



# SPECIFICATION

For

SWITCHING ADAPTER

**M/N: MPM-X60 series**

## Revisions History

REV.	Mar. 28 <sup>th</sup> 2011	Update the safety approved status; Added the leakage current value.
REV.	Nov. 3 <sup>rd</sup> 2011	CEC level V is available.
REV.	Feb. 7 <sup>th</sup> 2012	Defined the specification of output cable in section 7.
REV.	Apr. 26 <sup>th</sup> 2012	Updated the safety approvals status.
REV.	Jan. 3 <sup>rd</sup> 2013	Updated the safety approvals status.



BF direct patient contact rated



FEATURES

- 60W Class II Medical approved adapter
CEC level V compliant
Over voltage Protection
IEC, EN, UL 60601-1 Medical standard 3rd edition certified
Conductive EMI Meets CISPR/FCC Class B

1. Description

MPM-X60 series is single output, 60Watts, universal input switching mode power supply, which is 3rd edition medical safety regulations approved. The standby wattage at no load condition is lower than 0.5W which meet CEC level V (except MPM-X60-05 is non-CEC compliant). It is specially designed for external desktop application.

Table with 9 columns: Model, Output Voltage, Mini. Output Current, Rated Output Current, Line Regulation, Load Regulation, Voltage Setting, Ripple & Noise p-p, Efficiency (%Typ.). Rows include models MPM-X60-05 through MPM-X60-48.

Note: 1) Line regulation is measuring at full load from 100~240Vac.
2) Load regulation measurement is done by changing the measured output load +/-40% from 60% rated load.
3) The output at 60% rated load and input is nominal 110/220VAC.
4) Measured by a 20MHz bandwidth limited oscilloscope and the each output is connected with a 10µF Electrolytic Capacitor and a 0.1µF Ceramic Capacitor.

2. Input Specification

Table with 5 columns: Parameter, Conditions/Description, Min., Nom., Max., Units. Rows include Input Voltage-AC, Input Frequency, Hold Up Time, Inrush Current, Leakage Current.

3. Output Specification

Table with 5 columns: Parameter, Conditions/Description, Min., Nom., Max., Units. Rows include Efficiency, Minimum load, Ripple & Noise.

4. Internal Protection

Table with 2 columns: Parameter, Conditions/Description. Rows include Short Circuit Protection, Over Voltage Protection.



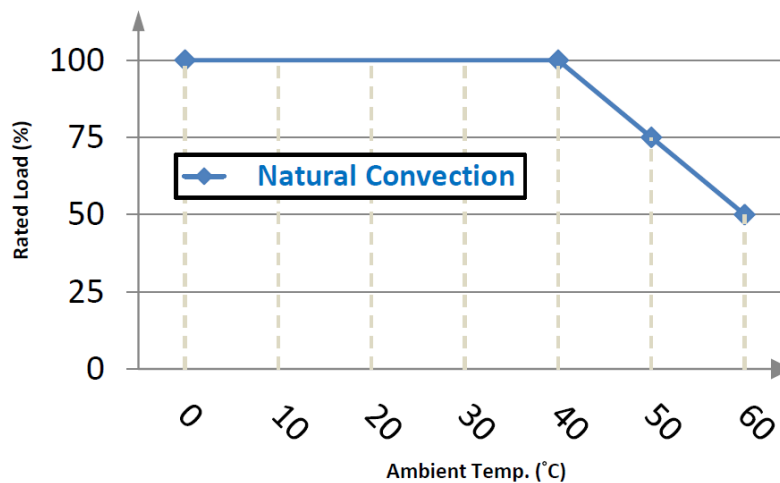
### 5. Safety Approvals, EMI and EMS Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Approvals	ANSI/AAMI ES 60601-1:2005				UL approved
	CAN/CSA-C22.2 No. 60601-1:08				cUL approved
	IEC 60601-1, 3rd edition				CB approved
	EN 60601-1, 3rd edition				
Hi-Pot	Input to output	5656			VDC
Leakage Current	AC 264V input, 63Hz, rated load				
	Normal condition			100	uA
	Single fault condition			500	
EMI	EN 55011	B			Class
	EN 60601-1-2				
PFC	EN 61000-3-2	A			
	EN 61000-3-3				
EMS	IEC 61000-4-2 ±6KV indirect discharge	3			
	IEC 61000-4-3 3 V/m	2			
	IEC 61000-4-4 ±2KV line	3			
	IEC 61000-4-5 ±1KV L-N	3			Level
	IEC 61000-4-6 3V	2			
	IEC 61000-4-8 3A/m	2			
	IEC 61000-4-11				

