



SPECIFICATION

For

SWITCHING POWER SUPPLY

M/N: MPE-G120 Series

Revision history

REV.	Apr. 28 th 2011	Established.
REV.	Jul. 5 th 2011	Revised the series model number from MPE-S120 to MPE-G120.
REV.	Aug. 12 th 2011	Peak load up to 150W.
REV.	Nov. 22 nd 2011	Updated the performance curves.
REV.	May. 21 st 2012	Added mechanical drawing.
REV.	Jun. 11 th 2012	Updated specification of ripple noise.
REV.	Jul. 26 th 2012	Updated pin assignment.
REV.	Sep. 3 rd 2012	Revised the mechanical drawing.
REV.	Sep. 11 th 2012	Added DC input specification; Updated safety approvals status.
REV.	Jan. 30 th 2013	Updated operating altitude from 2000m to 3000m.
REV.	Jun. 21 th 2013	Added installation note.
REV.	Nov. 11 th 2013	Added optional cover drawing and derating curve.



FEATURES

- 120W, peak 150W convection-cooled
- Active power factor correction
- High efficiency up to 90%
- No-load power consumption < 0.5W
- Compact size 3 x 5 inch and low profile
- Class II, also class I with optional functional ground connected
- Optional +5Vsb & Remote on/off function
- ITE standard IEC, EN, UL 60950-1 2nd Edition approved
- Meets EMI CISPR 22 / FCC Part 15 class B
- Optional cover kits.

1. Description

Model No.	Output Queue	Output Voltage	Mini. Output Current	Rated Output Current	Max. Output Current (Note 5)	Line Regulation (Note 1)	Load Regulation (Note 1)	Ripple & Noise p-p (Note 1)	Initial Setting Accuracy (Note 2)
MPE-G123	V1	+12V	0 A	10 A	12.5 A	±1%	±1%	±1%	±1%
MPE-G125	V1	+24V	0 A	5 A	6.25 A	±1%	±1%	±1%	±1%
MPE-G125-1	V1	+36V	0 A	3.4 A	4.17 A	±1%	±1%	±1%	±1%
MPE-G126	V1	+48V	0 A	2.5 A	3.13 A	±1%	±1%	±0.5%	±1%
Suffix code: -SB (Note 3)	V2	+5Vsb	0 A	0.1 A	0.1 A	±1%	±1%	±1%	±1.5%

Total Output Power: Max. 120W with convection cooled, 150W with 11.7 CFM at 50°C (Note 5) environment temperature. Max. 120W with 11.7 CFM at 70°C environment temperature (Note 4).

- Note: 1) Please refer to section 3 for detail notes & conditions.
 2) Initial Setting Accuracy is at Input 115VAC and all output at 60% rated load.
 3) See the detail model no. coding in section 5.
 4) Air flow from transformer to the body of PSU with distance 10mm maximum.
 5) Peak load with convection cooled up to 150W keeps 10 seconds, please see the detail directions in section 9.

2. Input Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Input Voltage	Continuous input range.	85	115 / 230	264	VAC
		130		370	VDC
Input Frequency	At AC input.	47	50 / 60	63	Hz
Hold Up Time	Nominal AC Input Voltage (115/230VAC), rated load.	20 / 16			ms
Input Current	Nominal AC Input Voltage (115VAC), rated load.			2.5	A
Inrush Current	Nominal AC Input Voltage (115/230VAC), one cycle at 25°C cold start.			30 / 60	A
Input Protect	Non-user serviceable internally located AC input line fuse.				
No-load power consumption	Nominal AC Input Voltage (115/230VAC)			<0.5	W



3. Output Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Efficiency	At input 230VAC, rated load ^(Note 1) .	87	90		%
Minimum load		See Chart of Description			
Ripple & Noise	Rated load, measured by a 20MHz bandwidth limited oscilloscope and the each output is connected with a 10μF Electrolytic Capacitor and a 0.1μF Ceramic Capacitor.	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 115VAC.	See Chart of Description			
Load Regulation	Measured from 60% to 100% rated load and from 60% to 20% rated load (60% ±40% rated load).	See Chart of Description			
Turn-on Delay	Time required for initial output voltage stabilization.		1	3.5	Sec
Leakage Current	At input 264VAC, 63Hz, rated load			0.25	mA

