

M8183 SERIES

DC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

- DC/DC POWER SUPPLY
- 220-350 VDC INPUT
- SINGLE DC OUTPUT
- COMPACT
- HIGH EFFICIENCY
- HIGHT DENSITY
- UP TO 1000 W

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Applications

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

Special Features

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- Limited Inrush Current
- External On/Off Inhibit
- Fixed switching freq. (400 kHz)
- External sync. capability
- EMI filters included
- Up to 28 W/in³
- Indefinite short circuit protection with auto-recovery
- Over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery

Electrical Specifications

Input Voltage Range

DC input range:
220-350VDC

DC Output

Voltage range: 5V to 50V
Output power: Up to 1000W
Output current: Up to 42A

Isolation

Input to Output: 500V_{DC}
Input to Case: 500V_{DC}
Output to Case: 100V_{DC}

Line/Load regulation

Less than 1% (Low line to high line, no load to full load, -55°C to +85°C).

Efficiency

90% typical (full load, nominal line voltage, room temperature)

EMC**

Designed to meet MIL-STD-461F: CE102, CS101, CS114, CS115, CS116, RE102, RS101, RS103

Ripple and Noise

100-150mV_{p-p}, typical (max. 1%) without external capacitance.

Turn on Transient

No Voltage over shoot during power on.

Protections ***

Input

- **Inrush Current Limiter**
Peak value of $6 \times I_{nom}$ for inrush currents lasting over 50μs.

Output

- **Passive Over-Voltage Protection**
Transorb on outputs, chosen at $120\% \pm 10\%$ of nominal voltage.
- **Current Limiting**
Continuous protection (10-30% above maximum current) for unlimited time.

General

- **Over Temperature Protection**
Shutdown if baseplate temperature rises above +105°C $\pm 5^\circ\text{C}$.
Automatic recovery upon cool down when baseplate temperature drops below +95°C $\pm 5^\circ\text{C}$.

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Environmental Conditions

Designed to meet MIL-STD-810F

Temperature

Operating: -55°C to $+85^{\circ}\text{C}$ (base plate)

Storage: -55°C to $+125^{\circ}\text{C}$

Humidity

Method 507.4 - Up to 95%.

Altitude

Method 500.4, Procedure I & II, 40,000 ft. and 70,000 ft.

Operational

Vibration and Shock

Shock: Saw-tooth, 20g peak, 11ms.

Vibration: Figure 514.5C-17.

General minimum integrity exposure, 1 hour per axis.

Salt Fog

Method 509-4

Reliability

150,000 hours, calculated per MIL-STD-217F at $+85^{\circ}\text{C}$ base plate, Ground fixed.

Environmental Stress Screening (ESS)

Including random vibration and thermal cycles is also available. Please consult factory for details.

** Depending on configuration, an external filter may be required to comply with EMI requirements.

*** Thresholds and protections can be modified / removed – please consult factory.

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Pin Assignment

Connector J2 (Input)

Connector type: M24308/24-38F or eq.

Mating connector: M24308/2-2F or eq.

Pin No.	Pin Function	Pin No.	Pin Function
1	CHASSIS	9	N.C.
2	N.C.	10	N.C.
3	VIN	11	VIN
4	VIN	12	N.C.
5	N.C.	13	N.C.
6	VIN RTN	14	VIN RTN
7	VIN RTN	15	N.C.
8	N.C.		

Connector J1 (Output)

Connector type: M24308/23-39F or eq.

Mating connector: M24308/4-3F or eq.

Pin No.	Pin Function	Pin No.	Pin Function	Pin No.	Pin Function
1	SENSE	10	OUT RTN (-)	19	OUT (+)
2	SENSE RTN	11	OUT RTN (-)	20	OUT RTN (-)
3	INHIBIT	12	OUT RTN (-)	21	OUT RTN (-)
4	OUT (+)	13	OUT RTN (-)	22	OUT RTN (-)
5	OUT (+)	14	OUT (+)	23	OUT RTN (-)
6	OUT (+)	15	OUT (+)	24	OUT RTN (-)
7	OUT (+)	16	OUT (+)	25	OUT RTN (-)
8	OUT (+)	17	OUT (+)		
9	OUT RTN (-)	18	OUT (+)		

* All output parallel pins should be connected together for best performance.

Functions and Signals

INHIBIT signal

The INHIBIT signal is used to turn the power supply ON and OFF.

TTL "1" or OPEN – Power supply active (output turned on).

TTL "0" or SHORT to Output RTN – Power supply inhibited (output turned off).

If this function is not required, leave this pin unconnected.

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 OUTPUT pins as close as possible to the unit.

