



SPECIFICATION

For

SWITCHING POWER SUPPLY

M/N: MPD-F113-V

Revision History

REV.	Oct. 1 st 2012	Established
REV.	Dec. 6 th 2012	Revised EMS performance and added mechanical drawing.
REV.	Jun. 4 th 2013	Added recommended torque of input connector.
REV.	Nov. 25 th 2015	a) Added "or equivalent" after "Molex" b) Added vibration test c) Changed Molex Proposed Terminals from 5176 to 5167



FEATURES

- 110W isolated DC/DC converter with 11.7 CFM forced air-cooling, 90W convection cooled
- Fully isolated Primary to Secondary; Primary to Earth Ground
- Wide DC input range 30-120VDC
- Design to meet EN 50155
- Input polarity reversed protection
- Compact size 2 x 5 inch
- Low inrush current to prevent power adapter turn on issue
- High efficiency up to 90%

1. Description

The MPD-F113-V is a 110W single output DC/DC converter. It is a compact size 2 x 5" and I wide DC input range. Fully isolated primary to secondary and primary to earth ground avoid disturbed noise to affect secondary side. In addition, design in polarity reverse protection to avoid wrong input polarity.

Output Voltage	Min. Output Current	Rated Output Current	Max. output Current <small>(Note 1)</small>	Line Regulation <small>(Note 4)</small>	Load Regulation <small>(Note 4)</small>	Ripple & Noise p-p <small>(Note 2)</small>	Initial Setting Accuracy <small>(Note 3)</small>
+12 V	0 A	7.5 A	9.17A	±0.5%	±0.5%	60mV	11.76V to 12.24V
Fan supply (+12 V)	0 A	0.3 A	0.3 A		(N/A)		

Total Output Power: max. 90W with convection cooled at 50°C environment temperature; max. 110W with 11.7 CFM max. at 70°C environment temperature (Note 5).

Note: 1) When output current above 7.5A, it has to force air cooling 11.7 CFM.

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) At factory, all outputs in 60% rated load. The +12V output is set to between 11.76V and 12.24V.

4) Please see the detail definitions in paragraph 3.

5) Please see the performance curves in paragraph 6 for the detail.

2. Input Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Input Voltage	Continuous input range.	30	48	120	VDC
	Endured max. 1 sec. for input voltage dips	28		140	
Input Current	Nominal DC Input Voltage, rated load.			5	A
Inrush Current	Nominal DC Input Voltage, rated load, cold start at 25°C.			10	A

3. Output Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Efficiency	Nominal DC Input Voltage, rated load.		90		%
Output Power	Continuous output power.	See Chart of Description			
Minimum load		See Chart of Description			
Ripple & Noise	Rated load, 20MHz bandwidth	See Chart of Description			
Line Regulation	Less than ±1% at rated load with ±10% changing in nominal DC 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
Short Circuit or Over Load Protection	The power supply will go into hiccup mode against short circuit or over load conditions, and will auto-recovery while fault conditions moved.
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 from 12.8V to 15V.
Input Reverse Polarity Protection	When incorrect input polarity installation, the PSU will be not damaged and no output voltage.

5. Safety Approvals, EMI and EMS Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Approvals	IEC 60950-1, 2 nd Edition EN 60950-1, 2 nd Edition UL 60950-1, 2 nd Edition CSA C22.2 No.60950-1-07, 2 nd Edition IEC 60571 EN 50155				Design to meet
Hi-pot	Primary to Secondary.			1.5K	VAC
Insulation resistance	Pri. to Sec. Pri. to FG DC500V, / 25°C Sec. to FG	100			MΩ
Radiation & Conduction (Note 1.)	EN 55022 / CISPR 22 & FCC Part 15 EN 50121-3-2	A (Note 2)			Class
EMS (Note 1.)	IEC 61000-4-2, ±8KV air discharge, ±6KV contact discharge IEC 61000-4-3, 10V/m IEC 61000-4-4, ±2KV line & PE IEC 61000-4-5, ±1KV line to line, ±2KV line to PE IEC 61000-4-6, 10V/m	A A A A A			Criteria

