SPECIFICATION

For

SWITCHING POWER SUPPLY

M/N: MPD-S103

Revision History

Rev.	Feb 26 th. 2016	Established.
Rev.	Mar. 9 th. 2016	Changed Radiation to EMI in page 2.
Rev.	May 18 th. 2016	1.Added Performance Curve (with fan) at 70°C. 2.Revised Operating Temperature Conditions/Description.
Rev.	Jul 19th 2016	1.Modify Mechanical Drawing. 2.Added Vibration testing.
Rev.	Dec 20th 2016	1. Changed 60950-1 to A2: 2013 2. Changed IEC 61000-4-3: 2002 to 10V/m 3. Changed IEC 61000-4-6: 2006 to 10V

FEATURES

- 100W with forced air cooling and 70W convection cooled isolated DC/DC converter cooled
- Fully isolated Primary to Secondary; Primary to Earth Ground
- Input polarity reversed protection
- Compact size 2 x 4 inch

1. Description

The MPD-S103 are 100W with forced air cooling and 70W convection cooled single output DC/DC converter. It is a compact size 2 x 4" and wide input range from 9-32VDC. Fully isolated primary to secondary and high efficiency up to 88% design is providing saver and reliable in DC/DC application.

Output Voltage	Min. Output Current	Rated Output Current	Max. output Current (Note 1)	Line Regulation	Load Regulation	Ripple & Noise p-p (Note 2)	Initial Setting Accuracy (Note 3)
+12V	0A	5.8A	8.3A	±1%	±1%	120mV	11.76V to 12.24V

Total Output Power: 100W with at 50˚C environment temperature(Note 4).

Note: 1) When output current above rated output current, it has to force air cooling 13.6 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. Each output voltage is set in the initial setting accuracy.
4) The total DC continuous power shall be kept with 70 W at input from 18 V to 32 DC; 65 W at input from 12 to 17.9 VDC; 55W at input from 9-11.9VDC. convection cooled. When above 100 W with 13.6 CFM force air cooling.

2. Input Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Input Voltage	Continuous input range.	9	12/24	32	VDC
Input Current	DC Input Voltage 9VDC, Max load.			14	A
Inrush Current	Cold start at 25˚C.			12	A

3. Output Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Efficiency (Note 1)	At input voltage 24VDC, rated load condition.		88		%
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 +12V and +24V.	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 other voltages set at 60% rated load.	See Chart of Description			

Note: 1) It shall be warmed up above 1 hr.

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.
Optional Input Reverse Polarity Protection	Optional module: When incorrect input polarity installation, the PSU will be not damaged and no output voltage.

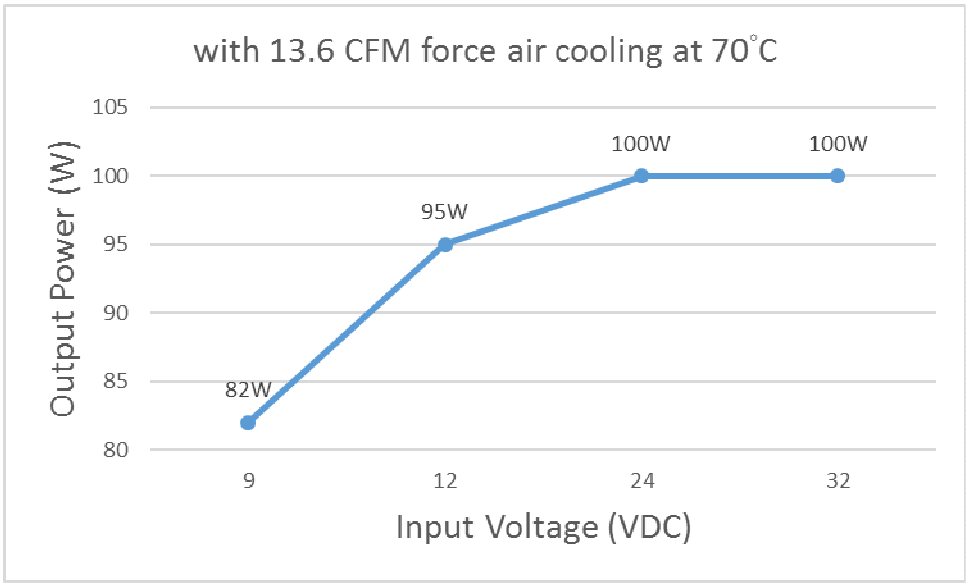
5. Safety Approvals, EMI and EMS Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Approvals	IEC 60950-1: 2005+A2: 2013, 2nd EN 60950-1: 2006+A2 2013 UL 60950-1, 2nd Edition, 2007-03-27 CSA C22.2 No.60950-1-07, 2nd Edition, 2007-03		Design to meet		
Isolation voltage (Hi pot)	Primary to Secondary. Primary to PE	0.5K 0.5K			VAC
EMI (Note 1)	EN 55022 / CISPR 22 & FCC Part 15	B			Class
EMS(Note 1)	IEC 61000-4-2: 2001, 8KV air discharge, 6KV contact discharge	A			
	IEC 61000-4-3: 2002, 10V/m	A			
	IEC 61000-4-4: 2004, 0.5KV line & Line	A			Criteria
	IEC 61000-4-5: 2001, 0.5KV line to Line	A			
	IEC 61000-4-6: 2006, 10V	A			

