

M8183 SERIES

DC/DC POWER SUPPLY



DESCRIPTION

The M8183 military power supply is a rugged single output DC to DC converter which accepts an 220 - 350VDC input voltage range and provides a single DC output from 5 to 50V at up to 1000W. Custom outputs available upon request and the unit is Designed to meet military standards, MIL-STD-810, MIL-STD-461.

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

HOW TO ORDER

Part number	Input	Output	
	Voltage Range	Voltage	Current
CF-02EM8183100	220 to 350VDC	5VDC	40A
CF-02EM8183101	220 to 350VDC	12VDC	40A
CF-02EM8183102	220 to 350VDC	15VDC	40A
CF-02EM8183103	220 to 350VDC	24VDC	40A
CF-02EM8183104	220 to 350VDC	28VDC	36A
CF-02EM8183105	220 to 350VDC	48VDC	20A

ELECTRICAL SPECIFICATIONS:

DC Input Normal range: 220-350VDC	DC Output: Voltage range: 5V to 50V Output power: Up to 1000W Output current: Up to 42	Isolation: Input to Output: 500VDC Input to Case: 500VDC Output to Case: 100VDC
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: 100-150mVp-p, typical (max. 1%) without external capacitance.	Turn on Transient: No Voltage over shoot during power on	

PROTECTIONS		
Input	Output	General
Inrush Current Limiter: Peak value of $6 \times I_{nom}$ for inrush currents lasting over $50\mu s$.	Passive Over-Voltage Protection: Transorb on outputs, chosen at $120\% \pm 10\%$ of nominal voltage.	Over Temperature Protection: Shutdown if baseplate temperature rises above $+105^{\circ}C \pm 5^{\circ}C$. Automatic recovery upon cool down when baseplate temperature drops below $+95^{\circ}C \pm 5^{\circ}C$.
	Current Limiting: Continuous protection ($10-30\%$ above maximum current) for unlimited time.	

Environmental Conditions		
Temperature: Operating: $-55^{\circ}C$ to $+85^{\circ}C$ (base plate) Storage: $-55^{\circ}C$ to $+125^{\circ}C$	Altitude: Method 500.4, Procedure I & II, 40,000 ft. and 70,000 ft. Operational	Salt Fog: Method 509-4
Humidity: Method 507.4 - Up to 95%.	Vibration and Shock: Shock: Saw-tooth, 20g peak, 11ms. Vibration: Figure 514.5C-17. General minimum integrity exposure, 1 hour per axis.	Reliability: 150,000 hours, calculated per MIL-STD-217F at $+85^{\circ}C$ base plate, Ground fixed.

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 (+)		

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

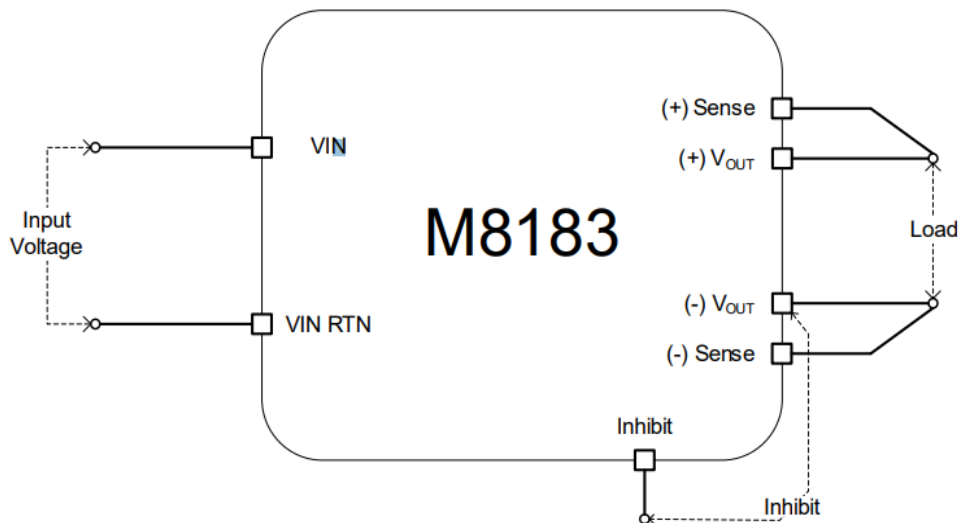
The SENSE RTN line is used to achieve accurate voltage regulation at load terminals.

