SPECIFICATION

For

SWITCHING POWER SUPPLY

M/N: MPI-P10H

Revision History

Version	Revise Date	Change Items
Rev. 01	May. 30. 2007	Adding index page and OVP description.
Rev. 02	Jun. 25. 2007	Adding safety logo of UL, CB, and TUV as approved.
Rev. 03	Oct. 17. 2007	Correcting the description from L channel chassis to U channel chassis.
Rev. 04	Jan. 24. 2008	Enlarge the OVP trigger point min. value from 6.2V to 5.8V at 5V output.
Rev. 05	Feb. 26. 2009	Update output wattage and derating curve.
Rev. 06	Apr. 8. 2009	Define the time of the peak output power.
Rev. 07	Sep. 28. 2010	Updating the safety approval status.
Rev. 08	Mar. 28. 2011	Updating the safety approval status; revised the hi-pot withstand.
Rev. 09	Jan. 3. 2013	Revised safety approvals status.
Rev. 10	Feb.1. 2018	1. Changed new form. 2. Added EN 55032.
Rev. 11	Jan. 19. 2019	Added output current to output field.
Rev. 12	May. 22. 2019	Changed Derating curve and Mechanical.

MPI-P10H

100W AC / DC

FEATURES

- ✓ 100W and peak 120W with forced air- cooling until 70°C ambient.
- ✓ Active PFC with ATX output.
- ✓ PG/PF Signal.
- ✓ +5V Stand by & Remote On/Off.
- ✓ MTBF>130,000 hr. MIL-217F.
- ✓ CE-LVD EN 62368-1:2014+A11:2017.

Models & Ratings

Model Number	Wattage (Rated / Max)	Output Voltage		Min. Current	Rated Current	Max. Current (Note 2)
MPI-P10H	80 W / 100 W (Note 1)	V1	+5 V	1 A	5.5 A	8.0 A
		V2	+12 V	0.1 A	2.5 A	5.0 A
		V3	-12 V	0 A	0.5 A	-
		V4	+3.3 V	0 A	4.0 A	6.0 A
		V5	+5Vsb	0 A	0.75 A	-

Total Output Power: Maximum 100W continuously and peak 120W (Note 1). For detailed explanation, see derating curve.

Note:

1. Maximum 100W with 10.8CFM fan and 80w convection cooled at 50˚C. Peak 120W for max.10 seconds at 70˚C with 10.8 CFM fan.
2. The maximum total combined output power on the +3.3V and +5V rails is 50W.

Summary

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Range	90	115 / 230	264	VAC	Continuous input range.
Input Frequency	47		63	Hz	AC input.
Efficiency		75		%	Rated load, 115VAC. Varies with distribution of loads among output.
Operating Temperature	0		+70	˚C	See the following performance curves for the detail.
Dimensions	170.5 (L) x 83.0 (W) x 41.0 (H) mm, Tolerance +/- 0.4mm.				
EMC	EN 55022 / EN 55032 / CISPR 22 & FCC Part 15, EN 61000-3-2 & EN 61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11				
Safety Approvals	IEC 60950-1, 2nd edition, EN 60950-1, 2nd edition, UL 60950-1, 2nd Edition, CSA C22.2 No. 60950-1-07, 2nd Edition LVD EN62368-1:2014+A11:2017 Approved.				

