

# MPSU-03 Series

## Safety Approved, 3W Ultra-Miniature SIP AC/DC Power Supplies



### Key Features:

- 3W Output Power
- Ultra-Miniature SIP Case
- EN 60950 Approved (UL)
- Universal 90-264 VAC Input
- Meets IEC Safety Class II
- Pin or PCB Connectors
- Meets EN 55022 B
- >650 kHour MTBF



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### Electrical Specifications

Specifications typical @ +25°C, 230 VAC input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

#### Input

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Range		90		264	VAC
		120		370	VDC
Input Frequency		47		63	Hz
Input Current	See Model Selection Guide				
Inrush Current	115 VAC		20.0		A Pk
	230 VAC		50.0		
EMI	Meets CISPR Pub. 22/FCC Class B				
EMC	Meets EN 55024				

#### Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage	See Model Selection Guide				
Output Current	See Model Selection Guide				
Output Voltage Accuracy			±10.0		%
Line Regulation, $V_{IN} = \text{Min to Max}$	3.3V Output		±5.0		%
	All Other Models		±2.0		
Load Regulation, $I_o = 0\% \text{ to } 100\%$	3.3V Output		±5.0		%
	All Other Models		±2.0		
Ripple/Noise (20 MHz)	See Note 1			100.0	mVp-p
Hold-Up Time	115 VAC		15		mSec
Temperature Coefficient			±0.02		%/°C
Over Voltage Protection	Zener Diode Clamp		120		% of $V_o$
Short Circuit Protection, See Note 2	Continuous (Autorecovery)				
Overload Protection		105	120		% of $I_o$

#### General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	Input to Output	3,750			VAC
Isolation Resistance	500 VDC	100			MΩ
EMC Compliance	Conducted	EN 55022 Level B			
	Electrostatic Discharge (ESD)	EN 61000-4-2 Level B			
	RF Field Susceptibility	EN 61000-4-3			
	Electrical Fast Transients/Bursts On Mains	EN 61000-4-4 Level 3 2 kV			
	Surge	EN 61000-4-5 Level 3 1kV/2 kV			
Switching Frequency			132		kHz

#### Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+85	°C
Storage Temperature Range		-40		+125	°C
Cooling	Free Air Convection (See Derating Curve)				
Humidity	RH, Non-condensing			95	%

#### Physical

Case Size	1.37 x 0.71 x 0.86 Inches (35.0 x 18.0 x 22.0 mm)				
Case Material	Non-Conductive Plastic & Fiberglass (UL94-V0)				
Weight	0.91 Oz (26g)				

#### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	650			kHours
Safety Standards	UL 60950, EN 60950				
Safety Approvals	UL, cUL; File No. E245422				
Safety Class	IEC 61140 Class II				

# Model Selection Guide

Model Number	Input		Voltage (VDC)	Output		Maximum Cap. Load (µF)	Maximum Output Power (W)	Efficiency (% Typ)
	Current (A)			Current (mA)				
	115 VAC	230 VAC		Max.	Min.			
MPSU-03S-03A (B)	0.075	0.055	3.3	900	0.0	14,000	2.97	70
MPSU-03S-05A (B)	0.075	0.055	5.0	600	0.0	8,000	3.00	72
MPSU-03S-09A (B)	0.075	0.055	9.0	333	0.0	3,200	3.00	76
MPSU-03S-12A (B)	0.075	0.055	12.0	250	0.0	1,500	3.00	76
MPSU-03S-15A (B)	0.075	0.055	15.0	200	0.0	1,000	3.00	76
MPSU-03S-24A (B)	0.075	0.055	24.0	125	0.0	470	3.00	77

**Notes:**

- When measuring output ripple, it's recommended that external 0.1 µF and 47 µF capacitors be placed in parallel close to the output pins of the module.
- Output short circuit protection is provided by a "hiccup mode" circuit. The unit recovers automatically when the fault condition is removed.
- Operation at under no load conditions will not damage these units.
- It is recommended that a fuse be used on the input of a power supply for protection. For the **MPSU-03** series, a 1A/250 VAC slow blow should be used.

