

## M8186 SERIES

DC/DC POWER SUPPLY



### PRODUCT HIGHLIGHTS

- COMPACT
- HIGH DENSITY
- SINGLE OUTPUT
- DC/DC CONVERTER
- UP TO 2000W



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<p><b>Applications</b></p> <p>Military Power Supply (Airborne, ground-fix, shipboard), Ruggedized, Telecom, Industrial Power Supply</p>											
<p><b>Special Features</b></p> <ul style="list-style-type: none"> <li>• Miniature size</li> <li>• High efficiency</li> <li>• Wide input range</li> <li>• High density: up to 30.5 W/in<sup>3</sup></li> <li>• Input / Output isolation</li> <li>• Limited Inrush Current</li> <li>• Remote Inhibit (On/Off)</li> <li>• <u>Fixed</u> switching freq. (400 kHz)</li> <li>• <u>EMI</u> filters included</li> <li>• Cos <math>\phi</math> &gt; 0.92 from 75% load</li> <li>• Non-latching protections:             <ul style="list-style-type: none"> <li>○ Output overload</li> <li>○ Output short-circuit</li> <li>○ Output over-voltage</li> <li>○ Over temperature</li> </ul> </li> </ul>											
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\* Thresholds and protections can be modified / removed – please consult factory.

**Environmental Conditions**

Designed to Meet MIL-STD-810F

**Temperature**

Methods 501.4 & 502.4  
 Operating: -55°C to +85°C (at baseplate)  
 Storage: -55°C to +125°C (ambient)

**Altitude**

Method 500.4  
 Procedure I – Storage/Air transport:  
 up to 70,000 ft. (non-operational)  
 Procedure II – Operation/Air Carriage:  
 up to 40,000 ft. (operational)

**Humidity**

Method 507.4  
 Up to 95% RH

**Vibration**

Method 514.5  
 Procedure I, Category 24  
 General minimum integrity exposure  
 IAW Figure 514.5C-17  
 1 hour per axis.

**Shock**

Method 516.5  
 Procedure I  
 20 g / 11 ms terminal peak sawtooth shock pulse

**Salt Fog**

Method 509.4

**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.**

**Pin Assignment**

Pin No.	Function	Pin No.	Function	Pin No.	Function
1	Signal RTN	10	VIN (+)	19	N/C
2	- SENSE †	11	VIN (+)	20	VIN (-)
3	N/C	12	N/C	21	N/C
4	N/C	13	N/C	22	N/C
5	N/C	14	Inhibit	23	VIN (+)
6	N/C	15	+ SENSE †	24	N/C
7	VIN (-)	16	N/C	25	Chassis
8	VIN (-)	17	N/C		
9	N/C	18	N/C		

† Please inform factory if sense lines are required to be tied to the output from within, or if the remote sense compensation function will be used.

### Functions and Signals

#### **INHIBIT**

The **INHIBIT** signal is used to turn the power supply ON and OFF. OPEN – will turn on the power supply.  
SHORT – between pin 14 and pin 1 will turn off the power supply. This signal is referenced to the **SIGNAL RTN** pin.

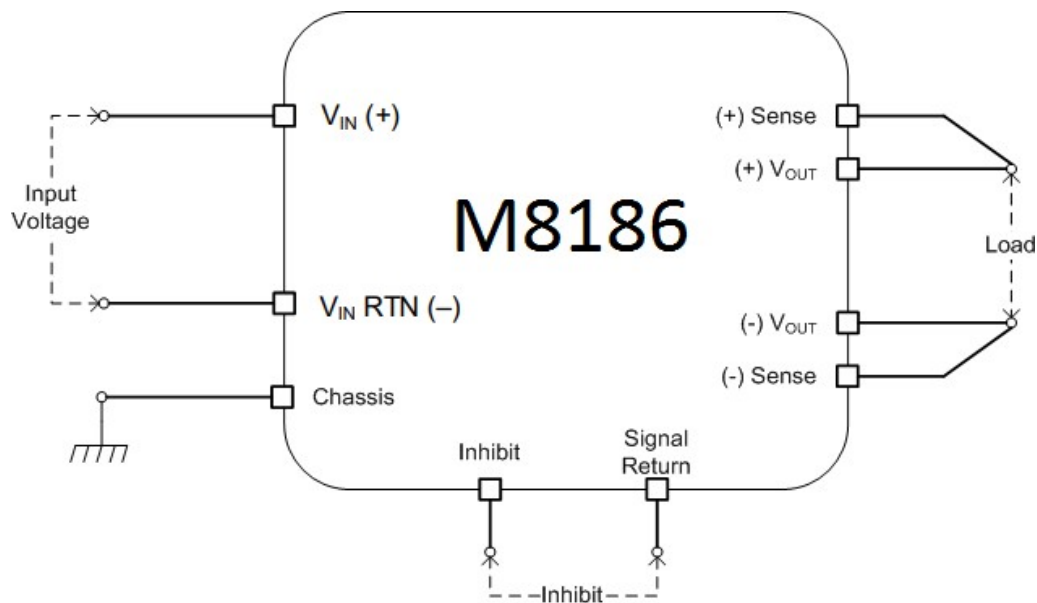
#### **SENSE**

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).

