Amphenol
MILITARY HIGH SPEED

M7029 SERIES
DC/DC POWER SUPPLY

DESCRIPTION

The M7029 military power supply is a rugged DC to DC converter which accepts an 18 - 48VDC input voltage range and provides a single DC output from 3.3 to 50V at up to 300W. Custom outputs available upon request and the unit is Designed to meet military standards, MIL-STD-704, MIL-STD-1275, MIL-STD-810, MIL-STD-461.

FEATURES

- Miniature size
- High efficiency
- Wide input range
- Remote sense
- Remote inhibit
- Input / Output isolation
- High Density – up to 36 W/in^3
- Fixed switching frequency (250 kHz)
- External sync. capability
- EMI filters included
- Indefinite short circuit protection with auto-recovery
- Over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery

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HOW TO ORDER

PART NUMBER	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE / CURRENT
CF-	18 to 48 VDC	5 VDC / 20 A
CF-	18 to 48 VDC	12 VDC / 20 A
CF-	18 to 48 VDC	15 VDC / 20 A
CF-	18 to 48 VDC	24 VDC / 12.5 A
CF-	18 to 48 VDC	28 VDC / 10.7 A
CF-	18 to 48 VDC	48 VDC / 6.2 A
CF-	18 to 48 VDC	5 VDC / 20 A
CF-	18 to 48 VDC	12 VDC / 20 A
CF-	18 to 48 VDC	15 VDC / 20 A
CF-	18 to 48 VDC	24 VDC / 12.5 A
CF-	18 to 48 VDC	28 VDC / 10.7 A
CF-	18 to 48 VDC	48 VDC / 6.2 A

ELECTRICAL SPECIFICATIONS

DC Input: Input range: 18 to 48 VDC No damage for: 100 V for 50 ms (IAW MIL-STD-1275A) 80 V for 0.1 s (IAW MIL-STD-704A)	**DC Output:** Voltage range: 3.3 VDC to 50 VDC Current range: 0 to 20 A Power range: 0 to 300 W	**Isolation:** Input to Output: 200 VDC Input to Case: 200 VDC Output to Case: 100 VDC
Line/Load/Temp regulation: Up to ±1% (no load to full load, –55 °C to +85 °C and over input voltage range).	**Efficiency:** 88% - 90% typical (full load, room temperature) 83% - 86% for extended input range	**EMC:** 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.100 mV) without external capacitance. When connected to system capacitance ripple drops significantly.	**Transient Over and under-shoot:** Load transient at a rate of up to 0.5 A/µs **Range:** 50-100% 10-100% **Excursion:** ~ 1% < 2.5% **Settling time:** < 20 µs < 100 µs	**Turn on Transient:** Output ramps up without overshooting during power on. Turn on Time: less than 40 ms Rise time: less than 20 ms

ENVIRONMENTAL CONDITIONS

Temperature: Method 501.5 Procedures I & II Method 502.5 Procedures I & II Operating: –55 °C to +85 °C (baseplate) Storage: –55 °C to +125 °C (ambient)	**Altitude:** Method 500.5 Procedures I & II Up to 70000 ft. Operational	**Salt Fog:** Method 509.5
Humidity: Method 507.5 Up to 95% RH	**Vibration (Random):** Method 514.6 Random Vibration, Category 24, Fig 514.6E-1.	**Shock:** Method 516.6 30 g, 11 ms terminal peak saw tooth (all directions)

PIN ASSIGNMENT

Connector type: M24308/24-39F or eq.
Mates with: M24308/2-3F or eq.

Pin No.	Function
1	VIN (+)
2	VIN (+)
3	VIN (+)
4	VIN RTN (–)
5	VIN RTN (–)
6	SIGNAL RTN
7	INHIBIT
8	VOUT (+)
9	VOUT (+)

Pin No.	Function
10	VOUT RTN (–)
11	VOUT RTN (–)
12	VOUT RTN (–)
13	SENSE (+)
14	VIN (+)
15	VIN (+)
16	VIN RTN (–)
17	VIN RTN (–)
18	VIN RTN (–)

Pin No.	Function
19	SYNC
20	VOUT (+)
21	VOUT (+)
22	VOUT (+)
23	VOUT RTN (–)
24	VOUT RTN (–)
25	SENSE RTN (–)

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” or short– will turn off the power supply.
(Optional to change the logic of this signal. Please consult with factory.)

SYNC signal

The SYNC signal is used to allow the power supply frequency to sync with the system frequency.
The system frequency should be 250 kHz ± 10 kHz.
When not connected the power supply will work at 250 kHz ± 10 kHz.

