

M802 SERIES

DC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

- **MINIATURE**
- **HIGH DENSITY**
- **EIGHT OUTPUTS**
- **DC/DC CONVERTER**
- **UP TO 145W**

Applications

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

Special Features

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

Environmental Conditions

Meets MIL-STD-810G

Temperature:

Operating: $-55\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$ (baseplate)

Storage: $-55\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$

Reliability

150,000 hours, calculated IAW

MIL-HDBK-217F at $+85\text{ }^{\circ}\text{C}$ baseplate,

Ground Fix conditions.

Electrical Specifications

DC INPUT

Voltage range: 18 to 70 V_{DC}

Abnormal transients: Protected

from

transients IAW MIL-STD-1275A ($100\text{ V} / 50\text{ ms}$) and MIL-STD-704A ($80\text{ V} /$

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:

200 V_{DC}

DC OUTPUTS (groups floating)

Output voltage regulation: Less than $\pm 1\%$
(no load to full load, $-55\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$)

Ripple and Noise: $50\text{ mV}_{\text{p-p}}$, typ. (max. 1%)

Current limiting:

Continuous protection for unlimited

time Over voltage protection:

Passive transorbs on outputs.

Over temperature protection:

Shutdown if baseplate temperature exceeds $+105\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$; Automatic recovery upon baseplate cooldown to below $+95\text{ }^{\circ}\text{C} \pm$

$5\text{ }^{\circ}\text{C}$. Isolation:

Output to Case: 100 V_{DC}

*EMC compliance achieved when tested with $5\text{ }\mu\text{H}$ LISNs, shielded harness and static resistive load.

Functions and Signals

INHIBIT

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

TTL "1" or OPEN – Power supply is ON (For normal operation, leave this pin unconnected.) TTL

"0" or SHORT to ***SIGNAL RTN*** – Power supply is OFF.

SYNC

The ***SYNC*** signal is used to allow the power supply's switching frequency to sync with the system clock. The external clock's frequency can be $250 \text{ kHz} \pm 10 \text{ kHz}$.

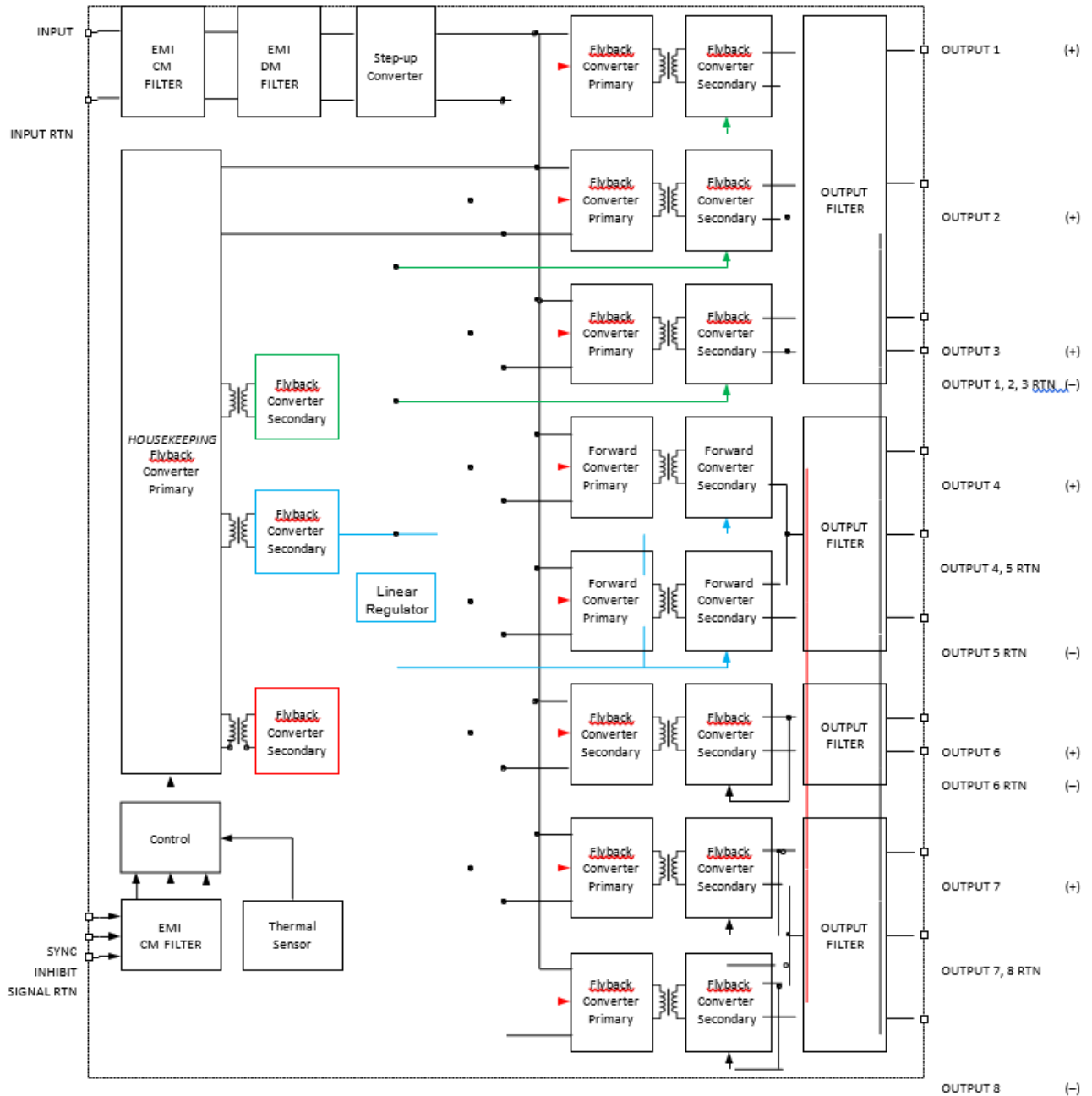
When this pin is left open (unconnected) the power supply will synchronize to its internal clock, set at $250 \text{ kHz} \pm 10 \text{ kHz}$

