

SPECIFICATION

For

SWITCHING POWER SUPPLY

M/N: MPE-S064(-SB)(-C)

Revision History

Version	Revise Date	Change Items
Rev. 01	Mar. 5. 2015	Established.
Rev. 02	Nov. 5. 2015	1.Changed Molex Proposed Terminals from 5176 to 5167. 2.Added "or equivalent" after "Molex".
Rev. 03	Feb. 16. 2016	Added Molex model number for CN1, CN2, CN3.
Rev. 04	May. 25. 2017	Added MPE-S064-C performance curve at 70°C.
Rev. 05	Nov. 2. 2017	Changed form.
Rev. 06	Feb. 23. 2018	Added EN 55032.
Rev. 07	May. 17. 2018	Changed mechanical drawing.

MPE-S064(-SB)(-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 with optional functional ground connected.
- ✓ Meets EMI CISPR/FCC class B.
- ✓ No-load power consumption < 0.5W.
- ✓ Optional +5Vsb & Remote on/off function.
- ✓ Optional cover kit.



Models & Ratings

Model Number	Wattage (Rated / Max)	Output Voltage		Min. Current	Rated Current	Max. Current
MPE-S064	60 W / 80 W	+15 V		0A	4.0 A	5.33 A
MPE-S064-SB	60 W / 80 W	V1	+15 V	0 A	4.0 A	5.33 A
		V2	+5Vsb (Note 1)	0 A	0.1 A	0.1 A

Total Output Power: Max. 80W with 7 CFM force air cooling (Note 2); 60W convection cooled at 50°C environment temperature.

1. With optional +5Vsb combining remote on/off function, please refer to below Model no. coding.

2. Air flow from IC3 to the body of PSU with distance 50mm maximum.

3. Model no. coding:

MPE-S064-X-Y-Z



1	X=	Output set
	blank	Single output
	SB	Dual output (with +5Vsb & remote on/off function)

2	Y=	Connector Type
	blank	Molex Type Connector or equivalent
	J	JST Type Connector or equivalent

3	Z=	Mechanical
	blank	Open frame
	C	Optional cover kit

Summary

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Rang	90	115 / 230	264	VAC	Continuous input range.
Input Frequency	47		63	Hz	AC input.
Efficiency	86	87		%	At input 230VAC, rated load, warm up with 2 hr.
Operation Temperature	-20		+70	°C	Please see the following performance curves.
Weight		73.5		g	-SB model is 77.8 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, EN 60950-1, UL 60950-1, 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 / 250VAC * 1pcs				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage		+15 V		DC	
		+5Vsb			
Initial Set Accuracy		$\pm 1.0^{(V1)}$ $\pm 2.5^{(V2)}$		%	Initial setting accuracy is adjusted at input 110VAC and 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		$\pm 1.0^{(V1)}$ $\pm 1.0^{(V2)}$		%	Less than $\pm 1\%$ at rated load with $\pm 10\%$ changing in input voltage 115VAC.
Load Regulation		$\pm 1.0^{(V1)}$ $\pm 1.0^{(V2)}$		%	Measured from 60% to 100% rated load and from 60% to 20% rated load (60% $\pm 40\%$ rated load), and keep another output (if any) at 60% rated load.
Ripple & Noise		150 ^(V1) 50 ^(V2)		mV	Measured at rated load by a 20MHz bandwidth limited oscilloscope and the each output is connected with a 10 μ F Electrolytic Capacitor and a 0.1 μ F 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.				
Remote On / Off	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.				

