Preliminary

SPECIFICATION

For

SWITCHING POWER SUPPLY

M/N: MPI-822H

Revision history

Rev.	June 25th 2009	Added 170W convection cooled at 40℃condition
Rev.	June 4th 2010	Added minimum load condition in description.
Rev.	June 9th 2010	Correction of height and adding note in section 4.

FEATURES

- 220W open frame ATX
- Active PFC Class D
- Meets EMI EN 55022 Class B
- U chassis design for thermal conduction
- Input wattage <0.5W at no load condition

1. Description

MPI-822H is a 220W ATX power supply with active PFC for industrial and embedded system application. The device utilizes a thermally efficient U channel chassis design.

Output Voltage	Mini. Output Current (Note 4)	Rated Output Current	Max Output Current (Note 1)	Line Regulation	Load Regulation	Ripple & Noise p-p (Note 2)	Initial Setting Accuracy (Note 3)
+5V	2.5W	11A	14A	±1%	±2%	50mV	5.05V to 5.15V
+12V		5A	12A	±1%	±4%	100mV	11.6V to 12.6V
-12V	0A	0.5A	1A	±1%	±5%	150mV	-11.4V to -12.6V
+3.3V	0A	7.5A	12A	±1%	±4%	50mV	3.20V to 3.40V
+5Vsb	0A	0.75A	2A	±1%	±4%	100mV	4.80V to 5.20V

Total Output Power: Max. 220W with (TBD) CFM force air cooling at 70℃; 170W convection cooled at 40℃ and 150W convection cooled at 50℃ environment temperature.

Note: 1) The maximum total combined output power on the +3.3V and +5V rails is 90W at convection cooled condition, and 100W with force air cooling.
2) Measured by a 20MHz bandwidth limited oscilloscope and the each output is connected with a 10μF Electrolytic Capacitor and a 0.1μF Ceramic Capacitor.
3) Initial Setting Accuracy is at Input 110VAC and all output at 60% rated load.
4) Total minimum load 2.5 watts, which is combination or any one from +5V & +12V output, is required.

2. Input Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Input Voltage	Continuous input range.	90	115/230	264	VAC
Input Frequency	AC input.	47		63	Hz
Hold Up Time	Nominal AC Input Voltage (115VAC), rated load.	16			ms
Input Current	Nominal AC Input Voltage (115VAC/230VAC), rated load.			4/2	A
Inrush Current	Nominal AC Input Voltage (115VAC/230VAC), one cycle at 25°C.			30/60	A
Input Protect	Non-user serviceable internally located AC input line fuse.				

3. Output Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Efficiency	Rated load, 115VAC. Varies with distribution of loads among output.		TBD		%
Minimum load		See Chart of Description			
Ripple & Noise	Rated load, 20MHz bandwidth	See Chart of Description			
Output Power	Continuous output power.	See Chart of Description			
Line Regulation	Less than ±1% at rated load with ±10% changing in input voltage.	See Chart of Description			
Load Regulation	Measured from 60% to 100% rated load and from 60% to 20% rated load (60% ±40% rated load) for each output, and others voltage setting at 60%.	See Chart of Description			
Turn-on Delay	Time required for initial output voltage stabilization	0.3		5	Sec

4. Interface Signals and Internal Protection

Parameter	Conditions/Description
Power On/Off	The power supply will be turned on when the power On/Off pin is connected to secondary GND.
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 1ms before any of the output voltages fall below the regulation limits.
Short Circuit Protection	Fully protected against short circuit. Latch off mode upon of short circuit condition (Note 1).
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 7V max. at +5V. If the OVP occur, PSU cannot be recovered.
Over Temperature Protection	When the power supply operating over the temperature or over load limit, the power supply will be shut down automatically to protect itself. The protection point is at the temperature of the HS1 over 110°C. After the temperature of HS1 going down, the power supply will restart automatically.

Note: 1) Only +5Vsb and -12V is protect by auto recovery.

5. Safety Approvals, EMI and EMS Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Approvals	UL, UL 60950-1, 2nd edition CB, IEC 60950-1 TUV, EN 60950-1: 2006+ A11		Pending		
Hi-Pot	Input to output	4242			VDC
EMI	EN 55022 / CISPR 22 & FCC Part 15	B			Class
PFC	EN 61000-3-2 & EN 610003-3	D			
EMS	IEC 61000-4-2, 8KV air discharge and 6KV contact discharge	3			
	IEC 61000-4-3, 3V/M	3			
	IEC 61000-4-4, 2KV line & PE	3			
	IEC 61000-4-5, 2KV	3			Level
	IEC 61000-4-6, 10V	3			
	IEC 61000-4-8, 10A/M	3			
	IEC 61000-4-11				

6. Environment Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Operating Temperature	Derate linearly above (TBD)°C	-20		+70	°C
Storage Temperature		-20		+70	°C
Relative Humidity	Non-condensing.	5		95	%RH
Altitude	Operating			6.5K	feet
	Non-operating			40K	

7. Mechanical Specification

Parameter	Conditions/Description	
Dimension	198 (L) x 97 (W) x 40.5 (H) mm, Tolerance +/- 0.4mm.	
Connector	CN1 --- AC input:	3 Positions Terminal blocks.
	CN3 --- DC output:	8 Positions Terminal blocks.
	CN4 --- Fan Connector:	Molex 5045-02A or equivalent
	CN5 --- PG/PF:	Molex 5045-02A or equivalent
	CN6 --- PS ON/OFF:	Molex 5045-02A or equivalent
	CN7 --- 5Vsb:	Molex 5045-02A or equivalent

Pin Assignment	CN1	Pin	1. L	2. N	3. GND
	CN3	Pin	1. -12V	2. GND	3. 3.3V
			4. GND	5. +5V	6. +5V
			7. +12V	8. GND	
	CN4 (Fan)	Pin	1. +12V	2. GND	
	CN5	Pin	1. GND	2. PG / F	
	CN6	Pin	1. GND	2. ON / OFF	
	CN7	Pin	1. GND	2. 5Vsb	

Mechanical