

500 Watt - MGPS Series Aerospace Power Supply Product Specification

Product Description

This product is a 500 watt, single output, military grade power supply designed for electronic systems operating in harsh environments under adverse temperature conditions. It is intended for aerospace applications utilizing a 3 phase, 400 Hz, AC power source and designed to meet applicable military standards for airborne platforms.

Product Features

- Meets MIL-STD-461/704/810
- Input: 115Vac, 3 Phase, 400Hz
- Operating Temperature Range: -40° to +85°C
- Baseplate Mounted, Conduction Cooled



AC Input

- Voltage Input Range: 95-138Vac (115Vac nom.)
- Frequency: 400Hz (360-440Hz)
- Phase: Three Phase, 3 wire plus ground
- Power Factor Correction: 0.95 min @ 115Vac, full load
- Typical Input Current: 3.0A at 115Vac input, full load
- Input Transient Protection: Designed to meet MIL-STD-704A/D (80Vdc for 100mSec)
- Input Surge Protection: Designed to meet MIL-STD-1275A/D (100Vdc for 50mSec)

Output Selection Guide

Model #:	Voltage	Max Current	Regulation	Ripple
MGPS500-3P-12	12Vdc	41.6 Amps	±3%	120mV pk-pk
MGPS500-3P-15	15Vdc	33.3 Amps	±3%	150mV pk-pk
MGPS500-3P-24	24Vdc	20.8 Amps	±3%	240mV pk-pk
MGPS500-3P-28	28Vdc	17.8 Amps	±3%	240mV pk-pk
MGPS500-3P-36	36Vdc	13.8 Amps	±3%	240mV pk-pk
MGPS500-3P-48	48Vdc	10.4 Amps	±3%	240mV pk-pk

Note: Alternate output voltages are available, consult factory for availability.

DC Output Characteristics (floating)

- Output Power: 500 watts (maximum continuous power, may require derating for some low voltage outputs)
- Line Regulation: ±2.0% Typical
- Load Regulation: ±2.0% Typical (No load to full load; nominal input)
- Output Ripple/Noise: 1% Typical (pk-pk; nominal input; full load; 20MHz bandwidth)
- Set Point Accuracy: ±1.0% of Output Voltage (Nominal input; full load; 25°C)
- Transient Response: Output voltage returns to within 1% in less than 2.5mS for a 50% load change and the peak transient does not exceed 5%
- Overshoot: Turn-on and turn-off overshoot should not exceed 5% over nominal voltage

Electrical Characteristics

- Switching Frequency: 250KHz Fixed
- Efficiency: 88% Typical (Measuring at 115Vac and at full load)
- Turn On Delay: 250 to 500mS (To nominal output voltage)
- Isolation Voltage:
 - Input to Output: 2000Vrms
 - Input to Chassis: 1000Vrms
 - Output to Chassis: 500Vdc
- Isolation Resistance: 100Mohms (Input to output)
- Temperature Regulation: $\pm 0.005\%/^{\circ}\text{C}$ ($\pm 2.0\%/^{\circ}\text{C}$ max; over operating temp range)

Protection

- Over Current Limit: 115 to 130%. Auto-recovery after removal of overload condition
- Over-Voltage Setpoint: 108 to 125% of output voltage. Unit latched 1 minute, recycle AC input to reset
- Short Circuit: Auto-recovery after short circuit condition is removed
- Over Temperature Protection: The power supply is protected for over temperature conditions with thermal shutdown. Auto-Recovery when temperature returns to normal

Environmental

- Operating Temperature: -40° to $+85^{\circ}\text{C}$ (baseplate)
- Storage Temperature: -50° to $+100^{\circ}\text{C}$
- Operating Humidity: 5% to 90% RH, Non-condensing
- Storage Humidity: 5% to 95% RH, Non-condensing
- Operating Altitude: Sea-level to 40,000 ft.
- Shock & Vibration: Designed to meet MIL-STD-810G
- EMC Radiated & Conducted EMI: Designed to meet MIL-STD-461F

Cooling

- Conduction Cooling: Baseplate not to exceed $+85^{\circ}\text{C}$ for full rated output

Mechanical

- Enclosure: Metal chassis, Aluminum baseplate and enclosure, non-finish
- Outline Dimensions: 2.5 X 5.5" X 9.5" (H X W X L) – excluding I/O connectors
- Weight: ~ 3.75 lbs. (1700 grams)
- AC Input Connector (J1): ITT Cannon PN: DBMMD5W5P
- DC Output Connector (J2): ITT Cannon PN: DBMMD9H4SJ

Optional Features, Controls or Alarms

- Consult factory

Note

- Product specifications subject to change without notice