



MSA150 Series

150 Watt Medical Open Frame Power Supply

- High Efficiency: Level V
- Up to 180W with Forced Air
- High Power Density 9.8W/in³
- Lifetime Expectation >5 years
- Hold-up Time >25ms at full load
- EISA & CEC Compliant
- Floating Output
- Medical Approval - EN60601-1 Class I 3rd Edition

Elpac Part Number	Output Voltage	Output Current ¹	Forced Air Current ²	Total Regulation ³	Typical Efficiency ⁴
MSA150012A	12.0V	12.5A	15.0A	±5%	91%
MSA150015A	15.0V	10.0A	12.0A	±5%	91%
MSA150018A	18.0V	8.3A	10.0A	±5%	91%
MSA150024A	24.0V	6.3A	7.5A	±5%	92%
MSA150028A	28.0V	5.4A	6.4A	±5%	92%
MSA150048A	48.0V	3.2A	3.75A	±5%	94%

Notes

1 With convection cooling. Peak load (180W) lasting up to 500ms with a maximum 10% duty cycle.

2 Sustained output current with minimum 100 LFM

3 Includes initial setting, line regulation, load regulation, and thermal drift.

4 Typical at 115VAC.

Input

Input Voltage	85 - 264VAC 100 - 240VAC Nominal
Input Frequency	47 - 63Hz
Input Current	<2A rms
Inrush Current	<37A at 230VAC cold start
Power Factor	>0.97
Zero Load Power Consumption	<0.5W
Earth Leakage Current (Typical)	<150µA @ 132VAC @ 60Hz <300µA @ 264VAC @ 60Hz
Patient Leakage Current	<50µA @ 132VAC @ 60Hz <75µA @ 264VAC @ 60Hz

Output

Output Voltage	See Table
Total Regulation	+/-5%
Minimum Load	No minimum load required
Start-Up Delay	<1.5s
Hold-Up Time	>25ms at any input voltage
Ripple & Noise	<1% pk-pk ** *
Over Voltage Protection	110-135%
Over Temperature Protection	Active - Recoverable; plus Passive - Non Recoverable
Over Current Protection	120 - 180%
Short Circuit Protection	shutdown, auto-restart (hiccup mode)

Notes

* Ripple and noise measured with 20MHz bandwidth; 10µF tantalum capacitor in parallel with a 0.1µF ceramic capacitor.


General

Efficiency	Avg Efficiency 91.7% @ 115VAC; 93.4% @ 230VAC
MTBF	min. 200,000 hours demonstrated
Size	5.00" x 3.00" x 1.22" 127mm x 76.2mm x 30.9mm
Weight	0.75 lbs (.34 kg)
Power Density	9.8W/in ³

Environmental

Operating Temperature	0 – 70°C (Full load to 50°C, derate linearly to 50% load at 70°C)
Storage Temperature	-40°C to +85°C
Relative Humidity	5-95%, non-condensing
Cooling	Natural Convection (150W) or Forced Air (180W)
Vibration	All units production tested to 19.6m/s ²

EMC & Safety

Emissions	FCC class B, CISPR11 class B EN61000-3-2, -3
Immunity	EN61000-4-2, -3, -4, -5, -6, -8, -11
Certified by TUV to the following:	cTUVus
	UL 60601-1
	CAN/CSA-22.2 No.601.1-M90
	CB per IEC60601-1 2nd and 3rd Edition
	CE marked to LVD

Input Configuration

Connection on Power Supply Body	AMP p/n 640445-3 (or equivalent)
Mating Connector	AMP p/n 640250-3 (or equivalent)

Output Configuration

Connector (PSU Side)	AMP p/n 640445-8 (or equivalent)
Mating Connector	AMP p/n 640250-8 (or equivalent)

Input Pin Assignments (P1)

Pin 1	AC Line
Pin 2	<not assembled>
Pin 3	AC Neutral

Output Pin Assignments

Pin 1	+V1
Pin 2	+V1
Pin 3	+V1
Pin 4	+V1
Pin 5	Return
Pin 6	Return
Pin 7	Return
Pin 8	Return

