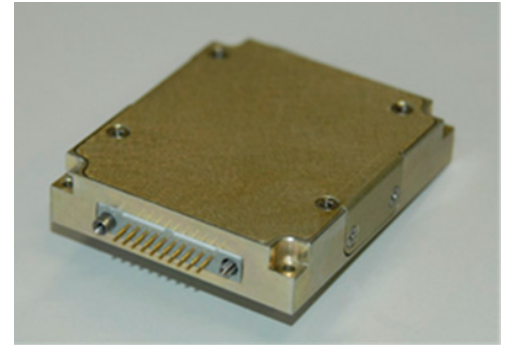


M7419 SERIES

MINIATURE, HIGH DENSITY,
SINGLE OUTPUT,
DC/DC CONVERTERS
(UP TO 50W)



Applications

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

Special Features

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- Remote sense
- 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

DC Input:

DC Input range: 18 to 48 V_{DC}, per MIL-STD-704E.

No damage for:

MIL-STD-1275A (100V for 50mSec)
MIL-STD-704A (80V for 0.1 Sec)

Line/Load regulation:

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

Ripple and Noise:

Less than 50mVp-p, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.

DC Output:

Output range – 1.8V to 50V

Output current – max 12A.

Efficiency :

Up to 82% - (full load, room temperature)

Load Transient Overshoot and undershoot

Output resistance at load change of 50%-100% is 30-70 mΩ (depending on output voltage). Output back to steady stated within 300-500μSec

Isolation:

200V between Input and Output

200V between Input and Case

100V between Output and Case

EMI/RFI:

Design to meet or exceed MIL-STD-461C CE03, CE07, CS01, CS02, CS06, RE02, RS02, RS03

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 16.5Vdc.
- **Over voltage protection** – unit protects itself (no damage) above 52Vdc

Output

- **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: -55°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
1	+VIN	11	+VIN
2	+VIN	12	VIN RTN
3	VIN RTN	13	VIN RTN
4	INHIBIT	14	N.C.
5	SYN	15	N.C.
6	-SENSE	16	+SENSE
7	-VOUT	17	-VOUT
8	-VOUT	18	-VOUT
9	+VOUT	19	+VOUT
10	+VOUT	20	+VOUT

* 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.

Grounding for signal is VIN RTN pin.

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 TTL level.

When not connected the power supply will work at 250KHZ

Grounding for signal is VIN RTN pin.

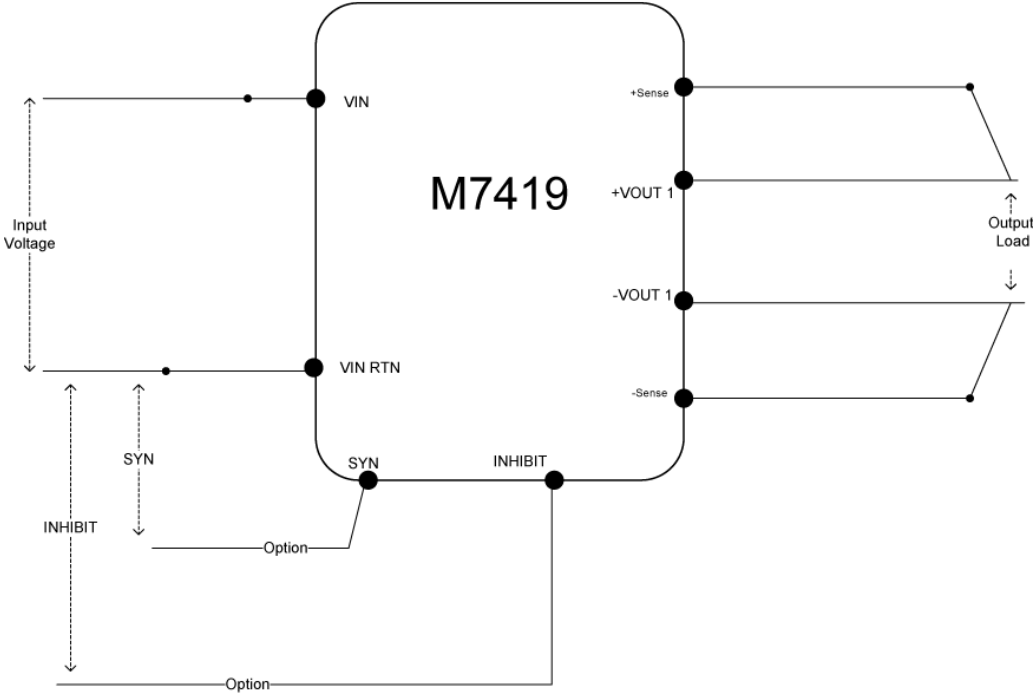
SENSE

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).

