

# M8187

## 2 KW DC/ DC BASEPLATE COOLED POWER SUPPLY



M8187 is a 2KW DC to DC, ruggedized, high-performance power supply designed for Airborne, Ground Mobile, Ground Fixed and other applications that are characterized by harsh and hostile environment. It is fed from a 270VDC power and provides a well-regulated filtered and protected 28VDC DC Output.

## M8187 SERIES DC/DC POWER SUPPLY

### Standard Configurations

Part number	Input	Output		Special features
	Voltage range	Voltage	Current	
M8187-100	200-320V <sub>DC</sub>	12 V <sub>DC</sub>	70 A	
M8187-101	200-320V <sub>DC</sub>	15 V <sub>DC</sub>	70 A	
M8187-102	200-320V <sub>DC</sub>	24 V <sub>DC</sub>	70 A	
M8187-103	200-320V <sub>DC</sub>	28 V <sub>DC</sub>	70 A	
M8187-104	200-320V <sub>DC</sub>	36 V <sub>DC</sub>	55 A	
M8187-105	200-320V <sub>DC</sub>	48 V <sub>DC</sub>	40 A	
M8187-106	200-320V <sub>DC</sub>	28 V <sub>DC</sub>	70 A	Parallel operation via output voltage droop. Voltage regulation is $\pm 2\%$ .

### THE MAIN FEATURES OF THE M8187 ARE:

- DC/DC Single output converter.
- Input voltage range 270VDC per MIL-STD-704F for normal and abnormal transients.
- Output: 28VDC / 2kW.
- Baseplate cooled unit.
- Designed to meet MIL-STD-461G unshielded output power cables.
- Full galvanic isolation between Input, Chassis GND and Output.
- High efficiency 85% or better.
- Inhibit input.
- Units support paralleled (load-share) operation with equivalent units.
- Overvoltage Protection, Overcurrent Protection and Over Temperature Protection.
- Circular D38999 connectors.

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### SPECIFICATIONS

<b>DC Input</b>	<b>Voltage Range</b>	200 to 320 V <sub>DC</sub>
	<b>Isolation</b>	Input is galvanically isolated from output and chassis (> 20 MΩ at 500 VDC).
	<b>Input Reverse Polarity</b>	Protection for unlimited time
<b>DC Output</b>	<b>Nominal Ratings</b>	28 VDC / 2 kW
	<b>Voltage Regulation</b>	Up to ±1% (low to high line voltage, no load to full load, -55 °C to +85 °C at baseplate).
	<b>Turn On Time</b>	Within 1 second after a nominal 270 VDC power input is provided.
	<b>Remote Sense</b>	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.
	<b>Ripple &amp; Noise</b>	≤280 mVp-p, typical.
	<b>Overcurrent Protection</b>	Continuous protection (10 to 30% above maximum current) for unlimited time.
	<b>Over Voltage Protection</b>	<u>Passive Over-Voltage Protection</u> Passive transorb on output, 120% ± 10% of nominal voltage.
	<b>Over Temperature Protection</b>	Shutdown at baseplate temperature of +105 °C ± 5 °C. Automatic recovery at base plate temperature lower than +95 °C ± 5 °C.
	<b>Paralleling</b>	Multiple units can be paralleled and will share the load's current between them.
	<b>Isolation</b>	Output is galvanically isolated from chassis (> 20 MΩ at 100 VDC).
	<b>Efficiency</b>	85% or better over the entire operating temperature
<b>Control &amp; Indication</b>	<b>On/Off</b>	The INHIBIT signal is used to turn the power supply ON and OFF. OPEN – will turn on the power supply. SHORT – between INHIBIT and INHIBIT RETURN will turn off the power supply. This signal is referenced to the SIGNAL RETURN pin.

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### SPECIFICATIONS (CONT.):

