

M8747 SERIES

DC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

- **MINIATURE**
- **HIGH DENSITY**
- **QUAD OUTPUT**
- **DC/DC CONVERTER**
- **UP TO 100W**

THE MAIN FEATURES OF THE M8747 ARE:

- Miniature size
- High efficiency
- Wide input range
- Up to 15 W/IN³
- Input / Output isolation
- Fixed switching frequency (250 kHz)
- TTL logic enable
- EMI filters included
- Indefinite short circuit protection with auto-recovery
- Input over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery

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SPECIFICATIONS:

DC Input	DC Input range	18 to 48 VDC
	Isolation	Input to Output: 200 VDC Input to Case: 200 VDC
	Input transient protection	No damage when exposed to: MIL-STD-1275E (100V for 50 mSec) and MIL-STD-704A (80V for 0.1 Sec)
	Under-Voltage Lock-Out	Unit shuts down if input voltage falls below $16\text{ V} \pm 1\text{ V}$, and turns back on at $17\text{ V} \pm 1\text{ V}$.
	Over-Voltage Lock-Out	Unit shuts down if input voltage rises above $54\text{ V} \pm 2\text{ V}$, and turns back on at $52\text{ V} \pm 2\text{ V}$.
DC Output	Voltage Regulation	$\pm 1\%$ or better (no load to full load, low line to high line, -46°C to $+85^\circ\text{C}$).
	Line/Load regulation	Less than $\pm 1\%$ (no load to full load, -55°C to $+85^\circ\text{C}$)
	Ripple and Noise	50mVp-p, typical (max. 1%)
	Isolation	100V between Output and Case
	Current Limit & Overload	<u>Output 1 and 2:</u> Current limit (10-30% above maximum current) for unlimited time. <u>Output 3 and 4:</u> Foldback
	Efficiency	Up to 82%
	Overvoltage Protection	Output Over-Voltage Protection: Passive transorb on output. The power supply shall protect the outputs from overvoltage greater than 110-130% of the specified output voltage.
	Over Temp. Protection	Shutdown at baseplate temperature of $+100^\circ\text{C} (\pm 5^\circ\text{C})$ Automatic recovery at baseplate temperature lower than $+90^\circ\text{C} (\pm 5^\circ\text{C})$

M8747 SERIES DC/DC POWER SUPPLY

Specifications (Cont.):

Control & Indication	<i>INHIBIT Signal</i>	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.
	<i>SYNC</i>	The SYNC signal is used to allow the power supply frequency to sync with the system frequency. The system frequency should be 250 kHz $\pm$ 10 kHz. When not connected the power supply will work at 250 kHz $\pm$ 10 kHz. <u>Referenced to:</u> SIGNAL RTN
	<i>SIGNAL RTN</i>	The SIGNAL RTN is used as a return path for SYNC and INHIBIT signals. This pin is referenced to VIN RTN.

M8747 SERIES DC/DC POWER SUPPLY

	SENSE	<u>OUT 1 SENSE</u> 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 OUT 1 SENSE to OUT 1 and - OUT 1 SENSE RTN to - OUT 1. 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 <u>OUT 2 SENSE</u> 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 OUT 2 SENSE to OUT 2 and - OUT 2 SENSE RTN to - OUT 2 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.
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 (including condensation)
	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 Saw-tooth, 20 g peak, 11 ms.

M8747 SERIES DC/DC POWER SUPPLY

	Vibration	Method 514.5 Figure 514.5C-17 general minimum integrity exposure (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 M8747 is a baseplate cooled unit. The base of the M8747 should be thermally attached to a suitable heatsink that maintains it below +85 °C.	
Weight	Approx. 170 g.	
Connectors	Connector type – Airborn RM272-040-312-2900 or eq.	

