M4244 SERIES

MINIATURE, HIGH DENSITY, HIGH EFFICIENCY, SINGLE OUTPUT, DC/DC CONVERTERS

(UP TO 550W)

Applications

Military (ground-fix, shipboard), Ruggedized, Telecom, Industrial

Special Features

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- Remote sense
- External On/Off Inhibit
- Fixed switching frequency (250 KHz)
- External synchronization capability
- Sync. out capability
- EMI/RFI filters included
- Indefinite short circuit protection with auto-recovery
- Over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery

Electrical Specifications

DC Input:
DC Input range: 18 to 70 V_{DC}, per MIL-STD-704A.
No damage for:
MIL-STD-1275A (100V for 50mSec)
MIL-STD-704A (80V for 0.1 Sec)

DC Output:
Output range – 3.3V to 270V
Output current – max 30A.
Output power – 500W

***Isolation*:**
200V between Input and Output
200V between Input and Case
100V between Output and Case

Line/Load regulation:
Less than 1% (no load to full load, –55°C to +85°C).

Efficiency :
Typical 80-85% - (full load, room temperature)

EMI/RFI:
Design to meet or exceed MIL-STD-461C CE03, CE07, CS01, CS02, CS06, RE02, RS02, RS03

Ripple and Noise:
Less than 50mVp-p, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.

Load Transient Overshoot and undershoot
Output resistance at load change of 50%-100% is 30-120 mΩ (depending on output voltage). Output back to steady stated within 300-500µSec

Turn on Transient
Voltage overshoot at during power on is less than 3% nominal voltage.

Protections *

Input
- **Inrush Current Limiter** – peak value of 5 x Iin for less than 50µSec.
- **Under voltage protection** – unit protects itself (no damage) below 16.5Vdc.
- **Over voltage protection** – unit protects itself (no damage) above 75Vdc

Output
- **Electronic over voltage protection** – Internal control protects unit (no damage) 10% above nominal voltage.
- **Passive tranzorb on outputs** – 20% above nominal voltage.
- **Current limiting** – Continuous protection (10-30% above maximum current) for unlimited time (Hiccup).

General
- **Over temperature protection:** Shutdown at base plate temperature of +105°C (±5°C) Automatic recovery at base plate temperature lower than +95°C (±5°C)

* Thresholds and protections can be modified / removed – please consult factory.

MILPOWER SOURCE
DIVISION OF QUASAR POWER TECHNOLOGIES INC.
P.O.BOX 810, 7 FIELD LANE RD., ROUTE 106, BELMONT, NEW HAMPSHIRE 03220, U.S.A.
TEL: (603)267-8865, FAX: (603)267-7258 WEBSITE: www.milpower.com

Environmental

Design to Meet MIL-STD-810F

Temperature:

Operating: –55°C to +85°C (base plate)

Storage: –55°C to +125°C

Humidity:

Method 507.4 - Up to 95%.

Altitude:

Method 500.4, Procedure I & II, 40,000 ft. and 70,000 ft. Operational

Vibration and Shock:

Shock - Saw-tooth, 20g peak, 11mS.

Vibration - Figure 514.5C-17. General minimum integrity exposure. (1 hour per axis.)

Salt Fog:

Method 509-4

Reliability

150,000 hours, calculated per MIL-STD-217F at +85°C base plate, Ground fixed.

Environmental Stress Screening (ESS)

Including random vibration and thermal cycles is also available. **Please consult factory for details.**

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Pin Assignment

J1 Input Connector PIN No.	PIN Function
1, 2, 3, 4, 14, 15, 16, 17	VIN
6, 7, 8, 9, 19, 20, 21, 22	VIN RTN
13	SIGNAL RTN
12	INHIBIT
11	SYN IN
25	SYN OUT
10	CHASSIS

J2 Output Connector PIN No.	PIN Function
1, 2, 3, 9, 10, 11	VOUT
5, 6, 7, 13, 14, 15	VOUT RTN

* All output parallel pins should be connected together for best performance.