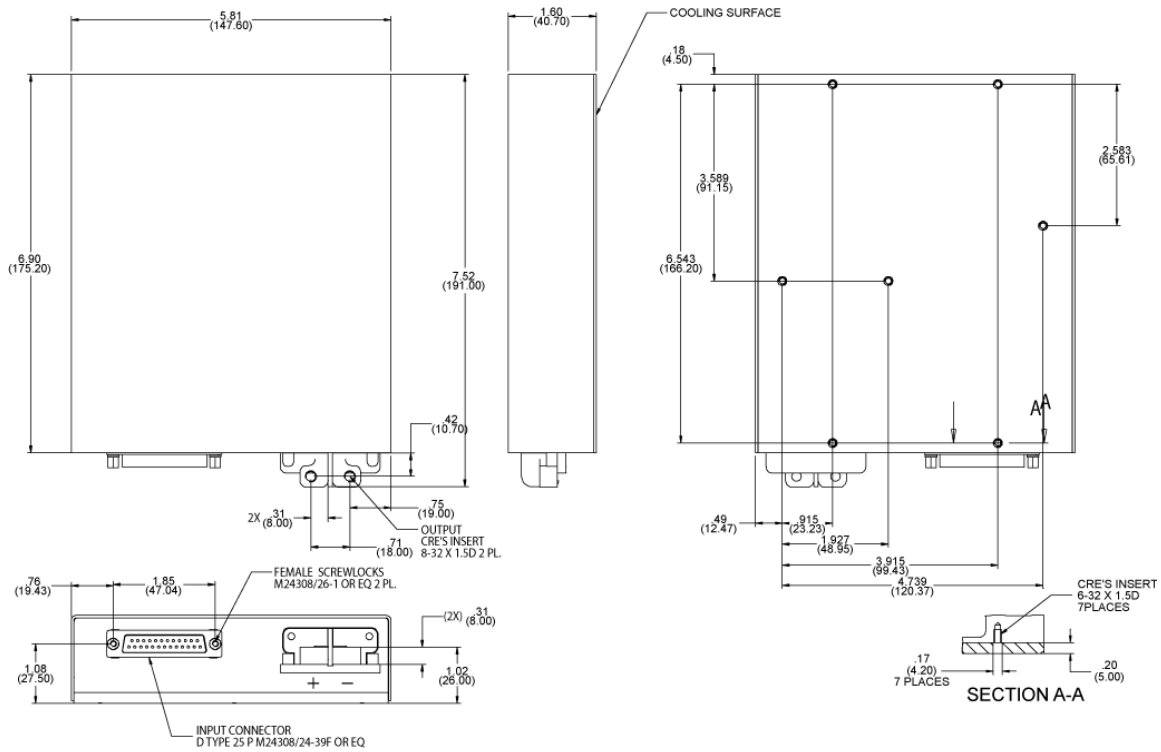
The use of remote sense has a limit of voltage dropout between converter's output and load terminals of 2-10% of voltage output (up to 2V).

Please note that if Sense lines are not used the output may rise as much as 2V above nominal outputs. If sense lines are not to be used in the application, please inform factory for internal connection to output pins.

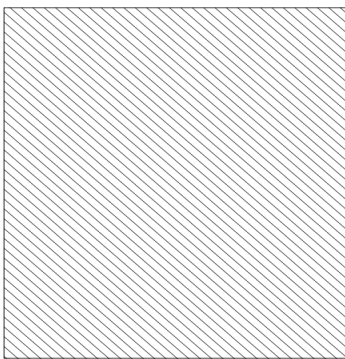
### Typical Connection Diagram



**Outline\* Drawing**



**Heat Dissipation Surface**



Dissipation Area  
40.08 in<sup>2</sup> (258.6 cm<sup>2</sup>)

**Notes**

1. Dimensions are in inches [mm]
2. Tolerance is:  
.XX ± 0.025 in  
.XXX ± 0.010 in
3. Weight: Approx. 4.4 lbs [2 kg]

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