SIGNAL RTN

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

TYPE A

Operational Block Diagram



Outputs Isolation (Ground RTN groups)

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

TYPE A

Outputs Configuration Range

Output #	Voltage Range	Current Range	Power Range
1	1.25 to 100 VDC	0 to 5 A	10A total 0 to 20 W
2	1.25 to 100 VDC	0 to 5 A	
3	1.25 to 100 VDC	0 to 5 A	
4	1.25 to 50 VDC	0 to 8 A	10A total 0 to 45 W
5	-1.25 to -50 VDC	0 to 8 A	
6	5 to 18 VDC	0 to 5 A	0 to 20 W
7	5 to 18 VDC	0 to 1 A	0 to 15 W
8	-5 to -18 VDC	0 to 1 A	0 to 15 W
Total			0 to 150 W

Pin Assignment

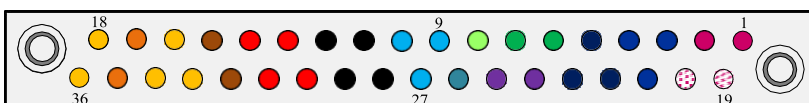
Connector type: M55302/61-A36 or eq.

Mating connector type: M55302/62-A36M (solder cup termination) or M55302/66-32M (#22 AWG crimp termination) or eq.

