M6204 SERIES

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

(UP TO 500W)

Applications

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

Special Features

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- Remote sense
- External On/Off Inhibit
- Zero Voltage Switching Technology
- Fixed switching frequency (250 KHz)
- External synchronization capability
- EMI/RFI filters included
- Inrush circuit.
- 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: 220-350V_{DC}

DC Output:
Output range – 1.8V to 28V
Output power – 350W (peak 500W)
Output current – max. 50A

Isolation:
500V between Input and Output
500V 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 88-90% - (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 30-200 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 1% nominal voltage.

Protections *

Input
- **Inrush circuit Protection**
- **Inrush Current Limiter** – peak value of 5 x Iin for less than 50µSec.
- **Under voltage protection** – unit protects itself (no damage) below 200Vdc.
- **Over voltage protection** – unit protects itself (no damage) above 380Vdc

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.

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.**

MILPOWER SOURCE
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Pin Assignment

PIN No.	PIN Function
1	CHASSIS
2	+VOUT
3	+VOUT
4	+VOUT
5	+VOUT
6	+VOUT
7	-VOUT
8	-VOUT
9	-VOUT
10	-VOUT
11	-SENSE

PIN No.	PIN Function
12	+SENSE
13	SIGNAL RTN
14	INHIBIT
15	N.C.
16	+ VIN
17	N.C.
18	- VIN
19	- VIN
20	+VOUT
21	+VOUT
22	+VOUT

PIN No.	PIN Function
23	+VOUT
24	+VOUT
25	-VOUT
26	-VOUT
27	-VOUT
28	-VOUT
29	-VOUT
30	-VOUT
31	SYN IN
32	N.C.
33	N.C.

PIN No.	PIN Function
34	+ VIN
35	+ VIN
36	N.C.
37	- VIN

* 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 ±10KHhz.
When not connected the power supply will work at 250KHz

SIGNAL RTN
The INPUT SIGNAL RTN is used as grounding for SYN IN and INHIBIT signals.

SENSE
The SENSE is used to achieve accurate load regulations at load terminals (this is done by connecting the pins directly to the load’s terminals).
The use of remote sense has a limit of voltage dropout between converter’s output and load terminals of 2-10% of voltage output.
When not used connect + SENSE to +VOUT and –SENSE to –VOUT

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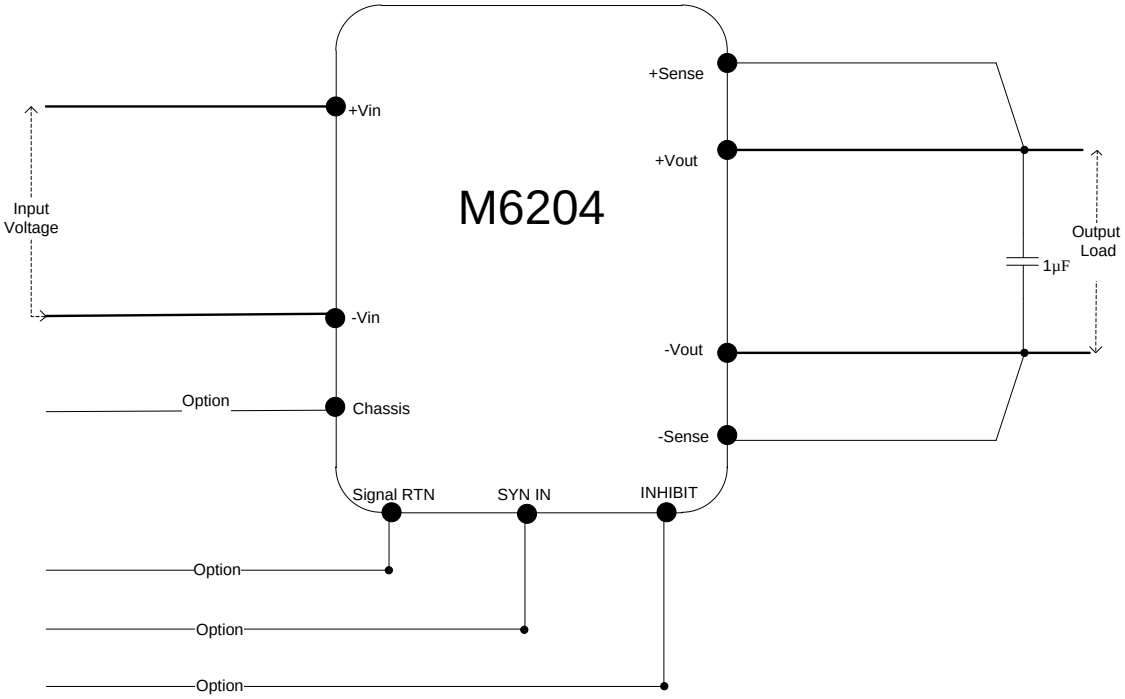
Typical Connection