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

4. Interface Signals and Internal Protection



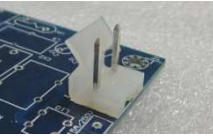


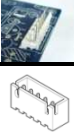

Parameter	Conditions/Description
Short Circuit Protection	Fully protected against output overload and short circuit. Automatic recovery upon of overload condition.
Over Voltage Protection	For some reason the power supply fails to control itself, the build-in over voltage protection circuit will auto recovery the outputs to prevent damaging external circuits, the trigger point is around 110%~140% of output voltage.
Remote on/off (optional)	The power supply will be turned on when the power On/Off pin is connected to secondary GND. This function exists only with optional +5Vsb (see section 5).

5. Model no. coding

M P E - G 1 2 X - Y - Z - C → Add cover kits

X=	Output Voltage
3	+12V
5	+24V
5-1	+36V
6	+48V

Y=	Output number
blank	Single output
SB	Dual output (with +5Vsb & remote on/off function)

Z=	Input Connector Type	Output Connector Type
blank	Molex Type Connector (Standard)	Molex Type Connector (Standard)
		
E	Molex Type Connector	European Type Connector
		
J	JST Type Connector	JST Type Connector
		 

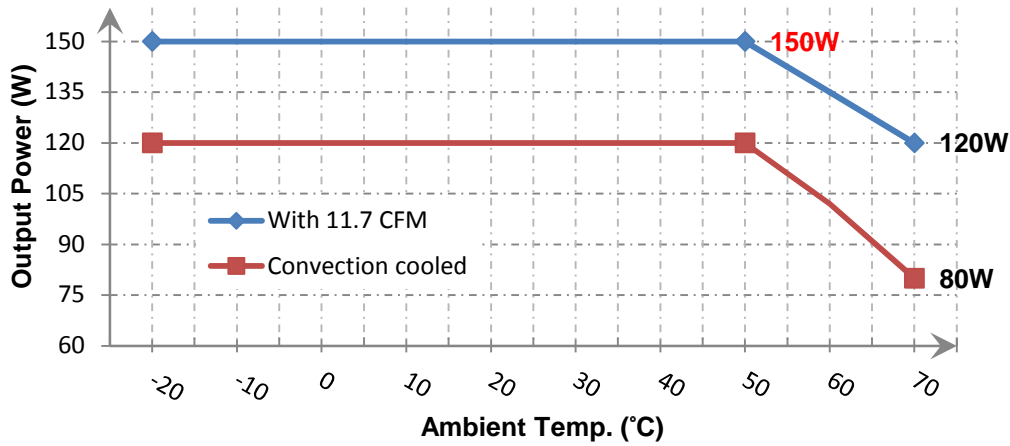
Please see the detail in section 8.



