

M6201 SERIES

DC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

- HIGH EFFICIENCY
- HIGH VOLTAGE
- SINGLE OUTPUT
- DC/DC POWER SUPPLY
- UP TO 200 W

Applications

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

Special Features

- High efficiency
- Wide input voltage range
- Input / Output isolation
- Remote sense
- Remote inhibit (On/Off)
- **Fixed** switching freq. (250kHz)
- External sync. capability
- **EMI** filters included
- Inrush current limiter circuit
- Indefinite short circuit protection with auto-recovery
- Over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery

Electrical Specifications

DC Input

Voltage range: 200 to 350V_{DC}

DC Output

Voltage range: 1.8 to 60V_{DC}

Current range: 0 to 36A

Power range: 0 to 200W

Isolation

Input to Output: 500V_{DC}

Input to Case: 500V_{DC}

Output to Case: 100V_{DC}

Output Voltage Regulation

Better than ±1% (no load to full load, -55°C to +85°C and over

input voltage range).

Efficiency

Typical: 88-90%

(full load, nominal line voltage,

room temperature)

EMC

Designed to meet* MIL-STD-461F:

CE101, CE102, CS101, CS114, CS115, RE101, RE102, RS101 RS103

Ripple and Noise

Better than 50mV_{p-p}, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.

Transient Over-and-undershoot

Output resistance at load change of 50% to 100% is 30 to 200mΩ (depending on output voltage).

Output back to steady stated within 300 to 50 μs.

Turn on Transient

No voltage overshoot during power on.

*EMC compliance achieved when tested with 5 μH LISNs, shielded harness and static resistive load.

Protections*

Input

- **Inrush Current Limiter**
Peak value of up to 5 times maximum input current for inrush currents lasting over 50µs.
- **Under-Voltage Lock-Out**
Output shuts down when input voltage is below 180 ±20V_{DC}
- **Over-Voltage Lock-Out**
Output shuts down if input voltage is above 370 ±10V_{DC}

Output

- **Active Over-Voltage Protection**
Internal control protects unit (no damage) 110% ±5% of nominal voltage.
- **Passive Over-Voltage Protection**
Transorb on output, selected at 120% ±10% of nominal voltage.
- **Current Limiting (Hiccup)**
Indefinite protection. Threshold set at 120% ±15% of nominal current.

General

- **Over-Temperature Protection**
Unit shuts down if baseplate's temperature rises above +105°C ±5°C. Unit automatically recovers when baseplate's temperature falls below +95°C ±5°C.

Environmental Conditions

Designed to Meet MIL-STD-810F

Temperature

Operating: -55°C to +85°C (at baseplate)
Storage: -55°C to +125°C

Altitude

Method 500.4
Procedure I: Up to 70 000ft.
Procedure II: Up to 20000ft.

Salt Fog

Method 509.4

Humidity

Method 507.4
Procedure I
Up to 95% RH

Vibration (random)

Method 514.5
Category 4 - General minimum integrity exposure
IAW Figure 514.5C-17
1 hour per axis.

Shock

Method 516.5
Procedure I
30g, 11ms terminal peak saw-tooth,

Reliability

150,000 hours, calculated IAW MIL-HDBK-217F Notice 2 at +85°C baseplate, Ground fixed conditions.

Environmental Stress Screening (ESS)

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

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

Pin Assignment †

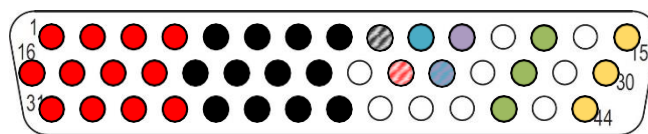
Connector type: M24308/24-75F or eq.

Mates with: M24308/2-13F or eq.

