



# **SPECIFICATION**

For

SWITCHING POWER SUPPLY

**M/N: MPD-815H**



FEATURES

- 150W DC/DC converter convection cooled for P4 application
- Power Good/Power Fail signal.
- +5V Stand by & Remote On/Off
- MTBF>130,000 hr. MIL-217F at 50°C

1. Description

MPD-815H is a DC 24V input ATX output power supply for industrial and embedded system application. The device utilizes a thermally efficient U channel chassis design. Designed to be convection cooled but however provided with optional cover for customers' reference.

Output Voltage	Mini. Output Current	Rated Output Current	Max output Current <sup>(Note 1)</sup>	Line Regulation	Load Regulation	Ripple & Noise p-p <sup>(Note 2)</sup>	Initial Setting Accuracy <sup>(Note 3)</sup>
+5V	1A	11A	14A	±1%	±2%	50mV	5.05V to 5.15V
+12V	0A	5A	10A	±1%	±4%	100mV	11.8V to 12.8V
-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 3.5V
+5Vsb	0A	0.75A	1.5A	±1%	±4%	100mV	4.80V to 5.20V

**Total Output Power: 150W at 50°C environment temperature.**

Note: 1) The maximum total combined output power on the +3.3V and +5V rails is 90W.

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 24VDC and all output at 60% rated load.

2. Input Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Input Voltage	Continuous input range.	18	24	36	VDC
Hold Up Time	Nominal DC Input Voltage (24VDC), rated load.	5			ms
Input Current	Nominal DC Input Voltage (24VDC), rated load.			15	A
Inrush Current	Nominal DC Input Voltage (24VDC), one cycle at 25°C.			60	A

3. Output Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Efficiency	Rated load, 24VDC.		78		%
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



#### 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 1 mS 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.
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 5.4-7V 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 T1 over 125°C. After the temperature of T1 going down, the power supply will restart automatically.

#### 5. Safety Approvals, EMI and EMS Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Approvals	UL 60950-1, 1st Edition, 2006-07-07 CSA C22.2 No. 60950-1-03, 1 <sup>st</sup> Edition, 2003-11 EN 60950-1: 2006+A1: 2009				UL approved cUL approved CE (LVD) approved
Radiation	EN 55022 / CISPR 22 & FCC Part 15	B			Class
Conduction	EN 55022 / CISPR 22 & FCC Part 15	A			
Hi-Pot	Input to output	500			VDC
EMS	IEC 61000-4-2, 8KV air discharge and 6KV contact discharge	3			Level
	IEC 61000-4-3, 3V/M	3			
	IEC 61000-4-4, 2KV	2			
	IEC 61000-4-5, Line to GND 1KV; Line to Line 0.5KV	2			
	IEC 61000-4-6, 10V	3			

#### 6. Environment Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Operating Temperature	Derate linearly above 50°C by 2.5% per °C At 100% load:	0		50	°C
	to a maximum temperature of 70°C At 50% load:			70	
Storage Temperature		-20		+70	°C
Relative Humidity	Non-condensing.	5		95	%RH
Altitude	Operating			10K	Feet
	Non-operating			40K	

