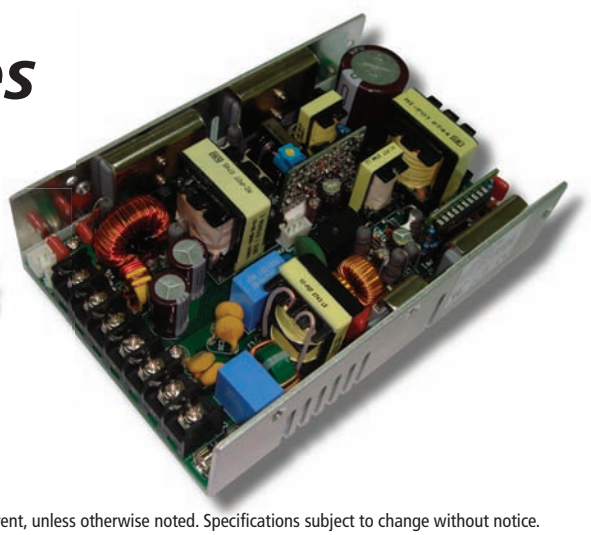
MPA321 Series

Smallest 1U Height, 320W, Active PFC Single Output AC/DC Power Supplies

Only 6 x 4 x 1.5 Inches!!



Key Features:

- Smallest 1U 320W Supply
- PFC to EN61000-3-2 "D"
- UL, cUL, TUV Approvals
- CE Certified
- FCC Class B Emissions
- 2 - 60 V Output Voltages
- Universal 90-264 VAC Input
- 700W Peak Power
- Four Mechanical Options

MicroPower Direct
292 Page Street
Suite D
Stoughton, MA 02072
USA

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

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	Universal	90		264	VAC
Input Frequency		47		63	Hz
Input Current, Full Load	90 VAC		6		A
Inrush Current, Cold Start	110 VAC			30	A
	220 VAC			70	
Leakage Current	240 VAC		3.5		mA
Power Factor Correction	Meets EN61000-3-2 Class D				
Input Protection	T6A/250V Fuse				

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Adjustment	By Trim Pot		±5.0		%
Output Regulation (Note 1)			±1.0		%
Hold Time	110 VAC, 80% Load		20		mSec
Ripple & Noise (20 MHz) (Note 2)	See Model Selection Guide				
Overload Protection	Foldback (Autorecovery)	110		140	%
Over Voltage Protection	>130% of Rated Output Voltage. Recycle AC Input.				
Over Temperature Protection	Operating Ambient (Autorecovery)	90		100	°C
Temperature Coefficient			±0.04		%/°C
Transient Recovery Time (Note 3)	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 4)	Input - Output	3,000			VAC
	Input - FG (Frame Ground)	1,500			
	Primary - Core	1,500			
Switching Frequency	Fixed		23		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 100 mA.
Fan Fail	FF on pin 3 of CN1. Open collector output rated for 15 VDC/5 mA sink current maximum. Goes high if a fan failure is detected

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 (Notes 6, 7, 8)			Ripple & Noise	Efficiency
	Factory PreSet	Range	"U, E, F" Units 28.5 CFM	"U" Units Convection	"C" Units Convection		
MPA321x-05z	5 VDC	2.0 - 6.0 VDC	45.00A	26.00A	23.70A	50 mV p-p	75%
MPA321x-09z	9 VDC	7.0 - 9.0 VDC	35.50A	20.00A	18.75A	1% p-p	80%
MPA321x-12z	12 VDC	10.0 - 13.8 VDC	26.66A	15.00A	14.16A	1% p-p	83%
MPA321x-15z	15 VDC	14.0 - 15.5 VDC	21.33A	12.00A	11.33A	1% p-p	83%
MPA321x-18z	18 VDC	16.0 - 20.0 VDC	17.77A	10.00A	9.44A	1% p-p	83%
MPA321x-24z	24 VDC	21.0 - 26.0 VDC	13.33A	7.50A	7.08A	1% p-p	83%
MPA321x-28z	28 VDC	27.0 - 34.0 VDC	11.42A	6.42A	6.07A	1% p-p	83%
MPA321x-36z	36 VDC	35.0 - 42.0 VDC	8.88A	5.00A	4.72A	1% p-p	83%
MPA321x-48z	48 VDC	43.0 - 50.0 VDC	6.66A	3.75A	3.54A	1% p-p	83%
MPA321x-54z	54 VDC	51.0 - 60.0 VDC	5.92A	3.33A	3.14A	1% p-p	83%