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage	90	115 / 230	264	VAC	Continuous input range.
Input Frequency	47		63	Hz	AC input.
Input Current			2 / 1	A	Nominal AC Input Voltage (115VAC/230VAC), rated load.
Inrush Current			30 / 60	A	Nominal AC Input Voltage (115VAC/230VAC), one cycle at 25°C.
Input Protection	Non-user serviceable internally located AC input line fuse. Fuse：5A / 250VAC * 1pcs				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage		+5 V		DC	
		+12 V			
		-12 V			
		+3.3 V			
		+5Vsb			
Output Current		5.5	8.0	A	
		2.5	5.0		
		0.5			
		4.0	6.0		
		0.75			
Initial Set Accuracy	5.08		5.13	VDC	The +5V output is set between 5.08V to 5.13V by variable resistor and all output at 60% rated load and the other outputs are checked to be within the accuracy range.
	11.4		12.6		
	-11.4		-12.6		
	3.10		3.50		
	4.80		5.20		
Minimum Load		1		A	At Output Voltage +5V
		0.1			At Output Voltage +12V
		0			At Output Voltage -12 V, +3.3 V, +5Vsb
Start Up Delay	0.3		4	Sec	Time required for initial output voltage stabilization.
Hold Up Time	20			mS	Nominal AC Input Voltage (230VAC), rated load.
Line Regulation		1.0(V1) 1.0(V2) 1.0(V3) 1.0(V4) 1.0(V5)		%	Less than ±1% at rated load with ±10% changing in input voltage.
Load Regulation		2.0(V1) 4.0(V2) 5.0(V3) 4.0(V4) 4.0(V5)		%	Measured from 60% to 100% rated load and from 60% to 20% rated load (60% ±40% rated load) for each output, and others output current setting at 60%.
Ripple & Noise		50(V1) 120(V2) 120(V3) 50(V4) 120(V5)		mV	Measured at rated load by a 20MHz bandwidth limited oscilloscope and the each output is connected with a 10μF Electrolytic Capacitor and a 0.1uF Ceramic Capacitor.
Over Voltage Protection	For some reason the power supply fails to control itself, the build-in over voltage protection circuit will shut down the outputs to prevent damaging external circuits. The trigger point is about 5.8V-6.8V at +5V. If the OVP occur, PSU cannot be recovered.				
Over Load Protection	Fully protected against output overload and short circuit. Automatic recovery upon of overload condition.				

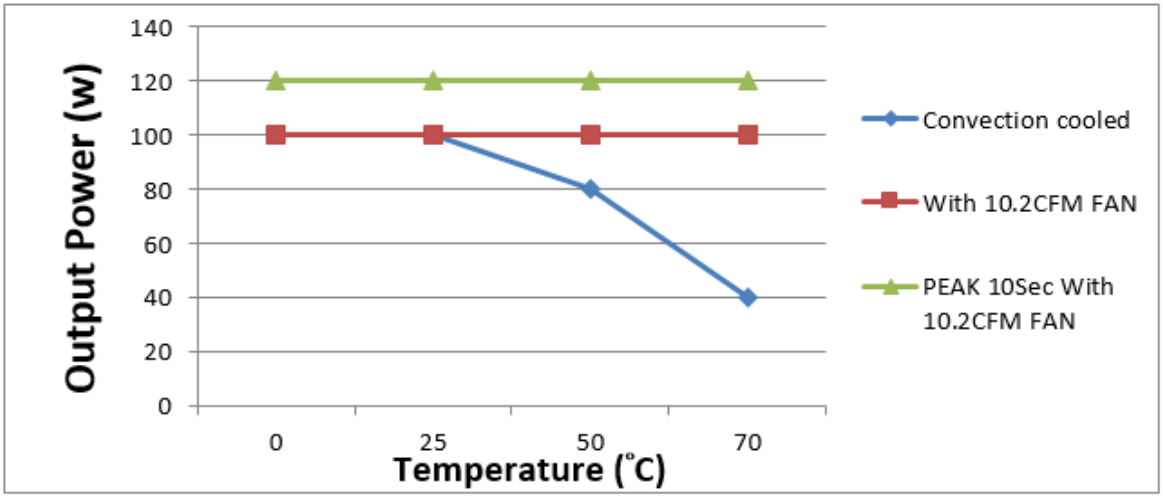
General

Characteristic		Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency			75		%	Rated load, 115VAC. Varies with distribution of loads among output.
Isolation	IP to OP	3000			VAC	
Switching Frequency			60		KHZ	
Power Good Signal		When power is turned on, the power good signal will go high 100ms to 500ms after all output DC voltages are within regulation limits.				
Power Fail Signal		The power fail signal will go low at least 1 mS before any of the output voltages fall below the regulation limits.				
Power On / Off		The power supply will be turned on when the power On/Off pin is connected to secondary GND.				

