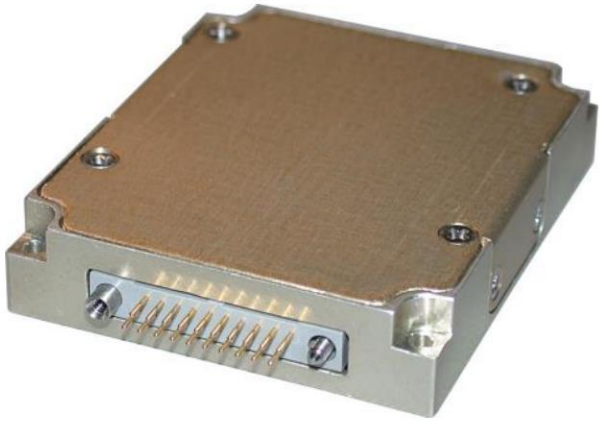
M7419 SERIES

DC/DC POWER SUPPLY



DESCRIPTION

Military DC-DC power supplies accept 28Vdc and 270Vdc input power. Our DC-DC power converters feature wide range of output power from 50W up to 2000W. Output voltage range comes in standard ranges including 5V, 12V, 15V, 24V, 28V, 48V. Custom ranges are also available. Features include high efficiency, low THD, high power factor, internal EMI filters and more. Designed to air, ground and naval applications, our rugged solutions meet MIL-STD-704, MIL-STD-1399, MIL-STD-810, MIL-STD-461, MIL-STD-1275.

FEATURES

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- Remote sense compensation
- Remote Inhibit (On/Off)
- Fixed switching freq. (250 kHz)
- External sync. Capability
- EMI filters included
- Conduction cooled
- Non-latching protections:
    - Overload/short-circuit
    - Over-voltage
    - Over temperature

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ELECTRICAL SPECIFICATIONS

Normal range: 18 to 48 VDC Not damaged (may restart) when exposed to surges IAW MIL-STD-1275A (100 V/ 50 ms) and IAW MIL-STD-704A (80 V / 0.1 s)	DC Output Voltage range: 1.8 to 50 VDC Current: 0 to 10A Power: 0 to 50W	Isolation Input to Output: 200 VDC Input to Case: 200 VDC Output to Case: 100 VDC
Output Voltage Regulation Better than or equal to ±1% (low to high line voltage, no load to full load, –55°C to +85°C at baseplate).	Efficiency 70% to 80%, depending on output voltage. Up to 83% @ 28 VDC output, 28 VDC input, full load and room temperature.	EMC Complies with MIL-STD-1686 Indirect 4 kV ESD. Designed to meet* MIL-STD461F CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103
Ripple and Noise Less than 50 mVp-p, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.	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 300-500 µs	Turn on Transient No voltage overshoot during power on.

PROTECTIONS

Input	Output	General
Not damaged (may restart) when exposed to surges IAW MIL-STD-1275A (100 V/ 50 ms) and IAW MIL-STD-704A (80 V / 0.1 s)	Over-Voltage Protection Passive transorb, chosen at 120% ± 10% of nominal voltage.	Over temperature protection: Shutdown if base plate temperature rises above +105°C ± 5 °C. Auto recovery when baseplate cools down to +95°C ± 5°C.
Over-Voltage Lockout Unit may shut down if input voltage rises above 52 ± 2 V.	**Current Limiting** Continuous protection (10-30% above maximum current) for unlimited time (Hiccup).	