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

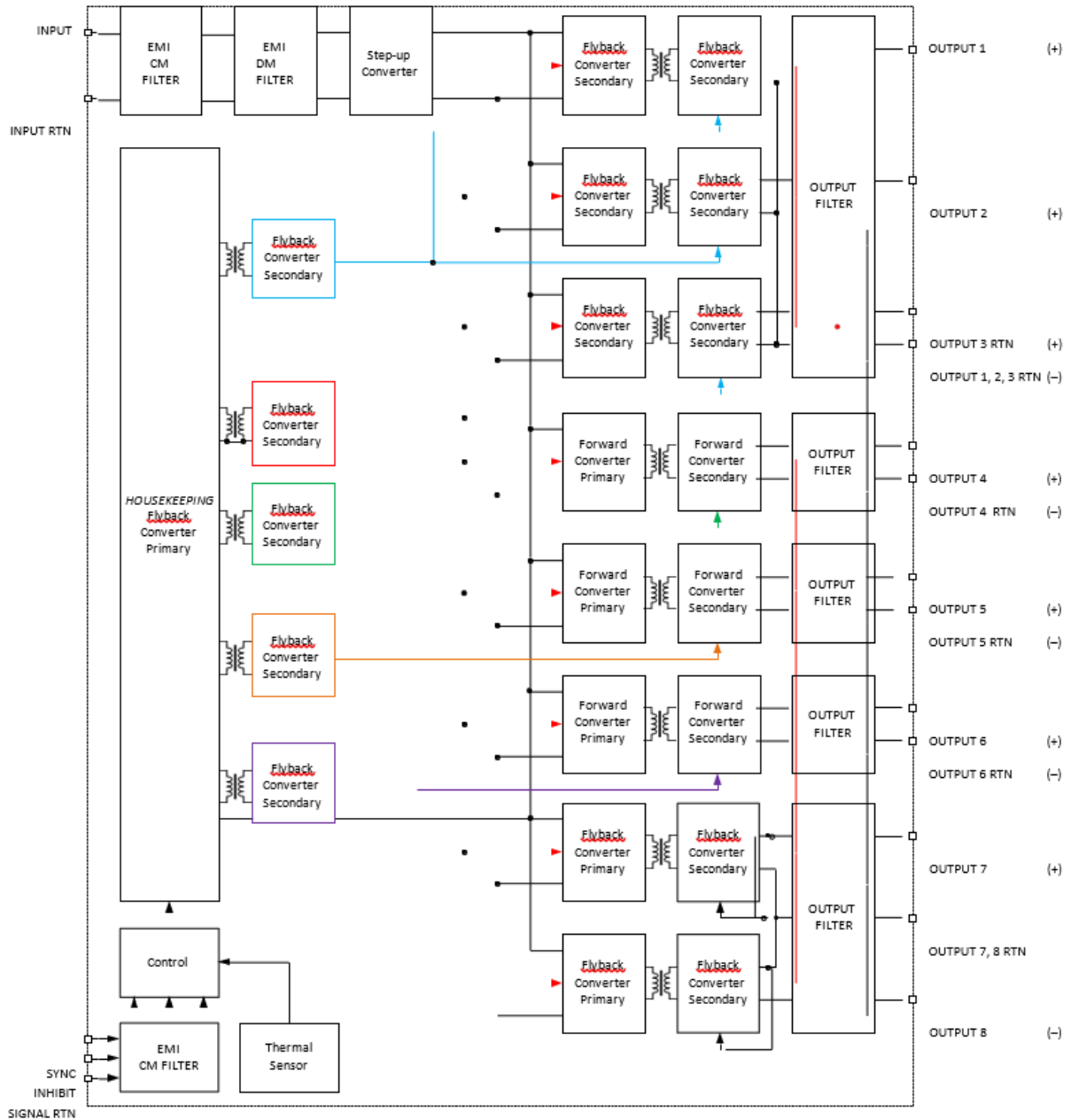
Pin #	Function	P	
13	INPUT	+	●
14	INPUT	+	●
15	OUT 1	+	●
16	OUT 1,2,3 RTN	-	●
17	OUT 2	+	●
18	OUT 3	+	●
19	OUT 6 RTN	-	●
20	OUT 6 RTN	-	●
21	OUT 5	-	●
22	OUT 4,5 RTN		●
23	OUT 4,5 RTN		●
24	SYNC	+	●

Pin #	Function	P	
25	SIGNAL RTN	-	●
26	INHIBIT	+	●
27	OUT 4	+	●
28	INPUT RTN	-	●
29	INPUT RTN	-	●
30	INPUT	+	●
31	INPUT	+	●
32	OUT 1	+	●
33	OUT 1,2,3 RTN	-	●
34	OUT 1,2,3 RTN	-	●
35	OUT 2	+	●
36	OUT 3	+	●



TYPE B

Operational Block Diagram



Outputs Isolation (Ground RTN groups)

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

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TYPE B

Outputs Configuration Range

Output #	Voltage Range	Current Range	Power Range
1	1.25 to 100 V _{DC}	0 to 8 A	0 to 25 W
2	1.25 to 100 V _{DC}	0 to 5 A	0 to 10 W
3	1 to 100 V _{DC}	0 to 5 A	0 to 10 W
4	1.5 to 50 V _{DC}	0 to 5 A	0 to 40 W
5	1.5 to 50 V _{DC}	0 to 5 A	0 to 40 W
6	5 to 18 V _{DC}	0 to 5 A	0 to 25 W
7	5 to 18 V _{DC}	0 to 1 A	0 to 15 W
8	-5 to -18 V _{DC}	0 to 1 A	0 to 15 W
Total			0 to 150 W

Pin Assignment

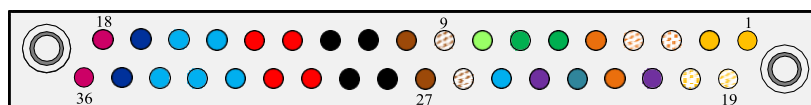
Connector type: M55302/61-A36 or eq.

Mating connector type: M55302/62-A36M (solder cup termination) or M55302/66-32M (#22 AWG crimp termination) or eq.