For "Pin" connections, add suffix "A" to model number (i.e. **MPSU-03S-12A**);  
For "PCB" connections, add suffix "B" to model number (i.e. **MPSU-03S-12B**)

**Model Number**

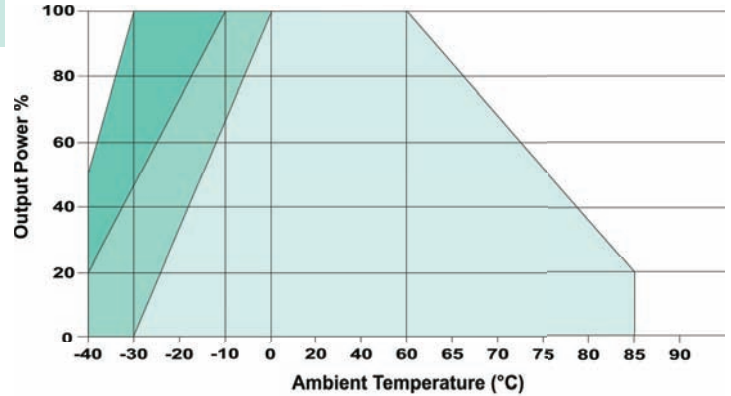
**MPSU-03X-YYZ**

Outputs  
S = Single

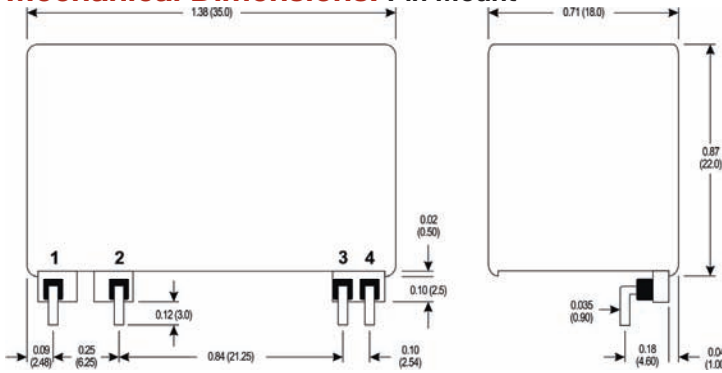
Output Voltage Selection  
(03 = 3.3 VDC, etc)

Connector Type  
A = Pin  
B = PCB

**Derating Curve**



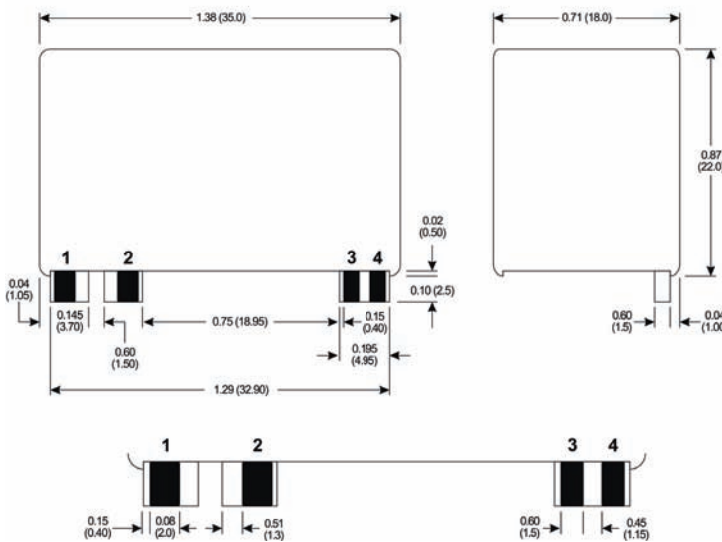
**Mechanical Dimensions: Pin Mount**



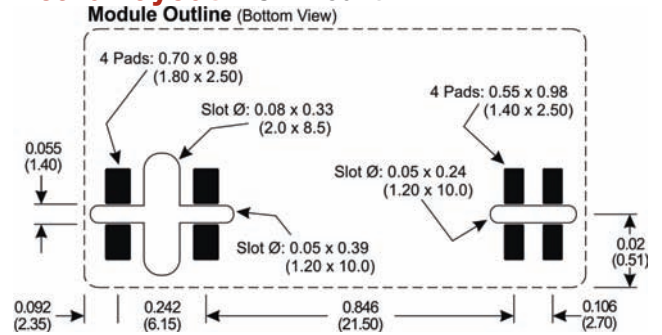
**Pin Connections**

Pin	Single
1	AC-Line
2	AC-Neutral
3	+Vout
4	-Vout

**Mechanical Dimensions: PCB Mount**



**Board Layout: PCB Mount**



**Notes:**

- All dimensions are typical in inches (mm).
- The 2.0 x 8.5 mm slot is not required. However, if high creepage between PCB tracks is desired it may be useful.

**Notes:**

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)



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