

### 60W Single Output External Power Medical Grade





#### **FEATURES AND BENEFITS**

Meets UL/EN/IEC60601-1-2, 4Th Edition For EMC\*



Approved To En/IEC/UL60601-1, 3rd Edition With Isolation Levels Which Satisfy The 2 MOPP

Requirements

Meets DoE Efficiency Level VI Requirements No Load Input Power Average Efficiency

Up To 60W Of AC-DC Power

Universal Input 90-264Vac Input Range

Desktop Style Package

Meets EN55011/CISPR11, FCC Part 15.109 Class B Conducted & Radiated Emissions, With 6db Margin

E-Cap Life Of >7 Years

3 Year Warranty

IP22 Rated Enclosure









# **MODEL SELECTION**

Model Number	Volts	Output Current	Output Power	Ripple & Noise <sup>1</sup>	Line Regulation	Load Regulation	Output Connector	Output Cable	Input Configuration
ME60A0551F01	5.0V	7.00A	35W	75mV pk-pk	±1%	±5%			
ME60A0903F01	9.0V	6.00A	56W	90mV pk-pk	±1%	±5%	6 pin Molex	1150mm,	
ME60A1203F01	12.0V	5.00A	60W	120mV pk-pk	±1%	±5%	Type2	#18AWG	Class I Desktop,
ME60A1503F01	15.0V	4.00A	60W	150mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm	9V:1150mm 18AWG	IEC60320 C14
ME60A1803F01	18.0V	3.30A	60W	180mV pk-pk	±1%	±5%	Straight Barrel Type, center	All others: 1500mm,	Receptacle
ME60A2403F01	24.0V	2.70A	60W	240mV pk-pk	±1%	±5%	positive	#18AWG	
ME60A4803F01	48.0V	1.35A	60W	480mV pk-pk	±1%	±5%			
ME60A0551N01	5.0V	7.00A	35W	75mV pk-pk	±1%	±5%			
ME60A0903N01	9.0V	6.00A	56W	90mV pk-pk	±1%	±5%	6 pin Molex	1150mm,	
ME60A1203N01	12.0V	5.00A	60W	120mV pk-pk	±1%	±5%	Type2	#18AWG	Class II Desktop,
ME60A1503N01	15.0V	4.00A	60W	150mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm	9V:1150mm 18AWG	IEC60320 C8
ME60A1803N01	18.0V	3.30A	60W	180mV pk-pk	±1%	±5%	Straight Barrel Type, center	All others: 1500mm,	Receptacle
ME60A2403N01	24.0V	2.70A	60W	240mV pk-pk	±1%	±5%	positive	#18AWG	
ME60A4803N01	48.0V	1.35A	60W	480mV pk-pk	±1%	±5%			
ME60A0551Q01	5.0V	7.00A	35W	75mV pk-pk	±1%	±5%			
ME60A0903Q01	9.0V	6.00A	56W	90mV pk-pk	±1%	±5%	6 pin Molex	1150mm,	
ME60A1203Q01	12.0V	5.00A	60W	120mV pk-pk	±1%	±5%	Type2	#18AWG	Class II Desktop,
ME60A1503Q01	15.0V	4.00A	60W	150mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm	9V:1150mm 18AWG	IEC60320 C18 Receptacle
ME60A1803Q01	18.0V	3.30A	60W	180mV pk-pk	±1%	±5%	Straight Barrel Type, center	All others: 1500mm,	кесертасте
ME60A2403Q01	24.0V	2.70A	60W	240mV pk-pk	±1%	±5%	positive	#18AWG	
ME60A4803Q01	48.0V	1.35A	60W	480mV pk-pk	±1%	±5%			



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#### Notes:

- 1. Measured at the output connector, with noise probe directly across output and load terminated with 0.1μF ceramic and 10μF low ESR capacitors. For 5V models, values listed are typical, 100mV pk-pk maximum
- 2. Molex p/n 39-01-2060 or equivalent. See outline drawing for pinout information
- 3. For Input Class I models: For AC GND connected to output common (-), insert a "B" in the part number where the "A" is located (TE60B1203F01)
- 4. All specifications are typical at nominal input, full load, at 25°C ambient unless noted