<b>EMC<sup>(1)</sup></b>	<b>MIL-STD-461G</b>	CE102, CS101, CS114, CS115, CS116, RE102, RS101, RS103
<b>Environment<sup>(1)</sup></b>	<b>Temperature</b>	<u>Operating</u> : -55 °C to +85 °C (at baseplate)
	<b>Altitude</b>	MIL-STD-810G, Method 500.5 Procedures I – up to 70,000 ft. (non-operational) Procedure II – up to 70,000 ft. (operational)
	<b>Humidity</b>	MIL-STD-810G, Method 507.5 Up to 95% RH
	<b>Vibration</b>	MIL-STD-810G, Method 514.6 Category 7: Aircraft – Jet, IAW figure C-6, 13.7grams, 1 hour per axis. Category 24: Minimum integrity, IAW figure E-3, 7.7 grams, 1 hour per axis.
	<b>Shock</b>	MIL-STD-810G, Method 516.6 Operational shock: 30 g, 11 ms, half-sine Crash safety: 100 g, 6 ms, half-sine
	<b>Fungus</b>	Does not support fungus growth (MIL-STD-810G, Method 508.6)
	<b>Salt Fog</b>	MIL-STD-810G, , Method 509.5
<b>Cooling Requirements</b>	The M8187 is a baseplate cooled unit. The user must maintain the baseplate's temperature below +85 °C by thermally attaching it to a suitable heat sink.	
<b>Size</b>	7.5" wide, 9.6" length and 2.3" height For detailed dimensions and tolerances see Drawing: TBD	
<b>Weight</b>	2.2kg Typical	
<b>Connectors</b>	DC Input: D38999/20TD05PN or eq. (For pinout see Table 1) DC Output: D38999/20TE35SN or eq. or equivalent (For pinout see Table 2)	

**Notes:**

(1) Designed to meet

## M8187 SERIES DC/DC POWER SUPPLY

### PIN ASSIGNMENT: TABLE 1– INPUT CONNECTOR

Type: D38999/20TD05PN or eq.

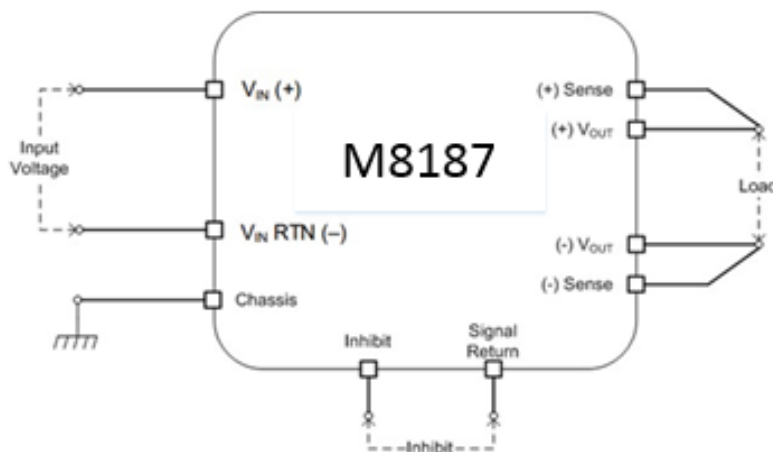
Pin No.	Function
A	V <sub>IN</sub> (+)
B	V <sub>IN</sub> (+)
C	V <sub>IN</sub> RTN (-)
D	V <sub>IN</sub> RTN (-)
E	CHASSIS

### PIN ASSIGNMENT: TABLE 2: OUTPUT CONNECTOR

Type: D38999/20TE35SN or eq.