MPE-S064(-SB)(-C)

60W AC / DC

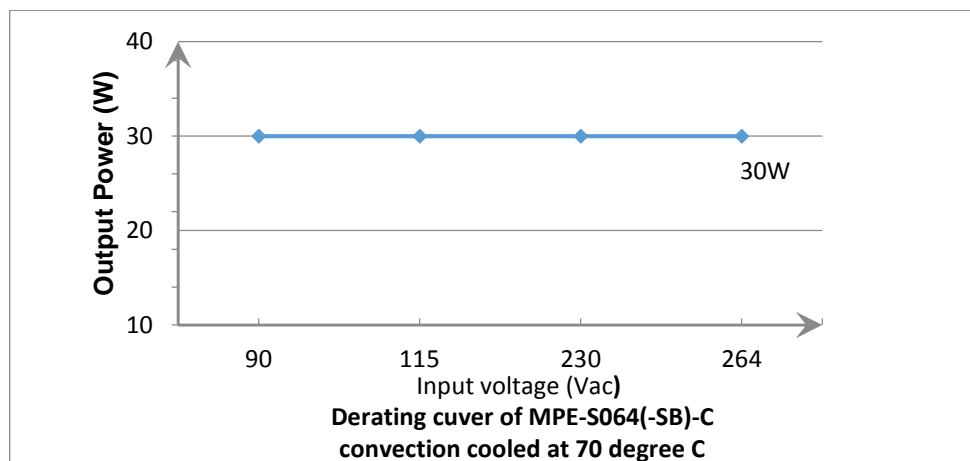
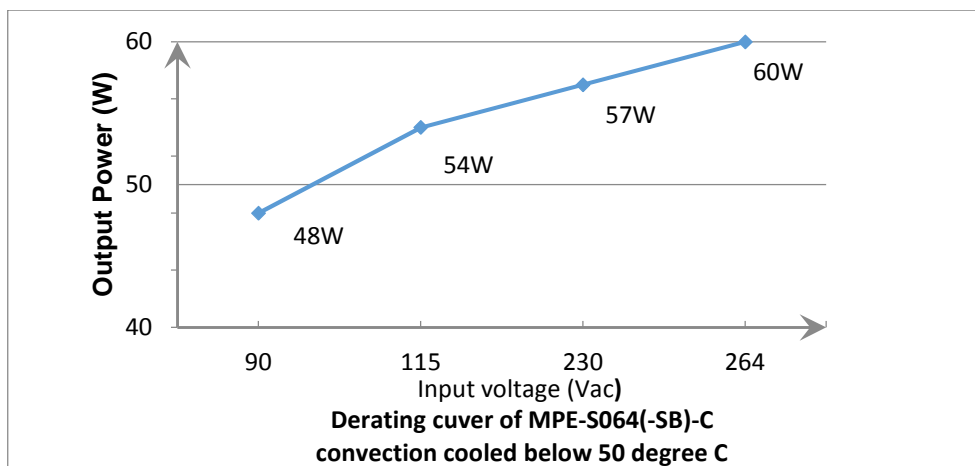
General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency	86	87		%	At input 230VAC, rated load, warm up with 2 hr.
Isolation IP to OP	3000			VAC	
Switching Frequency		65		KHZ	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-20		+70	°C	Please see the following 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



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 60950-1, 2 nd Edition	Design to meet.
CB	IEC 60950-1, 2 nd Edition	
UL/cUL	UL 60950-1, 2 nd Edition ,CSA C22.2 No. 60950-1-07, 2nd Edition	