### 6. Environment Specification


Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Operating Temperature		0		60	°C
Storage Temperature		-20		+85	°C
Relative Humidity	Non-condensing.	10		93	%RH
MTBF	MIL-HDBK-217F, GB, 25°C/115VAC	200K			Hr

#### ◆ Derating curve





### 7. Mechanical Specification

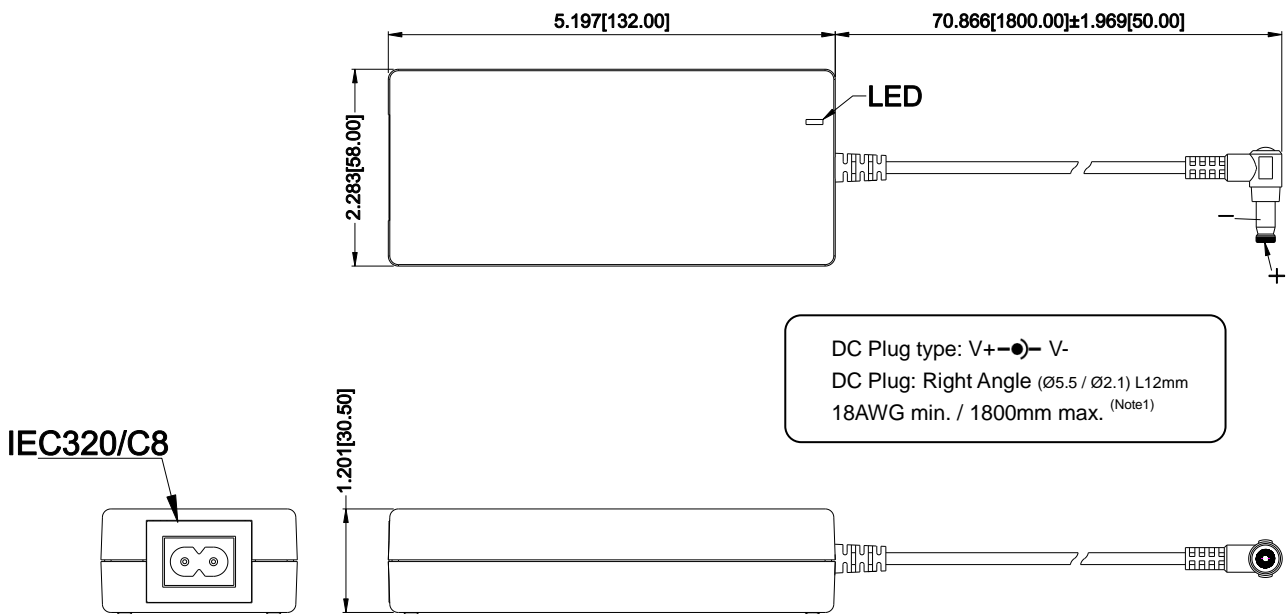
Parameter	Conditions/Description
Dimension	132 x 58 x 30.5 mm, Tolerance +/- 0.5mm.
AC Input Connector	IEC-320/C8 (2 Pin)
DC Plug <sup>(Note 2)</sup>	V+  V-, right angle, (Ø5.5 / Ø2.1) L12mm
Output Cable <sup>(Note 2)</sup>	18AWG min. / 1800mm max. <sup>(Note 1)</sup>

#### ◆Mechanical drawing

All dimensions are in inches(mm)

Tolerance: Inches: X.XXX±0.02

mm: X.XX±0.5



- Note: 1) For model MPM-X60-12 is 16AWG min. / 720mm max., MPM-X60-15 output cable length is 16AWG min. / 1220mm max., MPM-X60-18 and MPM-X60-19 output cable length are 18AWG min. / 1500mm max..
- 2) Customized output connector and cable type are available, please feel free to contact us.