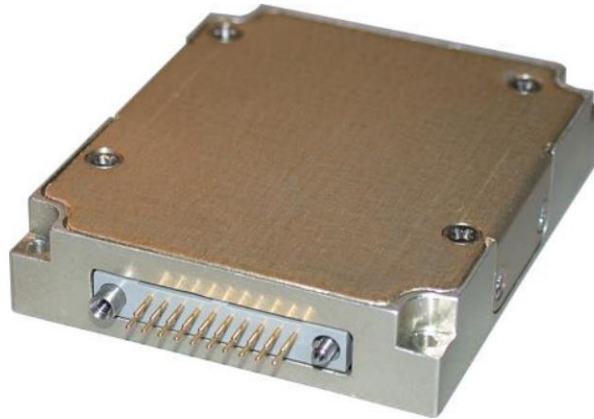


M7419 SERIES

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

ELECTRICAL SPECIFICATIONS

<u>Normal range: 18 to 48 VDC</u> 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)	<u>DC Output</u> Voltage range: 1.8 to 50 VDC Current: 0 to 10A Power: 0 to 50W	<u>Isolation</u> Input to Output: 200 VDC Input to Case: 200 VDC Output to Case: 100 VDC
<u>Output Voltage Regulation</u> Better than or equal to $\pm 1\%$ (low to high line voltage, no load to full load, -55°C to $+85^{\circ}\text{C}$ at baseplate).	<u>Efficiency</u> 70% to 80%, depending on output voltage. Up to 83% @ 28 VDC output, 28 VDC input, full load and room temperature.	<u>EMC</u> Complies with MIL-STD-1686 Indirect 4 kV ESD. Designed to meet* MIL-STD461F CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103
<u>Ripple and Noise</u> Less than 50 mVp-p, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.	<u>Load Transient Overshoot and undershoot</u> 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	<u>Turn on Transient</u> No voltage overshoot during power on.

PROTECTIONS

<u>Input</u> 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)	<u>Output</u> Over-Voltage Protection Passive transorb, chosen at $120\% \pm 10\%$ of nominal voltage.	<u>General</u> Over temperature protection: Shutdown if base plate temperature rises above $+105^{\circ}\text{C} \pm 5^{\circ}\text{C}$. Auto recovery when baseplate cools down to $+95^{\circ}\text{C} \pm 5^{\circ}\text{C}$.
<u>Over-Voltage Lockout</u> Unit may shut down if input voltage rises above $52 \pm 2 \text{ V}$.	<u>Current Limiting</u> Continuous protection (10-30% above maximum current) for unlimited time (Hiccup).	