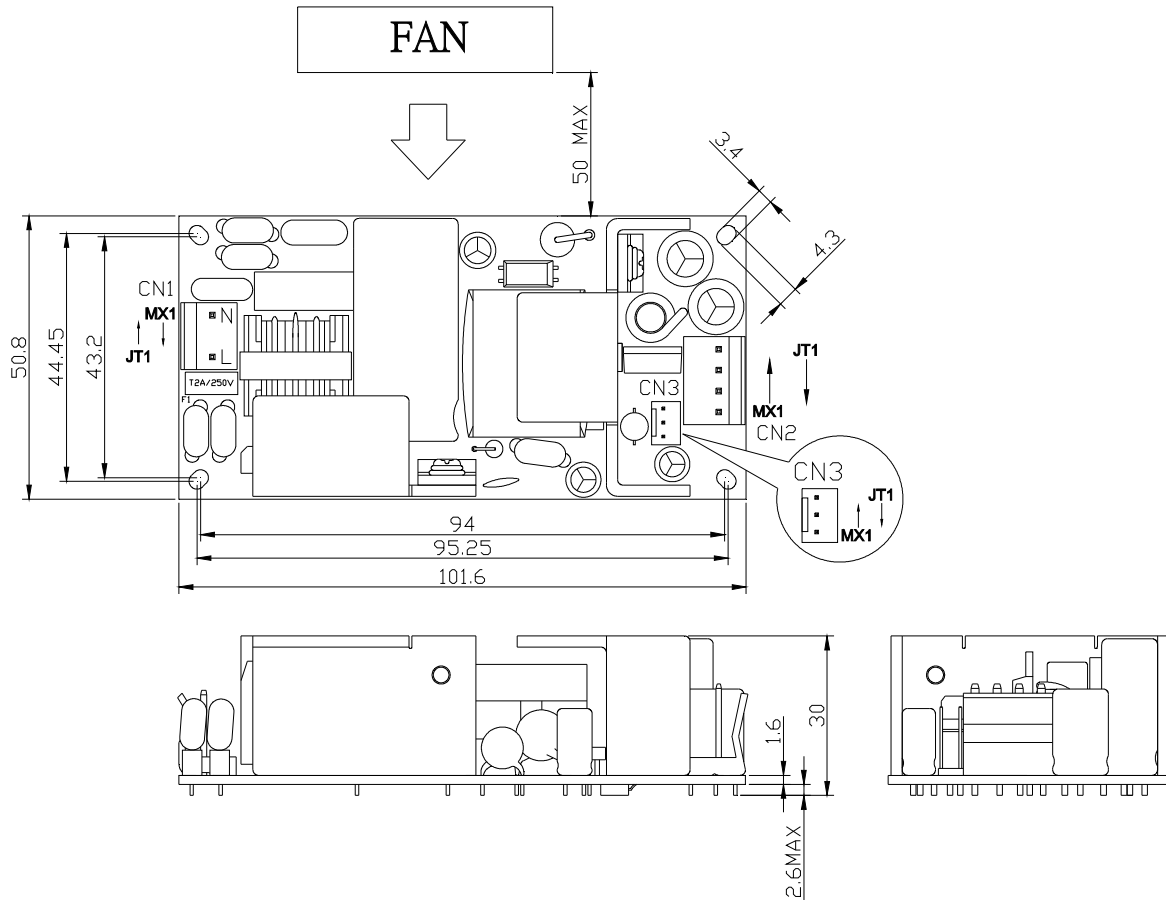
MPE-S064(-SB)(-C)

