



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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## MSA150 Series

150 Watt Medical Open Frame Power Supply

- High Efficiency: Level V
- 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
- EISA & CEC Compliant
- Floating Output
- Medical Approval - EN60601-1 Class I 3rd Edition

Elpac Part 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	±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)	<150 $\mu$ A @ 132VAC @ 60Hz <300 $\mu$ A @ 264VAC @ 60Hz
Patient Leakage Current	<50 $\mu$ A @ 132VAC @ 60Hz <75 $\mu$ A @ 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; 10 $\mu$ F tantalum capacitor in parallel with a 0.1 $\mu$ F 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 <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°C
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
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

