)
	115 VAC	230 VAC							
MPE-50C-05	1200	800	5	4.5 - 5.5	10	50	6.3	8500	86
MPE-50C-12	1200	800	12	10.2 - 13.8	4.2	50.4	16.2	2000	87
MPE-50C-15	1200	800	15	13.5 - 18	3.4	51	21.75	1500	88
MPE-50C-24	1200	800	24	21.6 - 28.8	2.2	52.8	33.6	1000	89
MPE-50C-36	1200	800	36	32.4 - 39.6	1.45	52.2	48.6	800	89
MPE-50C-48	1200	800	48	43.2 - 52.8	1.1	52.8	60	680	90

Notes:

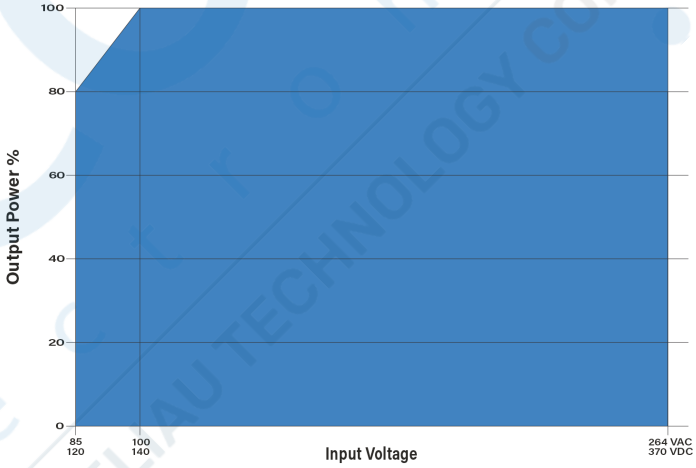
1. The "tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor.
2. Output short circuit protection is provided by a "hiccup mode" circuit. The unit recovers automatically when the fault condition is removed.
3. Input-output isolation is tested for 60 seconds with a leakage current of <10 mA.
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-50C-05-CC**).