Pin No.	Function	P	
1	OUT	+	●
2	OUT	+	●
3	OUT	+	●
4	OUT	+	●
5	OUT RTN	-	●
6	OUT RTN	-	●
7	OUT RTN	-	●
8	OUT RTN	-	●
9	SENSE RTN	-	●
10	INHIBIT	+	●
11	SYNC IN	+	●
12	N.C.		
13	IN RTN	-	●
14	N.C.		
15	IN	+	●

Pin No.	Function	P	
16	OUT	+	●
17	OUT	+	●
18	OUT	+	●
19	OUT	+	●
20	OUT RTN	-	●
21	OUT RTN	-	●
22	OUT RTN	-	●
23	OUT RTN	-	●
24	N.C.		
25	SENSE	+	●
26	SIGNAL RTN	-	●
27	N.C.		
28	IN RTN	-	●
29	N.C.		
30	IN	+	●

Pin No.	Function	P	
31	OUT	+	●
32	OUT	+	●
33	OUT	+	●
34	OUT	+	●
35	OUT RTN	-	●
36	OUT RTN	-	●
37	OUT RTN	-	●
38	OUT RTN	-	●
39	N.C.		
40	N.C.		
41	N.C.		
42	IN RTN	-	●
43	N.C.		
44	IN	+	●



† All pins with identical function/designation should be connected together for optimal performance

Functions and Signals

INHIBIT

The **INHIBIT** signal is used to turn the power supply ON and OFF.

To turn the power supply OFF, apply a TTL “0” signal or SHORT to **SIGNAL RTN**.

To turn the power supply ON, apply a TTL “1” signal or leave this pin OPEN. If not used (always ON), leave this pin OPEN.

This signal is referenced to **SIGNAL RTN**.

SYNC IN

The **SYNC IN** signal is used to allow the power supply frequency to sync with the system frequency. The system frequency should be 250kHz \pm 10kHz.

When not connected the power supply will work at 250kHz \pm 10kHz. This signal is referenced to **SIGNAL RTN**.

SIGNAL RTN

Both **INHIBIT** and **SYNC IN** signals are referenced to this pin. This pin is floating from both input and output.

SENSE

The **SENSE** line is used to achieve accurate voltage regulation at load terminals. To use this feature, connect this pin directly to load's positive terminal.

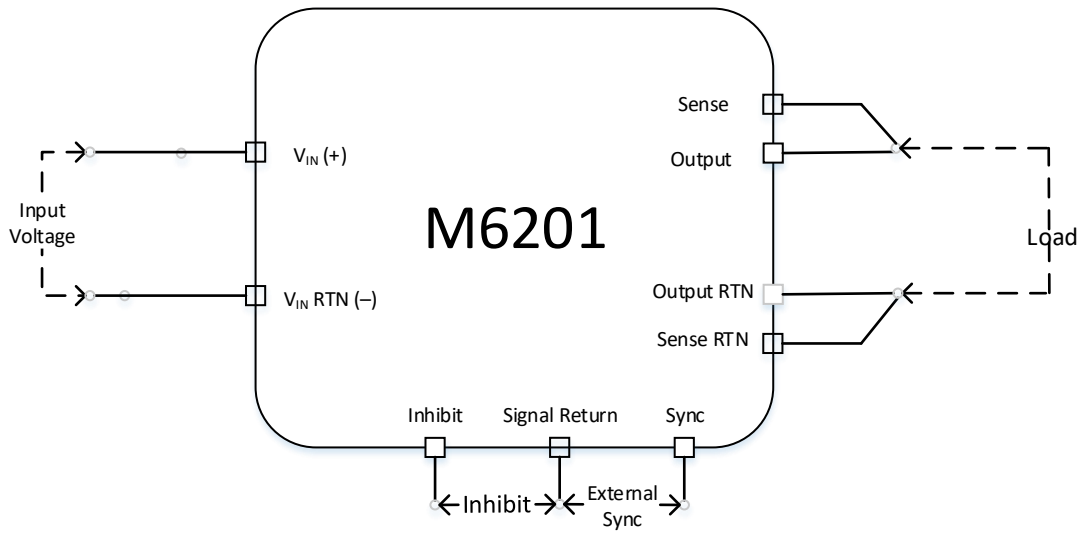
If this function is not required, short **SENSE** pin to **OUT** pins as close as possible to the unit.