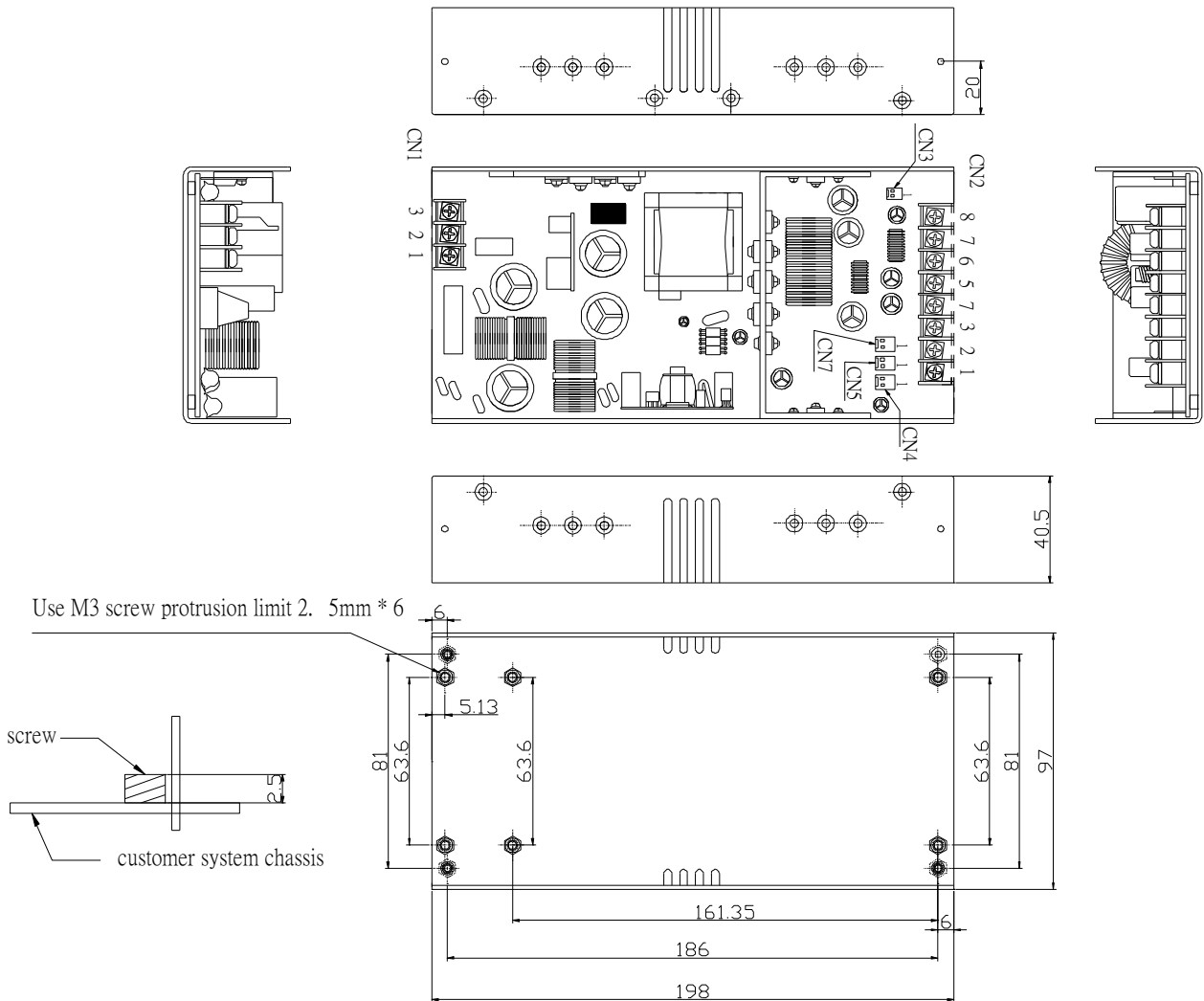


### 7. Mechanical Specification

Parameter	Conditions/Description				
Dimension	198 (L) x 97 (W) x 40.5 (H) mm, Tolerance +/- 0.4mm.				
Connector	CN1 --- DC input: 3 Positions Terminal blocks. CN2 --- DC output: 8 Positions Terminal blocks. CN3 --- Fan Connector: Molex 5045-02A or equivalent CN4 --- DC output: Molex 5045-02A or equivalent CN5 --- PS ON/OFF: Molex 5045-02A or equivalent CN7 --- PG/PF connector: Molex 5045-02A or equivalent				
Pin Assignment	CN1	Pin	1. +	2. -	3. GND
	CN2	Pin	1. -12V	4. GND	7. +12V
			2. GND	5. +5V	8. GND
			3. +3.3V	6. +5V	
	CN3	Pin	1. +12V	2. GND	
	CN4	Pin	1. +5Vsb	2. GND	
	CN5	Pin	1. +5V	2. GND	
	CN7	Pin	1. +5V	2. GND	

### ◆Dimension

Parameter	Conditions/Description
Dimension	198 (L) x 97 (W) x 40.5 (H) mm, Tolerance +/- 0.4mm.



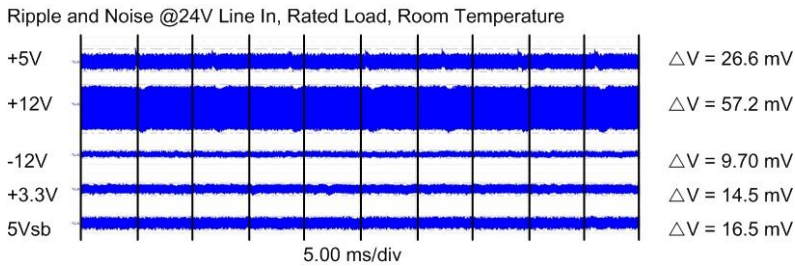


### 8. Options

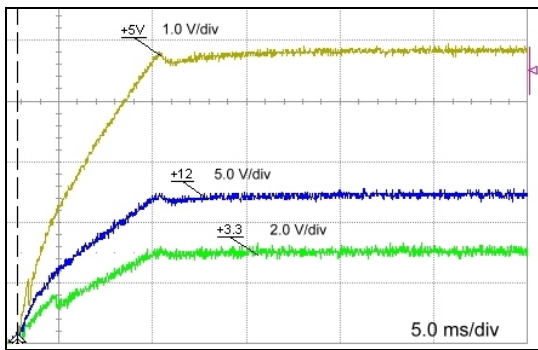
Parameter	Conditions/Description
Cable (No. 866-815H)	ATX connector, HDD connector x 2, FDD connector x 1
Cover (No. 831-815U)	Cover assembling with MPD-815H

