

# 60 Watt Medical (MVLТ)



## Features

- 4 x 2 x 1.07 inches
- Ultra high efficiency > 82%
- 60 W from 1 to 3 outputs
- Low leakage current < 250  $\mu$ A
- Nemko, UL & CSA approvals to IEC60601
- EN55022-B, CISPR22-B, FCC Part15 Level B, IEC60601-1-2
- Cover kit accessory available

## Electrical Specifications

AC Input	90-132 V & 180-264 V, Auto Ranging	
Input Frequency	47-63 Hz	
Input Current	120 VAC: 1.25 A max.	230 VAC: 0.65A max.
Inrush Current	120 VAC: 40 A max.	230 VAC: 75 A max.
Leakage Current	120V AC: < 140 $\mu$ A	230 VAC: < 250 $\mu$ A
Efficiency	120 VAC: 80% typical	230 VAC: 80% typical
Hold-up Time	120 VAC: 6 ms	230 VAC: 6 ms
Output Power <sup>1</sup>	50 to 60 W	
Line Regulation	+/-0.3%	
Load Regulation	V1: +/-0.5%; V2 & V3: +/-5%	
Transient Response	< 10%, 50% to 100% load change, 50/60 Hz, 50% duty cycle, 0.1 A/ $\mu$ s, recovery time < 5 ms	
Rise Time	< 100 ms	
Set Point Tolerance	V1: +/-3%; V2 & V3: +/-5%	
Over Current Protection	130% typical above rating	
Over Voltage Protection (For V1 & triple output model only)	3.95 V +/-0.25 V for 3.3 V; 6.2 V +/-0.4 V for 5 V	
Short Circuit Protection	Short term, autorecovery	
Switching Frequency	Boost converter: 105 kHz typical Resonant converter: 55 kHz typical	
Operating Temperature	0 to 70°C, refer derating curve	
Storage Temperature	-40 to +85°C	
Relative Humidity	95% Rh, noncondensing	
Altitude	Operating: 10,000 ft.; Nonoperating: 40,000 ft.	
MTBF	0.91m Hours, Telcordia SR332 Issue-3	
Isolation Voltage	Min. 5700 VDC between input to output	
Cooling	Convection	

Model Number	Voltage	Max. Load <sup>2</sup>	Min. Load	Ripple <sup>3</sup>
LFMVL60-1200	V1=5.1 V	10.0 A	0.2 A	1%
LFMVL60-1201	V1=12 V	5.0 A	0.1A	1%
LFMVL60-1202	V1=15 V	4.0 A	0.1 A	1%
LFMVL60-1203	V1=24 V	2.5 A	0.1 A	1%
LFMVL60-1204	V1=48 V	1.25 A	0.05 A	1%
LFMVL60-3200	V1=5.2 V, V2=12.5 V, V3=-12.8 V	V1=8.0 A, V2=3.0 A, V3=0.5 A	V1=0.5 A, V2=0.1 A, V3=0.0 A	1%
LFMVL60-3201	V1=5.2 V, V2=24 V, V3=-12.8 V	V1=8.0 A, V2=1.5 A, V3=0.5 A	V1=0.5 A, V2=0.1 A, V3=0.0 A	1%
LFMVL60-3202	V1=5.2 V, V2=14.6 V, V3=-14.8 V	V1=8.0 A, V2=2.5 A, V3=0.5 A	V1=0.5 A, V2=0.1 A, V3=0.0 A	1%
LFMVL60-3203	V1=3.3 V, V2=5.2 V, V3=-12.8 V	V1=8.0 A, V2=3.0 A, V3=0.5 A	V1=1.0 A, V2=0.1 A, V3=0.0 A	V1=1.5%, V2 & V3=1%
LFVLT60-CK metal cover kit accessory				

Connectors		
J1	Pin 1	AC NEUTRAL
	Pin 2	AC LINE
Spade Connector		EARTH
J2	Pin 1	V1
	Pin 2	V1
	Pin 3	RTN
	Pin 4	RTN
	Pin 5	V3
	Pin 6	V2

## Notes

1. Rating of MVL60-1200 is 50 W and MVL60-3203 is 45 W.
2. Maximum current per output channel. Do not exceed total output power rating.
3. Ripple is peak to peak with 20 MHz bandwidth and 10  $\mu$ F (Electrolytic capacitor) in parallel with a 0.1  $\mu$ F capacitor at rated line voltage and load ranges.
4. Specifications are for nominal input voltage, 25°C and max. load unless otherwise stated.
5. Derate output power linearly to 80% from 90 VAC to 80 VAC input.



