

M6201 SERIES

DC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

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



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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 $\pm 1\%$ (no load to full load, -55°C to $+85^{\circ}\text{C}$ 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 200m Ω (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 $180 \pm 20V_{DC}$
- **Over-Voltage Lock-Out**
Output shuts down if input voltage is above $370 \pm 10V_{DC}$

Output

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

General

- **Over-Temperature Protection**
Unit shuts down if baseplate's temperature rises above $+105^{\circ}C \pm 5^{\circ}C$.
Unit automatically recovers when baseplate's temperature falls below $+95^{\circ}C \pm 5^{\circ}C$.

Environmental Conditions

Designed to Meet MIL-STD-810F

Temperature

Operating: $-55^{\circ}C$ to $+85^{\circ}C$ (at baseplate)
Storage: $-55^{\circ}C$ to $+125^{\circ}C$

Altitude

Method 500.4
Procedure I: Up to 70 000ft.
Procedure II: Up to 20 000ft.

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 $+85^{\circ}C$ 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 †

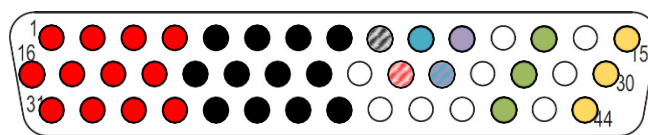
Connector type: M24308/24-75F or eq.

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 $250\text{kHz} \pm 10\text{kHz}$.

When not connected the power supply will work at $250\text{kHz} \pm 10\text{kHz}$. 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.

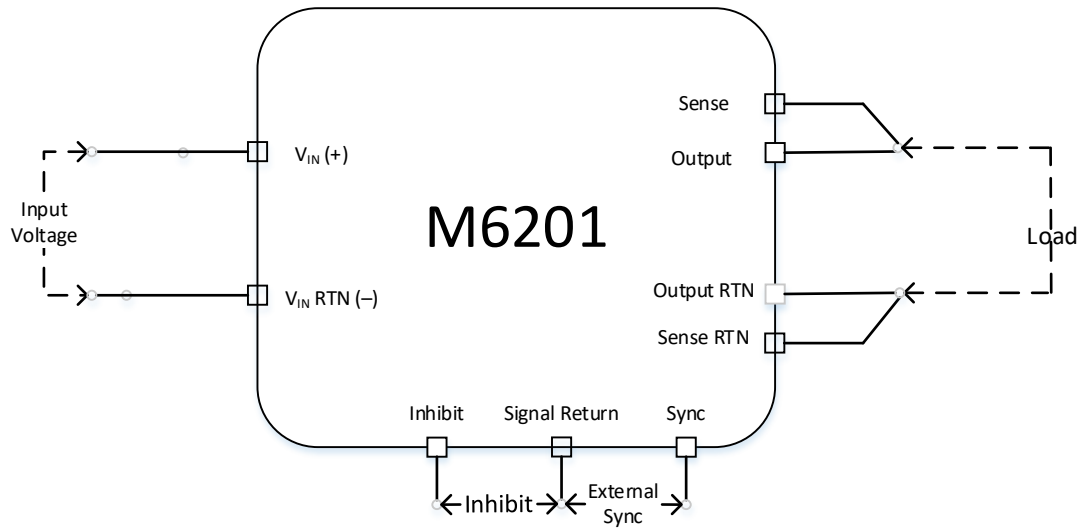
If this function is not required, short **SENSE** pin to **OUT** pins as close as possible to the unit.

SENSE RTN

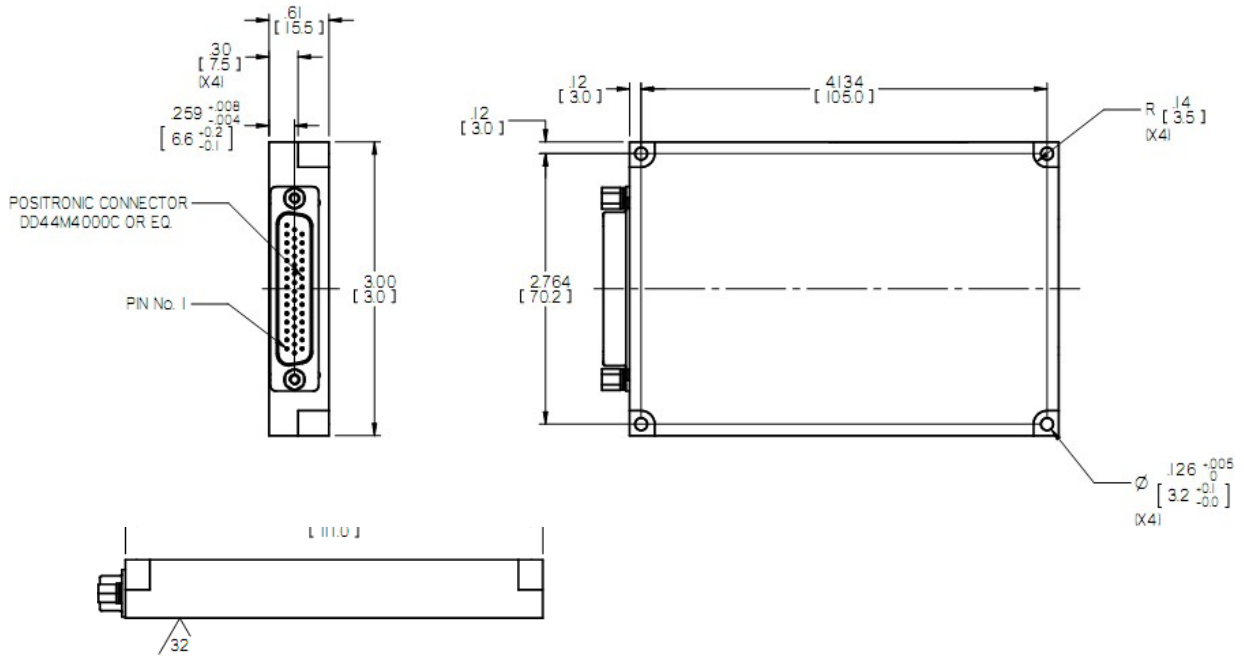
The **SENSE RTN** line is used to achieve accurate voltage regulation at load terminals. To use this feature, connect this pin directly to load's negative terminal.

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**

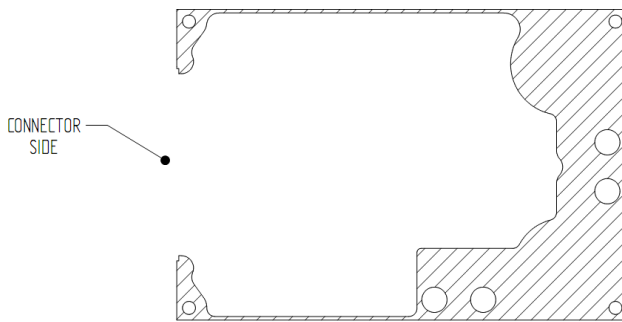
Typical Connection Diagram



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.