

## M183 SERIES

COMPACT, HIGH EFFICIENCY,  
HIGH DENSITY, SINGLE OUTPUT,  
AC / DC CONVERTERS  
UP TO 1000W



### 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 frequency (400 kHz)
- External synchronization capability
- EMI filters included
- High power density up to 28 W/in<sup>3</sup>
- power factor 88%-90% (75-100% load)
- Indefinite short circuit protection with auto-recovery
- Over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery

### Electrical Specifications

#### AC / DC Input Range:

AC Input range:  
115V<sub>AC</sub>, 50/60/400Hz, 3-phase, per MIL-STD-704A.

DC input range\*:  
220-350V<sub>DC</sub>

#### Line/Load regulation

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

#### Ripple and Noise

100±150mV<sub>p-p</sub>, typical (max. 1%) without external capacitance.

#### DC Output

Output range – 5V to 50V  
Output power – 1000W  
Output current – max 42A.

#### Efficiency

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

#### Turn on Transient

No Voltage over shoot during power on.

#### Isolation

500V between Input and Output  
500V between Input and Case  
100V between Output and Case

#### EMC\*\*

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

### Protections \*\*\*

#### Input

- **Inrush Current Limiter**  
Peak value of 6 x I<sub>nom</sub> for up to 50µSec.

#### Output

- **Passive Over Voltage Protection**  
Transorb on outputs, chosen 20% above nominal voltage.
- **Current Limiting**  
Continuous protection (10-30% above maximum current) for unlimited time.

#### General

- **Over Temperature Protection**  
Shutdown at base plate temperature of +105°C (±5°C)  
Automatic recovery at base plate temperature lower than +95°C (±5°C)

***Environmental***

Design to Meet MIL-STD-810F

***Temperature***

Operating: -55°C to +85°C (base plate)

Storage: -55°C to +125°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 - Sow-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°C base plate, Ground fixed.

***Environmental Stress Screening (ESS)***

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

\* Available on special versions. Contact factory for further 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.

## Pin Assignment

### Input Connector

Pin No.	Pin Function	Pin No.	Pin Function
1	N.C.	9	PHASE C
2	PHASE C	10	PHASE C
3	N.C.	11	N.C.
4	PHASE B	12	PHASE B
5	PHASE B	13	N.C.
6	N.C.	14	PHASE A
7	PHASE A	15	PHASE A
8	N.C.		

### Output Connector

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

\* 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.

OPEN – will turn on the power supply.

SHORT – between pin 3 and any of the OUT RTN pins will turn the power supply off.

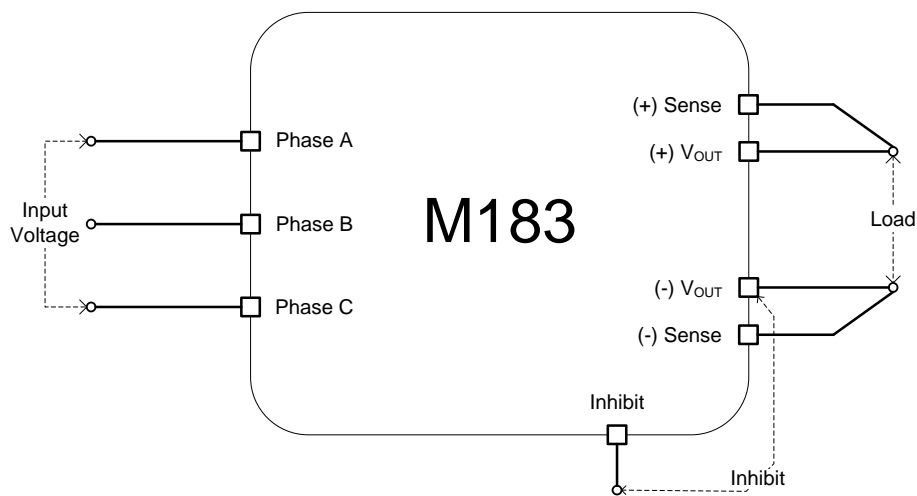
### SENSE signals

The SENSE is used to achieve accurate load regulation at load terminals (this is done by connecting the pins directly to the load's terminals).