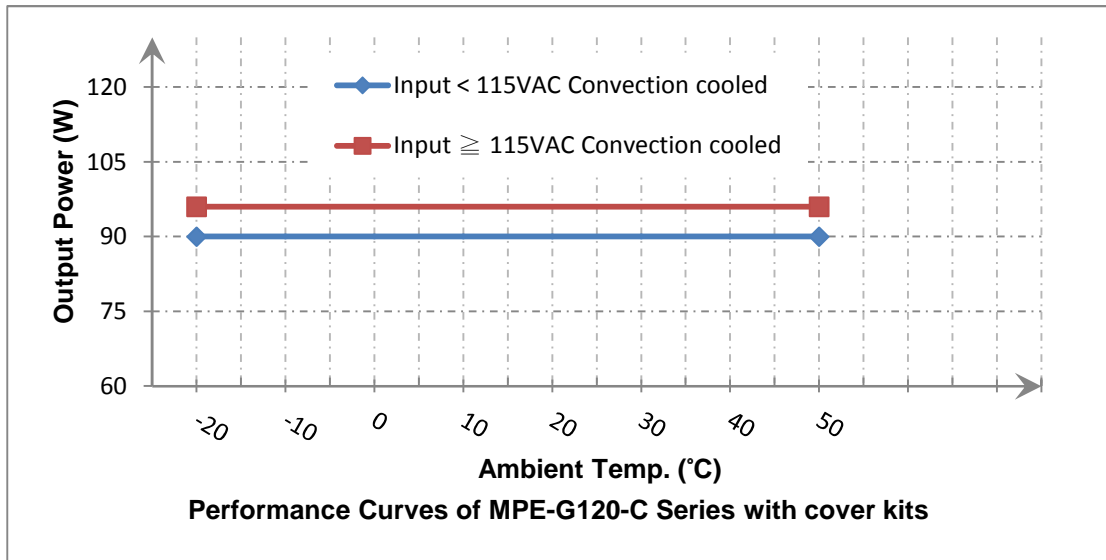
6. Environment Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Operating Temperature	Please refer to the performance curves	-20		+70	°C
Storage Temperature		-40		+85	°C
Relative Humidity	Non-condensing.	5		95	%RH
Altitude	Operating			3K	Meter
	Non-operating			4K	

Performance curves



Performance Curves of MPE-G120 Series



Performance Curves of MPE-G120-C Series with cover kits



7. Safety Approvals, EMI and EMS Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units	
Approvals ^(Note 4)	IEC 60950-1, 2 nd edition				CB approved	
	EN 60950-1, 2 nd edition				CE declaration	
	UL 60950-1, 2nd Edition				UL approved	
	CSA C22.2 No. 60950-1-07, 2nd Edition				cUL approved	
Hi-Pot	Input to Output	3000			VAC	
	Input to Ground	1500				
EMI ^(Note 1., 3)	EN 55022 / CISPR 22 & FCC Part 15	B			Class	
	EN 61000-3-2	D				
	EN 61000-3-3					
	EN 61204-3	B				
EMS ^(Note 1., 3)	IEC 61000-4-2 ±8KV air discharge, ±6KV contact discharge	A			Criteria	
	IEC 61000-4-3 10V/m	A				
	IEC 61000-4-4 ±2KV Line & PE	A				
	IEC 61000-4-5 L-N:±1KV, L/N-PE:±2KV	A				
	IEC 61000-4-6 10Vrms	A				
	IEC 61000-4-8 10A/m	A				
	IEC 61000-4-11	Voltage dips >95%, 0.5 cycle	A			
		Voltage dips 30%, 25 cycles	A			
		Voltage dips 60%, 5 cycles	A / B ^(Note. 2)			
		Voltage interruptions >95%, 250 cycles	C			

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) The test result of input 240Vac / 100Vac is criteria A / B.

3) The EMC test conditions are at AC input voltage. It is not been verified at DC input voltage.

4) MPE-G125-1 (-SB) is pending.

8. Mechanical Specification

Parameter	Conditions/Description				
Dimension	127 (L) x 76.2 (W) x 34.3 (H) mm, Tolerance +/- 0.4mm.				
Connector & Pin Assignment	Location	Pin	Assignment	Proposed Housing	Proposed Terminals
	CN1 (Input)	1	AC in (L)	MOLEX: 09-50-1031 (5195-03) or 09-52-4034 (5239-03); JST: VHR-3N (Note 3)	MOLEX: 5194 or 5225 2478, 2578, 5176 or 5168; JST: SVH-21T-P1.1
		2	AC in (N)		
	CN2 (Output)	1	+ V	MOLEX: 09-50-1061 (5195-06) or 09-52-4064 (5239-06); JST: VHR-6N (Note 3) Dinkle: ESD Series / MOLEX: 39523-7004 ^(Note 1)	MOLEX: 5194 or 5225 2478, 2578, 5176 or 5168; JST: SVH-21T-P1.1 Dinkle: N/A
		2	+ V		
		3	+ V		
		4	0 V		
		5	0 V		
	CN3 (Option) ^(Note 2)	1	+5Vsb	MOLEX: 22-01-1032 (5051-03) or 51191-0300; JST: XHP-3 (Note 3)	MOLEX: 2759 or 5159 50802; JST: SXH-001T-P0.6N, SXH-001T-P0.6 or SXH-002T-P0.6
		2	0 V		
3		Remote On/off			

