

M814 SERIES

DC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

- MINIATURE, HIGH DENSITY
- EIGHT OUTPUTS
- UP TO 145 W
- DC/DC POWER SUPPLY



Applications

Military (airborne, mobile, shipboard), ruggedized, Telecom, Industrial Power Supply

Special Features

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- Outputs groups isolation
- Fixed switching frequency (~250 kHz)
- External synchronization capability
- Remote inhibit
- EMI filters included
- Non-latching protections:
 - Overload / short-circuit protection
 - Input under/over-voltage lockout
 - Over temperature shutdown

Environmental Conditions

Meets or exceeds MIL-STD-810G

Temperature:

Operating -55 °C to +85 °C (at baseplate)

Storage -55 °C to +125 °C

Reliability

150,000 hours, calculated IAW MIL-HDBK-217F

Notice 2 at +85°C baseplate, Ground Fixed conditions.

Electrical Specifications

DC INPUT

Voltage range: 18 to 70 V_{DC}

Transient protection: protected against abnormal surge IAW MIL-STD-1275A (100 V / 50 ms) and MIL-STD-704A (80 V / 0.1 s)

Efficiency: Up to 80%

EMC: Designed to meet MIL-STD-461F*
CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103

Isolation:

Input to Output: 200 V_{DC}

Input to Case: S200 V_{DC}

DC OUTPUTS

Voltage regulation:

≤ ±1% (low to high line voltage, no load to full load, -55 °C to +85 °C)

Ripple and Noise: 50 mV_{p-p}, typ. (max. 1%)

Overcurrent protection:

current limit (CC) beyond threshold.

Over voltage protection: Passive protection.

Over temperature protection:

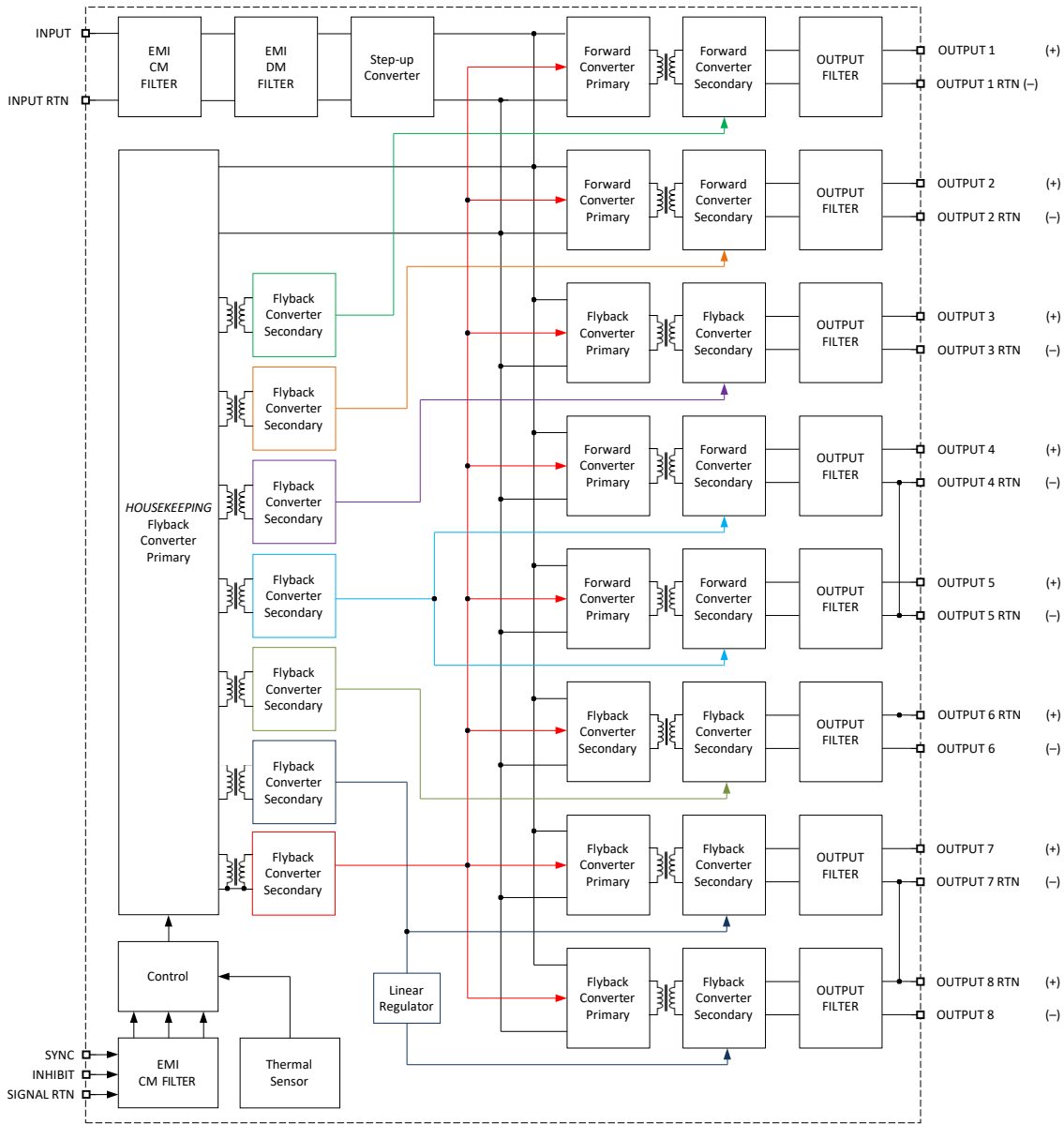
Shutdown if baseplate temperature exceeds +105 °C ± 5 °C; Automatic recovery upon baseplate cooldown to below +95 °C ± 5 °C.

