



UNIVERSAL INPUT

FEATURES

- ◆ Wide range input 85 to 264VAC
- ◆ No load consumption < 0.5W
- ◆ Low safety ground leakage current
- ◆ Low ripple and noise
- ◆ Fast transient response
- ◆ Overcurrent, Short-circuit, Overvoltage, and Thermal protections
- ◆ 100% burn-in at full rated load
- ◆ Meets CEC and Energy Star efficiency level IV
- ◆ Meets EN55011, FCC Class B, VCC, EN61000 Class A,D
- ◆ Compliant with RoHS requirements

DESCRIPTION

This series of switching power supplies are specially designed for portable medical applications. They are capable of delivering up to 65 watts of continuous DC output power. Construction is a 94V-1 rated polyphenylene-oxide case with an IEC 320/C14 inlet to mate with interchangeable cord for world-wide use. All models meet CISPR 11 and FCC class B emission limits and comply with UL, CSA, IEC and CE requirements.

INPUT SPECIFICATIONS

Input Voltage	85 to 264 VAC
Input Frequency	47 to 63 Hz
Input Current	1.3A rms @ 115VAC 0.7A rms @ 230VAC
Inrush Current (at 25°C cold start)	30 amps @ 115VAC 60 amps @ 230VAC
Leakage Current (Touch current)	90µA max @ 115VAC 60Hz 150µA max @ 230VAC 50Hz

ENVIRONMENTAL

Operating Temperature	0 °C to +60 °C.
Storage Temperature	-40 °C to +85 °C
Operating Humidity	5% to 95% RH, non-condensing

FMA60P SERIES

30-65 WATT MEDICAL SWITCHING POWER SUPPLIES

GENERAL SPECIFICATIONS

Construction	94V-1 rated polyphenylene-oxide case
Connectors / Terminals	IEC 320/C14 inlet. Options for DC Out.
Switching Frequency	50KHz to 110KHz
Efficiency	85% min , single output models 75% min , multiple output models
Turn on delay time	5 Sec max
Power Factor	0.95 typical
Dielectric Isolation	4000VAC from input to output 1500VAC from input to ground 500VAC from output to ground
MTBF (per MIL-HDBK-217F)	150,000 hours minimum at full load at 25 °C ambient

OUTPUT SPECIFICATIONS

Total Output Power	Refer to Rating Chart for each model
Derating Output Power	Derate from 100% @ +40 °C linearly to 50% @ +60 °C
Output Voltage / Current, Adjustability, Peak Current	Refer to Rating Chart for each model
Minimum Load	No minimum load required
Hold Up Time	10 mSec min @ 110 VAC
Line Regulation	±0.5% max at full load
Ripple and Noise	2% peak to peak max
Overvoltage Protection	On output #1 only, setting at 112-132% of Vnom output voltage
Overcurrent / Short Circuit Protection	Continuous protection with automatic recovery
Temperature Coefficient	±0.04% / °C max for all outputs
Transient Response	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 uS after a 25% step load change.

EMC and SAFETY (1)

EMC Performance Standard	EN60601-1-2 EN61000-3-2, -3-3, -4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11
EN55011, FCC-15, VCCI	Class-B Conducted, Radiated
Safety Standards (certified to)	UL60950-1 3rd, CSA C22.2 No 60950-1 3rd, EN60950: 2000 (Nemko)

(1) Products are rated for commercial environments and are not to be used nor are warranted in aerospace or life-support medical applications.



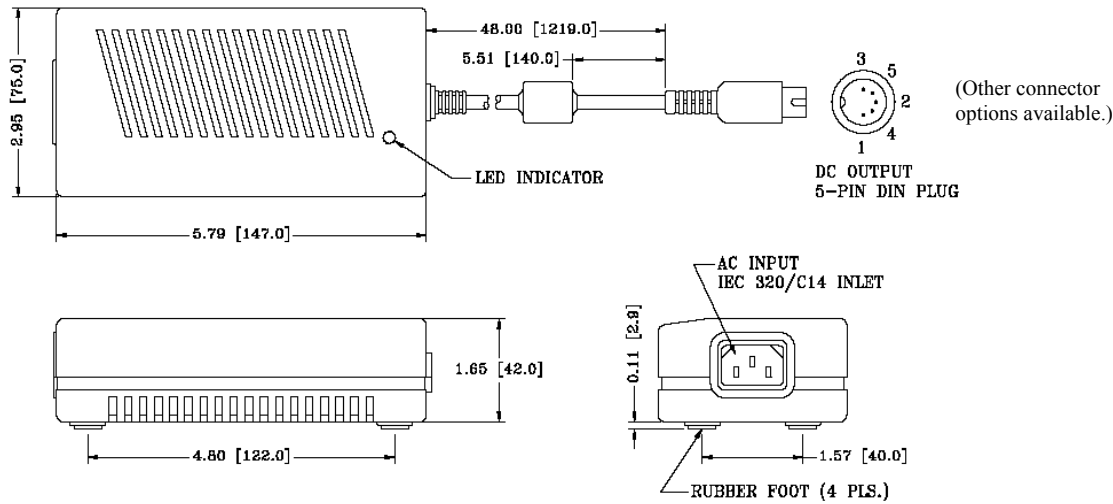
OUTPUT VOLTAGE / CURRENT RATINGS

MODEL	Output #1				Output #2				Output #3				Max Output Power
	Vnom	Imin	Imax	Tol	Vnom	Imin	Imax	Tol	Vnom	Imin	Imax	Tol	
FMA60P12	11-13V	0A	5.00A	5%									55W
FMA60P13	13-17V	0A	4.62A	5%									60W
FMA60P13-1	17-21V	0A	3.53A	5%									60W
FMA60P14	21-27V	0A	2.86A	5%									60W
FMA60P16	27-33V	0A	2.23A	3%									60W
FMA60P17	33-39V	0A	1.82A	2%									60W
FMA60P18	46-50V	0A	1.42A	2%									65W
FMA60P30	+3.3V	1A	8.0A	5%	+5V	0.5A	3.0A	5%	+12V	0.1A	0.7A	10%	30W
FMA60P31	+5V	1A	6.0A	5%	+12V	0.5A	3.0A	5%	-12V	0.1A	0.7A	10%	50W
FMA60P32	+5V	1A	6.0A	5%	+15V	0.4A	2.5A	5%	-15V	0.1A	0.7A	10%	50W
FMA60P36	+5V	1A	6.0A	5%	+24V	0.3A	2.0A	5%	+12V	0.1A	0.7A	10%	50W

NOTE:

1. Ripple and noise: Measured peak-to-peak with 20MHz bandwidth and 10uF tantalum capacitor in parallel with a 0.1µF ceramic capacitor at rated line voltage and load ranges.
2. The output voltages of a multiple output model may go outside of the stated tolerance when an output load current is out of stated limits. All models may be operated at no-load without damage.

MECHANICAL SPECIFICATIONS (mm / inches)



NOTES

1. Dimensions shown in inch [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 600 grams approx.
4. DC output connector options are available. Contact Sales for details.

PIN ASSIGNMENTS

MODEL	PIN	1	2	3	4	5
FMA60P12 FMA60P13 FMA60P13-1 FMA60P14 FMA60P16 FMA60P17 FMA60P18		Return	Return	Output #1	Return	Output #1
FMA60P30 FMA60P31 FMA60P32 FMA60P36		Common Return	Common Return	Output #1	Output #2	Output #3