SENSE RTN

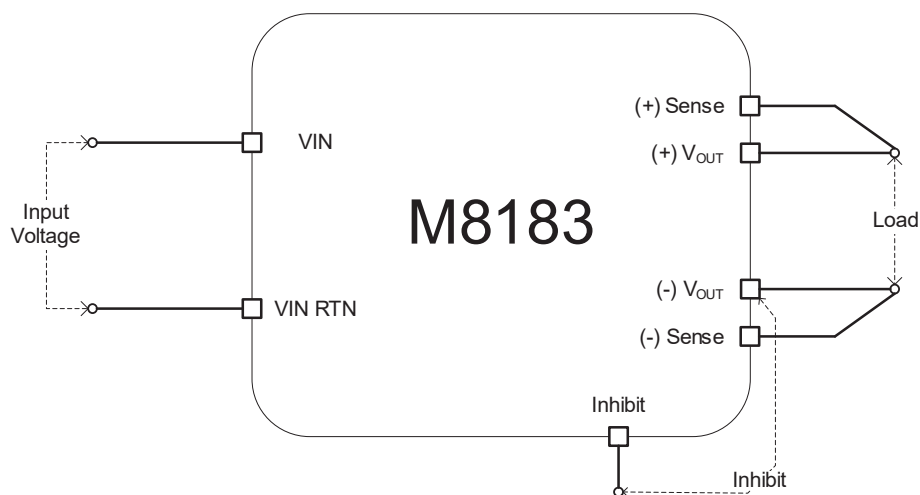
The SENSE RTN line is used to achieve accurate voltage regulation at load terminals.

To use this feature, connect this pin directly to load's negative terminal.

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

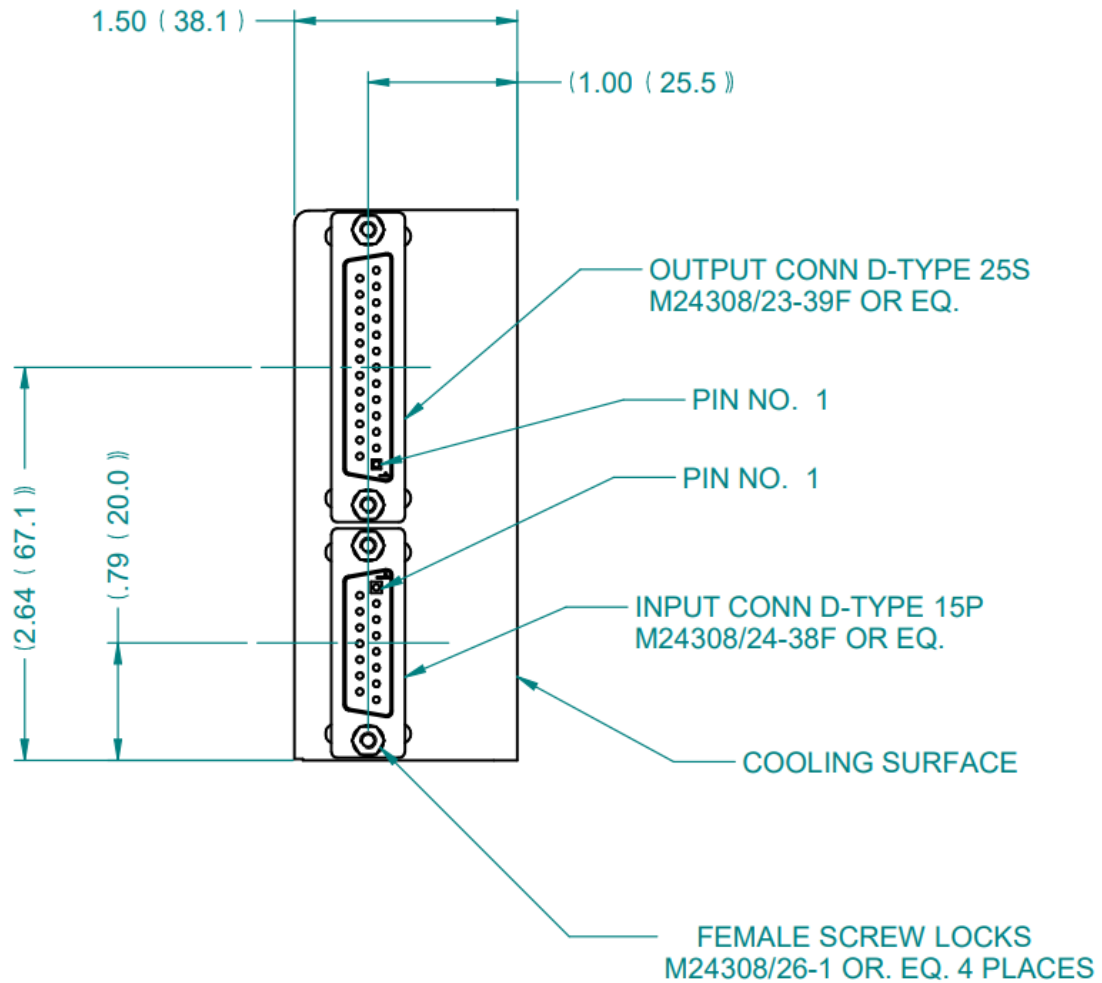
Note: The use of remote sense has a limit of voltage dropout between the converter's output and the load's terminals of approximately 5% of nominal output voltage.

