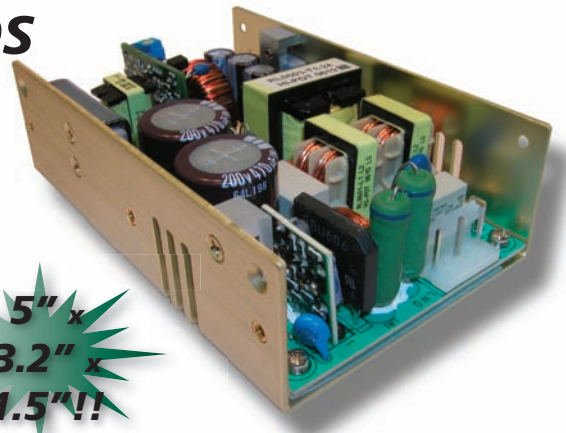


# MPA250 Series

## Smallest 1U 250W Single Output Power Factor Corrected AC/DC Power Supplies



5" x  
3.2" x  
1.5"!!

### Key Features:

- Smallest 1U 250W Supply
- PFC to EN61000-3-2 "A"
- UL, cUL, TUV Approvals
- CE Certified
- FCC Class B Emissions
- 2 - 60 V Output Voltages
- Auto Selectable AC Input
- 600W Peak Power
- Four Mechanical Options



### MicroPower Direct

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### 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	Autoranging	90 180		132 264	VAC
Input Frequency		47		63	Hz
Input Current, Full Load	110 - 120 VAC		8		A
	200 - 240 VAC		4		A
Inrush Current, Cold Start	110 VAC			35	A
	220 VAC			70	A
Leakage Current (Note 1)	240 VAC		1.5		mA
Power Factor Correction	Meets EN61000-3-2 Class A				
Input Protection	T6A/250V Fuse				

#### Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Adjustment	By Trim Pot		±5.0		%
Output Regulation (Note 2)			±1.0		%
Hold Time	110 VAC, 80% Load		20		mSec
Ripple & Noise (20 MHz) (Note 3)	See Model Selection Guide				
Overload Protection	Power Limit	110		160	%
Over Voltage Protection	>130% of Rated Output Voltage. Recycle AC Input.				
Over Temperature Protection	Autorecovery		+85		°C
Temperature Coefficient			±0.04		%/°C
Transient Recovery Time (Note 4)	50% Load Change		2.5		mS
Transient Response Deviation			5		%
Overshoot/Undershoot	At Turn On/Off			±5.0	%
Turn On Delay	120 VAC			1	S
Output Short Circuit	Continuous With Autorecovery				

#### General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage (Note 5)	Input - Output	3,000			VAC
	Input - FG (Frame Ground)	1,500			
	Primary - Core	1,500			
Switching Frequency	Fixed		24		kHz

#### Interface Signals

Power Supply On	Green LED (LED1) on the PCB
Power Good Signal	PG on CN1. Goes TTL high 100 to 500 mS after regulation. Goes low at least 1 mS before the loss of regulation. Will sink 6 mA.
Remote On/Off	RMSW on CN1. A TTL low signal inhibits the output. Hiccup mode.

#### Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	0	+25	+50	°C
Output Derating	2.5%/ °C from +50 °C to + 70 °C				
Storage Temperature Range		-20		+85	°C
Cooling	See Model Selection Guide				
Operating Humidity	RH, Non-condensing			90	%

#### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 30°C, Gnd Benign	100			kHours
Safety Standards	UL 60950; CSA C22.2 No. 60950; TUV EN60950; CB Report (IEC 60950)				
EEMI Compliance	Compliance to EN55022 (CISPR22) Class B; EN61000-3-2,3				
EMS Immunity Compliance	EN6100-4-2,3,4,5,6,8,11; EN55024;; CE Marked (LVD)				