Isolation:

Output and Case: 100 V_{DC}

*EMC compliance achieved when tested with 5 μH LISNs , shielded harness and static resistive load

Operational Block Diagram



Outputs Configuration Range

Output #	Voltage Range	Current Range	Power Range
1	2.5 to 70 V _{DC}	0 to 10 A	0 to 45 W
2	2.5 to 70 V _{DC}	0 to 6 A	0 to 45 W
3	2.5 to 28 V _{DC}	0 to 2 A	0 to 15 W
4	2.5 to 28 V _{DC}	0 to 2 A	0 to 35 W
5	2.5 to 28 V _{DC}	0 to 2 A	0 to 20 W
6	2.5 to 28 V _{DC}	0 to 2 A	0 to 12 W
7	2.5 to 28 V _{DC}	0 to 1 A	0 to 15 W
8	-2.5 to -28 V _{DC}	0 to 1 A	0 to 15 W
Total			0 to 145 W

Outputs Isolation (Ground RTN groups)

- All outputs are isolated from the input.
- Outputs are separated into the following six galvanically isolated groups:
 - Group A: Output #1
 - Group B: Output #2
 - Group C: Output #3
 - Group D: Outputs #4 and #5
 - Group E: Output #6
 - Group F: Outputs #7 and #8

Pin Assignment

Connector type: M55302/61-A40 or eq.

Mating connector type: M55302/62-A40M (solder cup termination) or M55302/66-40M (#22 AWG crimp termination) or eq.

Pin #	Function	P	
1	INPUT	+	●
2	INPUT	+	●
3	INPUT	+	●
4	INPUT RTN	-	●
5	INPUT RTN	-	●
6	OUT 6 RTN	-	○
7	OUT 6	+	●
8	OUT 5	C	●
9	OUT 4,5 RTN	-	○
10	OUT 4	+	●
11	OUT 1 RTN	-	○
12	OUT 1 RTN	-	○
13	OUT 1	+	●
14	OUT 1	+	●

Pin #	Function	P	
15	OUT 2	+	●
16	OUT 2 RTN	-	○
17	OUT 8	-	●
18	OUT 7,8 RTN		●
19	OUT 7	+	●
20	OUT 3 RTN	-	○
21	INPUT	+	●
22	INPUT	+	●
23	INPUT RTN	-	●
24	INPUT RTN	-	●
25	INPUT RTN	-	●
26	INHIBIT	+	●
27	SIGNAL RTN	-	●
28	SYNC	+	●

Pin #	Function	P	
29	OUT 4,5 RTN	-	○
30	OUT 1 RTN	-	○
31	OUT 1 RTN	-	○
32	OUT 1	+	●
33	OUT 1	+	●
34	OUT 2	+	●
35	OUT 2 RTN	-	○
36	CHASSIS		●
37	OUT 7,8 RTN		●
38	OUT 3	+	●
39	OUT 3	+	●
40	OUT 3 RTN	-	○



Signals Description

INHIBIT (pin 26)

The ***INHIBIT*** signal is used to turn the power supply ON and OFF.

TTL "1" or OPEN – Power supply active (output turned on).

TTL "0" or SHORT to ***SIGNAL RTN*** – Power supply inhibited (output turned off).

If this function is not required, leave this pin unconnected.

This signal is referenced to ***SIGNAL RTN*** (pin 27)

SYNC (pin 28)

The ***SYNC*** signal is used to synchronize the power supply's switching frequency to system's clock.

If this function is not required, leave this pin unconnected - the power supply will use its internal clock.

External clock frequency can be between 240 kHz to 260 kHz, with duty cycle of 40% to 60%.

Valid clock voltage level is between 5 to 12 V.