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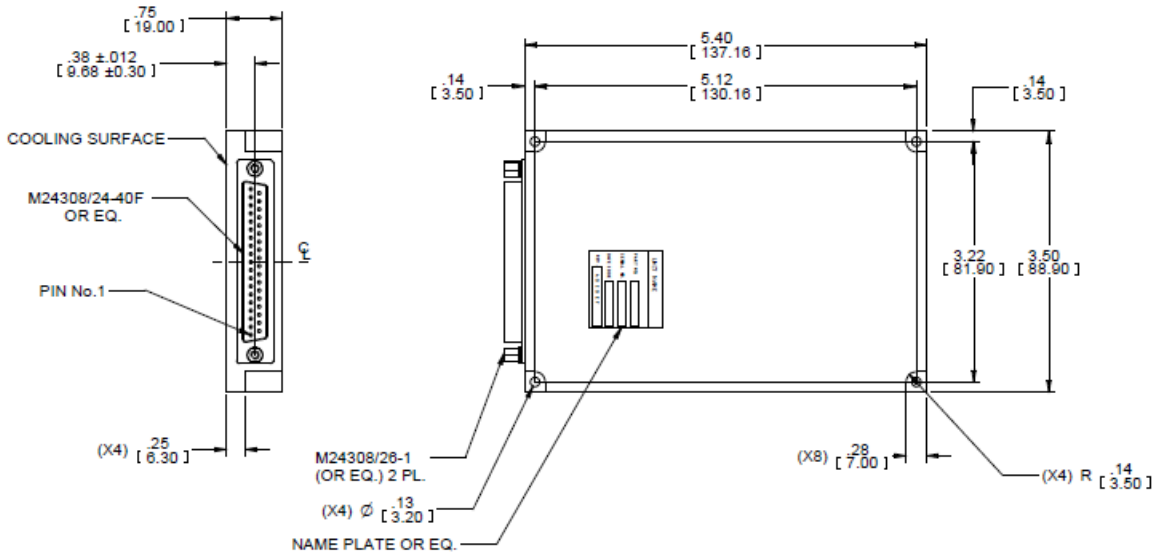
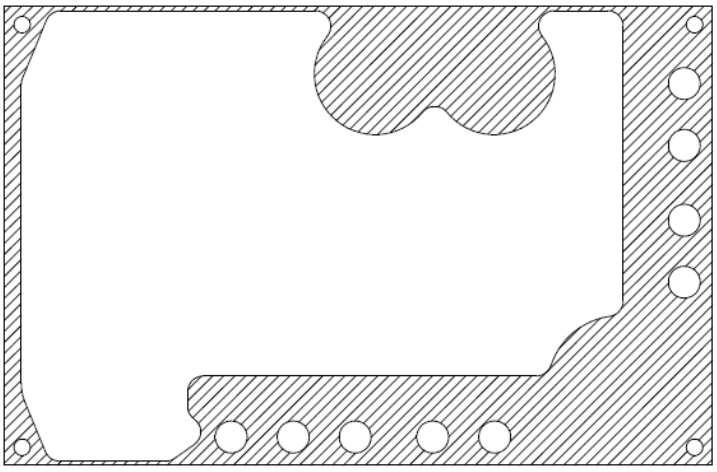
Outline Drawing



Heat Dissipation Surface



Dissipation Area
6.63 in²
(4278 mm²)

Notes

1. Dimensions are in Inches [mm]
2. Tolerance is:
   .XX ±0.01 IN
   .XXX ±0.005 IN
3. Weight: Approx408gr (14.40Oz)
4. Mounting holes can be modified – please consult factory.
5. Parasolide 3D module is available for download on site.

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

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