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## Mechanical Specifications

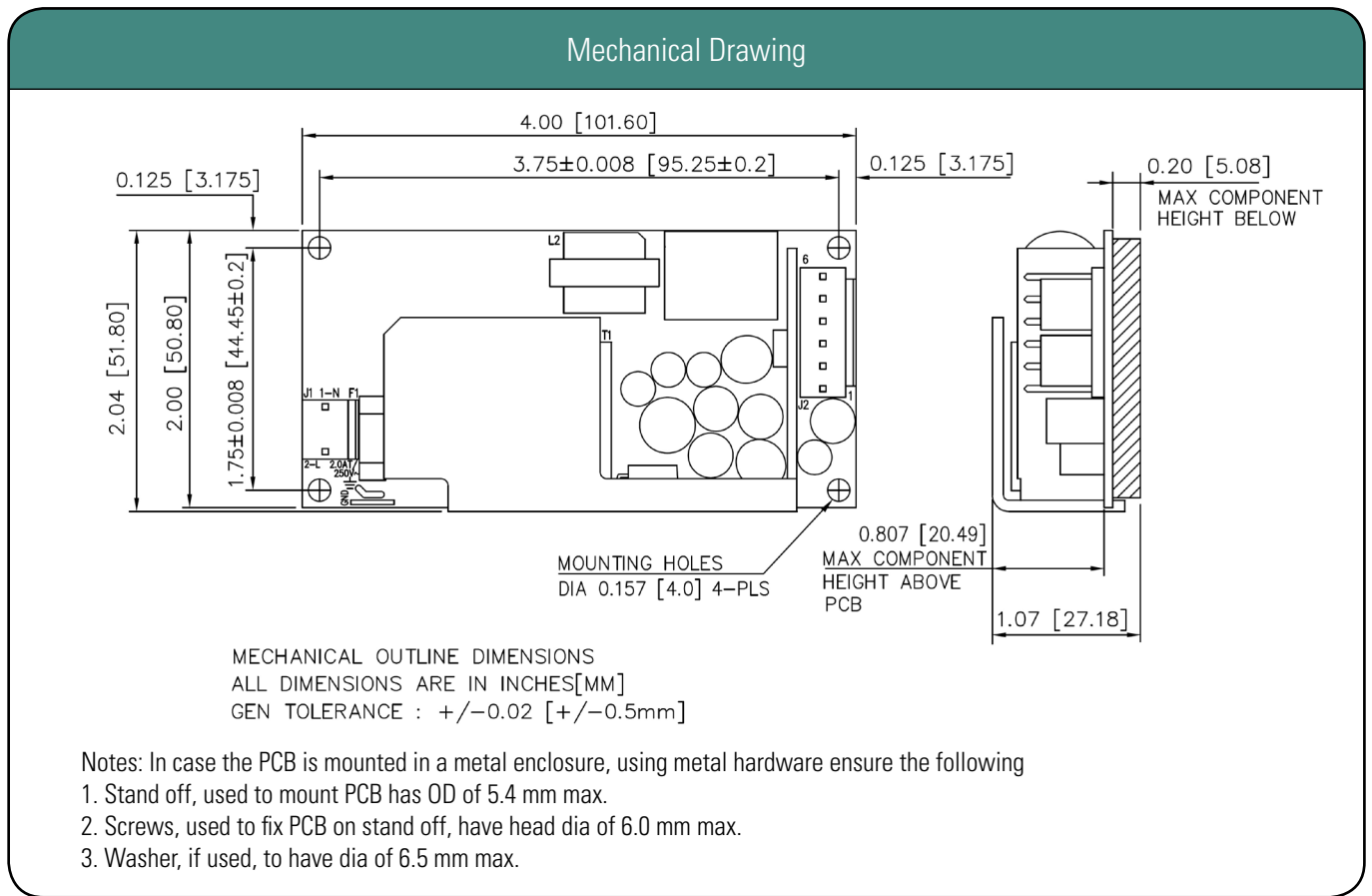
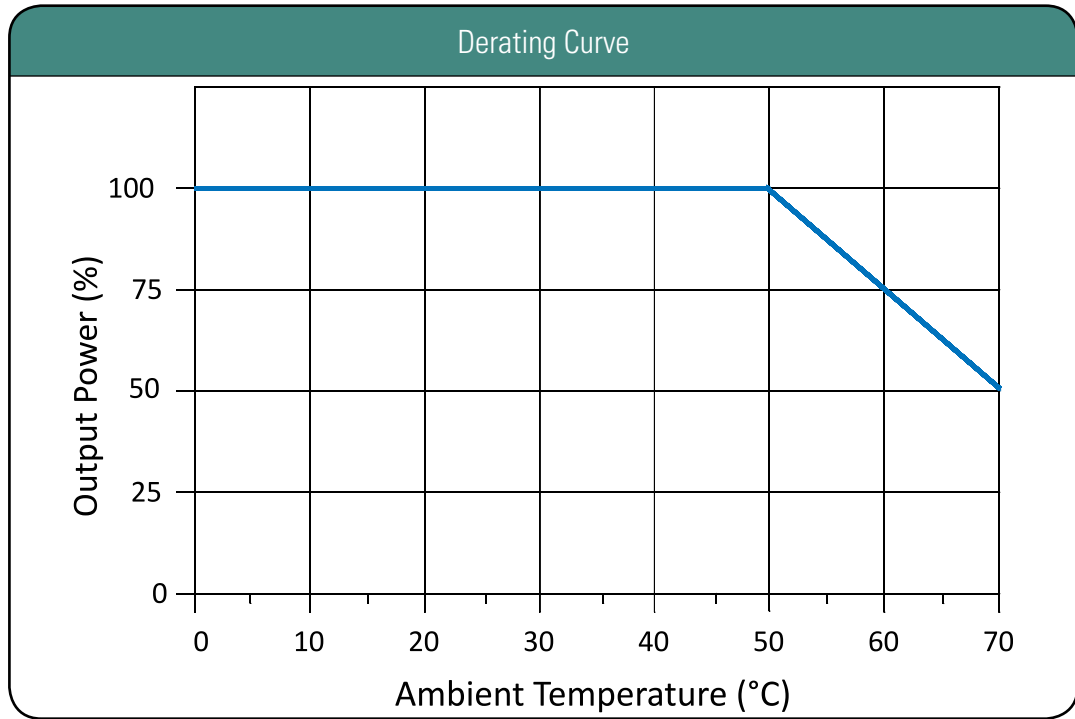
AC Input Connector (J1)	Molex: 26-60-4030 or equivalent Mating: 09-50-3031; Pins: 08-50-0106
EARTH	Molex: 19705-4301 or equivalent Mating: 190030001
DC Output Connector (J2)	Tyco: 640445-6 or equivalent Mating: 647402-6; Pins: 3-647409-1
Dimensions	4.0 x 2.04 x 1.07 inches (101.6 x 51.82 x 27.18 mm)
Weight	150 g

## EMC

CE Mark	Complies with LVD Directive
Conducted Emissions	EN55022-B, CISPR22-B, FCC PART15-B
Static Discharge	EN61000-4-2, Level-3
RF Field Susceptibility	EN61000-4-3, Level-3
Fast Transients/Bursts	EN61000-4-4, Level-3
Radiated Emissions	EN55022-B, CISPR22-B, FCC PART15-B To be controlled in end system
Surge Susceptibility	EN61000-4-5, Level-3

## Safety

Safety Standard(s)	EN60601-1, IEC60601-1 (ed.3), UL60601-1 (1st Edition), CSA C22.2 No. 601.1, Class 1 SELV
Approval Agency	Nemko, UL, C-UL
Safety File Number(s)	Nemko: P11214761 UL: E173812



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