### 9. Performance

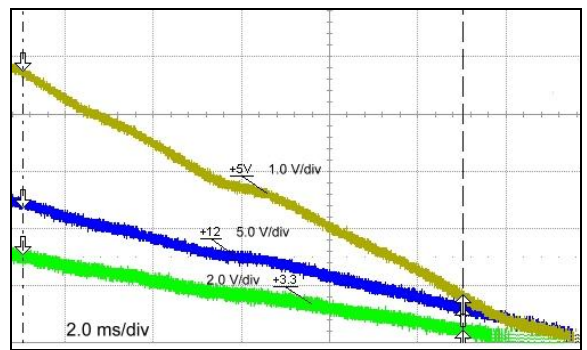
#### 9.1. Line frequency ripple



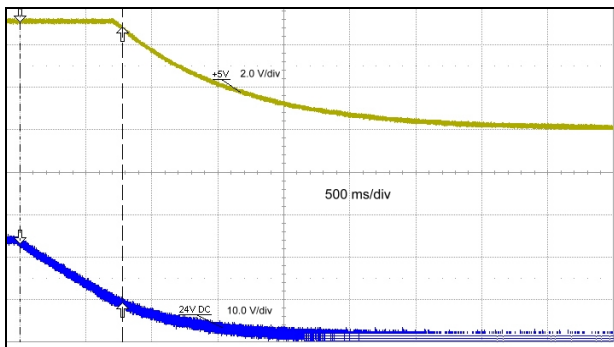
#### 9.2. Output turn on wave form



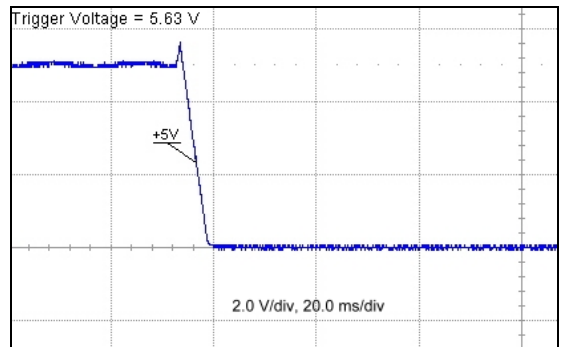
#### 9.3. Output turn off wave form



#### 9.4. Hold-up time

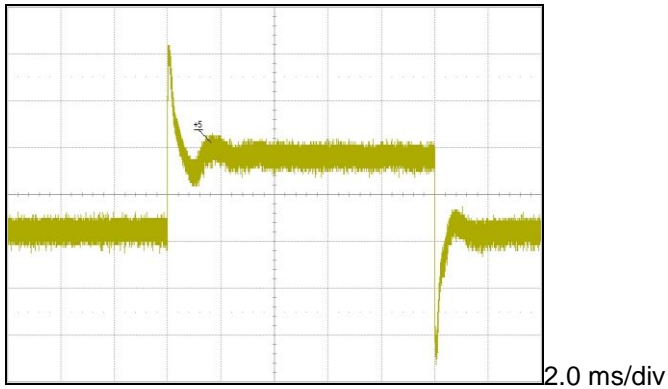


#### 9.5. Over voltage protection

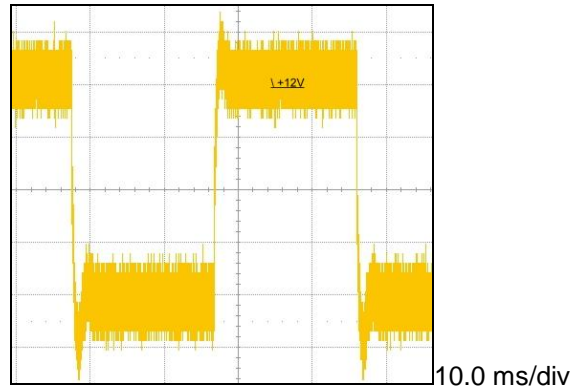




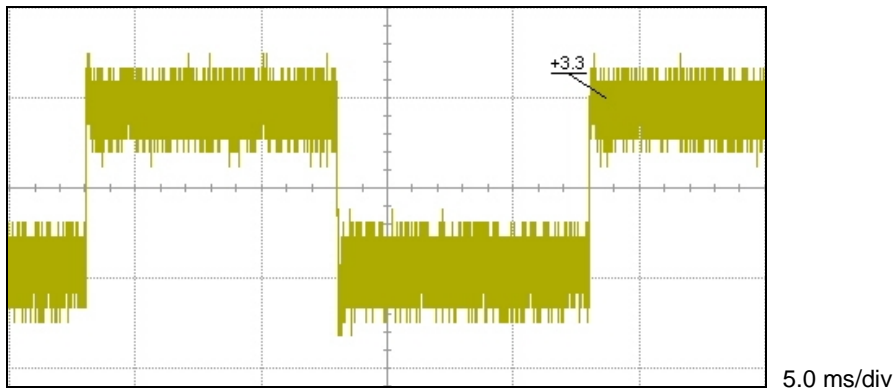
9.6 +5V step response



9.7 +12V step response



9.7 +3.3V step response



9.8 EMI conduction performance (Pass Class A, 10dB lower than Class B as below)

