

SPECIFICATION

For

SWITCHING POWER SUPPLY

M/N: MPE-S06A-B(-C)

MPE-S06A-B(-C)

60W AC / DC



FEATURES

- ✓ 60W with convection-cooled and 80W with forced air cooling of single output power supply.
- ✓ Compact size 2 x 4 inch.
- ✓ Class II, also class I construction.
- ✓ ITE safety standard IEC 62368-1, UL 62368-1 approved.
- ✓ Meets EMI CISPR/FCC class B.
- ✓ No-load power consumption < 0.5W.



Models & Ratings

Model Number	Wattage (Rated / Max)	Output Voltage		Min. Current	Rated Current	Max. Current
MPE-S06A-B	60 W / 80 W	V1	+5 V	0 A	3.5 A	4 A
		V2	+12 V	0 A	3.5 A	5 A

Total Output Power: Max. 80W with min. 7CFM force air cooling^(Note 1); 60W convection cooled at 50°C environment temperature.

1. Air flow from IC3 to the body of PSU with distance 50mm maximum.
2. Model no. coding:

MPE-S06A-B-X-Y



1

B= 62368-1 Approved

2

X=	Connector Type
blank	Molex Type Connector or equivalent
J	JST Type Connector or equivalent

3

Y=	Mechanical
blank	Open frame
C	Optional cover kit

Summary

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Range	90	115 / 230	264	VAC	Continuous input range.
Input Frequency	47		63	Hz	AC input.
Efficiency	86	87		%	At input 230VAC, rated load, 0.5hr. warm up.
Operation Temperature	-20		+70	°C	Derate linearly, above 50°C by 1.25% per °C to a maximum temperature of 70°C, with convection cooled. (Please see the performance curves.)
Weight		73.6		g	
Dimensions	101.6 (L) x 50.8 (W) x 30.0 (H) mm, Tolerance +/- 0.4mm.				
EMC	EN 55022 / EN 55032, CISPR 22 & FCC Part 15, EN 61204-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11				
Safety Approvals	IEC 60950-1, 2nd Edition, EN 60950-1, 2nd Edition, UL 60950-1, 2nd Edition, CSA C22.2 No. 60950-1-07, 2nd Edition.				
	IEC 62368-1:2014, UL 62368-1, 2nd Edition. CSA C22.2 No. 60950-1-07, 2nd Edition				

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage	90	115 / 230	264	VAC	Continuous input range.
Input Frequency	47		63	Hz	AC input.
Input Current			1.5	A	Nominal AC Input Voltage (115VAC/230VAC), rated load.
Inrush Current			60	A	Nominal AC Input Voltage (115VAC/230VAC), one cycle at 25°C.
No-load power consumption			<0.5	W	Nominal AC Input Voltage (115VAC/230VAC).
Input Protection	One non-user serviceable internally located AC input line fuse. Fuse : 2A / 300VAC * 1 pcs				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage		+5		VDC	
		+12			
Output Current		3.5 ^(V1)	4	A	
		3.5 ^(V2)	5		
Initial Set Accuracy		±1.0 ^(V1) ±2.0 ^(V2)		%	Initial setting accuracy is at Input 110VAC and all output at 60% rated load.
Minimum Load		0		A	
Start Up Delay		0.3		Sec	Time required for initial output voltage stabilization.
Hold Up Time	16			mS	Nominal AC Input Voltage (115VAC/230VAC), rated load.
Line Regulation		±1.0 ^(V1) ±1.0 ^(V2)		%	Less than ±1% at rated load with ±10% changing in input voltage 115VAC.
Load Regulation		±1.0 ^(V1) ±3.0 ^(V2)		%	Measured from 60% to 100% rated load and from 60% to 20% rated load (60% ±40% rated load), and keep another output at 60% rated load.
Ripple & Noise		50 ^(V1) 120 ^(V2)		mV	Measured at rated load by a 20MHz bandwidth limited oscilloscope and the each output is connected with a 10µF Electrolytic Capacitor and a 0.1µF Ceramic Capacitor.
Overvoltage 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.				
Short Circuit Protection	Fully protected against output overload and short circuit. Automatic recovery upon of overload condition.				