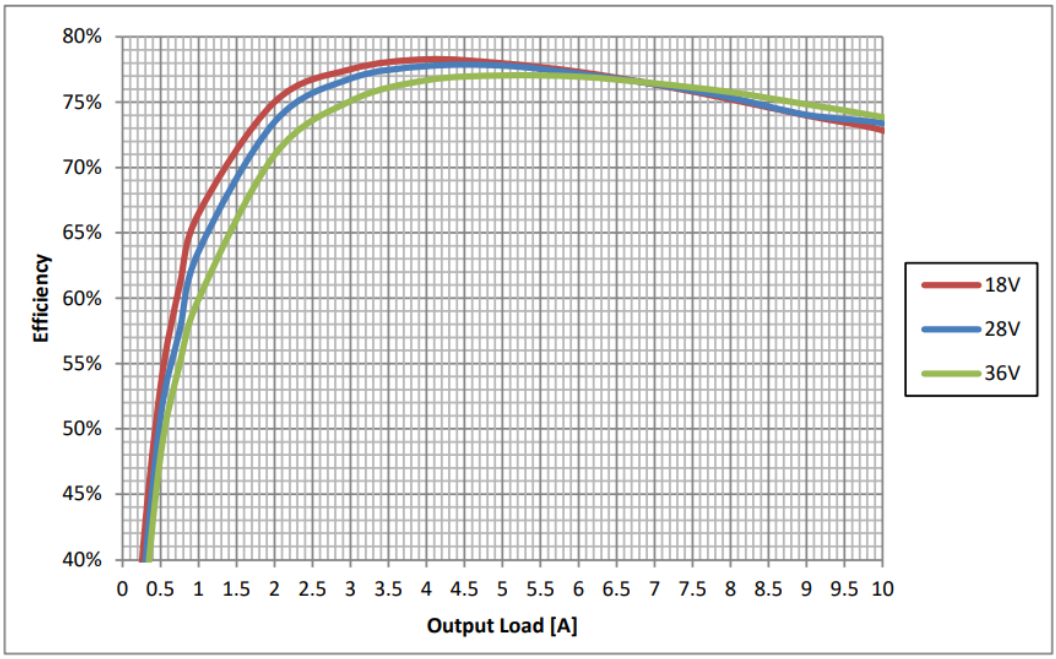
ENVIRONMENTAL CONDITIONS

Designed to meet MIL-STD-810F

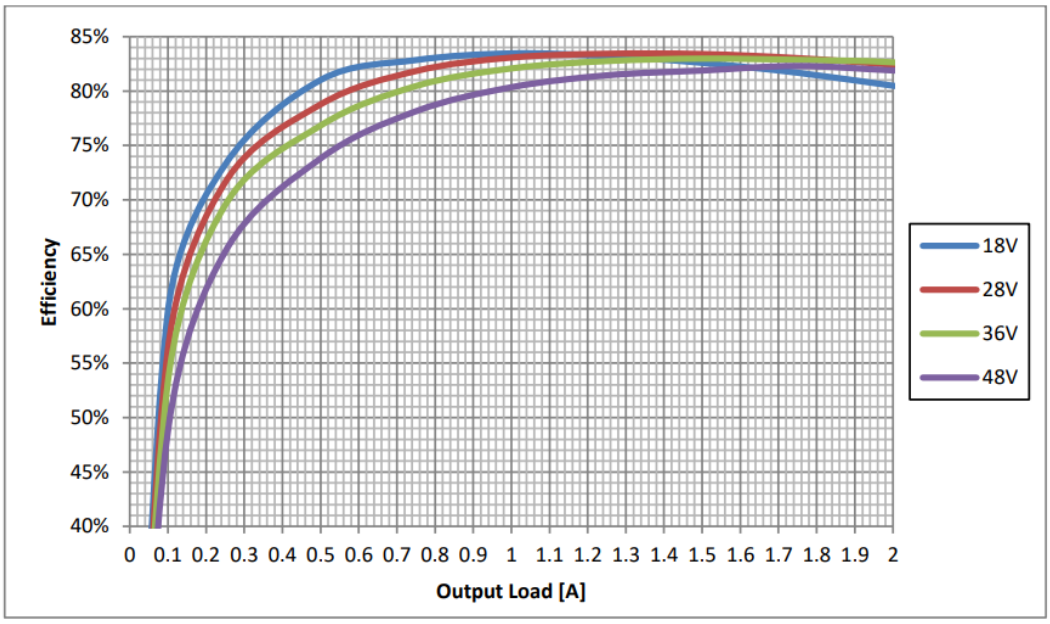
Temperature	Vibration
Methods 501.4 & 502.4 Operating: –55°C to +85°C (at baseplate) Storage: –55°C to +125°C (ambient)	Method 514.5 Procedure I 14.76 grms 20-2000 Hz for 500 seconds at each of 3 perpendicular axes.
Altitude Method 500.4 Procedures I – Storage/Air transport: up to 70,000 ft. (non-operational) Procedure II – Operation/Air Carriage: up to 70,000 ft. (operational)	**Shock** Method 516.5 Procedure I 50 g / 11 ms terminal peak half-sine shock pulse
Humidity Method 507.4 Up to 95% RH	**Salt Fog** Method 509.4