60W AC / DC

Mechanical Details

Unit: mm

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

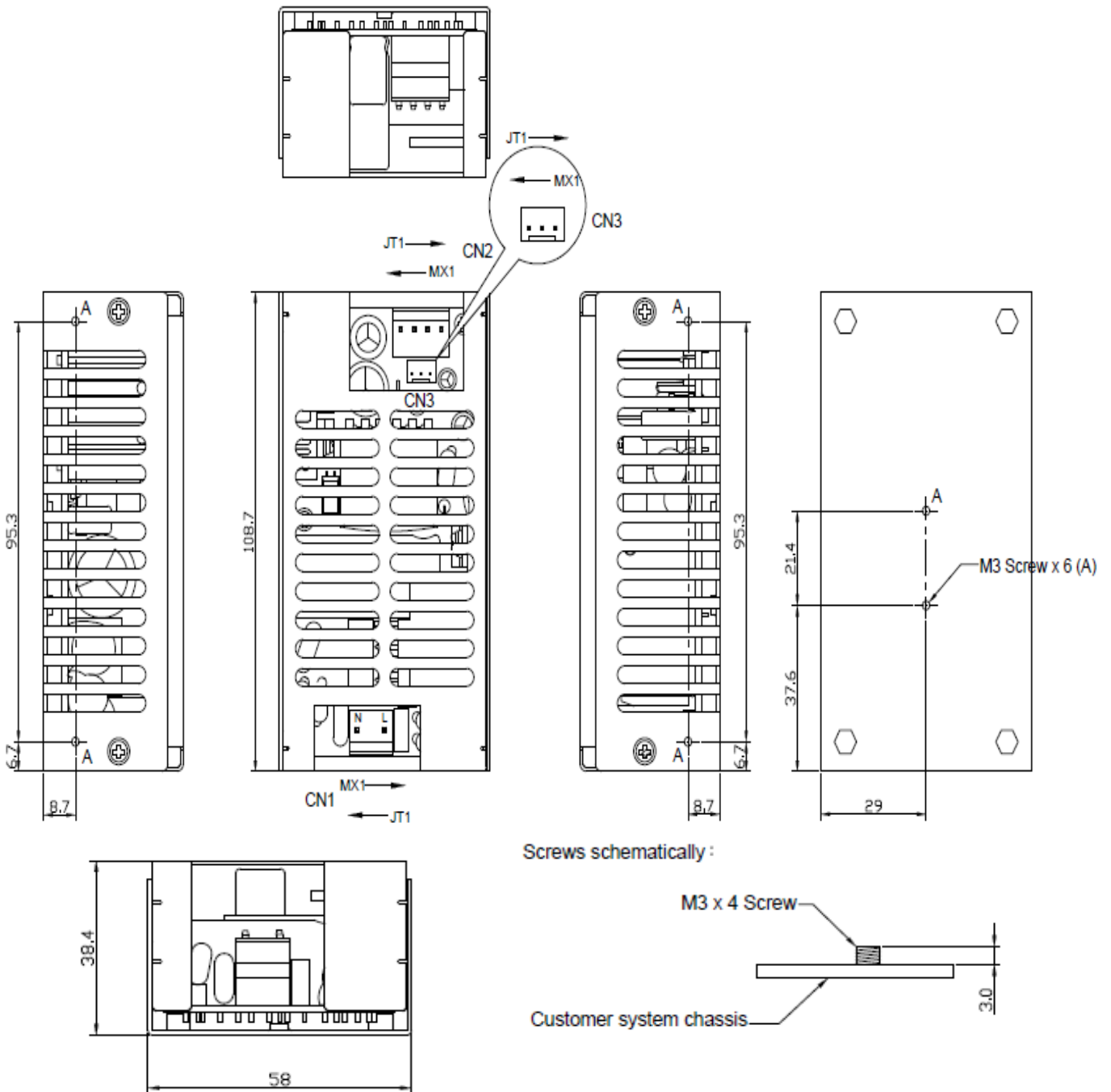


Note: The installation shall be kept in an isolation distance min. 2.8mm between the unit and the system chassis. There exists hazardous voltage in dotted area, keep insulating to avoid hazardous electric shock.

MPE-S064(-SB)(-C)

60W AC / DC

For m/n: MPE-S064(-SB)-C
Unit: mm Tolerance: +/- 0.4mm



MPE-S064(-SB)(-C)

60W AC / DC

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
MX2		JT1		AC in (L)	b. JST: VHR-3N or equivalent (Note 2)	b. JST: SVH-21T-P1.1 or equivalent
CN2 (Output) (Single) molex 09-65-2048 or equivalent	MX1	JT4		0 V	a. MOLEX: 09-50-1041 (5195-04) or 09-52-4044 (5239-04) or equivalent	a. MOLEX:5194 or 5225,2478, 2578,5167 or 5168 or equivalent
	MX2	JT3		0 V		
	MX3	JT2		+ V		
CN3 (Note 3) molex 22-04-1031 or equivalent	MX4	JT1		+ V	b. JST: VHR-4N or equivalent (Note 2)	b. JST: SVH-21T-P1.1 or equivalent
	MX1	JT3		+5Vsb	a. MOLEX: 22-01-1032 (5051-03) or 51191-0300 or equivalent	a. MOLEX :2759 or 5159 50802 or equivalent
	MX2	JT2		0 V		
MX3	JT1		RC	b. JST: XHP-3 or equivalent (Note 2)	b. JST: SXH-001T-P0.6N, SXH-001T-P0.6 or SXH-002T-P0.6 or equivalent	

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 Model no. coding.
3. Exist with model no. suffixed -SB, please see the Model no. coding.

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