M7729 SERIES

SINGLE-OUTPUT, 400W DC TO DC BASEPLATE COOLED POWER SUPPLY

The M7729 is a series of mechanically robust, base-plate cooled, high performance, power supplies, designed for Ground Mobile (MIL-STD-1275), Airborne (MIL-STD-704) and other Hi-Reliability applications where 28VDC has to be converted to a tightly regulated, filtered and protected DC output.

Standard Models List (for other voltages – consult factory)

Part Number	Output Voltage	Max Output Current	Typical Efficiency
M7729-101	12 V_{DC}	20 A	84%
M7729-102	15 V_{DC}	20 A	86%
M7729-103	24 V_{DC}	16.6 A	88%
M7729-104	28 V_{DC}	14.3 A	90%

- Additional standard configurations available. **Contact factory for more details.**

THE MAIN FEATURES OF THE M7729 ARE:

- DC/DC Single output power supply up to 400W
- 18 to 50VDC Standard Input version
- For standard Input version No damage due to abnormal transients IAW MIL-STD-1275 (100 V / 50 ms) and MIL-STD-704 (80 V / 0.1 s)
- For extended input version for 15V or below output - **Please contact factory for more details**
- High efficiency – up to 90% (depending on output voltage).
- Full galvanic isolation between Input, Chassis and Output
- External Inhibit (On/Off) (Optional: Enable- **Please contact factory for more details)**
- Fixed switching freq. (290 kHz)
- External sync. capability
- EMI filters included
- Indefinite short circuit protection with auto-recovery
- Over-voltage protection
- Over temperature shutdown with auto-recovery
- High density
- Conduction cooled via the baseplate

SPECIFICATIONS:

DC Input	***Type***	28V_{DC} per MIL-STD-704E
	Voltage Range	Steady state: 18 to 50 V_{DC}
	Transients	No damage when expose to the following transients IAW MIL-STD-1275E: 12V, 1sec 16V,30sec 100V, 50msec
	Isolation	Input to Output: 200 VDC Input to Case: 200 VDC
	Input Reverse Polarity	Protection for unlimited time
	Under-Voltage Lock-Out	The unit shuts down below 16V ± 1V.
	Over-Voltage Lock-Out	The unit shuts down above 52V ± 1V.
DC Output	***Rating***	See table on page 7
	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).
	Ripple	120-300 mVp-p, typical (max. 1% of output voltage)
	Isolation	Output to Case: 100 VDC
	Overvoltage Protection	• **Passive Over-Voltage Protection:** Zener diode installed on output terminals, selected at 120% ± 10% of nominal voltage. • **Active Over-Voltage Protection:** The secondary control circuit takes the over if output voltage exceeds 110% ± 5% of nominal voltage. Beyond this, output voltage clamps.
	Efficiency	Typical: 90% (28V_{DC} output, nominal input, full load, room temperature)
	Current Limit & Overload	Output voltage turns off and on periodically with low duty cycle (hiccup) to protect system conductors and converter from short circuit

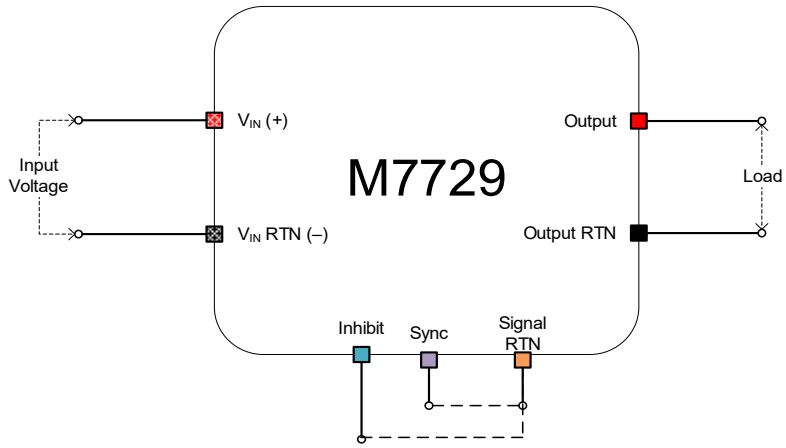
	Over Temp. Protection	Output shuts down if base plate temperature exceeds +105°C ± 5°C. Automatic recovery when baseplate temperature returns to below +95°C ± 5°C.

Specifications (Cont.):

Control & Indication	***INHIBIT Signal***	The **INHIBIT** signal is used to turn the power supply ON and OFF. To turn the power supply OFF, apply low level or SHORT to **SIGNAL RTN**. To turn the power supply ON, apply high level (up to 5v) or leave this pin OPEN. If not used (always ON), leave this pin OPEN. The ground for this signal is **SIGNAL RTN.** **ENABLE Signal** - Optional - Please consult factory. To turn the power supply OFF, apply high level (up to 5v) or leave this pin OPEN. To turn the power supply ON, apply low level or SHORT to **SIGNAL RTN.**
	SYNC IN	The **SYNC IN** signal is used to allow the power supply frequency to sync with the system frequency. The system frequency should be 290 kHz ± 10 kHz. When not connected the power supply will work at 290 kHz ± 10 kHz. The ground for this signal is **SIGNAL RTN.**
	SIGNAL RTN	INHIBIT and SYNC signals are referenced to this pin. This pin is referred to **INPUT RTN**.
Environment Designed to meet MIL-STD-810F	***Temperature***	Methods 501.4 & 502.4 Operating: –55 °C to +85 °C (at baseplate) Storage: –55 °C to +125 °C (ambient)
	Humidity	Method 507.4 Up to 95% RH
	Salt-fog	Method 509.4
	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)
	Mechanical Shock	Method 516.5 Procedure I 20 g / 11 ms terminal peak half-sine shock pulse