Efficiency vs. Load

5 VDC output:



28 VDC output:



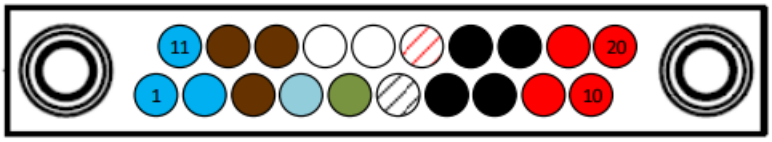
PIN ASSIGNMENT

Connector Type: RM272-020-322-2900 or eq.

Mates With: RM242-020-571-5900 (crimp removable contacts) or RM242-020-241-5900 (solder cup contacts) or eq.

Pin #	Function	Polarity	
1	INPUT	+	
2	INPUT	+	
3	INPUT RTN	–	
4	INHIBIT	+	
5	SYNC	+	
6	SENSE RTN	–	
7	OUTPUT RTN	–	
8	OUTPUT RTN	–	
9	OUTPUT	+	
10	OUTPUT	+	

Pin #	Function	Polarity	
11	INPUT	+	
12	INPUT RTN	–	
13	INPUT RTN	–	
14	N.C.		
15	N.C.		
16	SENSE	+	
17	OUTPUT RTN	–	
18	OUTPUT RTN	–	
19	OUTPUT	+	
20	OUTPUT	+	



Note: All output pins with the same function should be connected together for best performance.

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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.

SYNC signal

The SYNC signal is used to allow the power supply frequency to sync with the system frequency.

SYNC frequency can be 250 ± 10 kHz, TTL level.

When left open, the power supply will work at 250 ± 10 kHz (internal clock).

This signal is referenced to VIN RTN pin.

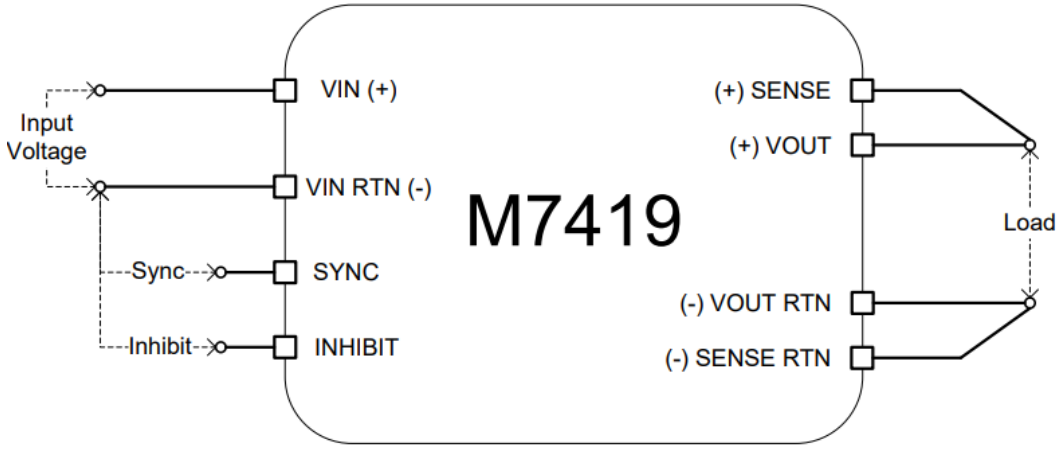
SENSE

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).