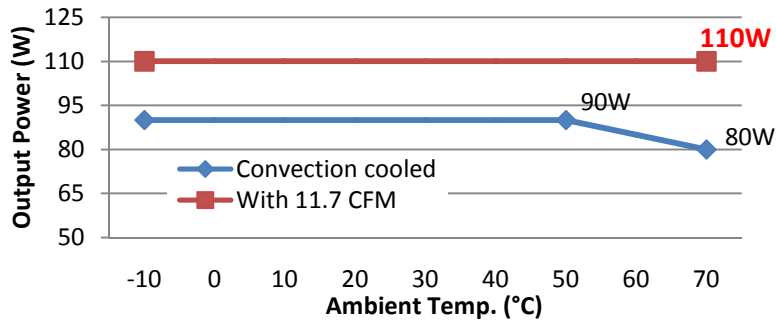
Note: 1) As a build-in type power supply, the power supply needs to be installed in a suitable enclosure to pass the EMI/EMC tests. The final assembly has to comply with the valid EMI/EMC and safety.

2) With Class B radiation is required an additional filter circuit, please contact us for detail. MAGIC POWER also provide the circuit as a module, please feel free to contact us if has any request.



6. Environment Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Operating Temperature	Derate linearly above 50°C by 0.6% per °C At 100% load: to a maximum temperature of 70°C At 88% load:	-10		+50 +70	°C
Storage Temperature		-20		+75	°C
Relative Humidity	Non-condensing.	10		90	%RH
Altitude	Operating			2K	meter

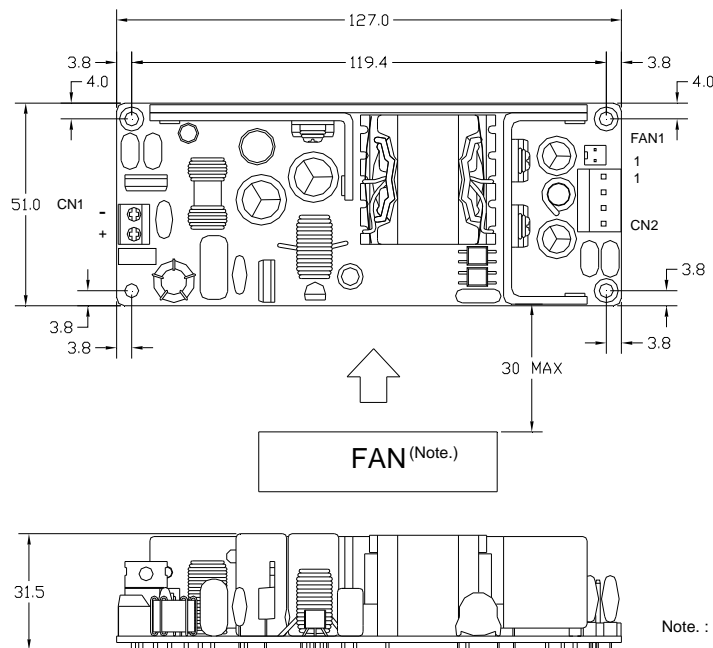


Performance curves of MPD-F113-V

7. Mechanical Specification

Parameter	Conditions/Description				
Dimension	51 (L) x 127 (W) x 31.5 (H) mm, Tolerance +/- 0.5mm.				
Connector & Pin Assignment	Location	Pin	Assignment	Proposed Housing	
				Proposed Terminals	
	CN1 (Input)	1	Vin (+)	N / A	24~14 AWG (With max. torque=0.4N*m)
		2	Vin (-)		
	CN2 (Output)	1	+ V	MOLEX: 09-05-1041 (5195-04) or 09-52-4044 (5239-04) or equivalent	MOLEX: 5194 or 5225 2478, 2578, 5167 or 5168 or equivalent
		2	+ V		
		3	0 V		
CN3 (Option)	1	+ V	MOLEX: 22-01-1022 (5051-02) or 51191-0200 or equivalent	MOLEX: 2759 or 5159 or 50802 or equivalent	
	2	0 V			