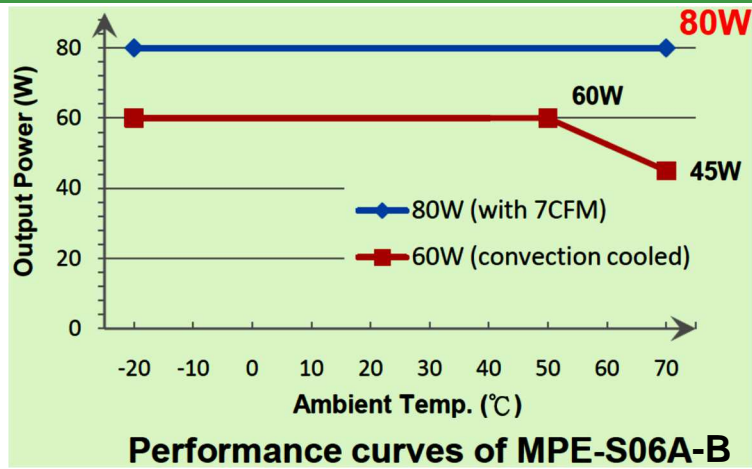
General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency	86	87		%	At input 230VAC, rated load, 0.5hr. warm up.
Isolation	IP to OP	3000		VAC	
Switching Frequency		65		KHZ	

Environmental

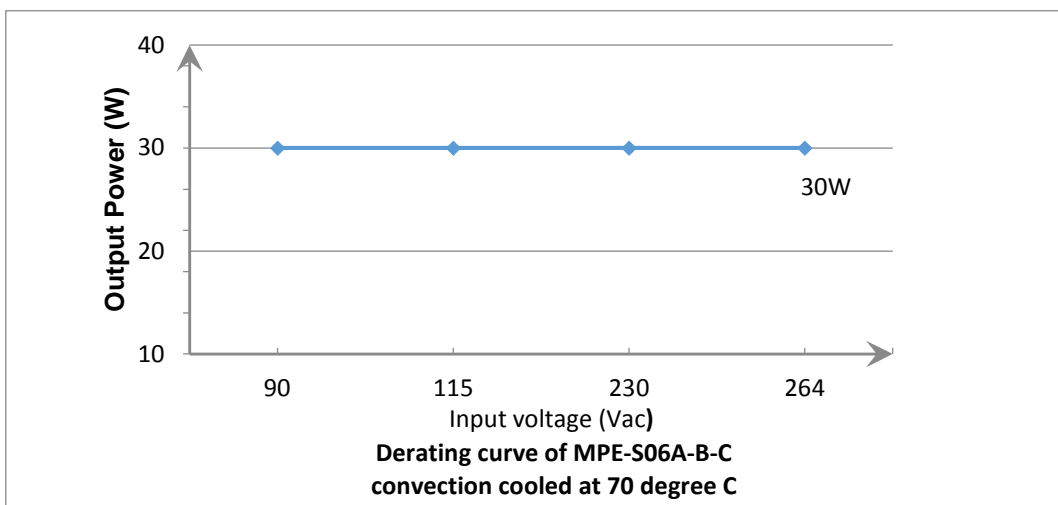
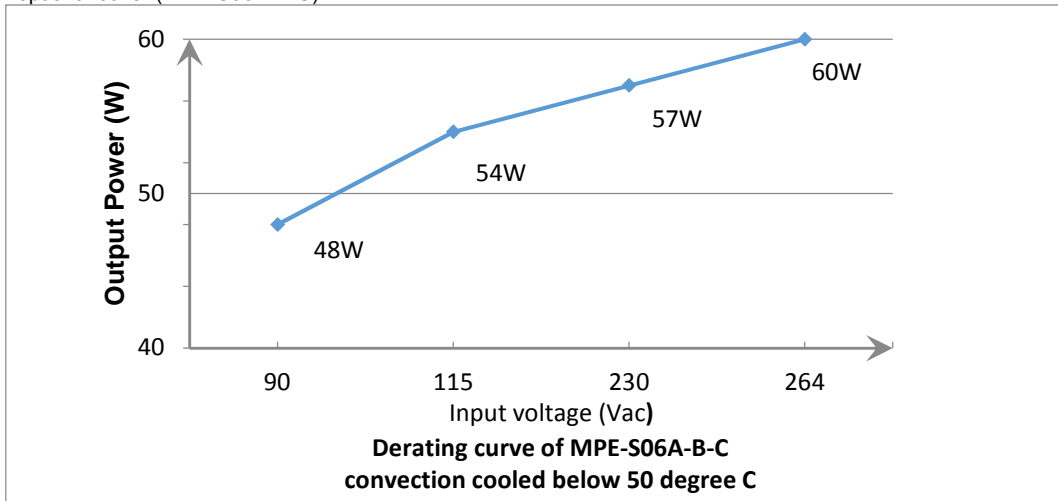
Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-20		+70	°C	Derate linearly, above 50°C by 1.25% per °C to a maximum temperature of 70°C, with convection cooled. (Please see the performance curves.)
Storage Temperature	-40		+85	°C	
Relative Humidity	5		95	%RH	Non-condensing.
Cooling	7			CFM	Forced-cooled when 60W~80W
Operating / Non-Operating Altitude		3000 / 4000		m	