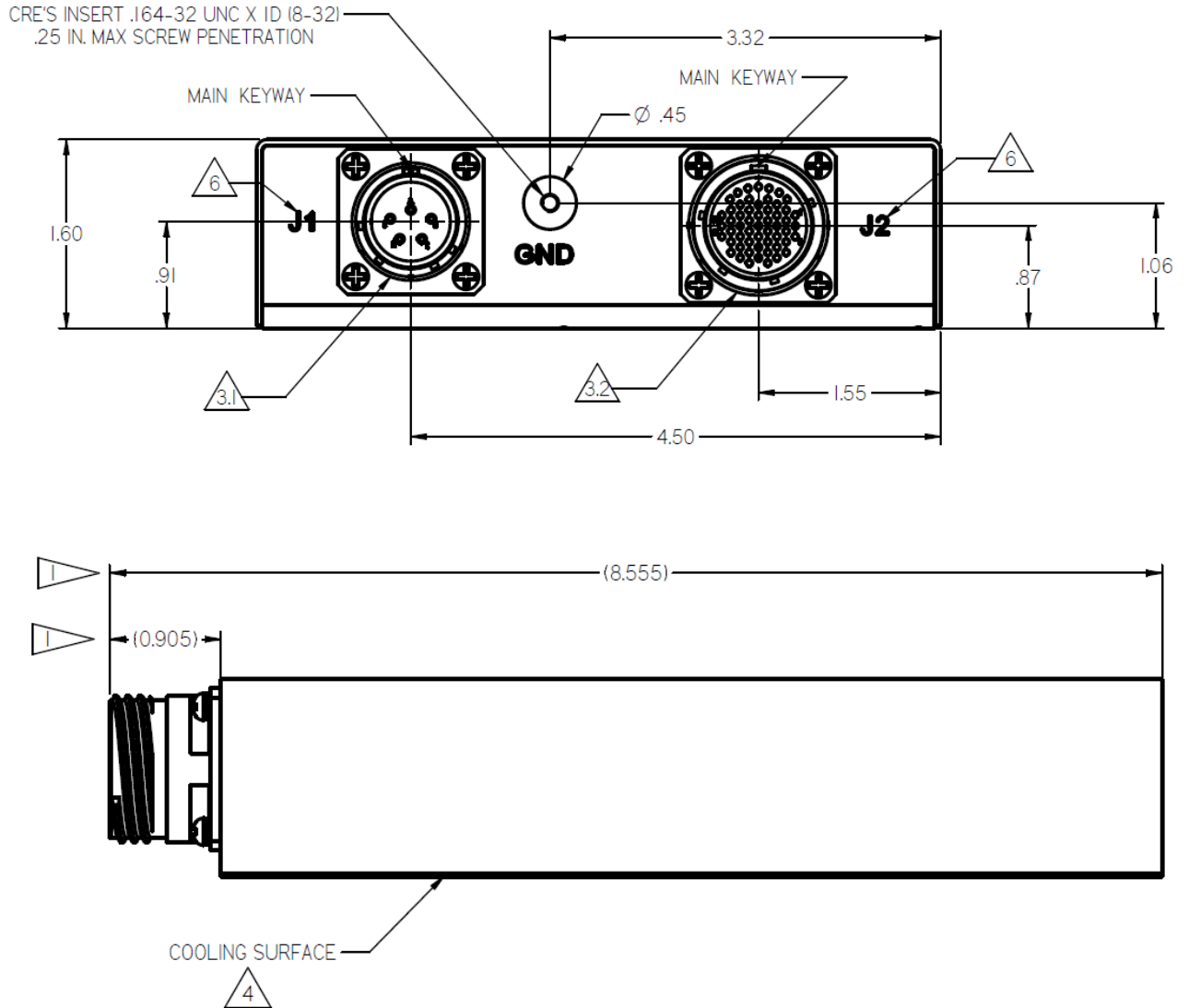
Pin No.	Function
30, 32 – 38, 40 – 55	V <sub>OUT</sub> (+)
1 – 16, 18 – 23, 26, 29	V <sub>OUT</sub> RTN (-)
25	SENSE (+)
17	SENSE RTN (-)
31	INHIBIT
24	INHIBIT RTN
39	CHASSIS
27, 28	N/C

### FIGURE 1: CONNECTION DIAGRAM:

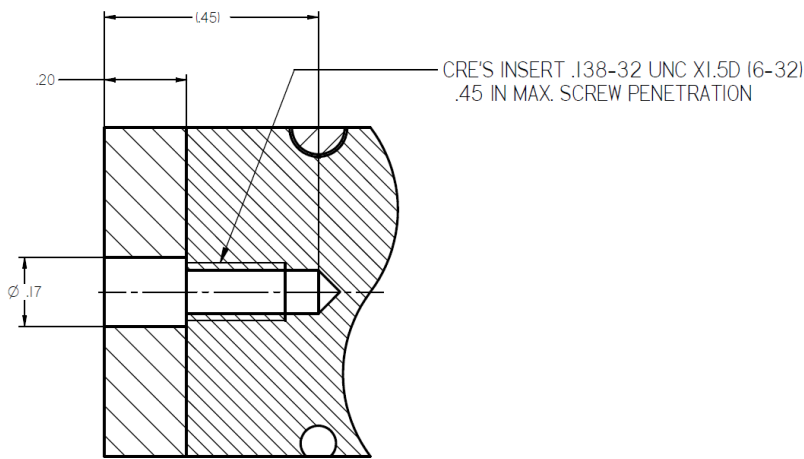
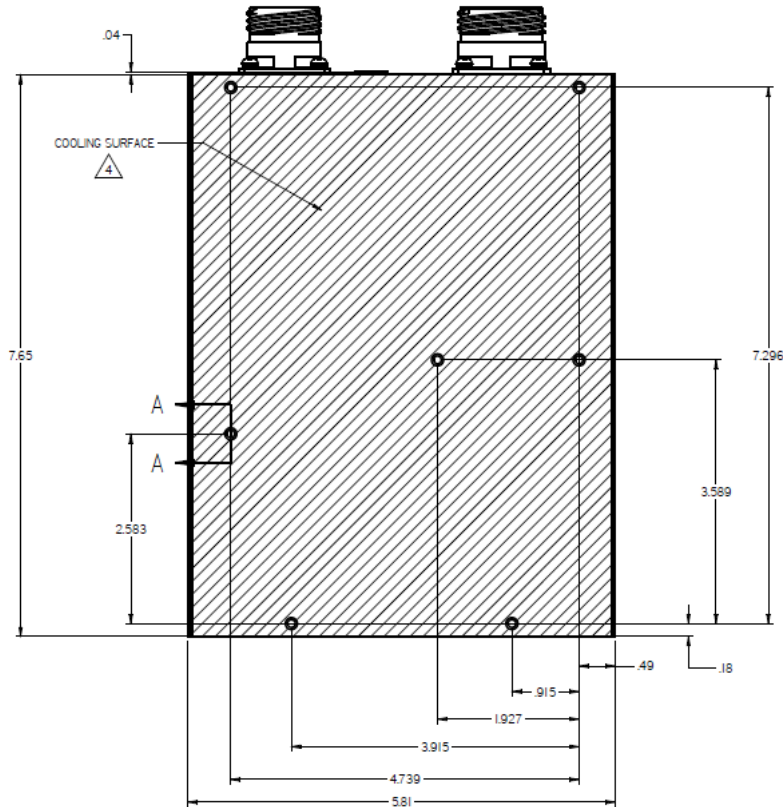