Functions and Signals

INHIBIT signal
The INHIBIT signal is used to turn the power supply ON and OFF.
TTL "1"or OPEN – will turn on the power supply. (For normal operation leave the signal not connected.)
TTL "0" – will turn off the power supply.

SYN IN signal
The SYNC IN signal is used to allow the power supply frequency to sync with the system frequency. The system frequency should be 250Khz ± 10Khz.
When not connected the power supply will work at 250KHZ

SYN OUT signal
The SYNC OUT signal is used to sync the system with the power supply frequency.

SIGNAL RTN
The INPUT SIGNAL RTN is referred to the input.
This is used as grounding for SYNC IN SYNC OUT and INHIBIT signals.

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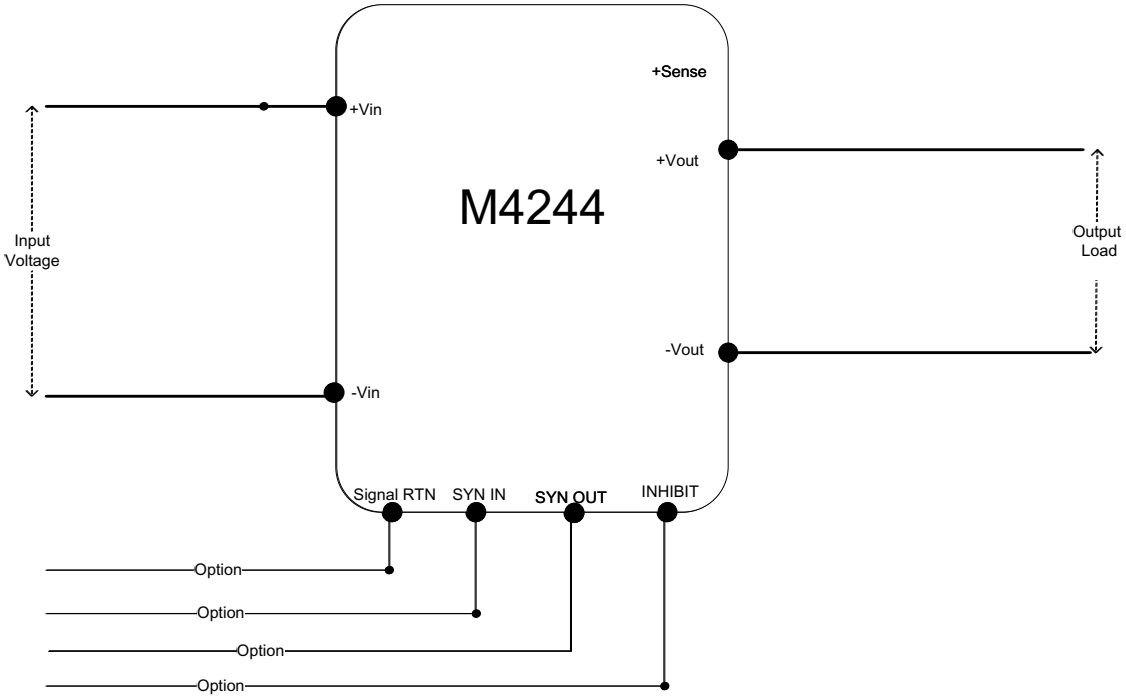
Typical Connection



