

M1981 SERIES

**SMALL SIZE, HIGH DENSITY,
HIGH POWER FACTOR,
200W, SINGLE OUTPUT
AC/DC CONVERTERS**



Applications

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

Special Features

- Miniature size
- High efficiency
- Wide input range
- High power factor (0.99)
- Input / Output isolation
- Inrush Current Limiter
- External On/Off Inhibit
- Fixed switching frequency (250 KHz)
- External synchronization capability
- EMI/RFI filters included
- Indefinite short circuit protection with auto-recovery
- Over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery

Electrical Specifications

AC Input:

AC Input range: 85 to 265 Vac, 50/60/400 Hz, single phase per MIL-STD-704A & per MIL-STD-1399 (60Hz)

Line/Load regulation:

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

Ripple and Noise:

100±150mVp-p, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.

DC Output:

Output range – 3.3V to 48V
Output power – 200W (peak 250W)
Output current – max 20A.

Efficiency :

Up to 80% - Typical (full load, room temperature)

Load Transient Overshoot and undershoot

Current change from 50%-100% output voltage change less than 0.5V within 200-300° Sec

Isolation:

1000V between Input and Output
1000V between Input and Case
200V between Output and Case

EMI/RFI:

Design to meet MIL-STD-461D: CE101, CE102, CS101, CS114, CS115, CS116, RE101, RS101, RS103

Turn on Transient

Voltage overshoot at during power on is less than 3% nominal voltage.

Protections *

Input

- **Inrush Current Limiter** – peak value of 5 x I_{in} for less than 50µSec.
- **Under voltage protection** – unit protects itself (no damage) below 75Vac.

Output

- **Electronic over voltage protection** – Internal control protects unit (no damage) 10% above nominal voltage.
- **Passive tranzorb on outputs** – 20% above nominal voltage.
- **Current limiting** – Continuous protection (10-30% above maximum current) for unlimited time (Hiccup).

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)

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

Environmental

Design to Meet MIL-STD-810F

Temperature:

Operating: -40°C to +85°C
(base plate)

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

Environmental Stress Screening (ESS)

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

Pin Assignment

PIN No.	PIN Function	PIN No.	PIN Function	PIN No.	PIN Function
1	- OUTPUT	11	SPARE	21	INHIBIT RTN
2	- OUTPUT	12	AC IN RTN	22	SPARE
3	SPARE	13	AC IN RTN	23	AC IN
4	+ OUTPUT	14	- OUTPUT	24	SPARE
5	+ OUTPUT	15	- OUTPUT	25	CHASSIS
6	SPARE	16	SPARE		
7	SYNC IN	17	+ OUTPUT		
8	INHIBIT	18	+ OUTPUT		
9	SPARE	19	SPARE		
10	AC IN	20	SYNC IN 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.

TTL "1" or OPEN – will turn on the power supply. (For normal operation leave the signal not connected.)

TTL "0" – will turn off the power supply.

SYN signal

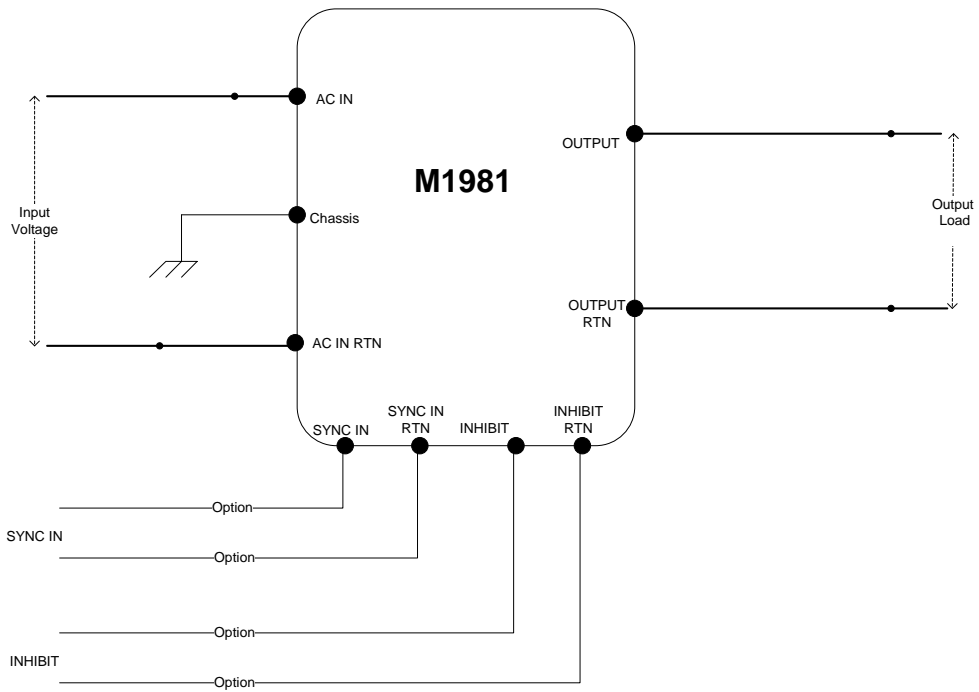
The SYN signal is used to allow the power supply frequency to sync with the system frequency. The system frequency should be 250Khz \pm 10Khz.