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

6. Environment Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Operating Temperature	Derate linearly above 50˚C 70W at input from 18 to 32 Vdc By 1.25% per ˚C 65W at input from 12 to 17.9 Vdc By 1.25% per ˚C 55W at input from 9 to 11.9 Vdc By 1.25% per ˚C to a maximum temperature of 70˚C	-10		+70	˚C
Storage Temperature		-20		+75	˚C
Relative Humidity	Non-condensing.	10		90	%RH
Altitude	Operating			5K	meter



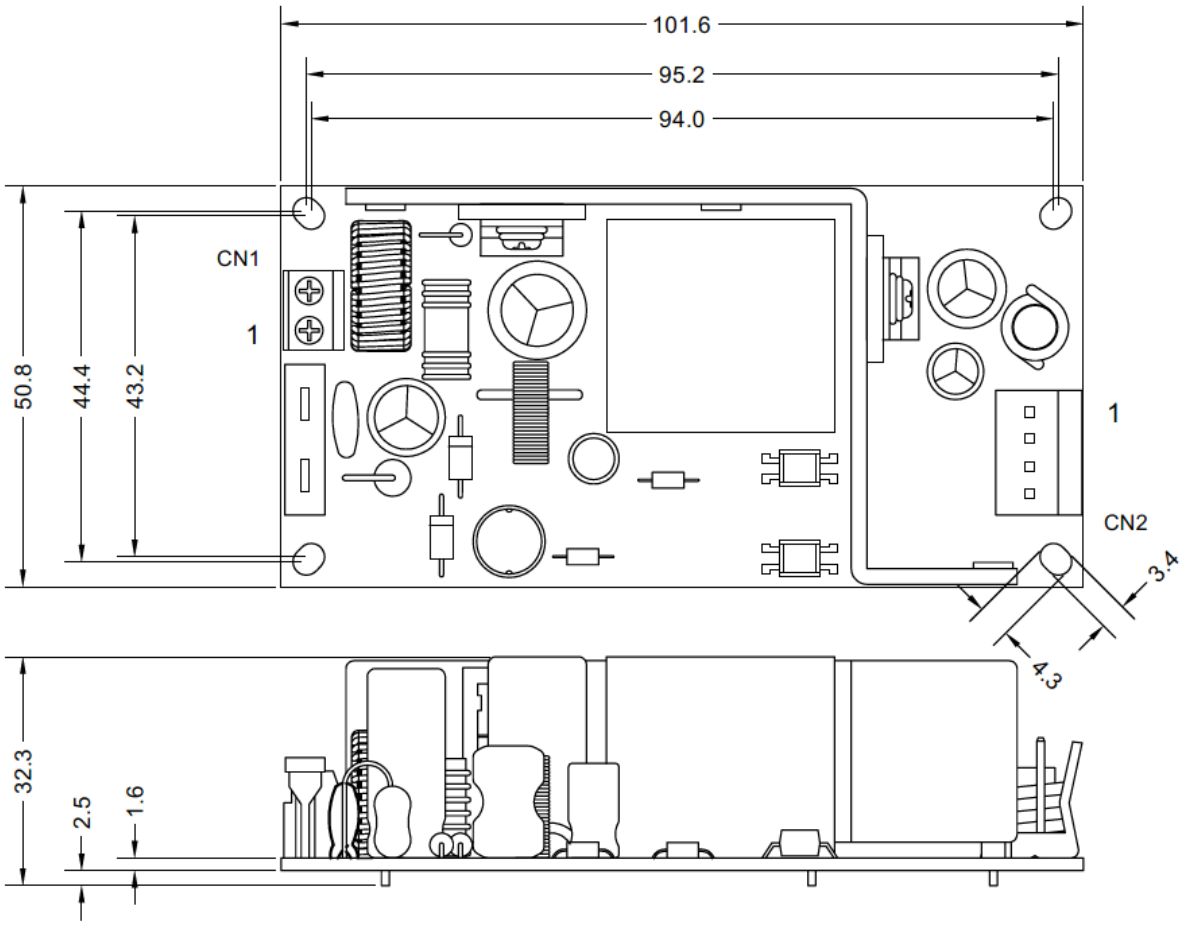
Performance curves (with fan) at 70°C

7. Mechanical Specification

Parameter	Conditions/Description				
Dimension	50.8 (L) x 101.6 (W) x 32.3 (H) mm, Tolerance +/- 0.5mm.				
Connector	CN1 --- DC input:		Dinkle ED500V-02 Terminal blocks.		
	CN2 --- DC output:		Molex 5273-04A or equivalent.		
Pin Assignment	CN1	Pin	1. +	2. -	(With max. torque=0.4N*m)
	CN2	Pin	1. +Vout	3. GND	
			2. +Vout	4. GND	

Dimension

50.8 (L) x 101.6 (W) x 32.3 (H) mm, Tolerance +/- 0.5mm.



8. Vibration Test

Parameter	Conditions/Description
Ambiance Condition	Temperature：20~35℃ 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