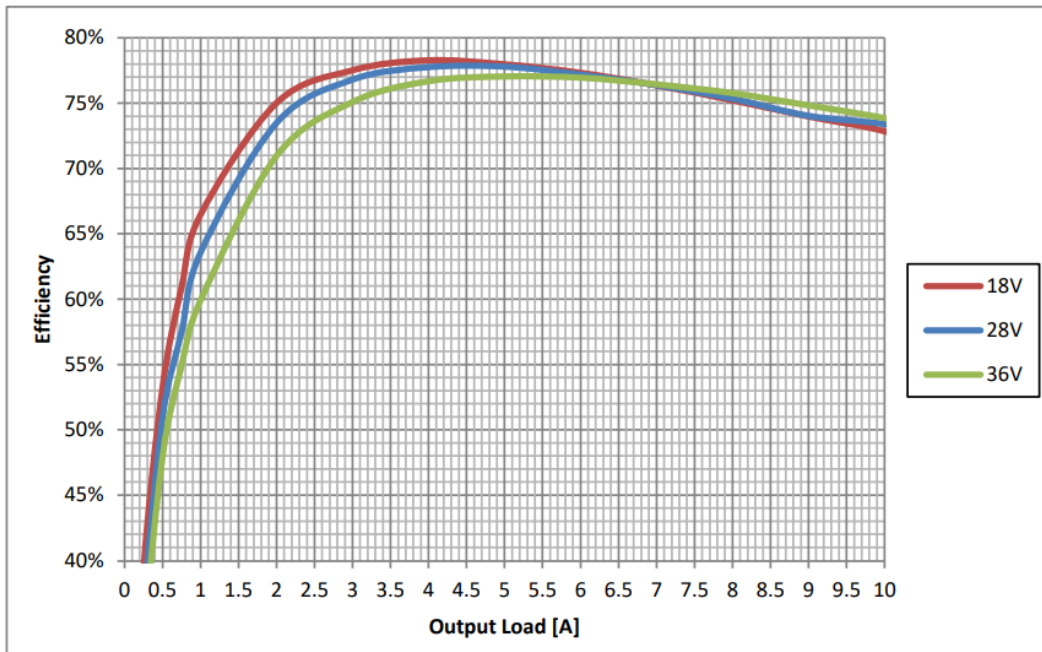
ENVIRONMENTAL CONDITIONS

Designed to meet MIL-STD-810F

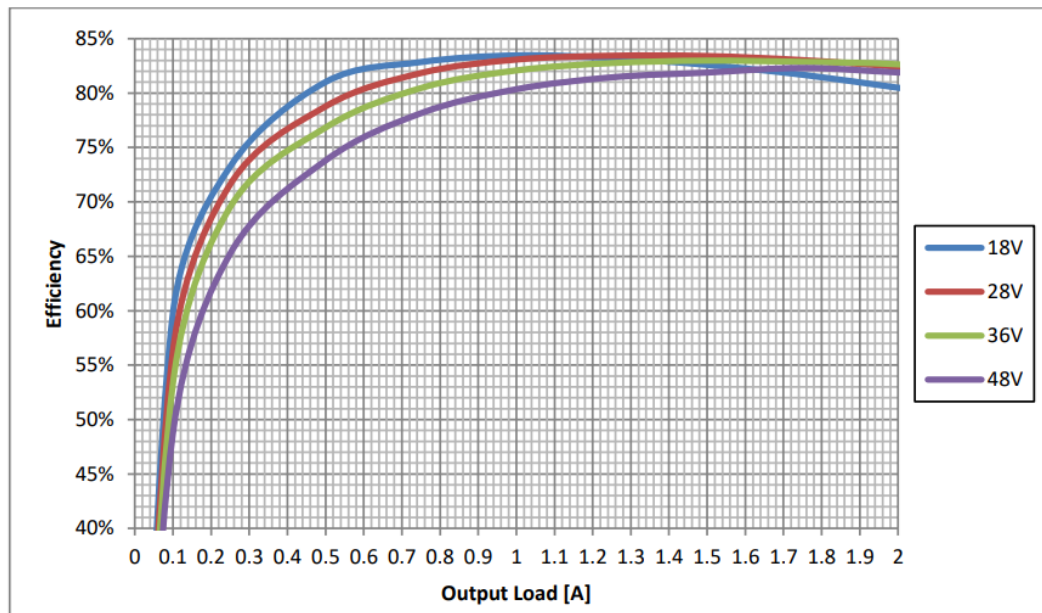
<u>Temperature</u> Methods 501.4 & 502.4 Operating: -55°C to $+85^{\circ}\text{C}$ (at baseplate) Storage: -55°C to $+125^{\circ}\text{C}$ (ambient) <u>Altitude</u> Method 500.4 Procedures I – Storage/Air transport: up to 70,000 ft. (non-operational) Procedure II – Operation/Air Carriage: up to 70,000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