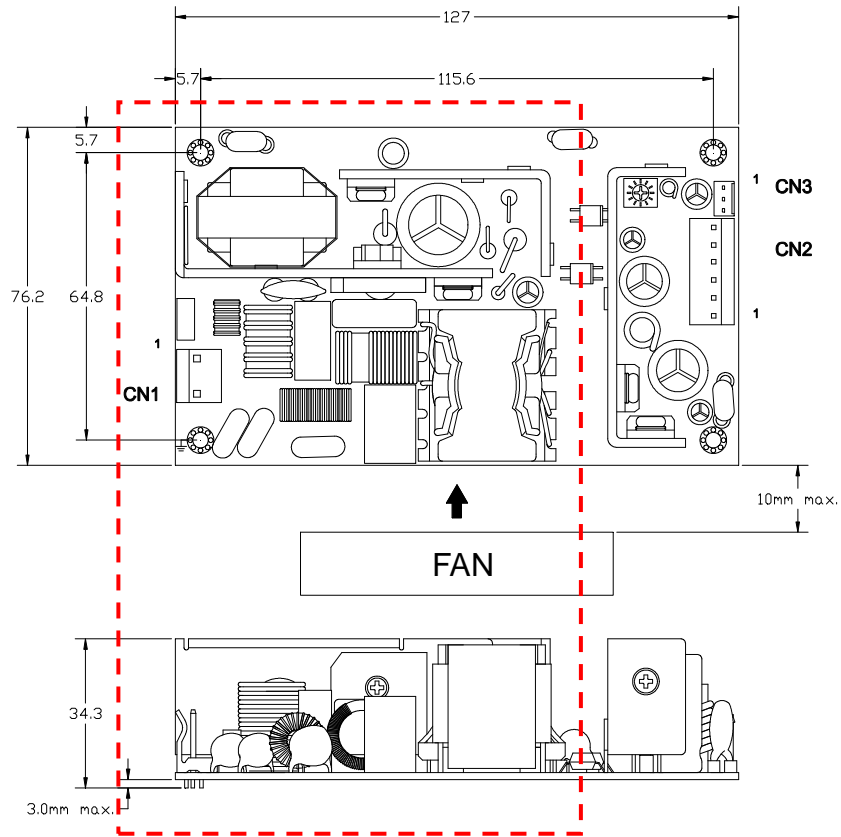
Note: 1) Exist with model no. suffixed -E, the pin assignment of CN2 is Pin 1~2 for + V, Pin 3~4 for - V; please also refer to the comparison in section 5.

2) Exist with model no. suffixed -SB, please see the comparison in section 5.

3) Exist with model no. suffixed -J, please see the comparison in section 5.