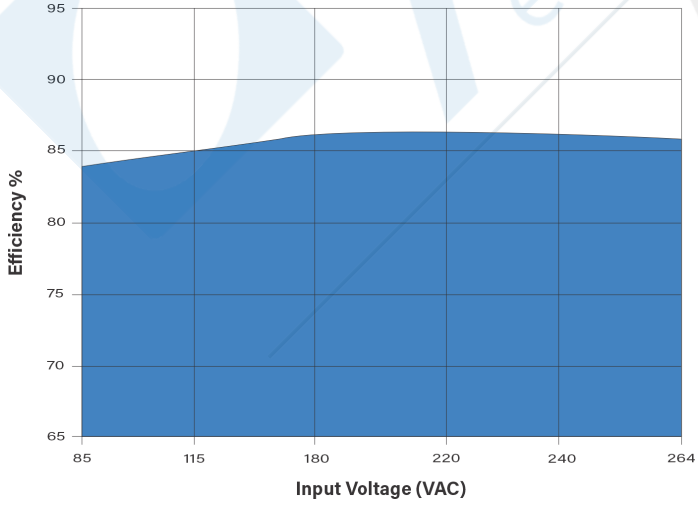
Temperature Derating



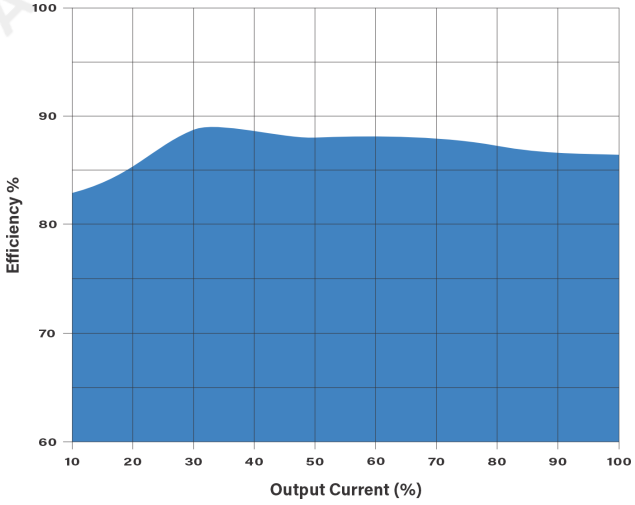
Input Voltage Derating



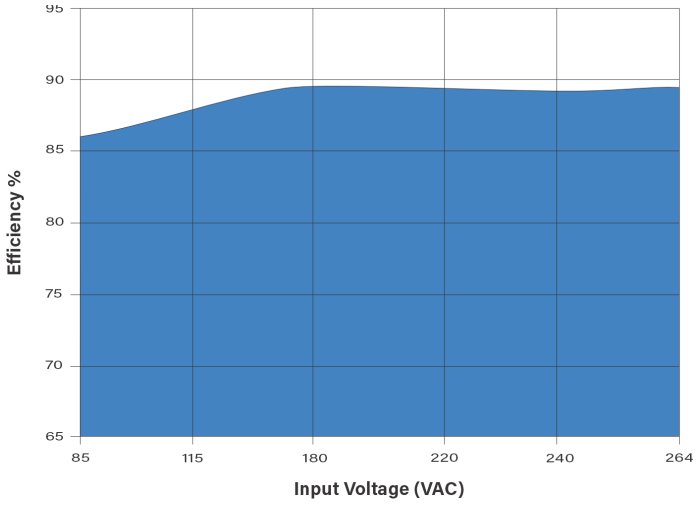
Efficiency vs Input Voltage: 5V



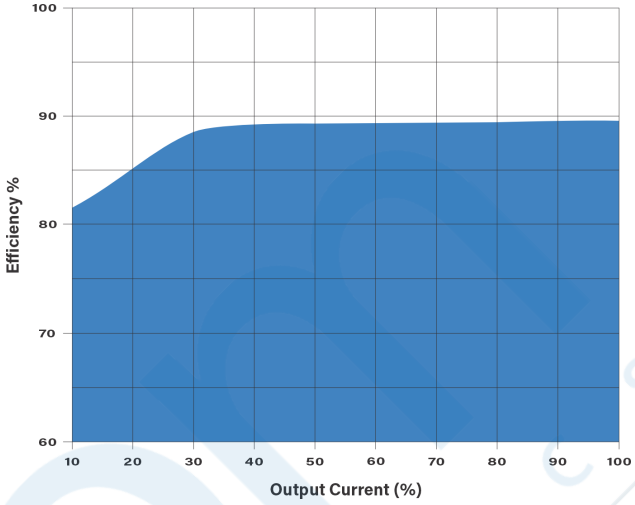
Efficiency vs Output Load: 5V (230VAC)



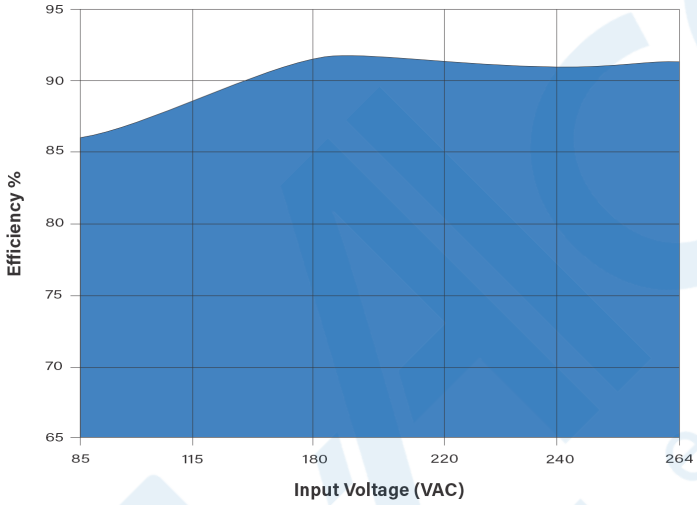
Efficiency vs Input Voltage: 24V



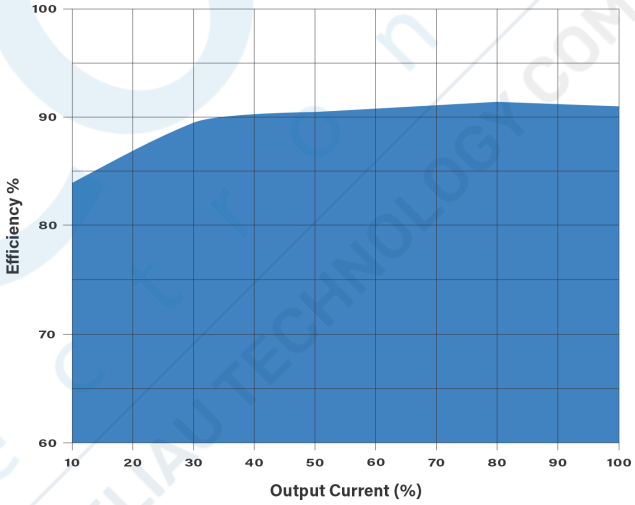
Efficiency vs Output Load: 24V (230VAC)