M8747 SERIES DC/DC POWER SUPPLY

PIN ASSIGNMENT

Pin No.	Pin Function
1	INHIBIT
2	SYN IN.
3	- OUT 2 SENSE RTN
4	- OUT 1
5	- OUT 1
6	- OUT 1 SENSE RTN
7	+ OUT 1
8	+ OUT 1
9	+ OUT 1 SENSE
10	-OUT 3
11	+ OUT 2 SENSE
12	+ OUT 3
13	- VIN
14	+ VIN

Pin No.	Pin Function
15	- OUT 4
16	+ OUT 4
17	- OUT 2
18	- OUT 2
19	- OUT 2
20	- OUT 2
21	SIGNAL RTN
22	CHASSIS
23	- OUT 1
24	- OUT 1
25	- OUT 1
26	- OUT 1
27	+ OUT 1
28	+ OUT 1

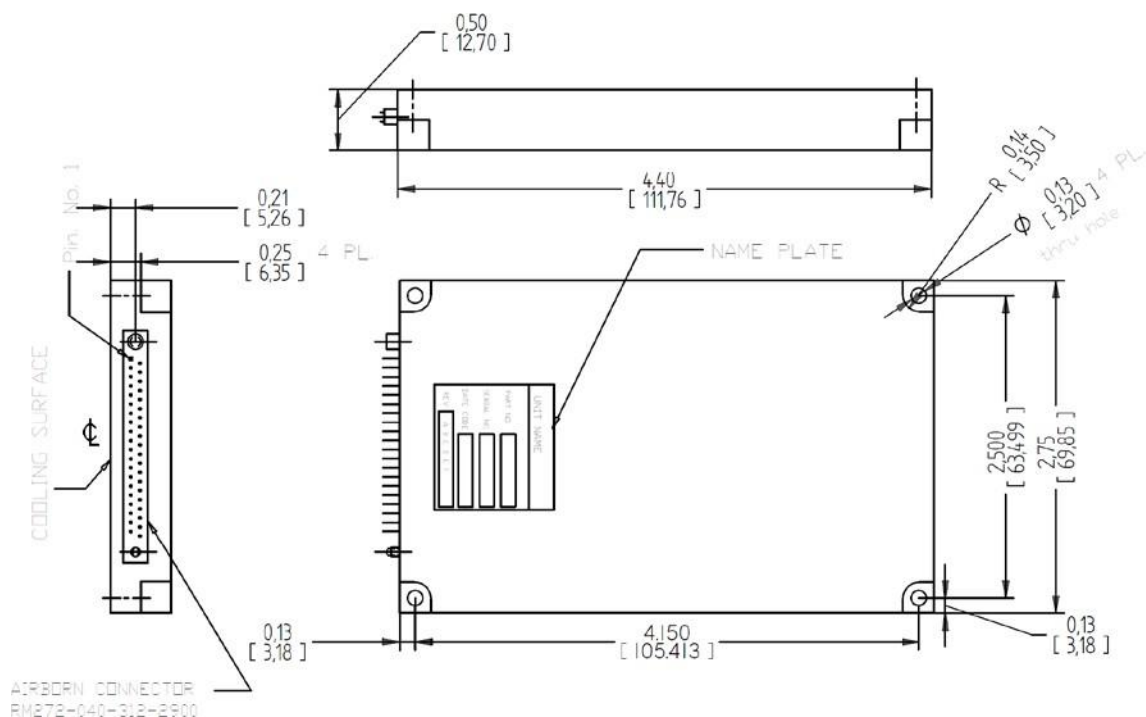
Pin No.	Pin Function
29	+ OUT 1
30	+ OUT 1
31	- VIN
32	- VIN
33	- VIN
34	+ VIN
35	+ VIN
36	+ VIN
37	+ OUT 2
38	+ OUT 2
39	+ OUT 2
40	+ OUT 2

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

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OUTLINE DRAWING

For detailed dimensions and tolerances see Drawing: M8747001



Notes

1. Dimensions are in Inches [mm]
2. Tolerance is:
.XX ± 0.01 in
.XXX ± 0.005 in
3. Weight: Approx. 6 oz (170 g)

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