### INPUT

AC Input	100-240Vac, ±10%, 47-63Hz, 1Ø				
Input Current	100Vac: 1.5A, 240Vac: 0.7A				
Inrush Current	264Vac, cold start: will not exceed 40A				
Input Fuses	F1, F2: 2A, 250Vac fuses (line & neutral lines) provided on all models				
Earth Leakage Current	<500μA@264Vac, 60Hz, NC <1mA@264Vac, 60Hz, SFC				
Efficiency	>88%, typical				
Common Mode Noise	High Frequency (100kHz-20MHz): <40mA pk-pk				
No Load Input Power	<0.210W (meets DoE Efficiency Level VI Requirements)				

## **ENVIRONMENT**

Operating Temperature	-20°C to +70°C. See curve for derating		
Operating reinperature	-20 G to +70 G. See curve for defating		
Relative Humidity	5% to 95%, non-condensing		
Weight	400g		
Dimensions	W: 2.67" x L: 4.25" x H: 1.29" W: 67.9mm x L: 108mm x H: 32.7mm		
Altitude	Operating: to 5000m. Non-operating: -500 to 40,000 ft.		
Storage Temperature	-40°C to +85°C		
Vibration	Operating: 0.003g/Hz, 1.5grms overall, 3 axes, 10 min/axis, 1-500Hz. Non-Oper.: random waveform, 3 minutes per axis, 3 axes and Sine waveform, Vib. frequency/acceleration: 10-500Hz/1g, sweep rate of 1 octave / minutes, Vibration time of 10 sweeps / axes, 3 axes		
Shock	Operating: Half-sine, 20gpk, 10mS, 3 axes, 6 shocks total Non-Operating: Half-sine waveform, impact acceleration of 100G, Pulse duration of 6 mS, Number of shocks: 3 for each of the three axis		

## OUTPUT

Output Voltage	See models chart on pg 1		
Output Power	60W continuous – See models chart for specific voltage model ratings		
Turn On Time	Less than 1 sec @115Vac, full load		
Hold-up Time	20mS min., at full Load, 100Vac input		
Ripple and Noise	See models chart on pg 1		

#### **EMI/EMC COMPLIANCE**

	IEC60601-1-2/EN55011/CISPR11 Class B, FCC Part 15, Class B, 6db margin typ., at 115 and 230Vac			
Radiated Emissions	IEC60601-1-2/EN55011/CISPR11 Class B, FCC Part 15, Class B, 6db margin typ., at 115 and 230Vac			
Electro-Static Discharge (ESD) Immunity on Power ports	EN55024/IEC61000-4-2, Level 4: +/- 8kV contact, +/- 15kV air, Criteria A IEC60601-1-2, 4th Edition, Table 4			
Flicker Test	EN61000-3-3			

## **SAFETY**

Safety Standards	EN/IEC/UL60601-1, 3rd edition		
Drop Test	1.4m from table top to wooden platform, 4 faces		

All specifications are typical at nominal input, full load, at 25°C ambient unless noted. Consult factory for information regarding testing for or usage under special environments.

#### **RELIABILITY**

MTBF	>250,000 hours, full load, 110 & 220Vac input, 25°C amb., per Telcordia 332 Issue 6
	iliput, 20 0 amb., per relcordia 302 issue 0

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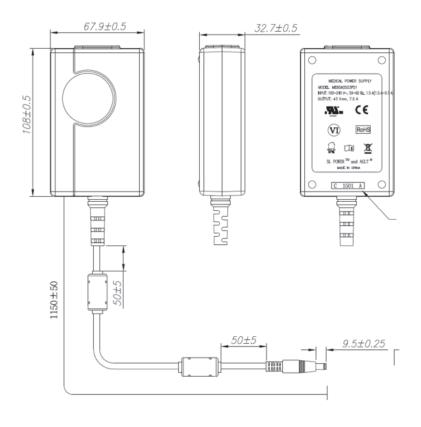
### **PROTECTION**

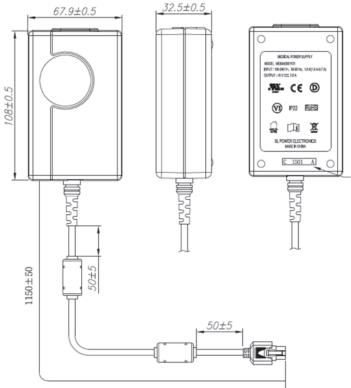
Overvoltage Protection	130 to 150% of output voltage (max. 60V on 48V model), hiccup mode		
Short Circuit Protection	Hiccup Mode, auto recovery		
Overtemperature Protection	Will shutdown upon an overtemperature condition, auto-recovery		
Overload Protection	130 to 180% of rating, Hiccup Mode		