Mechanical drawing

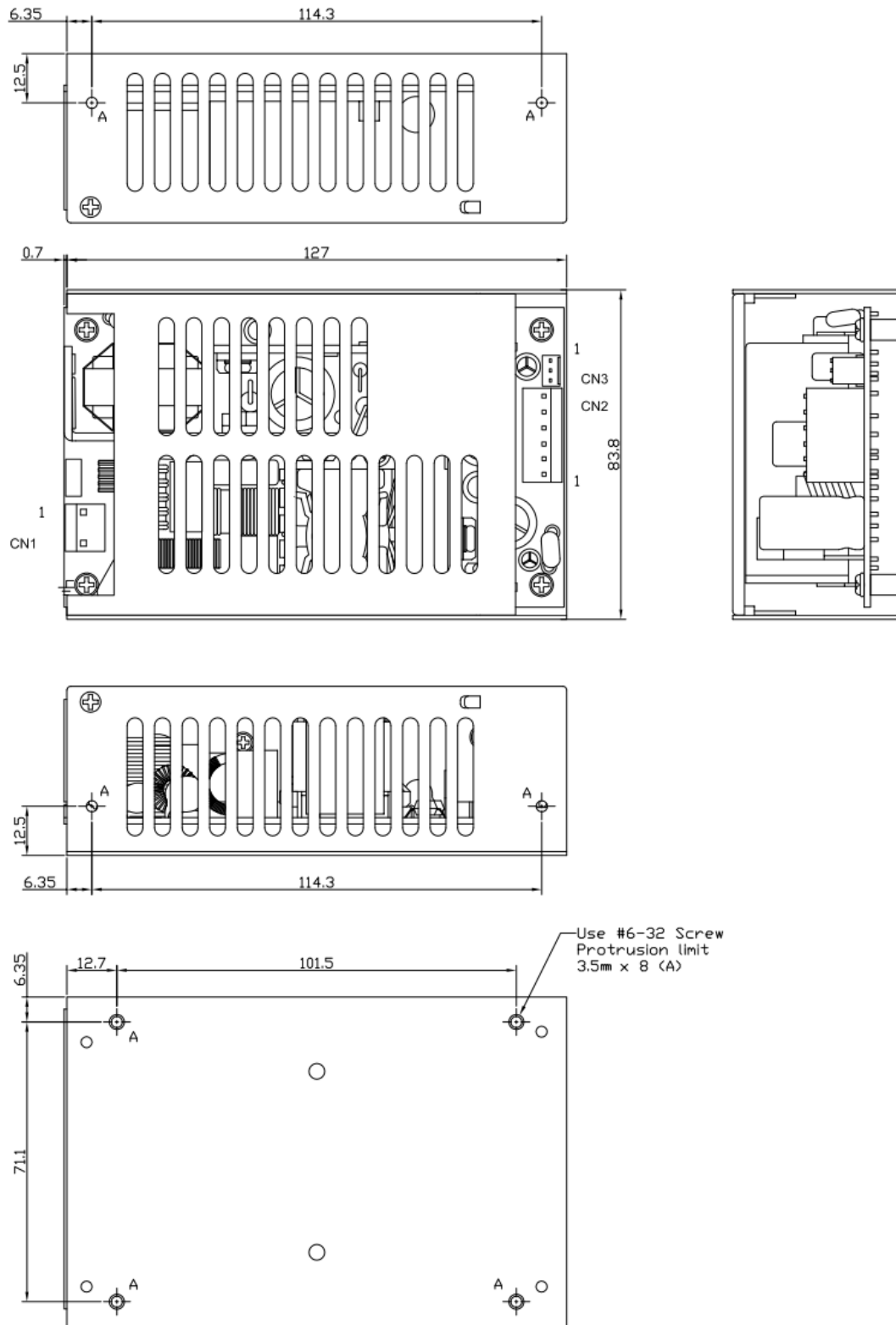


***Installation note:**

The installation shall be kept in an isolation distance min. 2.9mm between the unit and the system chassis. There exist hazardous voltage in dotted area, keep insulating to avoid hazardous electric shock.



Mechanical drawing with optional cover kits



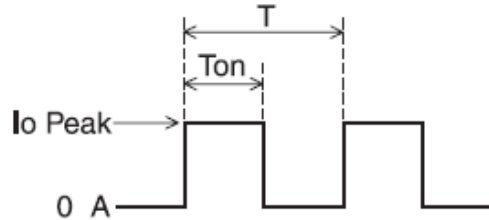


9. Directions of Peak Load

To boosting the output power, It shall be met the following conditions at the same time.

- The peak load shall not over the specified value.
- The duration of peak load shall less than 10 seconds.
- The duty cycle shall been met the following formula

$$I_o^2 \cong (I_o \text{ Peak})^2 \times (T_{on} / T)$$



- Io: Rated output current
- Io Peak: Peak output current
- T: Duty cycle
- Ton: Duration of peak load.