Derating curve



* Test within horizontal installation, for other orientation, please confirm with us.

With optional cover (MPE-S06A-B-C)



EMC: Emissions

Phenomenon	Standard	Class	Notes & Conditions
Conducted	EN 55022 / EN 55032 CISPR 22 & FCC Part 15 EN 61204-3	B	
Radiated	EN 55022 / EN 55032 CISPR 22 & FCC Part 15 EN 61204-3	B	

EMC: Immunity

Phenomenon	Standard	Criteria	Notes & Conditions
ESD	IEC 61000-4-2	A	±8KV air discharge, ±6KV contact discharge
Radiated	IEC 61000-4-3	A	10V/m
EFT	IEC 61000-4-4	A	±2KV Line & PE
Surges	IEC 61000-4-5	A	L-N:±1KV, L/N-PE:±2KV
Conducted	IEC 61000-4-6	A	10V
Power Magnetic	IEC 61000-4-8	A	10A/m
Dips and Interruptions	IEC 61000-4-11	A A A / B B	DIP: >95%, 0.5 cycle DIP: 30%, 25 cycles DIP: 60%, 5 cycles ^(Note 3) INT: >95%, 250 cycles

Note:

- 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.
- The mounting holes should be connected to each other to conform the EMI limit.
- The test result of input 240Vac / 100Vac is criteria A / B.

Safety Approvals

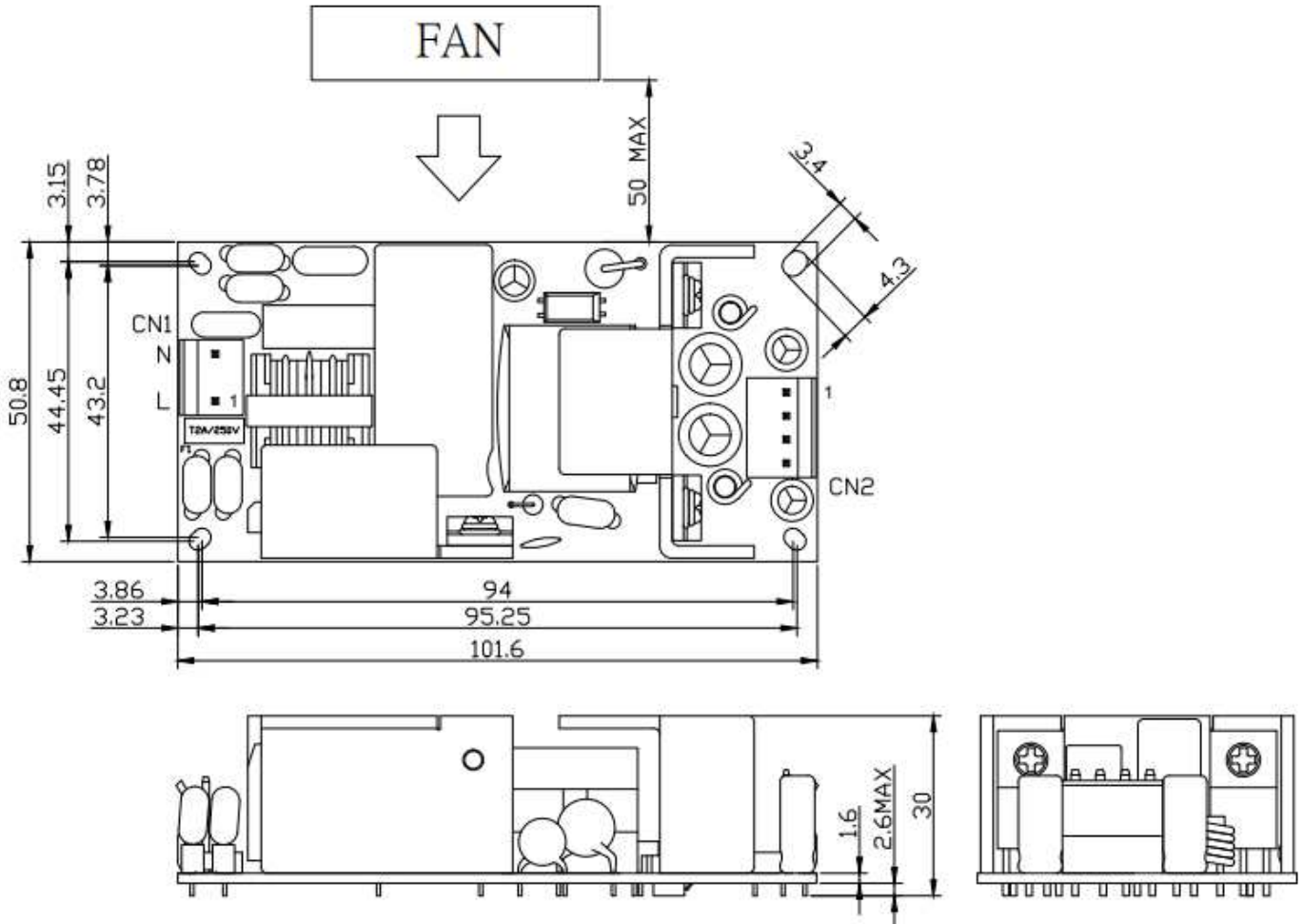
Safety Agency	Safety Standard	Notes & Conditions
TUV	EN 62368-1, 2 nd Edition(Design to meet)	CE(LVD) declaration
	EN 60950-1, 2 nd Edition(Design to meet)	
CB	IEC 62368-1, 2 nd Edition	
	IEC 60950-1, 2 nd Edition	
UL/cUL	UL 62368-1, 2 nd Edition, CSA C22.2 No. 62368-1-14, 2 nd Edition	UL, cUL approved.
	UL 60950-1, 2 nd Edition, CSA C22.2 No. 60950-1-07, 2 nd Edition	