**M8187 SERIES DC/DC POWER SUPPLY**

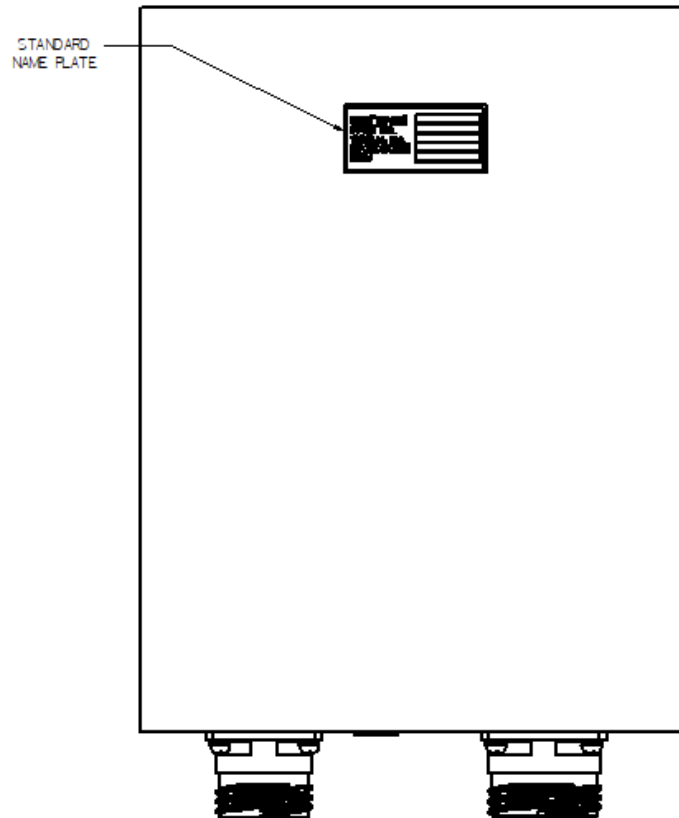
**OUTLINE DRAWING**



**M8187 SERIES DC/DC POWER SUPPLY**



SECTION A-A  
5:1  
7 PLACED

**M8187 SERIES DC/DC POWER SUPPLY****NOTES :**

1. MATERIAL: AL 6061-T651 & AL 5052-H32 OR EQ. EQ.
2. FINISH: CHROMATE CONVERSION COATING PER MIL -DTL-554IF, TYPE I CLASS IA OR EQ.
3. CONNECTORS:
  - 3.1. J1- INPUT CONNECTOR: INPUT CONNECTOR D38999/20TD5PN OR EQ.
  - 3.2. J2- OUTPUT CONNECTOR: OUTPUT CONNECTOR D38999/20TE35SN OR EQ.
4. COOLING: HEAT DISSIPATION AREA- 26825 [mm<sup>2</sup>].
5. WORKMANSHIP SHALL BE MIL-STD-454, REQ. 9
6. ENGRAVING
  - 6.1. CHARACTER HEIGHT : 4.0 MM.
  - 6.2. CHARACTER DEPTH : 0.5 MM.
  - 6.4. CHARACTER ARE CENTRALLY LOCATED,
  - 6.5. FILL ENGRAVING WITH BLACK LUSTERLESS EPOXY PAINT COLOR PER FED-STD 595 NO : 37038.

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