Notes:
1. Output regulation includes line & load.
2. 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.
3. Transient recovery is measured to within a 1% error band for a load step change of 50% to 100%.
4. Isolation specifications are production HI-Pot tested for 3 seconds.
5. The full output range (see table above) is covered in the safety agency certification. Models are factory set to the "Preset" voltage. This may be adjusted within the range without affecting the agency certification. Contact the factory for details.
6. Output current is given for the factory preset voltage. With the exception of the "05" output model, the maximum continuous output power level is 320W (with 28.5 CFM), 180W (U-Chassis convection cooled) or 170W ("C" units convection cooled. For more information, contact the factory.
7. Units will provide peak power of 700W for 500 µS. For units capable of longer durations, contact the factory.
8. A 1% minimum load is required to maintain regulation and ripple specifications.

Input & Output Connector CN2:
Howder Terminal Block No. HB-95-7P or Mating Molex Part No. 09-91-1600 (16 pin)

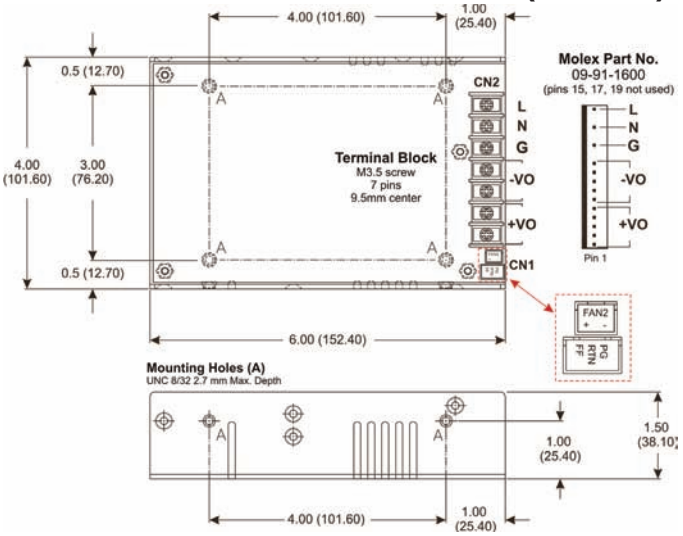
Output Pin Assignment:

Howder	Molex
Pins 1 ~ 2: V+	Pins 1 ~ 5: V+
Pins 3 ~ 4: V-	Pins 6 ~ 10: V-
Pin 5: Grnd	Pin 12: Grnd
Pin 6: Neutral	Pin 14: Neutral
Pin 7: Line	Pin 16: Line

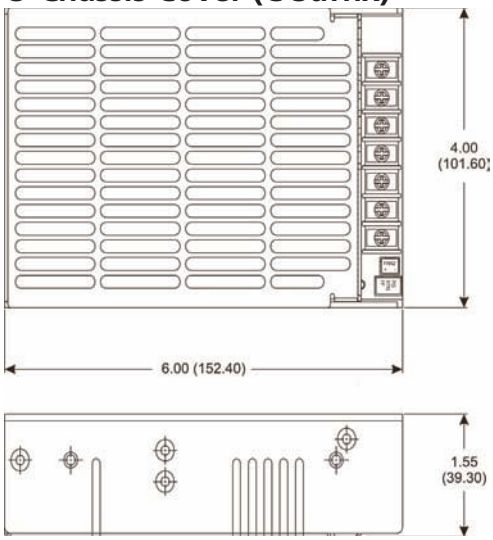
Logic Signal Connector CN1:
Mating JST XHP or equivalent (CHYAO SHIUNN JS-21001-3) Mating Pins: JST SXH-002T-P0.6 for AWG 30 to 26.