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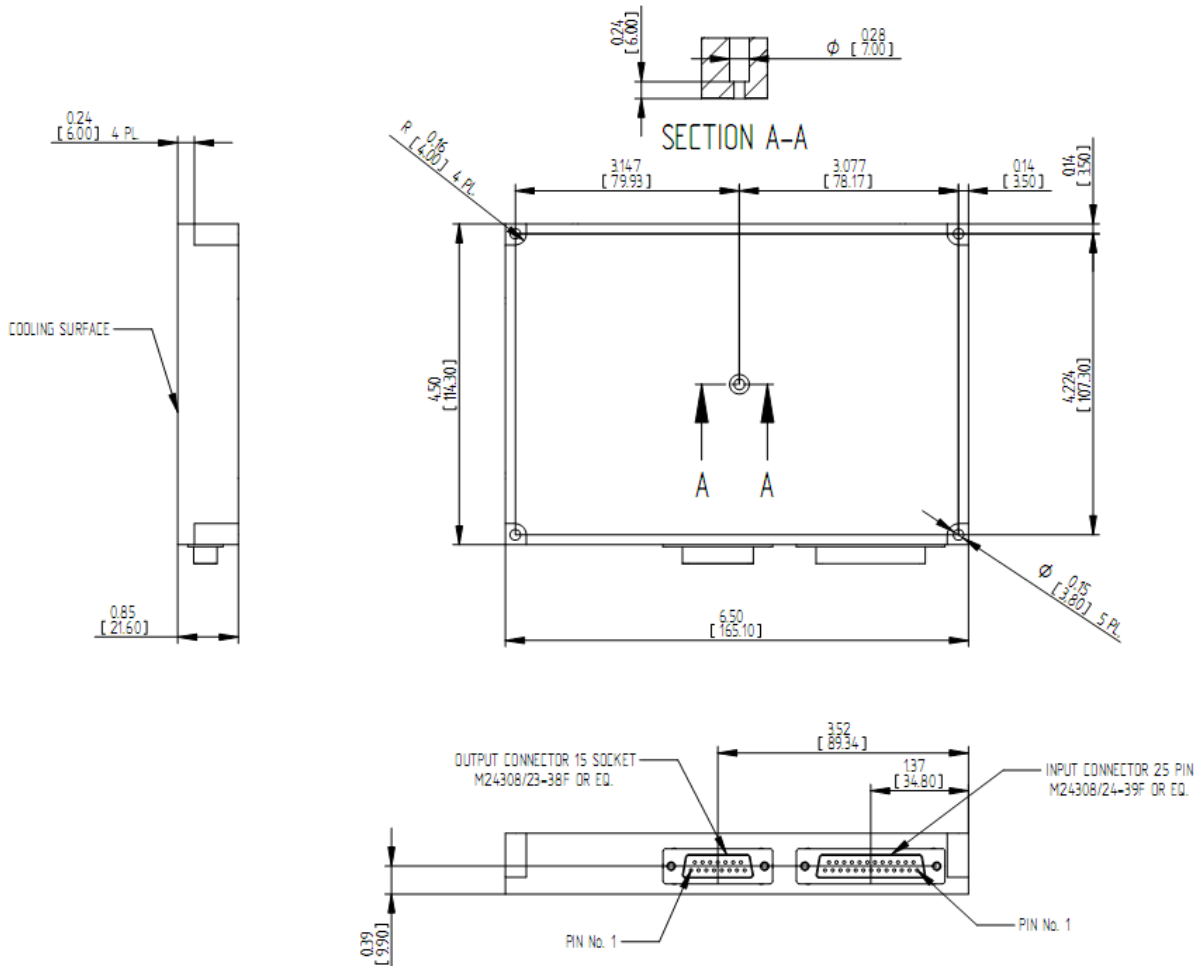
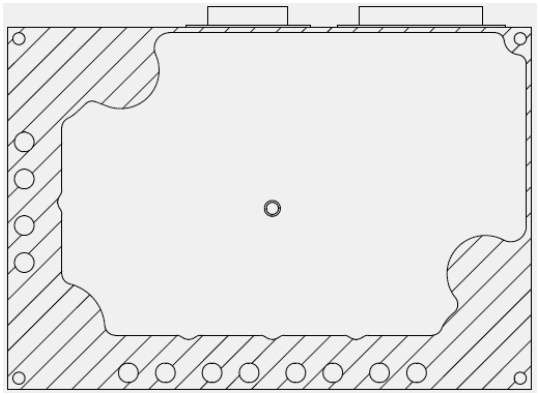
Outline Drawing



Heat Dissipation Surface



Dissipation Area
9.443 in²
(6092 mm²)

* Specifications are subject to change without prior notice by the manufacturer

Notes

1. Dimensions are in Inches [mm]
2. Tolerance is:
   .XX ±0.01 IN
   .XXX ±0.005 IN
3. Weight: Approx. 725gr (25.5 Oz)
4. Mounting holes can be modified – please consult factory.
5. Parasolide 3D module is available for download on site.

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