

M6201 SERIES

DC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

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

M6201 DC/DC POWER SUPPLY

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 50 μ s.
- **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°C $\pm$ 5°C. Unit automatically recovers when baseplate's temperature falls below +95°C $\pm$ 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.

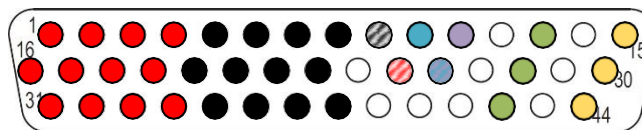
M6201 DC/DC POWER SUPPLY

Pin Assignment [†]

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

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

Pin No.	Function	P		Pin No.	Function	P		Pin No.	Function	P	
1	OUT	+	●	16	OUT	+	●	31	OUT	+	●
2	OUT	+	●	17	OUT	+	●	32	OUT	+	●
3	OUT	+	●	18	OUT	+	●	33	OUT	+	●
4	OUT	+	●	19	OUT	+	●	34	OUT	+	●
5	OUT RTN	-	●	20	OUT RTN	-	●	35	OUT RTN	-	●
6	OUT RTN	-	●	21	OUT RTN	-	●	36	OUT RTN	-	●
7	OUT RTN	-	●	22	OUT RTN	-	●	37	OUT RTN	-	●
8	OUT RTN	-	●	23	OUT RTN	-	●	38	OUT RTN	-	●
9	SENSE RTN	-	●	24	N.C.			39	N.C.		
10	INHIBIT	+	●	25	SENSE	+	●	40	N.C.		
11	SYNC IN	+	●	26	SIGNAL RTN	-	●	41	N.C.		
12	N.C.			27	N.C.			42	IN RTN	-	●
13	IN RTN	-	●	28	IN RTN	-	●	43	N.C.		
14	N.C.			29	N.C.			44	IN	+	●
15	IN	+	●	30	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.

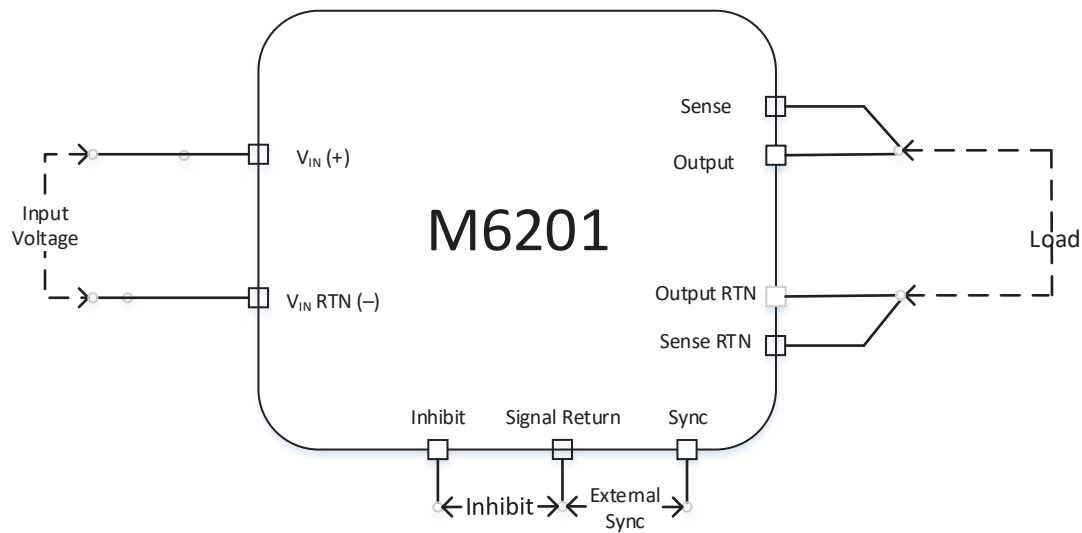
SENSE RTN

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.

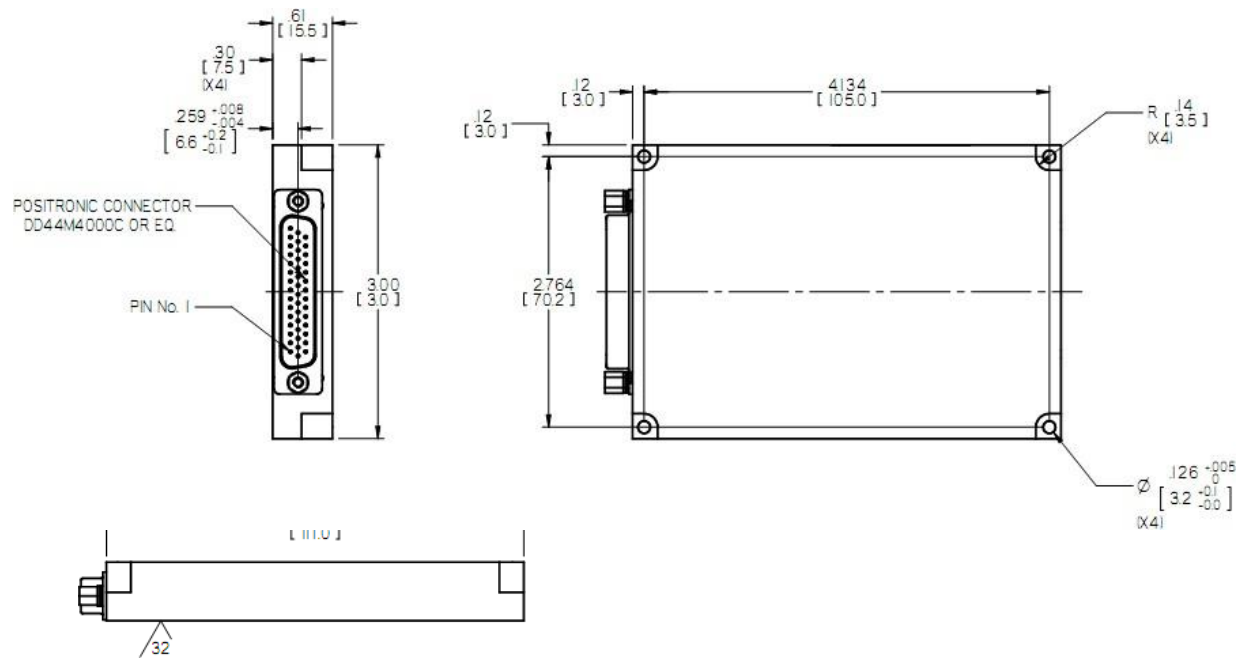
If this function is not required, short **SENSE RTN** pin to **OUT RTN** pins as close as possible to the unit.

When not used, connect **SENSE** to **OUT** and **SENSE RTN** to **OUT RTN**

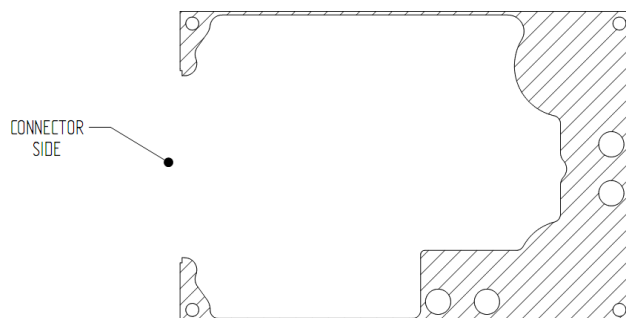
Typical Connection Diagram



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.