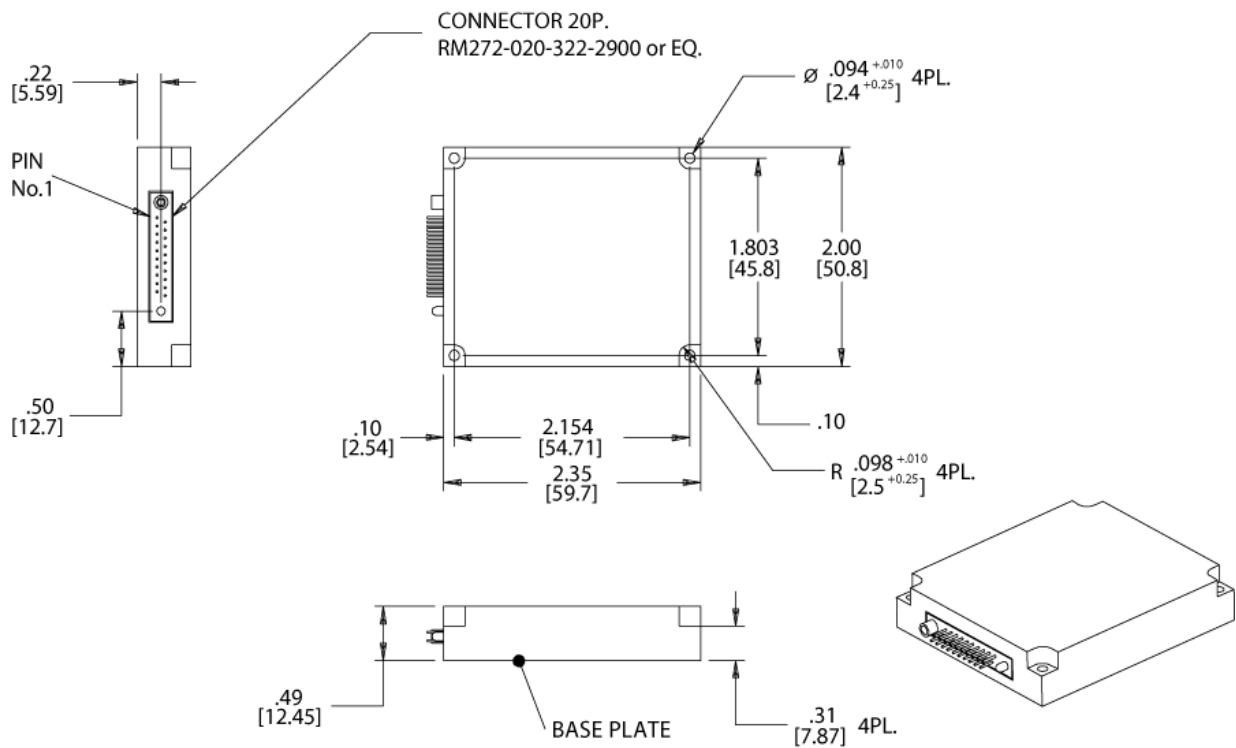
The use of remote sense has a limit of voltage dropout between converter's output and load terminals of 2-10% of voltage output.

When not used connect + SENSE to +VOUT and -SENSE to -VOUT

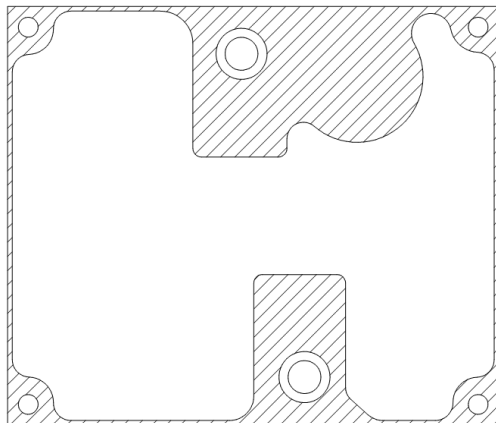
Typical connection



Outline Drawing



Heat Dissipation Surface



Dissipation Area
1.23 in²
(7.92 mm²)

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

Notes

1. Dimensions are in Inches [mm]
2. Tolerance is:
.XX ± 0.01 IN
.XXX ± 0.005 IN
3. Weight: Approx. 70gr (2.5 Oz)
4. Mounting holes can be modified – please consult factory.
5. Parasolide 3D module is available for download on site.