

## PS SERIES PSMDU350P200-X DC/DC POWER SUPPLY



- High efficiency
- High voltage
- Single output

- DC/DC Power supply
- Up to 200W

### *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<sub>DC</sub>

#### DC Output

Voltage range: 1.8 to 60V<sub>DC</sub>

Current range: 0 to 36A

Power range: 0 to 200W

#### Isolation

Input to Output: 500V<sub>DC</sub>

Input to Case: 500V<sub>DC</sub>

Output to Case: 100V<sub>DC</sub>

#### Output Voltage Regulation

Better than  $\pm 1\%$  (no load to full load,  $-55^{\circ}\text{C}$  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<sub>p-p</sub>, 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 $\Omega$  (depending on output voltage).

Output back to steady stated within 300 to 50  $\mu\text{s}$ .

#### Turn on Transient

No voltage overshoot during power on.

\*EMC compliance achieved when tested with 5  $\mu\text{H}$  LISNs, shielded harness and static resistive load.

## Markets & Applications



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



Telecom, Industrial Power Supply

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### ***Protections\****

#### **Input**

- **Inrush Current Limiter**  
Peak value of up to 5 times maximum input current for inrush currents lasting over 50 $\mu$ s.
- **Under-Voltage Lock-Out**  
Output shuts down when input voltage is below 180  $\pm$  20V<sub>DC</sub>
- **Over-Voltage Lock-Out**  
Output shuts down if input voltage is above 370  $\pm$  10V<sub>DC</sub>

#### **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 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°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.

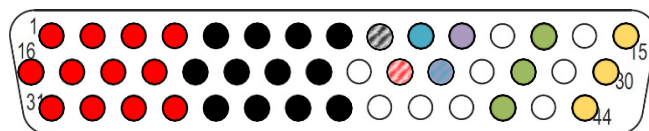
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## Pin Assignment <sup>†</sup>

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	+	●				



<sup>†</sup> 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.

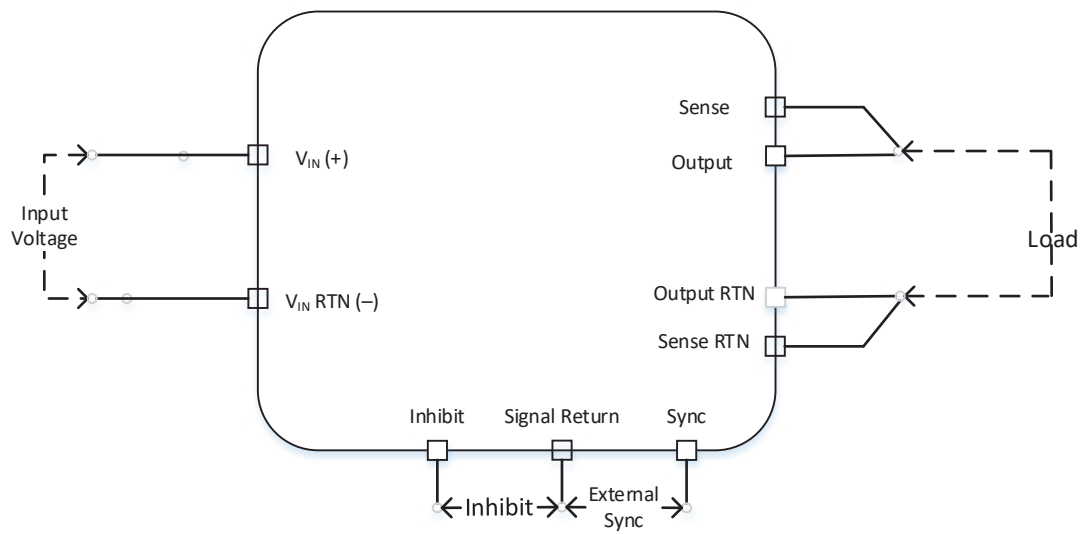
#### **SENSE RTN**

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**

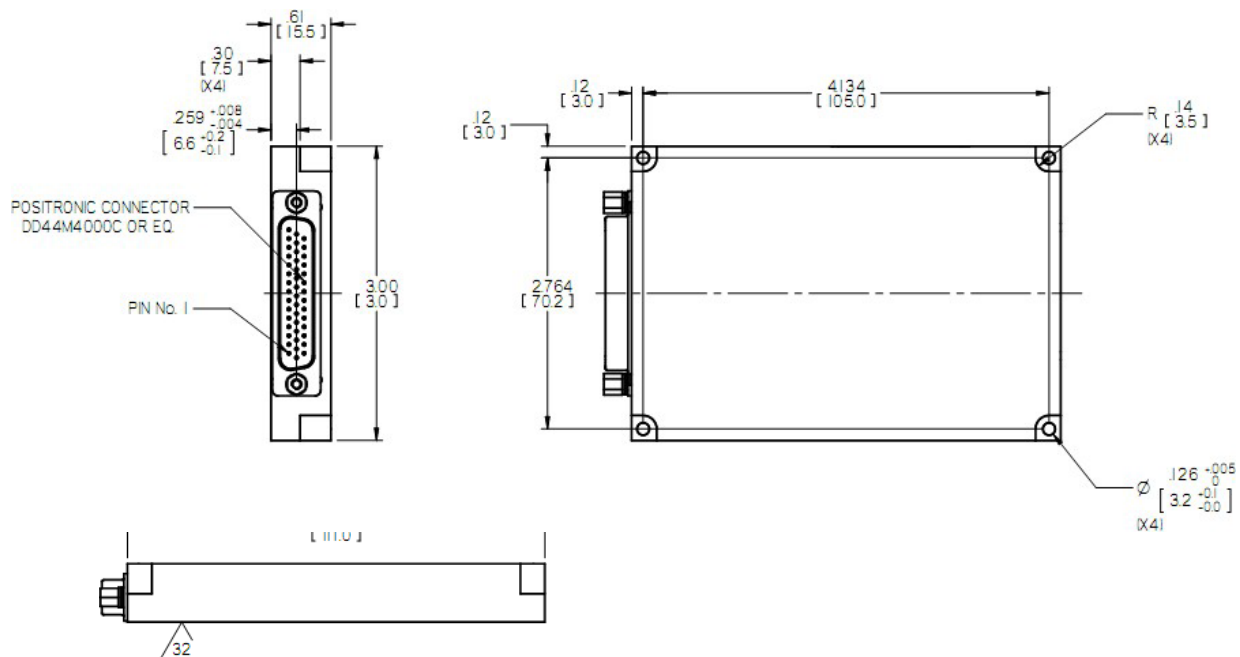
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## Typical Connection Diagram

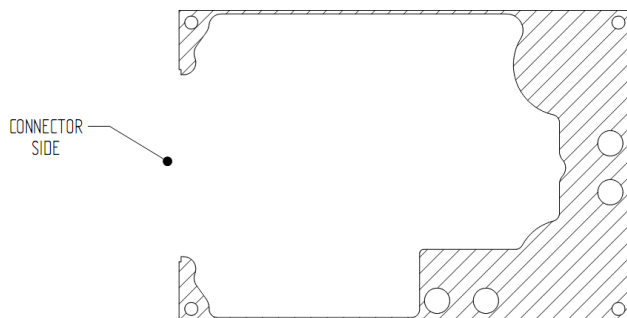


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## Outline Drawing



## Heat Dissipation Surface



Dissipation  
Area 3.6534 in<sup>2</sup>  
[2357 mm<sup>2</sup>]

### Notes

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

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