# Model Selection Guide

Model Number	Output Voltage		Max. Output Current (Note 7)		Ripple & Noise	Efficiency (Note 7)
	Factory PreSet	Range	22 CFM (U/w Air, E, F)	Convection (U)		
MPA250x-05zz	5 VDC	2.0 - 5.0 VDC	40.00A	20.00A	50 mV p-p	75%
MPA250x-09zz	9 VDC	8.0 - 10.0 VDC	20.00A	13.50A	±1% p-p	80%
MPA250x-12zz	12 VDC	12.0 - 13.5 VDC	20.83A	11.25A	±1% p-p	83%
MPA250x-15zz	15 VDC	13.6 - 15.0 VDC	16.66A	9.00A	±1% p-p	83%
MPA250x-18zz	18 VDC	16.0 - 20.0 VDC	13.88A	7.50A	±1% p-p	83%
MPA250x-24zz	24 VDC	21.0 - 26.0 VDC	10.41A	5.62A	±1% p-p	83%
MPA250x-28zz	28 VDC	27.0 - 34.0 VDC	8.92A	4.82A	±1% p-p	83%
MPA250x-36zz	36 VDC	35.0 - 42.0 VDC	6.94A	3.75A	±1% p-p	83%
MPA250x-48zz	48 VDC	43.0 - 50.0 VDC	5.20A	2.81A	±1% p-p	83%
MPA250x-54zz	54 VDC	51.0 - 59.0 VDC	4.62A	2.50A	±1% p-p	83%

- Notes:**
- Models are available with leakage current specified as low as 500 µA (at 240 VAC) / 300 µA (at 120 VAC). Contact the factory for details.
  - Output regulation includes line & load.
  - Ripple & noise is measured from 10 Hz to 20 MHz. Measurement connection to the unit is made with a 0.1 µF ceramic capacitor & a 22 µF electrolytic capacitor connected in parallel.
  - Transient recovery is measured to within a 1% error band for a load step change of 50% to 100%.
  - Isolation specifications are production HI-Pot tested for 3 seconds.
  - The full output range (see table above) is covered in the safety agency certification.

- Standard models are factory set to the "Preset" voltage. This may be set to other levels within the range without affecting the agency certification. For more information, contact the factory.
- Output power is given for the factory preset voltage. With the exception of the "05" & "09" models, the maximum continuous output power level is 250W (with 16 CFM) or 135W convection cooled. For more information, contact the factory. Units will provide peak power of 600W for 500 µs. For units capable of longer durations, contact the factory.
- A 1% minimum load is required to maintain regulation and ripple specifications.

**Input Connector CN3:** Mating Molex Part No. 09-91-0500 or equivalent (5 pin, 3 used) PCB is Labeled: L = Line; N = Neutral; G = Chassis Ground. Mating Pins; Molex Engineering Series 2478, 2578, 8818 or Howder M3. 3 pin Terminal block 6.35MM Center (HD-601-3P).

**Output Connector CN2:** Mating Molex Part No. 09-91-0600. Mating Pins: Molex Engineering Series 2478, 2578, 8818, or Howder M3. 3 pin Terminal block 6.35MM Center (HD-601-4P) Mating JST Part No. XHP-2 or equivalent (CHYAO SHIUNN JS-2001-02).

**Output Pin Assignment:**

Howder	Molex
Pins 1 ~ 2: V+	Pins 1 ~ 3: V+
Pins 3 ~ 4: V-	Pins 4 ~ 6: V-

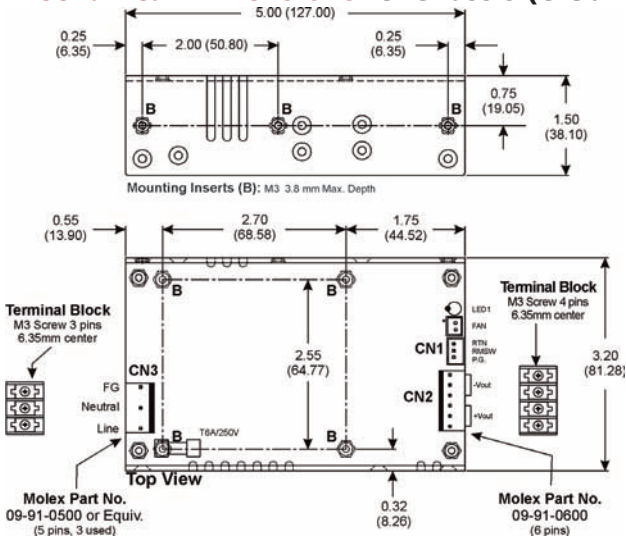
**Logic Signal Connector CN1:** Mating JST XHP or equivalent (CHYAO SHIUNN JS-21001-3). Mating Pins: JST SXH-002T-P0.6 for AWG 30 to 26.