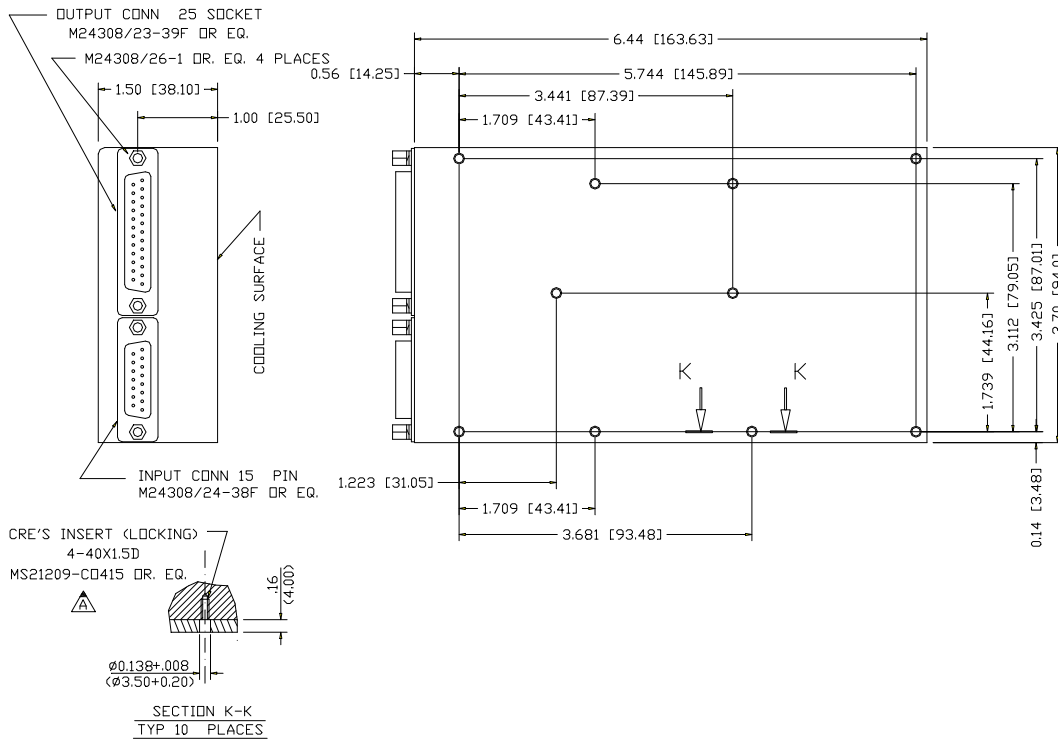
The use of remote sense has a limit of voltage dropout between converter's output and load terminals of 2-10% of voltage output (up to 2V).

Please note that if sense lines are not needed SENSE pin must be shorted to OUT pins and the SENSE RTN pin to the OUT RTN pins.

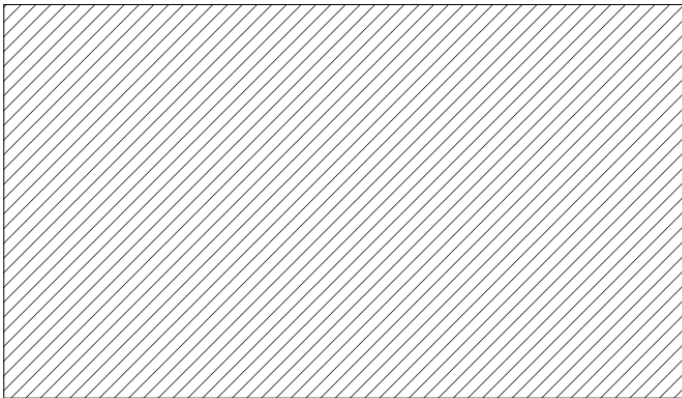
### Typical Connection



**Outline Drawing**



**Heat Dissipation Surface**



Dissipation Area  
23.84 in<sup>2</sup>  
(15380 mm<sup>2</sup>)

**Notes**

1. Dimensions are in Inches [mm]
2. Tolerance is:  
.XX ±.02 IN  
.XXX ±.01 IN
3. Weight: 37.4 Oz (1075 gr)
4. Parasolid 3D model available

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