When not connected the power supply will work at 250KHZ

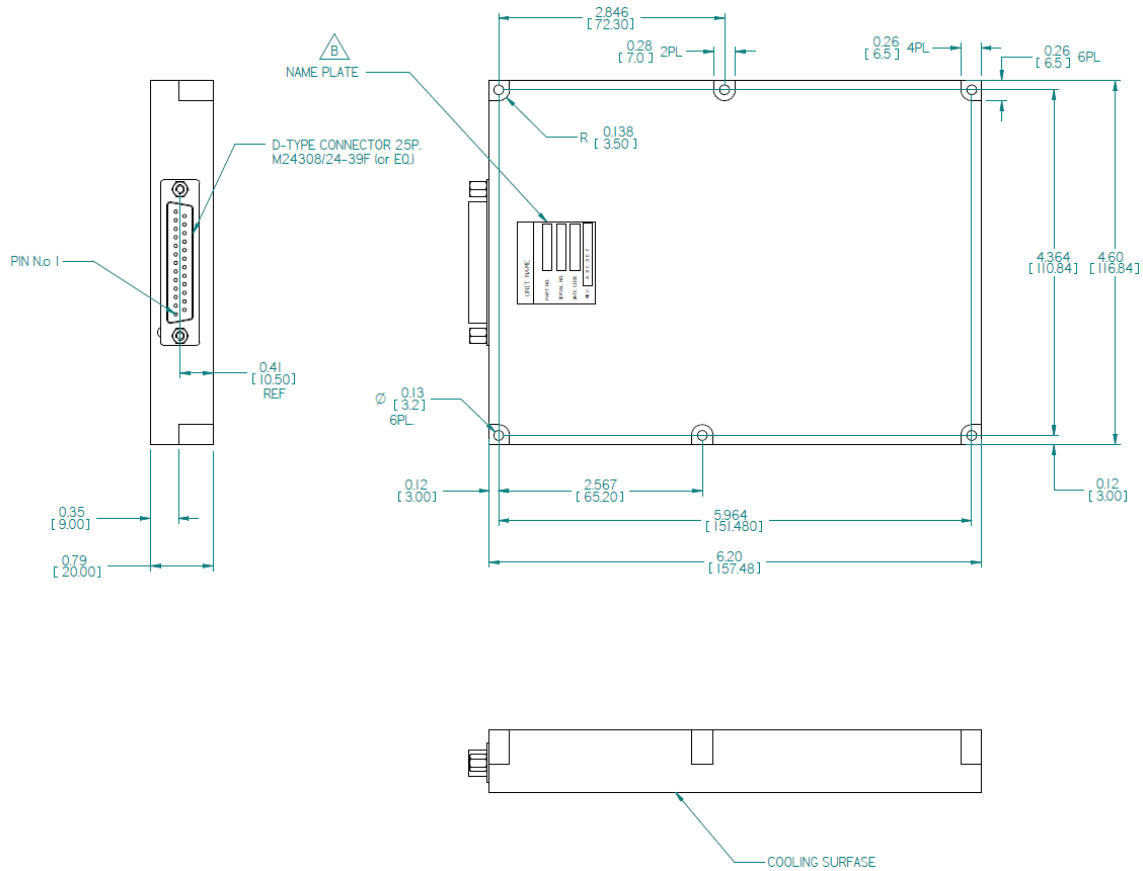
Chassis PIN

This chassis pin allows connection of the unit chassis to system chassis.

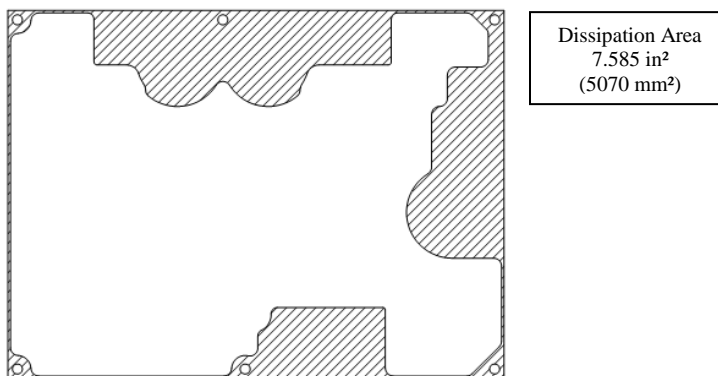
Typical connection



Outline Drawing



Heat Dissipation Surface



Notes

1. Dimensions are in Inches [mm]
2. Tolerance is:
.XX ±0.01 IN
.XXX ±0.005 IN
3. Weight: Approx. 23 Oz (650 gr)
4. Parasolid 3D module is available for download on site.

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