**Logic Signal Pin Assignment:**

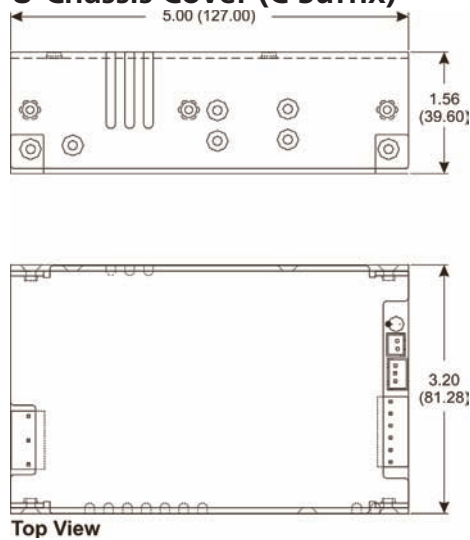
Pin	Function
1	Power Good
2	Remote On/Off
3	Common

**Fan Drive Connector (FAN):** 12 VDC/300 mA is available to drive an external fan. Mating JST Part No. XHP-2 or equivalent (CHYAO SHIUNN JS-2001-02).

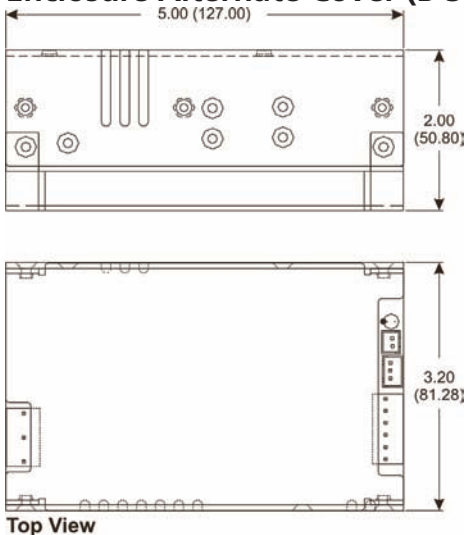
## Mechanical Dimensions: U-Chassis (U Suffix)



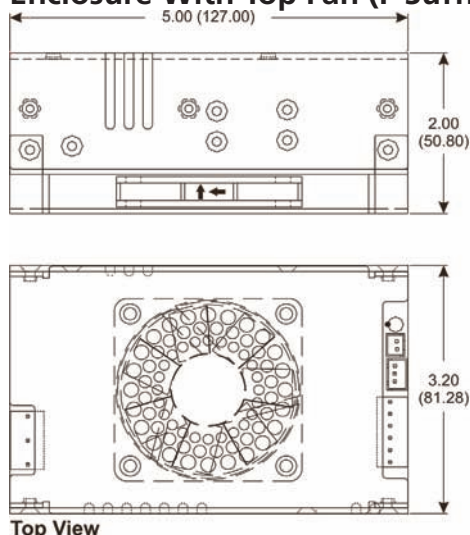
## U-Chassis Cover (C Suffix)



## Enclosure Alternate Cover (B Suffix)



## Enclosure With Top Fan (F Suffix)



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## MPA250X-YYZZ

Mechanical Configuration: U = U-Chassis, C = U-Chassis with Cover, B = U-Chassis with Alt. Cover, F = Enclosure With Top Fan  
Output Voltage Selection: (e.g. 05 = 5 VDC, 24 = 24 VDC, etc)  
Input/Output Connector Type: T = Terminal Block, M = Molex  
Low Leakage Current Option: Blank = Standard Unit, L = Low Leakage Option