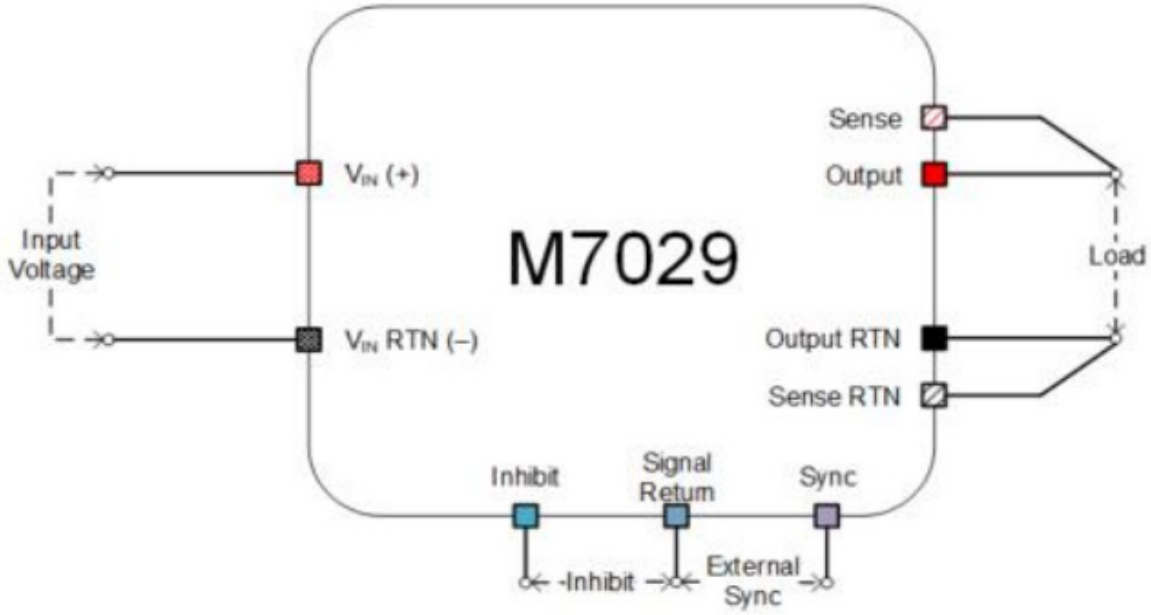
SIGNAL RTN

The SIGNAL RTN is used as a return path for SYNC and INHIBIT signals. This pin is referenced to VIN RTN.

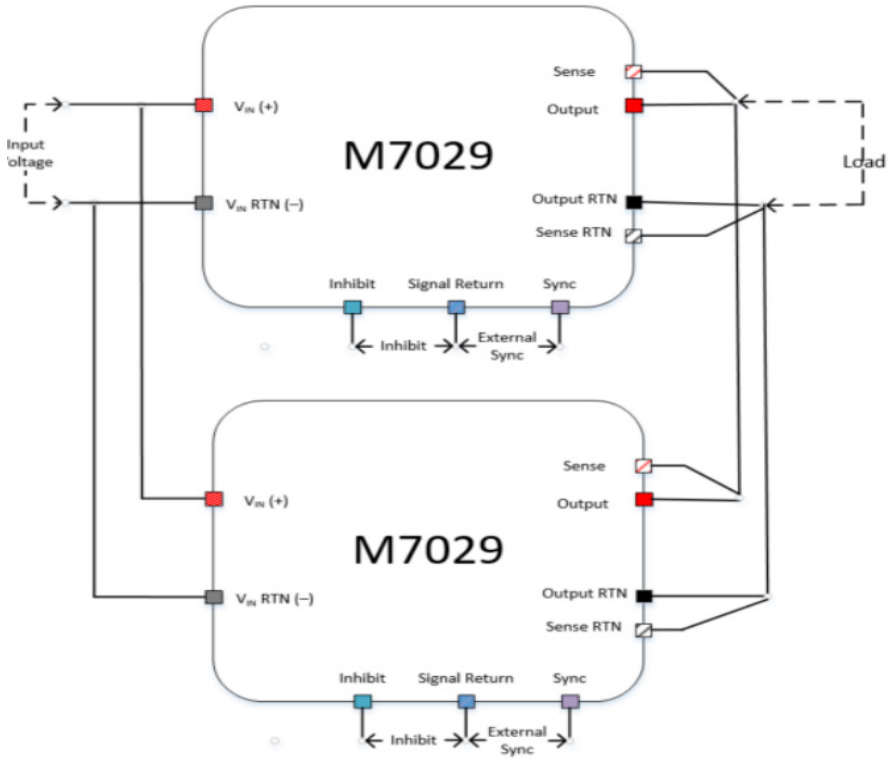
SENSE

The SENSE is used to achieve accurate load regulation at load terminals. This is done by connecting the pins directly to the load terminals.
The remote sense correction function is limited to voltage drop between converter’s output and load terminals of 2% to 5%, or up to 0.5V, the least of the two.
When not used, connect SENSE to VOUT and SENSE RTN to VOUT RTN.
Do not leave SENSE and SENSE RTN pins unconnected. These pins can be tied internally to avoid external connection, if function is not required – consult factory.