SENSE RTN

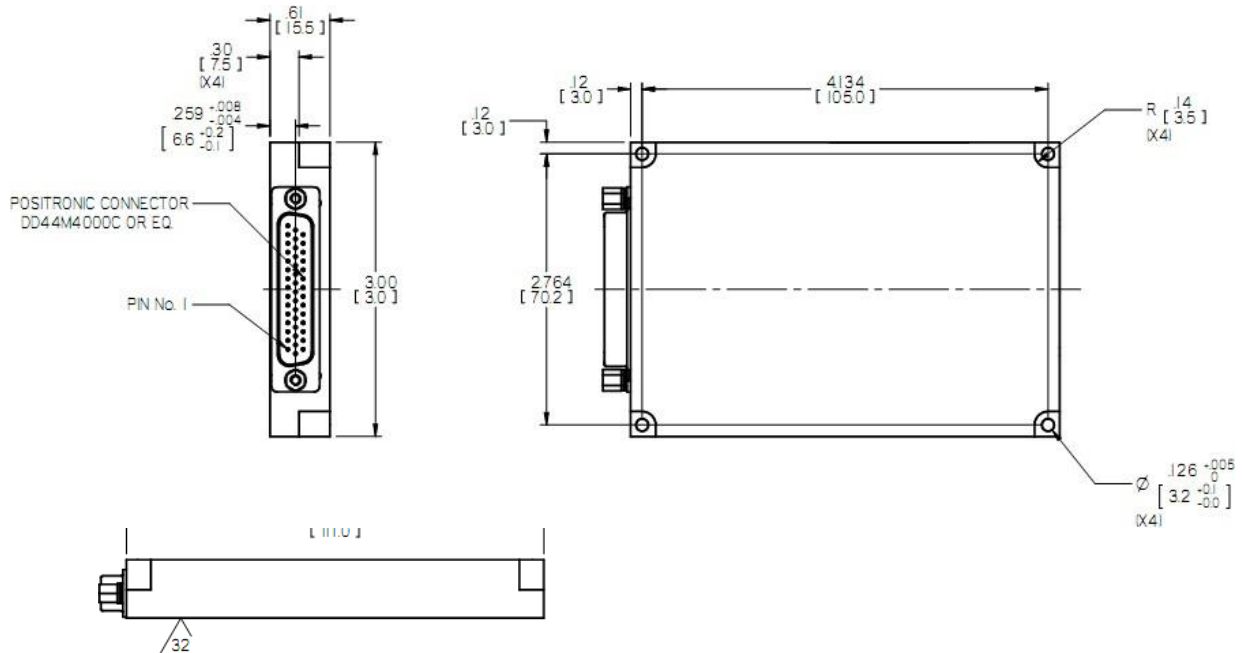
The **SENSE RTN** line is used to achieve accurate voltage regulation at load terminals. To use this feature, connect this pin directly to load's negative terminal.

If this function is not required, short **SENSE RTN** pin to **OUT RTN** pins as close as possible to the unit. When not used, connect **SENSE** to **OUT** and **SENSE RTN** to **OUT RTN**

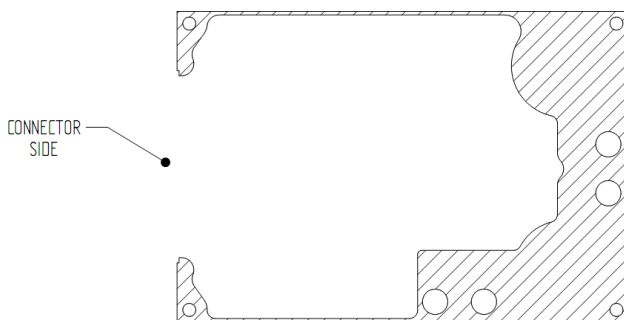
Typical Connection Diagram



Outline Drawing



Heat Dissipation Surface



Dissipation
Area 3.6534 in²
[2357 mm²]

Notes

1. Dimensions are in inches
2. Tolerance is:
.XX ± 0.01 in
.XXX ± 0.005 in
3. Weight: 8.11 oz (230 g)

Note: Specifications are subject to change without prior notice by the manufacturer.