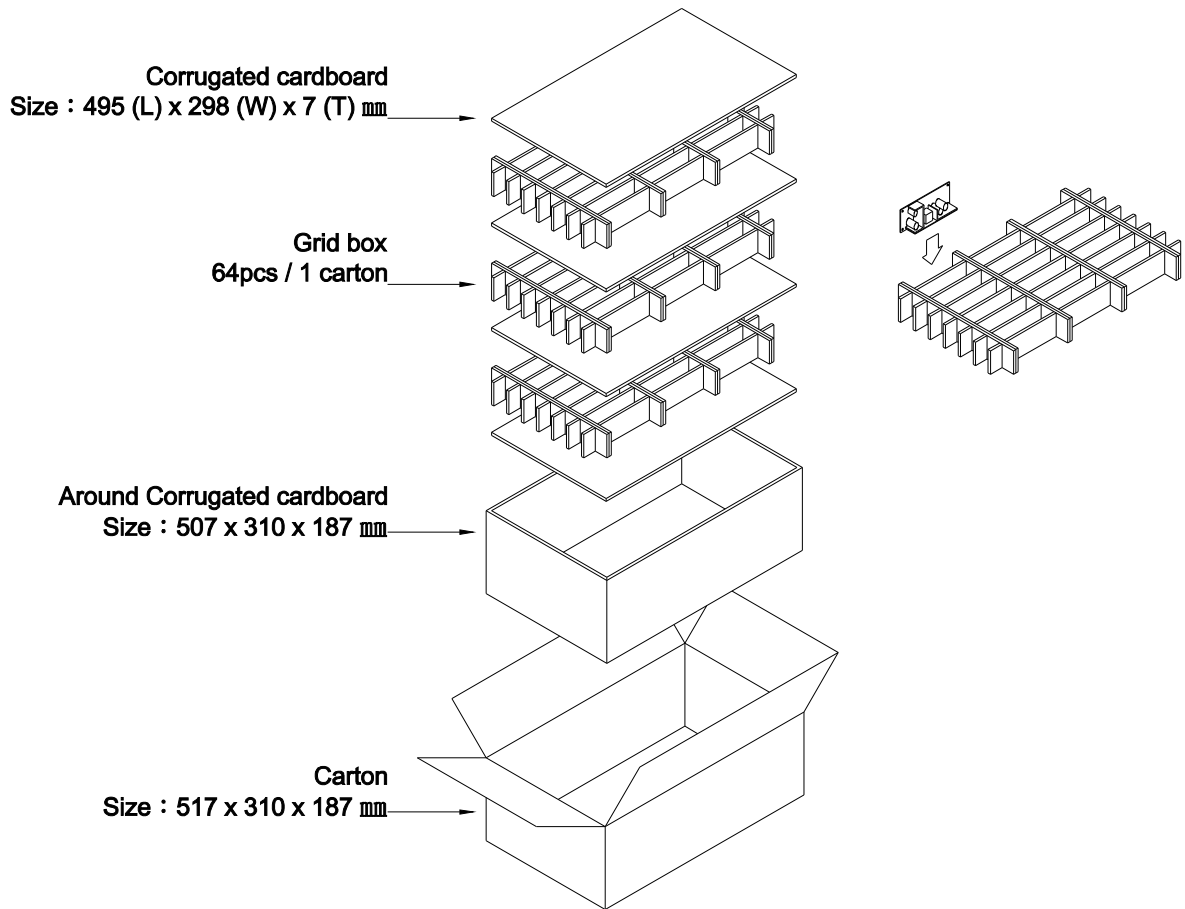
Mechanical Drawing:



Note. : Requested for output power more than 90W.



8. Packing info.





9. Vibration Test

Parameter	Conditions/Description
Ambiance Condition	Temperature : 20~35°C Humidity : 50~75 %RH
Test Standard	IEC 60068-2-6
Test Condition	Frequency Type : Sweep Frequency Frequency Range : 10~55 Hz Sweep Rate : 60 minute / cycle Number of cycle : 1 cycle / axis Direction : X , Y and Z axis