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	0		+70	˚C	See the following performance curves for the detail.
Storage Temperature	-40		+70	°C	
Relative Humidity	5		95	%RH	Non-condensing.
Cooling	10.2			CFM	Forced-cooled > 100W
Operating / Non-Operating Altitude		10000 / 40000		Feet	

Derating curve



EMC: Emissions

Phenomenon	Standard	Class	Notes & Conditions
Conducted	EN 55022 / EN 55032 CISPR 22 & FCC Part 15	B	
Radiated	EN 55022 / EN 55032 CISPR 22 & FCC Part 15	B	
Harmonic Current	EN 61000-3-2	D	
Voltage Flicker	EN 61000-3-3	D	

EMC: Immunity

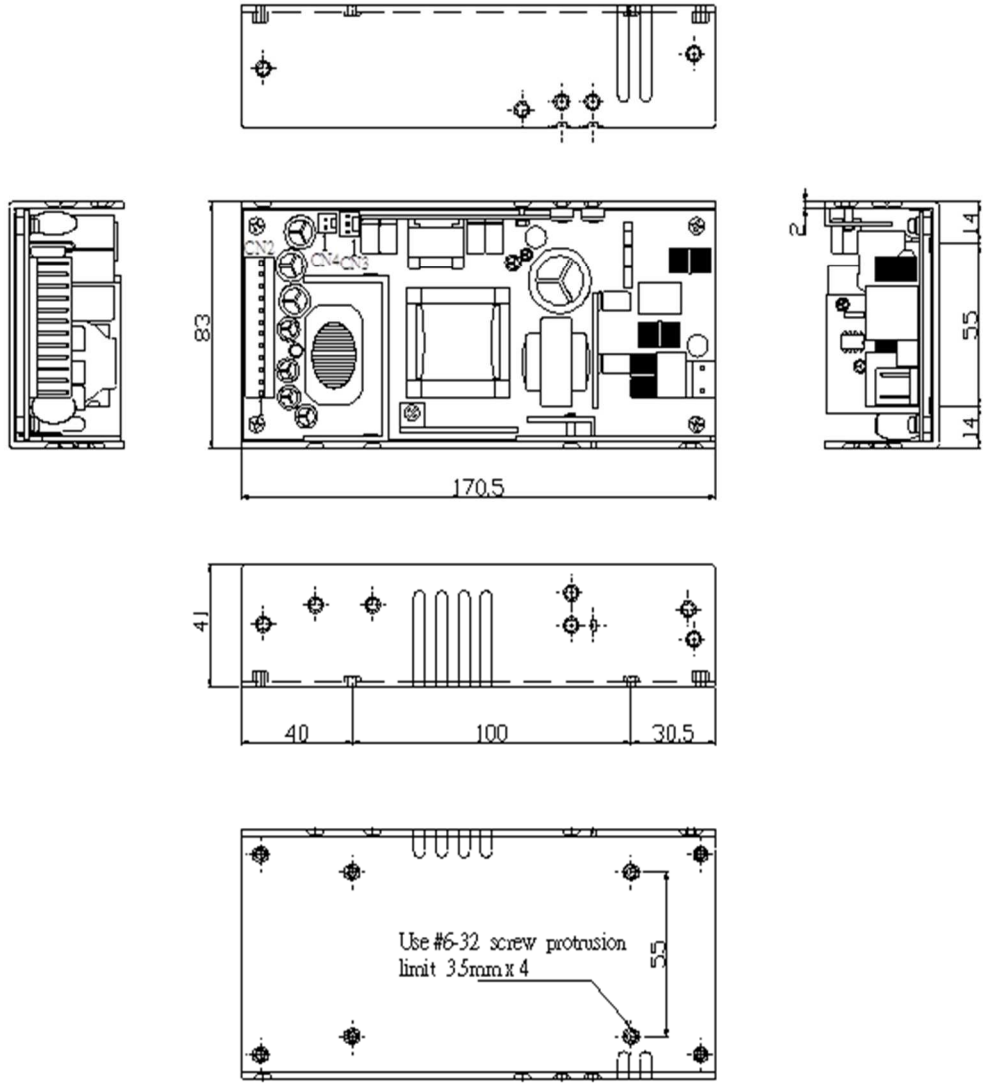
Phenomenon	Standard	Notes & Conditions
ESD	IEC 61000-4-2	8KV air discharge, 6KV contact discharge
Radiated	IEC 61000-4-3	3V/m
EFT	IEC 61000-4-4	2KV line & PE
Surges	IEC 61000-4-5	2KV
Conducted	IEC 61000-4-6	10V
Power Magnetic	IEC 61000-4-8	10A/m
Dips and Interruptions	IEC 61000-4-11	