Typical Connection

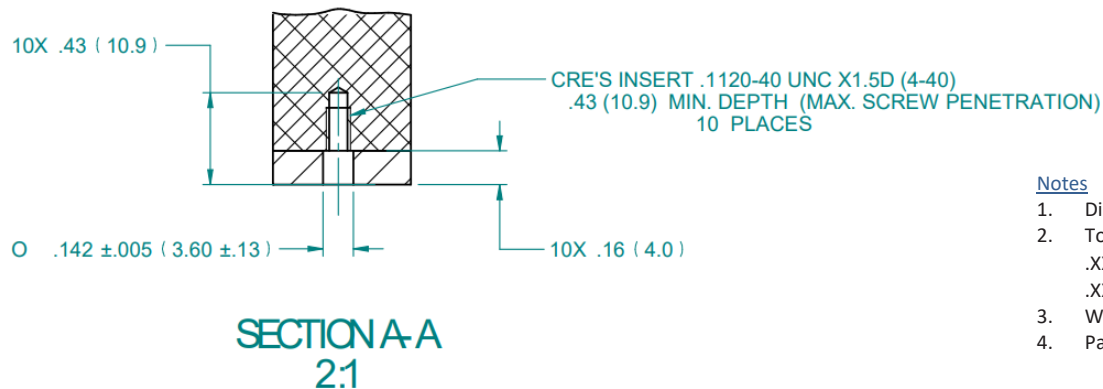
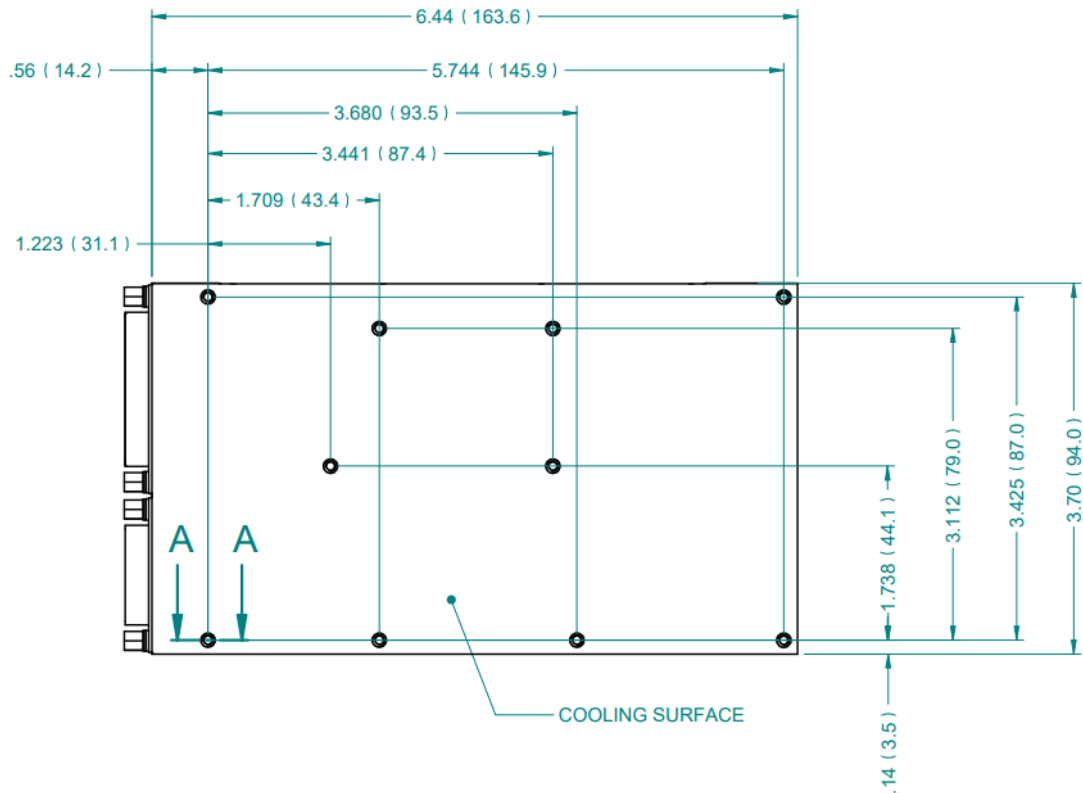


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Outline Drawing



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Notes

1. Dimensions are in Inches [mm]
2. Tolerance is:
.XX ±.02 IN
.XXX ±.010 IN
3. Weight: TBD
4. Parasolid 3D model available

NOTES :

1. MATERIAL CHASSIS : AL 6061-T651 OR EQ.
COVER : AL 5052-H32 OR EQ.
2. FINISH : CHROMATE CONVERSION COATING PER MIL -DTL-5541F,
TYPE I CLASS 1A OR EQ.

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Standard Configurations

Part number	Input	Output	
	Voltage range	Voltage	Current
M8183100	220 to 350 _{VDC}	5 _{VDC}	40 A
M8183101	220 to 350 _{VDC}	12 _{VDC}	40 A
M8183102	220 to 350 _{VDC}	15 _{VDC}	40 A
M8183103	220 to 350 _{VDC}	24 _{VDC}	40 A
M8183104	220 to 350 _{VDC}	28 _{VDC}	36 A
M8183105	220 to 350 _{VDC}	48 _{VDC}	20 A

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