Mechanical Details

M/N: MPE-S06A-B(-SB)

Unit: mm

SIZE : 101.6(L) x 50.8(W) x 30.0(H)mm, Tolerance +/-0.4mm.

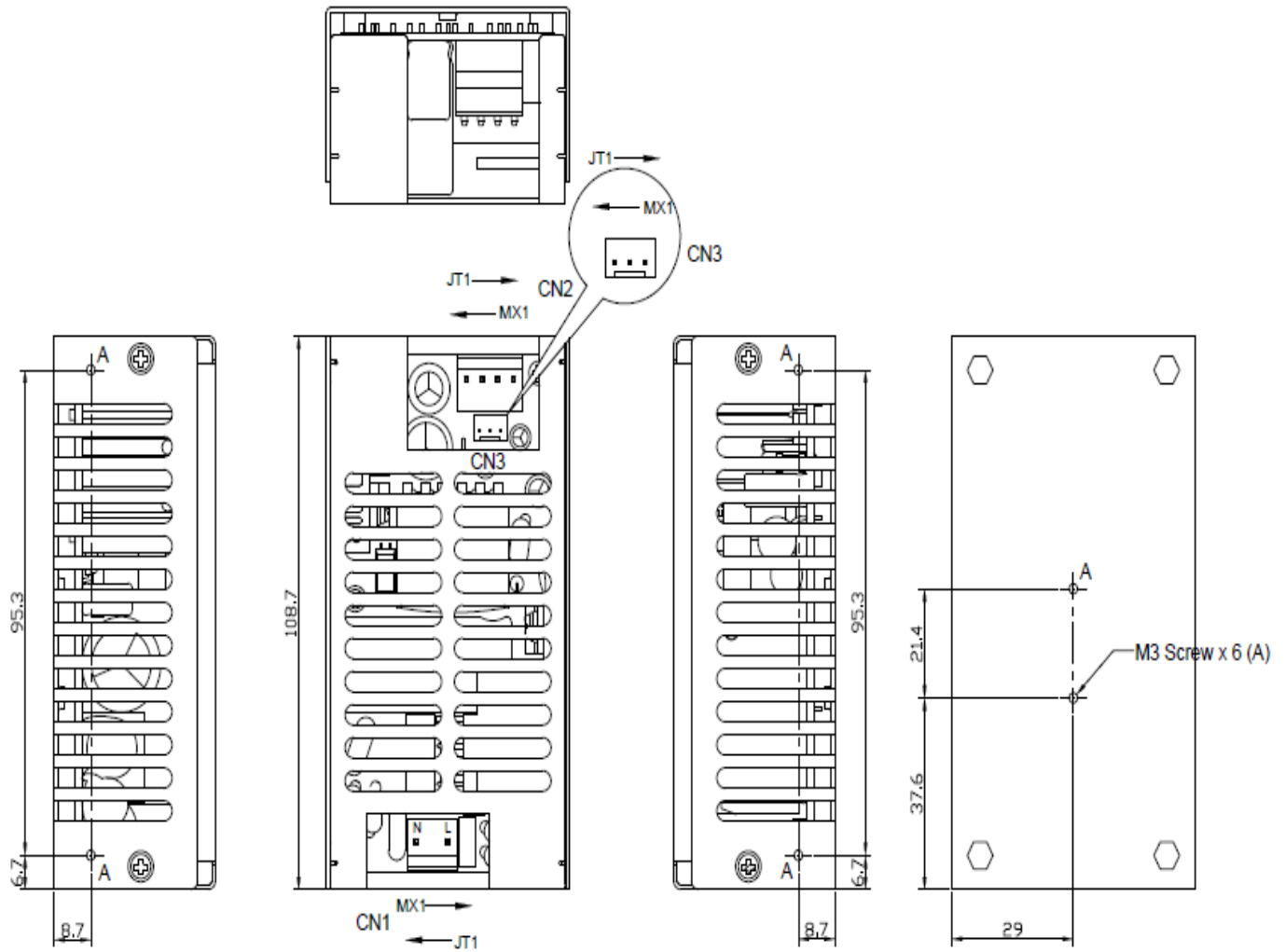


Note: The installation shall be kept in an isolation distance min. 2.8mm between the unit and the system chassis. There exist hazardous voltage in dotted area, keep insulating to avoid hazardous electric shock.

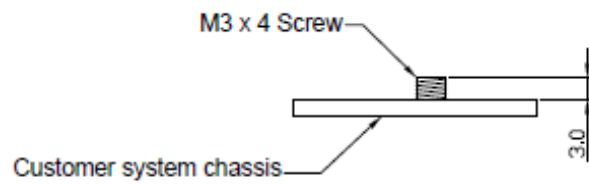
MPE-S06A-B(-C)

60W AC / DC

For m/n: MPE-S06A-B-C
Unit: mm Tolerance: +/- 0.4mm



Screws schematically :



Parameter	Conditions/Description					
Dimension	101.6 (L) x 50.8 (W) x 30 (H) mm, Tolerance +/- 0.4mm.					
Connector & Pin Assignment	Location	Pin (Note 1)		Assignment	Proposed Housing	Proposed Terminals
	CN1 (Input) molex 09-65-2038 or equivalent (remove the middle pin)	MX1	JT2	AC in (N)	a. MOLEX: 09-50-1031 (5195-03) or 09-52-4034 (5239-03) or equivalent; b. JST: VHR-3N or equivalent (Note 2)	a. MOLEX:5194 or 5225 2478, 2578,5167 or 5168 or equivalent; b. JST: SVH-21T-P1.1 or equivalent
		MX2	JT1	AC in (L)		
	CN2 (Output) molex 09-65-2048 or equivalent	MX1	JT4	+12 V	a. MOLEX : 09-50-1041 (5195-04) or 09-52-4044 (5239-04) or equivalent; b. JST: VHR-4N or equivalent (Note 2)	a. MOLEX :5194 or 5225 2478, 2578,5167 or 5168 or equivalent; b. JST: SVH-21T-P1.1 or equivalent
MX2		JT3	0 V			
MX3		JT2	0 V			
	MX4	JT1	+5 V			

Note:

1. The pin assignment "MX" for Molex type connector or equivalent, "JT" for JST type connector.
2. Exist with model no. suffixed -J, please see the comparison in Model no. coding.

Labeling

The labeling of MPE-S06A-B(-C) is shown below for reference.



Thermal Considerations

In order to ensure safe operation of the PSU in the end-use equipment, the temperature of the components listed in the table below must not be exceeded.

Temperature should be monitored using J type thermocouples placed on the hottest part of the component (out of any direct air flow). See Mechanical Details for component locations.

Temperature Measurements at max. amb.	
Component	Max Temperature
T1	110°C
Q1	120°C
D5	120°C
C2	105°C
C21	105°C