### **ISOLATION**

	Input-Output: 2 MOPP
Isolation	Input-Ground: 1 MOPP
	Output-Ground: 1 MOPP

#### **MECHANICAL DRAWINGS**





See Note 3: 9V through 48V Models: 2.5 x 5.5 x 9.5mmor equiv. Barrel Connector, center positive<sup>2</sup>

#### Notes:

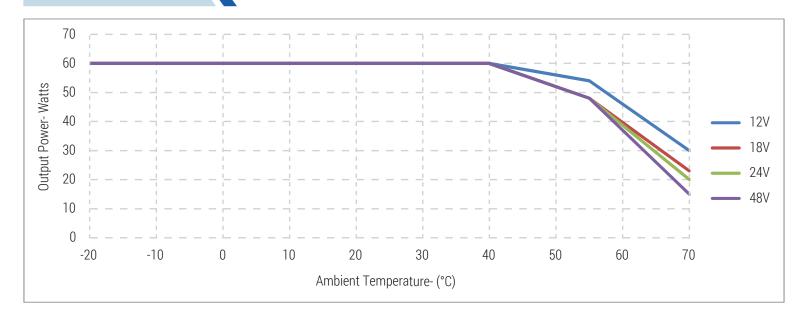
- All dimensions in mm.
- 2. Other options are available.
- 3. Cable length on 12V through 48V models is 1500mm, nominal.
- 4. The unit should not be covered or enclosed to protect against excessive case temperature rise.

5V Models: Output Connector: 6 pin Molex 39-01-2060 or equiv. Pins 1, 4 = (+), pins 3, 6 = (-), pins 2,  $5 = NC^2$ 

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### **DERATING CHART**



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# **CONNECTOR INFORMATION**

Standard models include a  $2.5 \times 5.5 \times 9.5$ mm straight barrel type connector (Ault #3), center positive (6-pin Molex type - #51 – on 5V models) Other standard options are listed below. The "03" in the standard model number is replaced by the applicable digits below:

Connector No.	Description	Connector No.	Description
02	2.1 x 5.5 x 9.5 mm straight barrel plug - Center positive	45	2.5 x 5.5 x 9.5 mm straight barrel plug, locking - Center positive
03	2.5 x 5.5 x 9.5 mm straight barrel plug - Center positive (Standard models)	48	3 pin Snap n Lock, Kycon Kpp - 3P or equivalent (Pin 1 = (+); pin 2 = (-))
12	5 pin DIN - 180 male connector (Pins 3, 5 = (+); pins 1, 2, 4 = (-))	49	4 pin Snap n Lock, Kycon Kpp - 4P or equivalent (Pins 1, 3 = (+); pins 2, 4 = (-))
22	6 pin DIN male connector (Pins 1, 2 = (+); pins 4, 5 = (-))	51	6 pin Minifit - Molex 39-01-2060 or equivalent (Pins 1, 4 = (+); pins 3, 6 = (-))
23	8 pin DIN male connector (Pins 3, 7 = (+); pins 1, 4, 6, 8 = (-); shell = FG)	65	Stripped and Tinned Leads
32	9 pin "D" type, female (Pins 8 = (+); pins 5=(-); all others = NC)	70	2.1 x 5.5 x 11mm right angle barrel plug (high retention) - Center positive
33	2.5 x 5.5 x 12.5 mm straight barrel plug- Center positive	71	2.5 x 5.5 x 11mm right angle barrel plug (high retention) - Center positive
40	2.1 x 5.5 x 9.5 mm right angle barrel plug (High retention) - Center positive	72	2.1 x 5.5 x 9.5 mm straight barrel plug (High retention, no spark ) - Center positive
41	2.5 x 5.5 x 9.5 mm right angle barrel plug (High retention) - Center positive	73	2.5 x 5.5 x 9.5 mm straight barrel plug (High retention, no spark ) - Center positive
42	2.1 x 5.5 x 11 mm straight barrel plug (High retention) - Center positive	74	EIAJ#5 style connector - Central positive
43	2.5 x 5.5 x 11 mm straight barrel plug (High retention) - Center positive	99	Micro USB
44	2.1 x 5.5 x 9.5 mm straight barrel plug, locking - Center positive		

These are the most common standard connectors. SL Power has the capability to incorporate any non-standard output connector. All output connectors are limited by wattage range and application type. The SL Power applications team is available to provide professional support and can be contacted here: info@slpower.com.

Disclaimer: The information and specifications contained herein are believed to be correct at the time of publication. However, SL Power accepts no responsibility for consequences arising from reproduction errors or inaccuracies. Specifications are subject to change without notice.