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

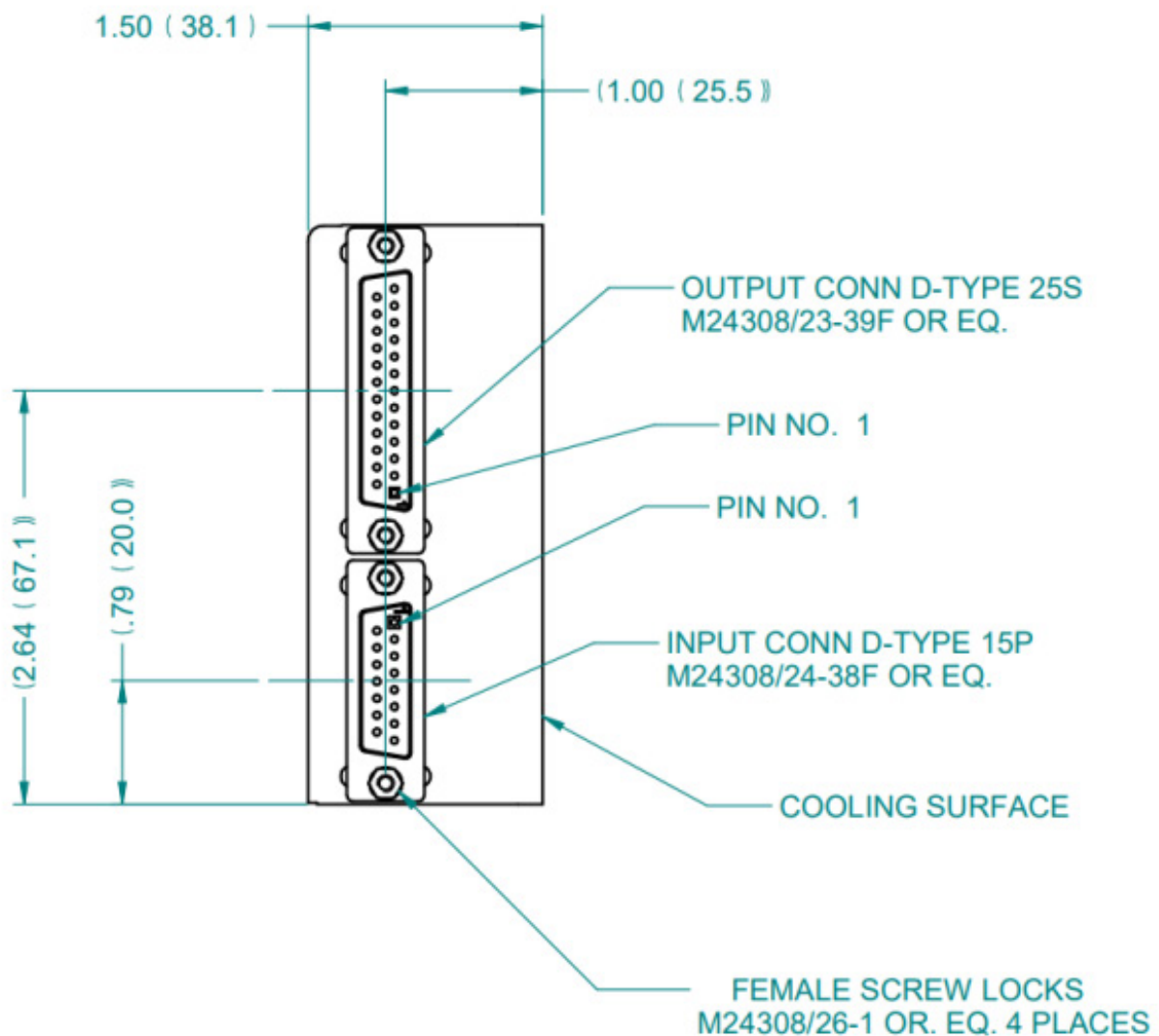
If this function is not required, short SENSE RTN pin to OUTPUT RTN pins as close as possible to the unit.

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.

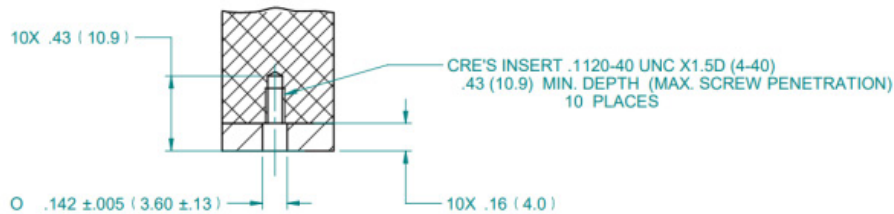
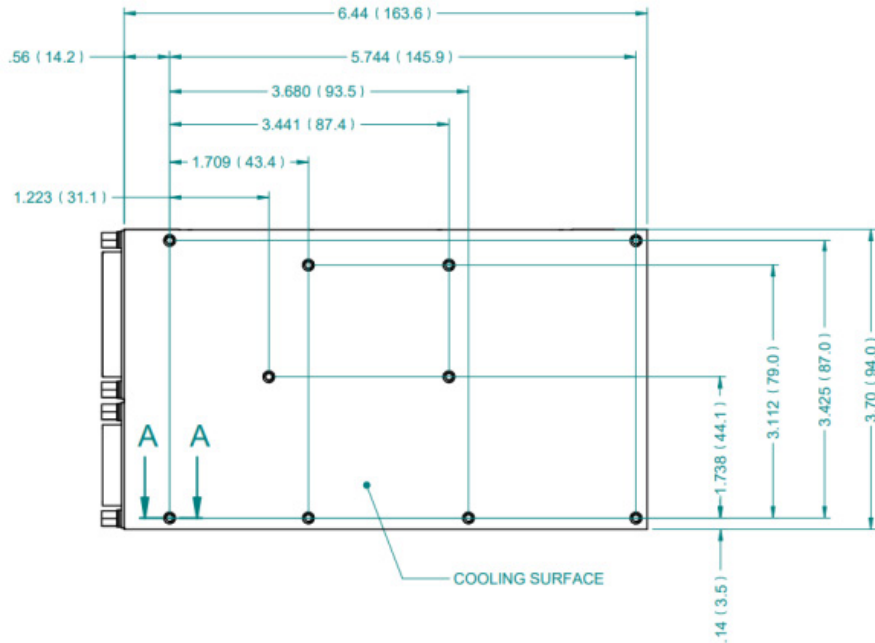
TYPICAL CONNECTION:



OUTLINE DRAWING:



OUTLINE DRAWING:



SECTION A-A
2:1

NOTES:

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

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PRELIMINARY

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MILITARY HIGH SPEED

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