	Vibration	Category 24: Minimum integrity, IAW figure E-3, 7.7 grams, 1 hour per axis.
	Fungus	Does not support fungus growth, in accordance with the guidelines of MIL-STD-454, Requirement 4.
EMI	***MIL-STD-461F***	Designed to meet* MIL-STD-461F CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103 *EMI Compliance achieved with 5µH LISN, shielded harness and static resistive load.
Reliability	150,000 hours, calculated per MIL-HDBK-217F Notice 2 at +85 °C baseplate, Ground Fix conditions.	
Cooling Requirements	The M7729 is a baseplate cooled unit. The base of the M7729 should be thermally attached to a suitable heatsink that maintains it below +85 °C.	
Weight	Approx. 350g Typical	
Connectors	**Connector: M24308/24-40F or eq.** **Mates with: M24308/2-4F or eq.**	

TYPICAL CONNECTION DIAGRAM



Outputs Range

Output #	Voltage Range	Current Range	Output Regulation	Power Range
1	12 to 28 V_{DC}	20A max	±1%	400W max

PIN ASSIGNMENT:

Connector: M24308/24-40F or eq.

Mates with: M24308/2-4F or eq.

Pin No.	Function	P
1	OUTPUT	+
2	OUTPUT	+
3	OUTPUT	+
4	OUTPUT RTN	-
5	OUTPUT RTN	-
6	OUTPUT RTN	-
7	INPUT RTN	-
8	INPUT RTN	-
9	INPUT RTN	-
10	INPUT RTN	-
11	INPUT RTN	-
12	INPUT RTN	-
13	INPUT	+

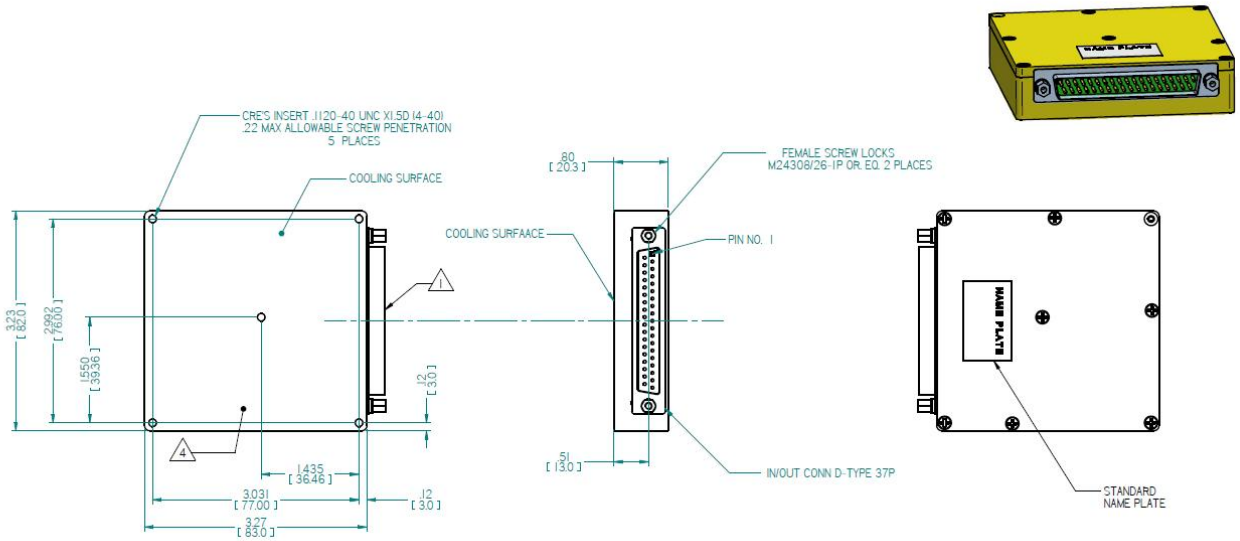
Pin No.	Function	P
14	INPUT	+
15	INPUT	+
16	INPUT	+
17	INPUT	+
18	SIGNAL RTN	
19	SYNC IN	
20	OUTPUT	+
21	OUTPUT	+
22	OUTPUT	+
23	OUTPUT RTN	-
24	OUTPUT RTN	-
25	OUTPUT RTN	-
26	OUTPUT RTN	-

Pin No.	Function	P
27	INPUT RTN	-
28	INPUT RTN	-
29	INPUT RTN	
30	INPUT RTN	-
31	INPUT	+
32	INPUT	+
33	INPUT	+
34	INPUT	+
35	INPUT	+
36	INPUT	+
37	INHIBIT	

Note: All pins with identical function/designation should be connected together for optimal performance.

OUTLINE DRAWING:

For detailed dimensions and tolerances see Drawing: M7729001



NOTES :
1. CONNECTOR D-TYPE 37P, M24308/24-40F OR EQ.
2. MTL. AL 6061-T651, AL 5052-H32.
3. FINISH: CHROMATE CONVERSION COATING PER MIL -DTL-5541, LAST REVISION, TYPE I, CLASS 1A, OR EQ.
4. HEAT DISSIPATION AREA- 10.5 [IN²].
5. WORKMANSHIP SHALL BE MIL-STD-454, REQT. 9

	GENERAL TOLERANCES
DIMENSIONS ARE INCH [MM]	.XX ± .02
DO NOT SCALE DRAWING	.XXX ± .010
	ANGLES ± .5°

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