5 VDC output:



28 VDC output:

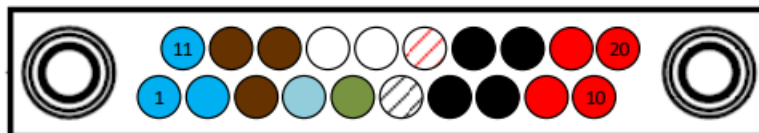


PIN ASSIGNMENT

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		Pin #	Function	Polarity	
1	INPUT	+	●	11	INPUT	+	●
2	INPUT	+	●	12	INPUT RTN	–	●
3	INPUT RTN	–	●	13	INPUT RTN	–	●
4	INHIBIT	+	●	14	N.C.		
5	SYNC	+	●	15	N.C.		
6	SENSE RTN	–	○	16	SENSE	+	○
7	OUTPUT RTN	–	●	17	OUTPUT RTN	–	●
8	OUTPUT RTN	–	●	18	OUTPUT RTN	–	●
9	OUTPUT	+	●	19	OUTPUT	+	●
10	OUTPUT	+	●	20	OUTPUT	+	●



Note: All output pins with the same function 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.

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.

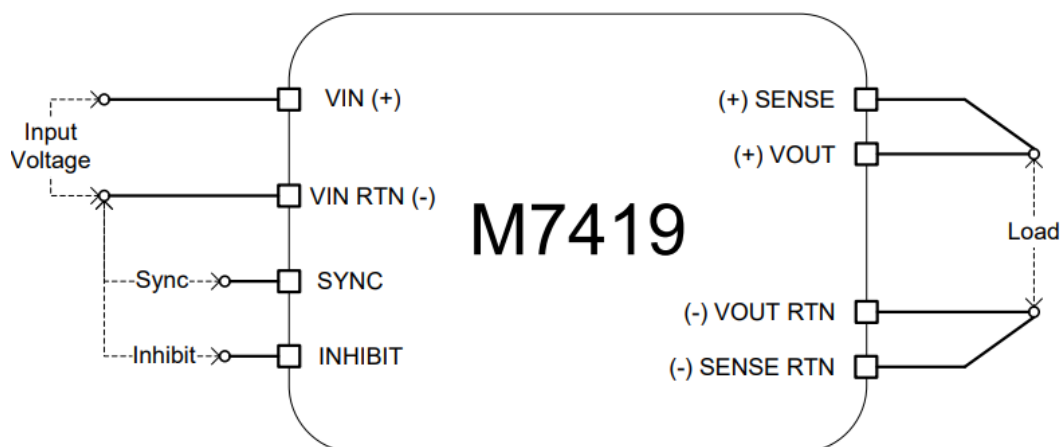
SENSE

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).

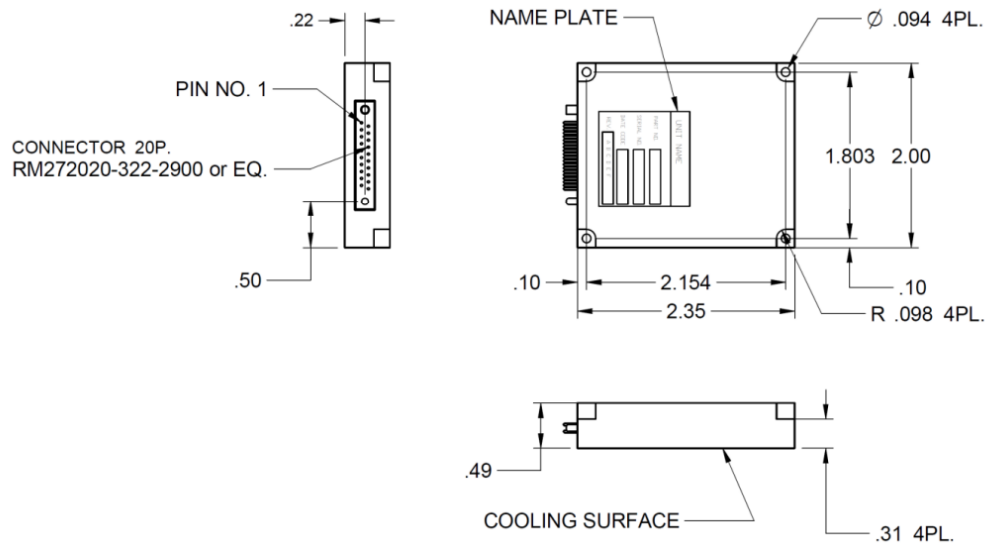
The use of remote sense has a limit of voltage dropout between converter's output and load terminals
Of 2-10% of voltage output.

