



MSM28 Series

28W Medical Open Frame Power Supply

- 5-Year Limited Warranty
- High Efficiency
- Wide Range AC Input
- Fully Regulated DC Output
- Lifetime Expectation >5 years
- Hold-up Time > 15ms at full load
- Output Floating
- Safety Approval- EN60601-1 Class I

Elpac Part Number	Output Voltage	Output Current ¹	Total Regulation ²	Typical Efficiency ³
MSM2812	12.0V	2.30A	±5%	80%
MSM2824	24.0V	1.20A	±5%	80%

Notes

1 Maximum peak load (33W) lasting 500ms with a maximum 10% duty cycle.

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

3 Typical at 115VAC at full load.

Input

Input Voltage	85 - 264VAC; 100 - 240VAC Nominal
Input Frequency	50 - 60Hz
Input Current	<0.55A rms
Inrush Current	<37A at 230VAC cold start
Zero Load Power Consumption	<2.6W
Earth Leakage Current (Typical)	<70μA @ 132VAC @ 60Hz <140μA @ 264VAC @ 60Hz

Output

Output Voltage	See Table
Total Regulation	+/-5%
Minimum Load	No minimum load required
Start-Up Delay	<750ms
Hold-Up Time	>15ms
Ripple & Noise	<1% pk-pk ** *
Over Voltage Protection	113-135%
Over Temperature Protection	Active - 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 81.7% @ 115VAC; 82.1% @ 230VAC
MTBF	min. 200,000 hours demonstrated
Size	3.75" x 2.60" x 1.00" 45.3mm x 66.15mm x 25.4mm
Weight	0.30 lbs (0.14 kg)
Power Density	2.7W/in3

Environmental

Operating Temperature	0 – 50°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
Vibration	All units production tested to 19.6m/s2

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 UL to the following:	UR/cUR
	UL 60601-1
	CAN/CSA-22.2 No.601.1-M90
	CB per IEC60601-1
	CE marked to LVD

Input Configuration

Connector (P1)	AMP p/n 640445-5
Mating Connector	AMP p/n 640250-5

Output Configuration

Connector (P2)	AMP p/n 640445-4
Mating Connector	AMP p/n 640250-4
Mating Connector Contacts	AMP p/n 770476

Input Pin Assignments (CN1)

Pin 1	Earth Ground
Pin 2	<not assembled>
Pin 3	Ac Neutral
Pin 4	<not assembled>
Pin 5	AC Line

Output Pin Assignments (CN2)	
Pin 1	Com
Pin 2	Com
Pin 3	+V1
Pin 4	+V1