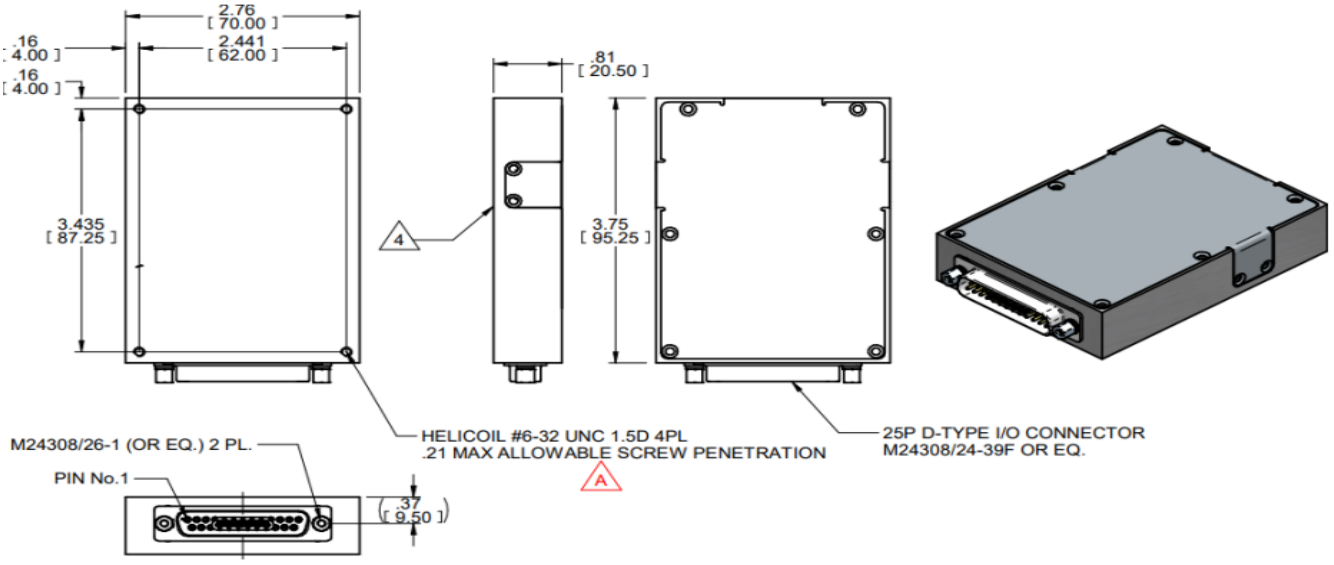
TYPICAL CONNECTION DIAGRAM



PARALLEL CONNECTION DIAGRAM



OUTLINE DRAWING



NOTES :

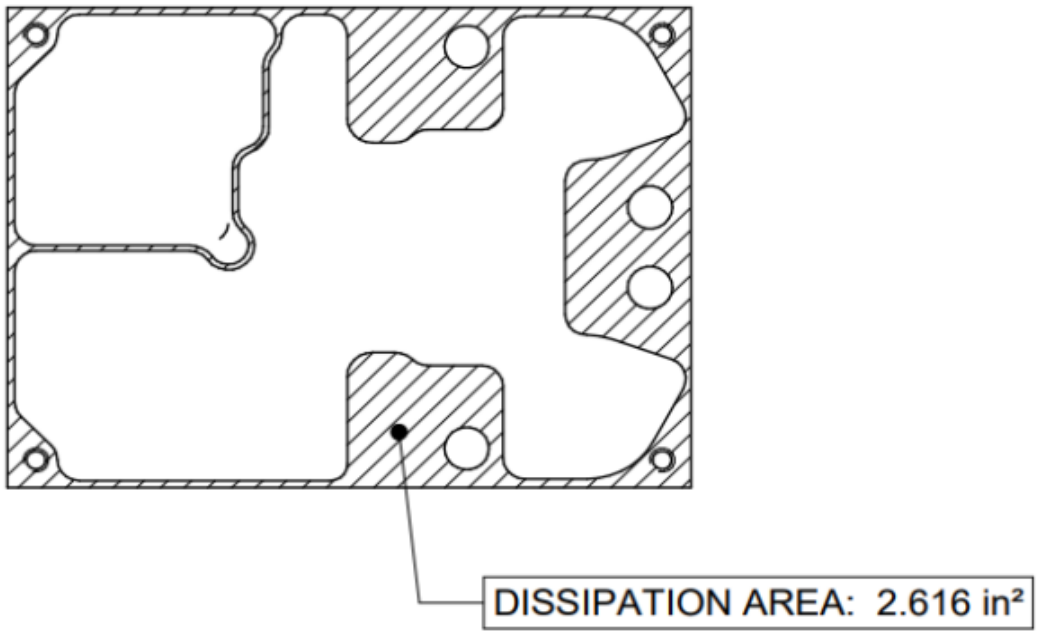
1. WORKMANSHIP SHALL BE MIL-STD-454, REQT. 9
2. DRILL, TAP & COUNTERSINK PER MS 33537
3. CONVERSION COATING PER MIL -C-5541 CL 1A
4. DISSIPATION AREA: 2.616 in² [1690 mm²]
5. MTL: AL 6061 T651 / AL 5052 H32

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCH [MM]
TOLERANCES ARE:

DECIMALS	ANGLES
.XX ± .01	± 1
.XXX± .005	

DO NOT SCALE DRAWING

HEAT DISSIPATION SURFACE



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