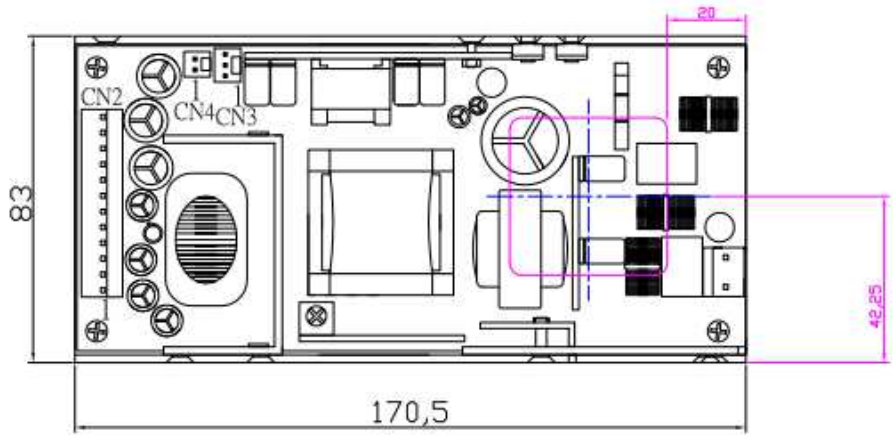
Safety Approvals

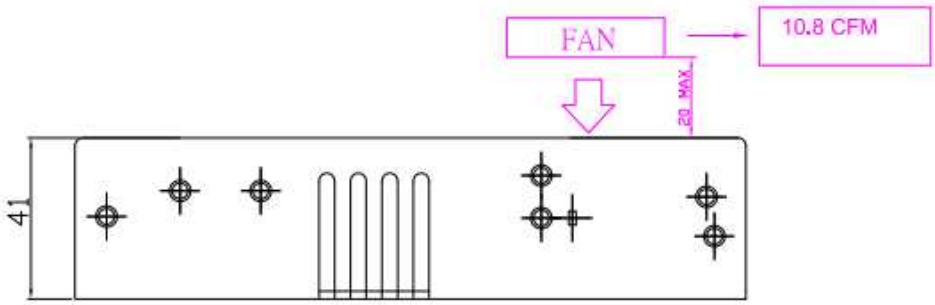
Safety Agency	Safety Standard	Notes & Conditions
TUV	EN 60950-1, 2nd edition	CE (LVD) declaration.
CB	IEC 60950-1, 2nd edition	CE (LVD) declaration.
UL/cUL	UL 60950-1, 2nd Edition CSA C22.2 No. 60950-1-07, 2nd Edition	Approved.
CE-LVD	EN 62368-1:2014+A11:2017	Approved.

Mechanical Details

SIZE：170.5 (L) x 83.0 (W) x 41.0 (H) mm, Tolerance +/- 0.4mm.







Parameter	Conditions/Description					
Dimension	170.5 x 83 x 41 mm, Tolerance +/- 0.4mm.					
Connector	CN1 --- AC input: Molex 5273-03A with draw 1 pin or equivalent. CN2 --- DC output: Molex 5273-12A or equivalent. CN3 --- DC output: Molex 5045-03A.					
Pin Assignment	CN1	Pin	1. N	2. L		
	CN2	Pin	1. 3.3V	4. GND	7. +5V	10. PG/PF
			2. 3.3V	5. GND	8. +5V	11. +12V
			3. GND	6. GND	9. +5V	12. -12V
	CN3	Pin	1. +5Vsb	2. GND	3. PS on/off	

Thermal Considerations

In order to ensure safe operation of the PSU in the end-use equipment, the temperature of the components listed in the table below must not be exceeded.
Temperature should be monitored using J type thermocouples placed on the hottest part of the component (out of any direct air flow). See Mechanical Details for component locations.

Temperature Measurements at max. amb.	
Component	Max Temperature
T1	110℃
Q1	120℃
D5, D6, D7	120℃
C7	105℃
C27	105℃