



**International  
Components  
Corporation**

TM

# MSA 150 Series

150 Watts  
Medical Switch Mode Power Supply

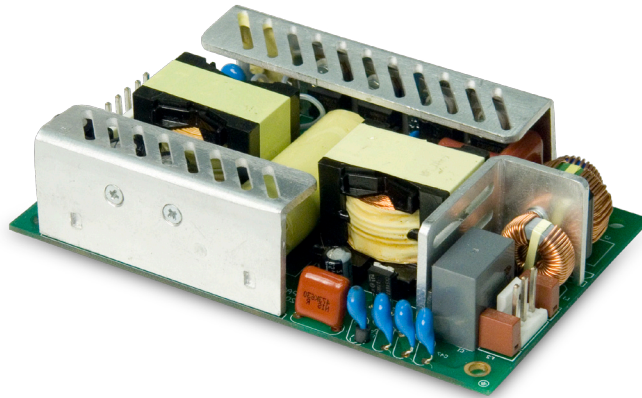
**Elpac Power Systems™**  
Higher Efficiency, Higher Power Density, Uncompromised Reliability



## TECHNICAL SUPPORT

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**5-YEAR LIMITED WARRANTY\***

- High Efficiency
- Up to 180W with Forced Air
- High Power Density 9.8W/in<sup>3</sup>
- Lifetime Expectation >5 years
- Hold-Up Time >25ms at full load
- Medical Approval - EN60601-1 Class I
- Energy Star Level V
- EISA Compliant
- CEC Compliant

## ENERGY STAR PARTNER

As a Global Supplier of Power Supplies, we are committed to meeting energy efficiency standards around the world. That is why we have partnered with the ENERGY STAR® Program and engineer our Elpac Power Systems™ to meet strict energy-efficiency guidelines established by the EPA and the US Department of Energy (DOE). The Energy Star program has developed International partnerships with countries and organizations in major global markets. Those participating in the program include Australia, Canada, European Union, European Free Trade Association, Japan, New Zealand, and Taiwan.

Furthering our International commitment, we have signed the EU Code of Conduct on Efficiency of External Power Supplies. Our Elpac Power Systems™ MSA150 series meets the efficiency standards of the International ENERGY STAR® program and the EU Code of Conduct.

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	<150µA @ 132VAC @ 60Hz
	<250µA @ 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**

\*visit [www.iccus.com](http://www.iccus.com) for complete details

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





Model Number	Output Voltage	Output Current <sup>1</sup>	Forced Air Current <sup>2</sup>	Total Regulation <sup>3</sup>	Typical Efficiency <sup>4</sup>
MSA150012A	12.0V	12.5A/15.0A PK	15.0A	±5%	91%
MSA150015A	15.0V	10.0A/12.0A PK	12.0A	±5%	91%
MSA150018A	18.0V	8.3A/10.0A PK	10.0A	±5%	91%
MSA150024A	24.0V	6.3A/7.5A PK	7.5A	±5%	92%

**Notes**

- 1) With convection cooling. Peak load (180W) lasting up to 500ms with a maximum 10% duty cycle.
- 2) Sustained output current with minimum 200 LFM
- 3) Includes initial setting, line regulation, load regulation, and thermal drift.
- 4) Typical at 115VAC.

General	
Energy Star Efficiency	Avg Efficiency 91.7% @ 115VAC; 93.4% @ 230VAC
MTBF	min. 200,000 hours demonstrated
Size	5.00" (127mm) x 3.00" (76.2mm) x 1.22" (30.9mm)
Weight	0.75 lbs (0.34 Kg)
Power Density	9.8W/in <sup>3</sup>

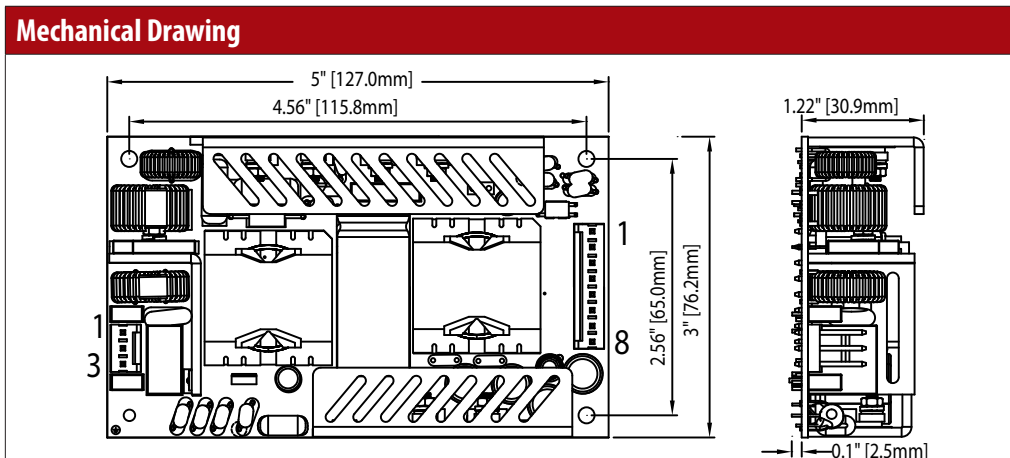
Environmental	
Operating Temperature	0 – 70°C (Full load to 50°C, derate linearly to 50% load at 70°C)
Storage Temperature	-40°C to +85°
Relative Humidity	5-95%, non-condensing
Cooling	Natural Convection (150W) or Forced Air (180W)
Vibration	All units production tested to 19.6m/s <sup>2</sup>

EMC & Safety	
Emissions	FCC class B, CISPR11 class B EN61000-3-2, -3
Immunity	EN61000-4-2, -3, -4, -5, -6, -8, -11
Safety Standards and Approvals	cTUVus
	UL 60601-1
	CAN/CSA-22.2 No.601.1-M90
	CB per IEC60601-1
	CE marked to LVD

Input Configuration	
Standard Input Cable	Not provided
Connection on Power Supply Body	AMP 640445-3
Mating Connector	AMP 640250-3 or Equivalent

Output Configuration	
Standard Output Cable	Not provided
Connector (PSU side)	AMP 640445-8
Mating Connector	AMP 640250-8 or equivalent

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



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