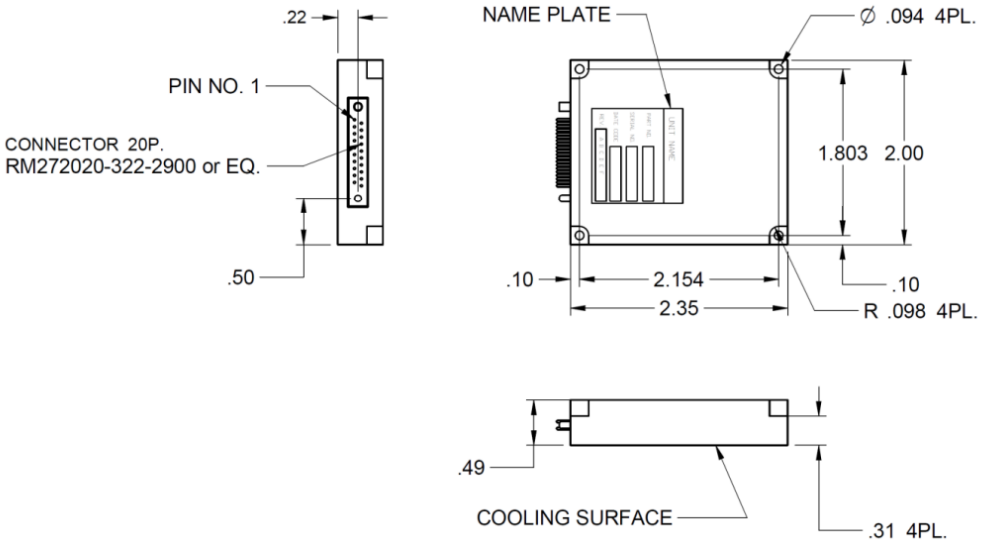
The use of remote sense has a limit of voltage dropout between converter's output and load terminals Of 2-10% of voltage output.

When not used connect SENSE to VOUT and SENSE RTN to VOUT RTN.

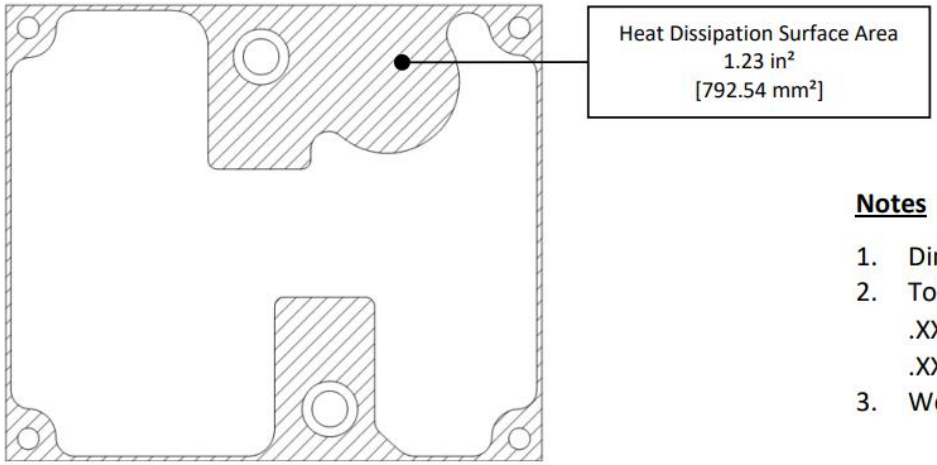
TYPICAL CONNECTION DIAGRAM



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. 2.5 oz [70 g]

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HOW TO ORDER

STANDARD CONFIGURATIONS

Part Number	Output Voltage	Output Configuration
CF-02EM7419-1	18-48VDC	5 VDC / 8 A
CF-02EM7419-2	18-48VDC	12 VDC / 3 A
CF-02EM7419-3	18-48VDC	15 VDC / 2.5 A
CF-02EM7419-4	18-48VDC	24 VDC / 2 A
CF-02EM7419-5	18-48VDC	28 VDC / 1.8 A
CF-02EM7419-6	18-48VDC	48 VDC / 0.8 A
CF-02EM7419-7	18-50VDC	24 VDC / 2 A
CF-02EM7419-8	18-48VDC	5 VDC / 8 A
CF-02EM7419-9	18-48VDC	12 VDC / 3 A
CF-02EM7419-10	18-48VDC	15 VDC / 2.5 A
CF-02EM7419-11	18-48VDC	24 VDC / 2 A
CF-02EM7419-12	18-48VDC	28 VDC / 1.8 A
CF-02EM7419-13	18-48VDC	48 VDC / 0.8 A
CF-02EM7419-14	18-50VDC	24 VDC / 2 A

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