Efficiency vs Input Voltage: 48V



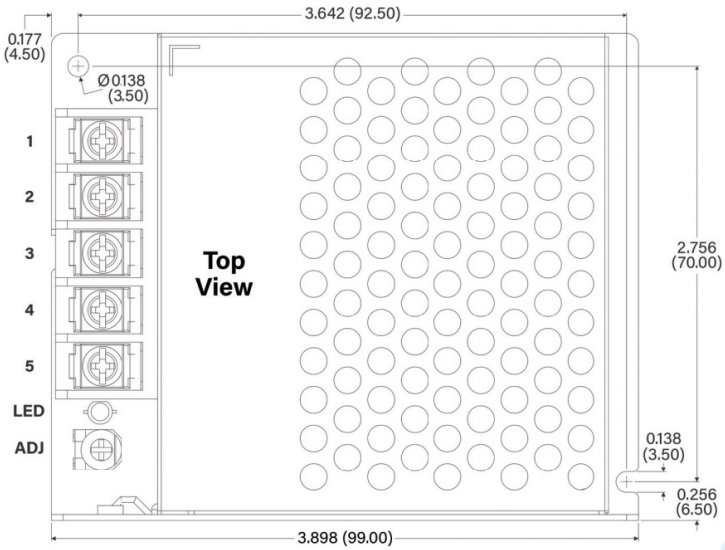
Efficiency vs Output Load: 48V (230VAC)

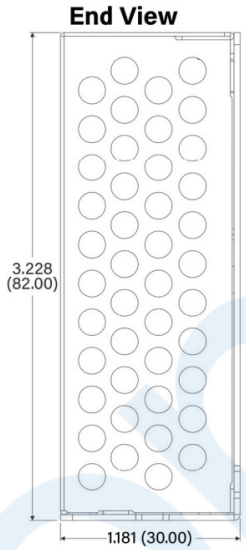


EMI Characteristics

Parameter	Standard	Criteria	Level
Radiated Emissions (RE)	CISPR32/EN55032		B
Conducted Emissions (CE)	CISPR32/EN55032		B
Harmonic Current	IEC/EN61000-3-2		A
ESD	IEC/EN61000-4-2	A	Contact ±6kV/Air ±8KV
RS	IEC/EN61000-4-3	A	10V/m
EFT	IEC/EN61000-4-4	A	±2KV
Surge	IEC/EN61000-4-5	A	line to line ±2KV/line to ground ±4KV
CS	IEC/EN61000-4-6	A	10 Vr.m.s
MS	IEC/EN61000-4-8	A	30A/m
Voltage Dips, Short, Interruption	IEC/EN61000-4-11	B	0%, 70%

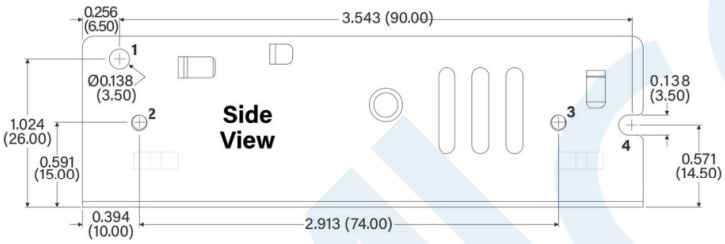
Mechanical Diagrams





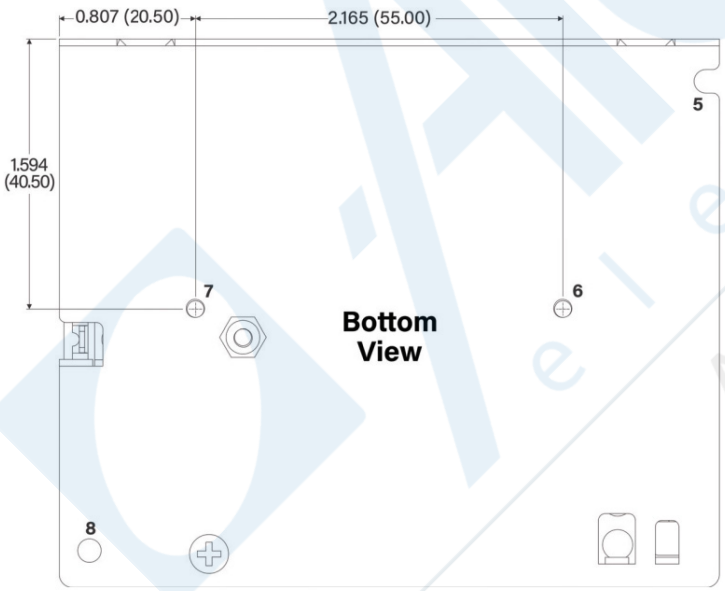
THIRD ANGLE PROJECTION

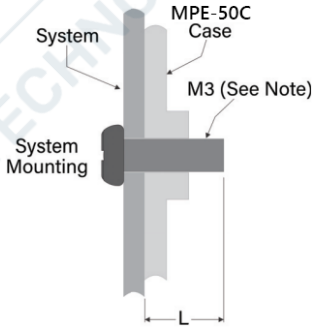
Pin-Out	
Pin	**Function**
1	AC(L)
2	AC(N)
3	GRND
4	-Vo
5	+Vo



Position	Screw Spec	Length of Locking Screw L (max)	Torque (max)
2 - 3	M3	5mm	0.4N · m
6 - 7	M3	3mm	0.4N · m

1 - 8 any position must be connected to PE





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

Weight:
- 6.35 oz (180g)

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