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

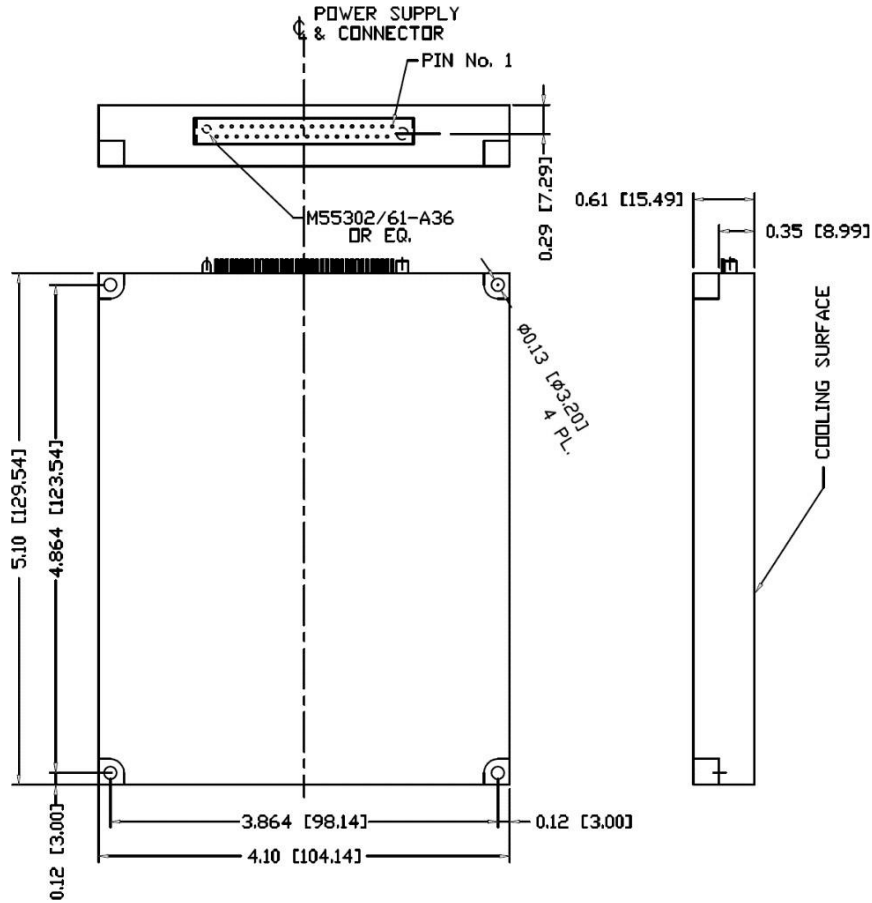
Pin #	Function	P	
13	INPUT	+	●
14	INPUT	+	●
15	OUT 1	+	●
16	OUT 1,2,3 RTN	-	●
17	OUT 2	+	●
18	OUT 3	+	●
19	OUT 6 RTN	-	⊙
20	OUT 6 RTN	-	⊙
21	SIGNAL RTN	-	●
22	OUT 5	+	●
23	INHIBIT	+	●
24	SYNC	+	●

Pin #	Function	P	
25	OUT 1	+	●
26	OUT 4 RTN	-	⊙
27	OUT 4	+	●
28	INPUT RTN	-	●
29	INPUT RTN	-	●
30	INPUT	+	●
31	INPUT	+	●
32	OUT 1	+	●
33	OUT 1,2,3 RTN	-	●
34	OUT 1,2,3 RTN	-	●
35	OUT 2	+	●
36	OUT 3	+	●

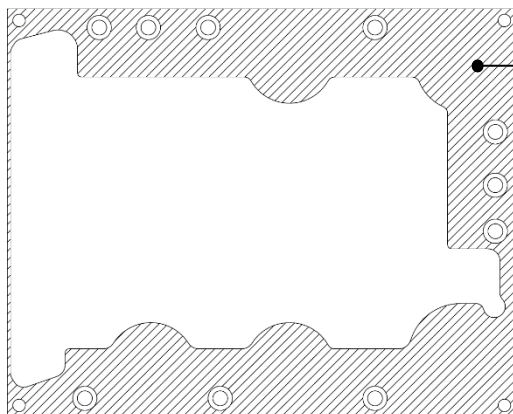


TYPES A+B

Outline Drawing



Heat Dissipation Surface



Surface Area
8.308 in² (5,360 mm²)

Notes

1. Dimensions are in inches [mm]
2. Tolerance is:
.XX ± 0.01 in
.XXX ± 0.005 in
3. Weight: Approx. 14 oz [400 g]

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