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

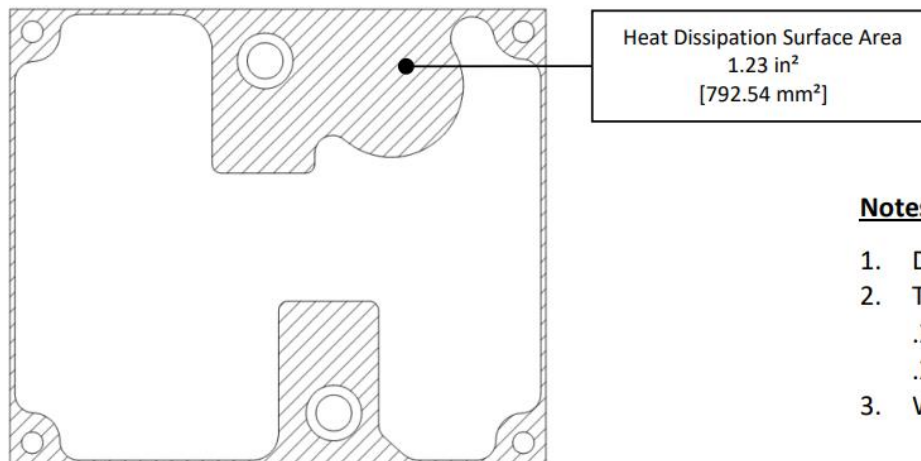
TYPICAL CONNECTION DIAGRAM



OUTLINE DRAWING



Heat Dissipation Surface



Notes

1. Dimensions are in inches [mm]
2. Tolerance is:
.XX $\pm$ 0.01 in
.XXX $\pm$ 0.005 in
3. Weight: Approx. 2.5 oz [70 g]

HOW TO ORDER

STANDARD CONFIGURATIONS

Part Number	Output Voltage	Output Configuration
CF-02EM7419100	18-48VDC	5VDC/8A
CF-02EM7419101	18-48VDC	12VDC / 3A
CF-02EM7419102	18-48VDC	15VDC / 2.5A
CF-02EM7419103	18-48VDC	24VDC / 2A
CF-02EM7419104	18-48VDC	28VDC / 1.8A
CF-02EM7419105	18-48VDC	48VDC / 0.8A
CF-02EM7419106	18-50VDC	24VDC / 2A
CF-02EM7419107	18-48VDC	5VDC/8A
CF-02EM7419108	18-48VDC	12VDC / 3A
CF-02EM7419109	18-48VDC	15VDC / 2.5A
CF-02EM7419110	18-48VDC	24VDC / 2A
CF-02EM7419111	18-48VDC	28VDC / 1.8A
CF-02EM7419112	18-48VDC	48VDC / 0.8A
CF-02EM7419113	18-50VDC	24VDC / 2A

The 107-113 is REACH Compliant.

The aluminum parts comprising these converter are chromate conversion coated per MIL-DTL-5541F, Type II CLASS 1A or eq.

Notice: Specifications are subject to change without notice. Contact your nearest Amphenol Corporation Sales Office for the latest specifications. All statements, information and data given herein are believed to be accurate and reliable but are presented without guarantee, warranty, or responsibility of any kind, expressed or implied. Statements or suggestions concerning possible use of our products are made without representation or warranty that any such use is free of patent infringement and are not recommendations to infringe any patent. The user should assume that all safety measures are indicated or that other measures may not be required. Specifications are typical and may not apply to all connectors.

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Amphenol

MILITARY HIGH SPEED

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