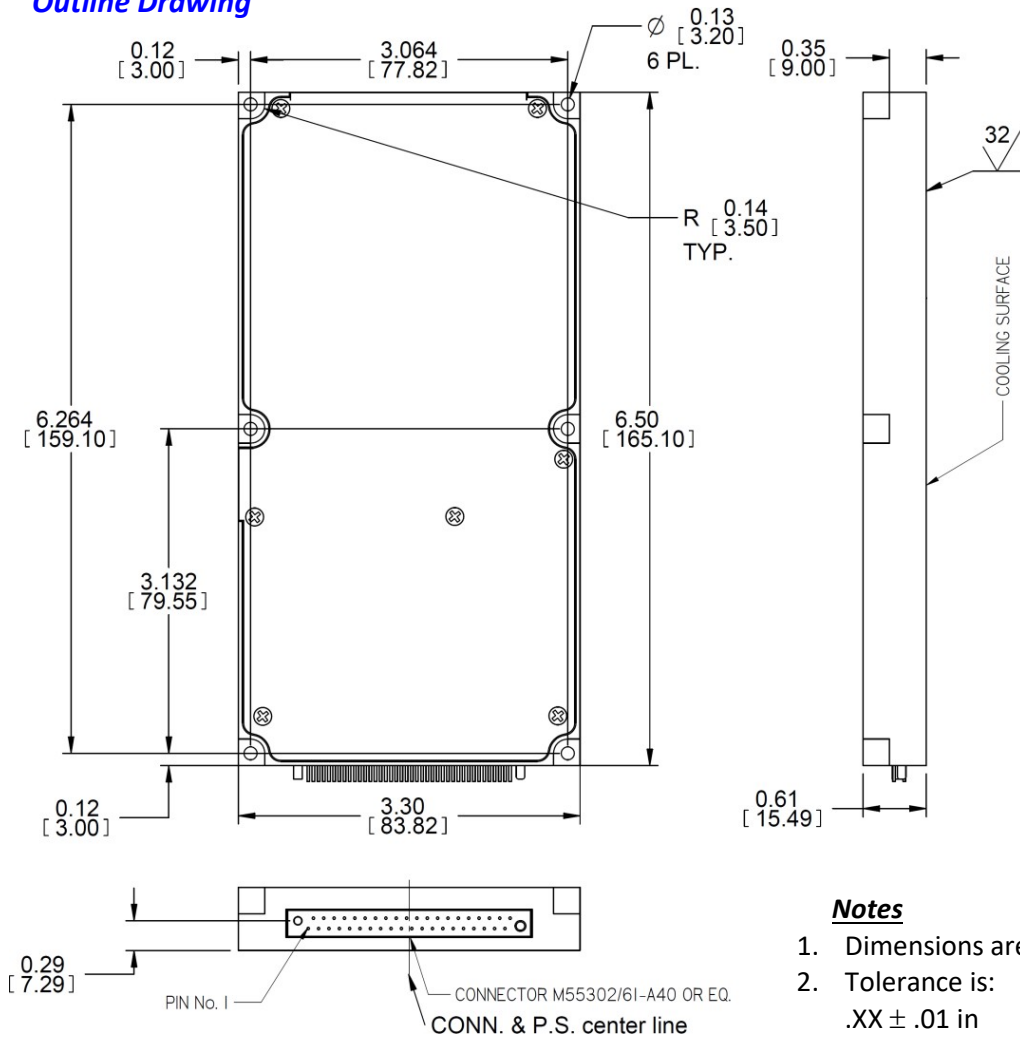
This signal is referenced to ***SIGNAL RTN*** (pin 27)

SIGNAL RTN (pin 27)

Both ***INHIBIT*** and ***SYNC*** signals are referenced to this pin.

This pin is referenced to ***INPUT RTN*** (pins 4, 5, 23, 24 and 25).

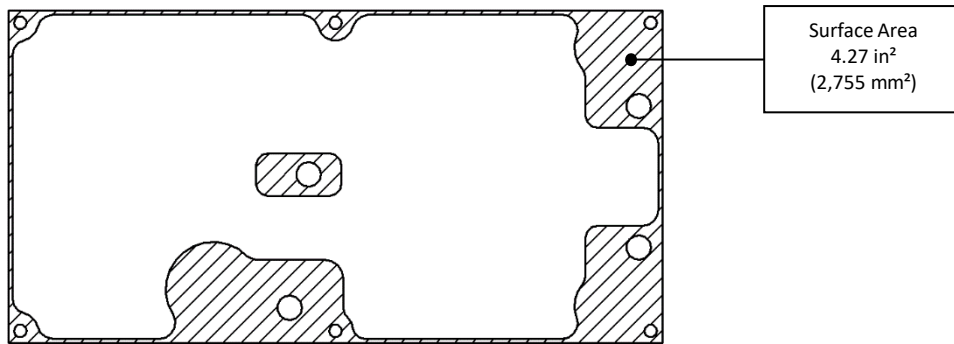
Outline Drawing



Notes

1. Dimensions are in inches [mm]
2. Tolerance is:
 .XX ± .01 in
 .XXX ± .005 in
3. Weight: TBD

Heat Dissipation Surface Area



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