Fan driver connector (FAN2):
12 VDC / 400 mA is available to drive an external fan. Mating connector is a JST XHP-2 or Molex P/N 48-151-0210 (2 pins 0.98 pitch). Mating Pins: JST SXH-001T-P0.62T or Molex 48150 .

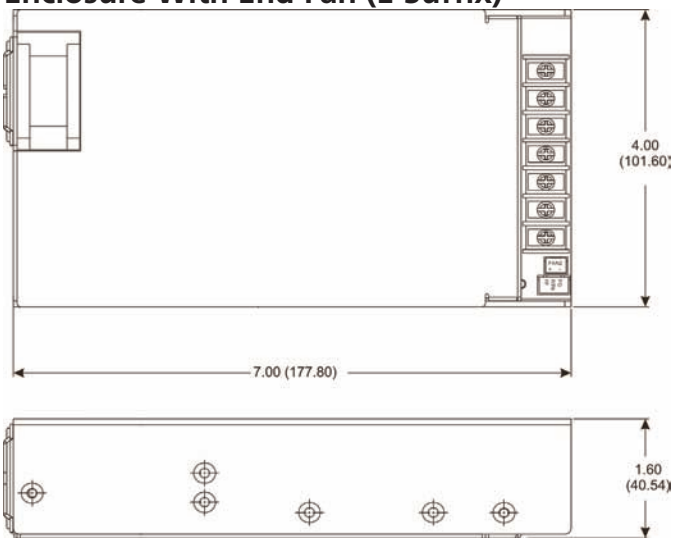
Mechanical Dimensions: U-Chassis (U Suffix)



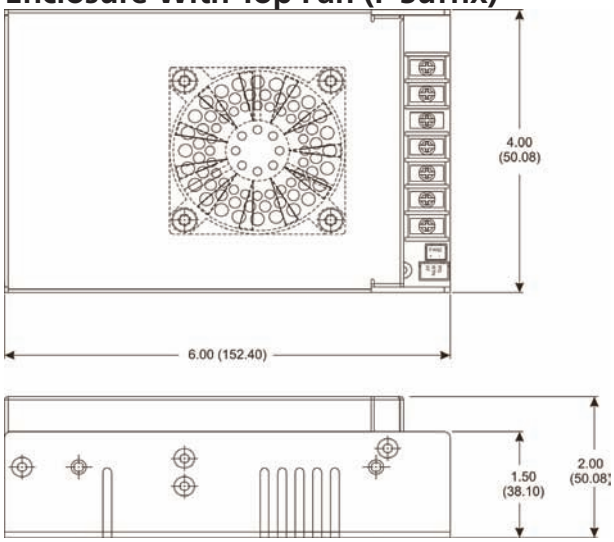
U-Chassis Cover (C Suffix)



Enclosure With End Fan (E Suffix)



Enclosure With Top Fan (F Suffix)



MPA321X-YYZ

Mechanical Configuration	Output Voltage Selection	Input/Output Connector Type
U = U-Chassis C = U-Chassis with Cover E = Enclosure With End Fan F = Enclosure With Top Fan	(i.e. 05 = 5 VDC, 24 = 24 VDC, etc)	T = Terminal Block M = Molex

MicroPower Direct
www.micropowerdirect.com
292 Page Street Ste D Stoughton, MA 02072 • TEL: (781) 344-8226 • FAX: (781) 344-8481 • E-Mail: sales@micropowerdirect.com