M8637 SERIES

DC/DC POWER SUPPLY

PRODUCT HIGHLIGHTS

- **MINIATURE**
- **HIGH DENSITY**
- **TRIPLE OUTPUT**
- **DC/DC CONVERTERS**
- **UP TO 125W**

Applications

Military, Ruggedized, Telecom, Industrial

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
- Indefinite short circuit protection with auto-recovery
- Over temperature protection

Environmental Conditions

Designed to meet MIL-STD-810F

Temperature:
Operating –55 °C to +85 °C (baseplate)
Storage –55 °C to +125 °C

Altitude:
Method 500.4, Procedures I & II up to 70,000 ft. Operational

Humidity:
Method 507.4 - Up to 95% RH (including condensation)

Salt Fog:
Method 509.4

Vibration and Shock:
Shock: Saw-tooth, 20 g peak, 11 ms.
Vibration: Figure 514.5C-17 general minimum integrity exposure (1 hour per axis)

Reliability

150,000 hours calculated per MIL-STD-217F Notice 2, at +85 °C baseplate, Ground Fixed.

Electrical Specifications

DC INPUT

Normal voltage range: 18 to 70 V_{DC}
Option: 12 to 70 V_{DC} – *consult factory*

Abnormal transient protection:
No damage (may shut down) when exposed to abnormal transients IAW MIL-STD-1275A (100 V for 50 ms) and MIL-STD-704A (80 V for 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 OUTPUT (floating)

Line/Load regulation:
Up to ±1% (no load to full load, –55 °C to +85 °C)

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

Current limiting (Hiccup):
Continuous protection for unlimited time

Over Voltage Protection:
Passive transorbs on outputs.

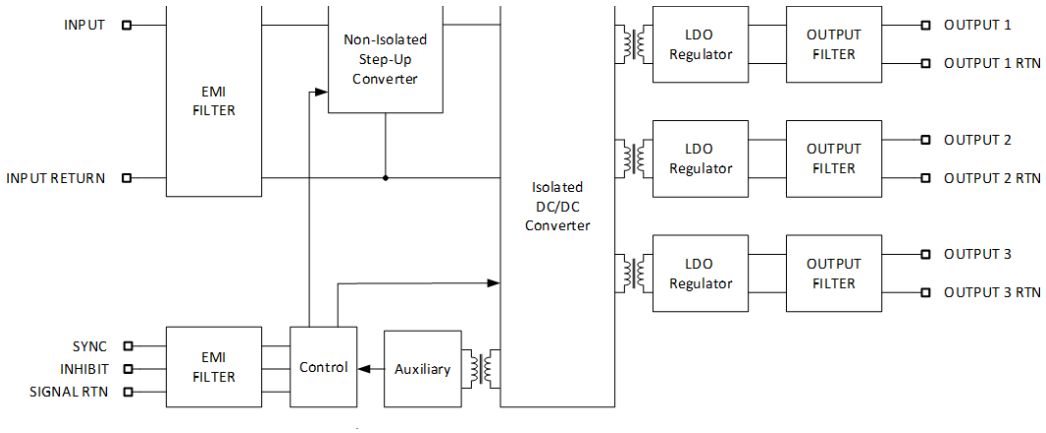
Over Temperature

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

Isolation:
Output to Case: 100 V_{DC}

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

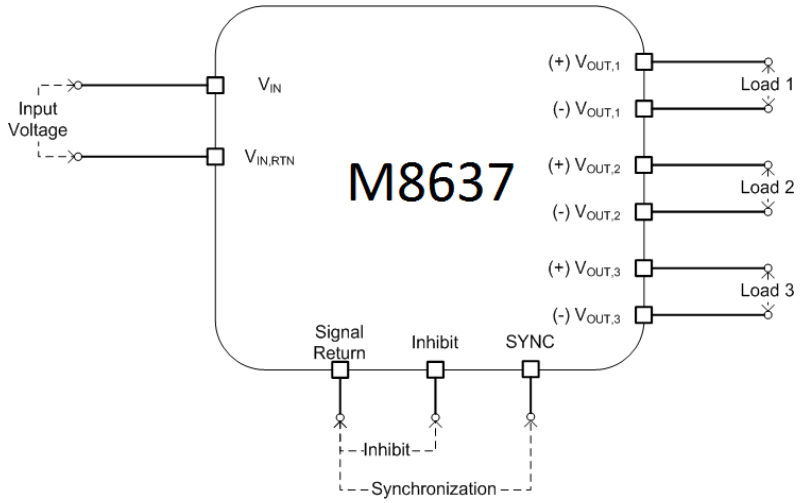
Operational Block Diagram



Outputs Range

Output #	Voltage Range	Current Range	Power Range
1	3.3 to 28 V_{DC}	0 to 10 A	0 to 50 W
2	3.3 to 28 V_{DC}	0 to 6 A	0 to 50 W
3	7 to 28 V_{DC}	0 to 6 A	0 to 50 W
Total			0 to 125 W

Typical Connection Diagram



*Pin Assignment**

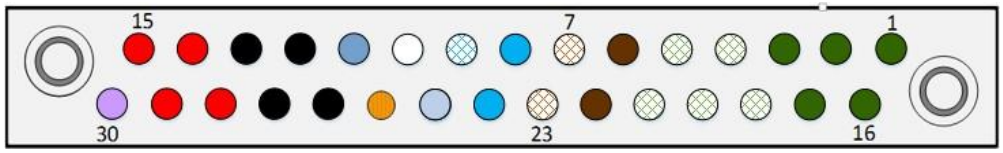
Connector type: 55302/61-A30

Mates with: M55302/62-A30M (solder cup termination) or M55302/66-30M (#22 AWG crimp termination) or eq.

Pin No.	Function
1	OUT 1 (+)
2	OUT 1 (+)
3	OUT 1 (+)
4	OUT 1 RTN (–)
5	OUT 1 RTN (–)
6	OUT 2 (+)
7	OUT 2 RTN (–)
8	OUT 3 (+)
9	OUT 3 RTN (–)
10	N.C.

Pin No.	Function
11	SIGNAL RTN
12	VIN RTN (–)
13	VIN RTN (–)
14	VIN (+)
15	VIN (+)
16	OUT 1 (+)
17	OUT 1 (+)
18	OUT 1 RTN (–)
19	OUT 1 RTN (–)
20	OUT 1 RTN (–)

Pin No.	Function
21	OUT 2 (+)
22	OUT 2 RTN (–)
23	OUT 3 (+)
24	OUT 3 RTN (–)
25	INHIBIT
26	VIN RTN (–)
27	VIN RTN (–)
28	VIN (+)
29	VIN (+)
30	SYNC



* For optimal performance, connect all pins with identical designation together.

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.

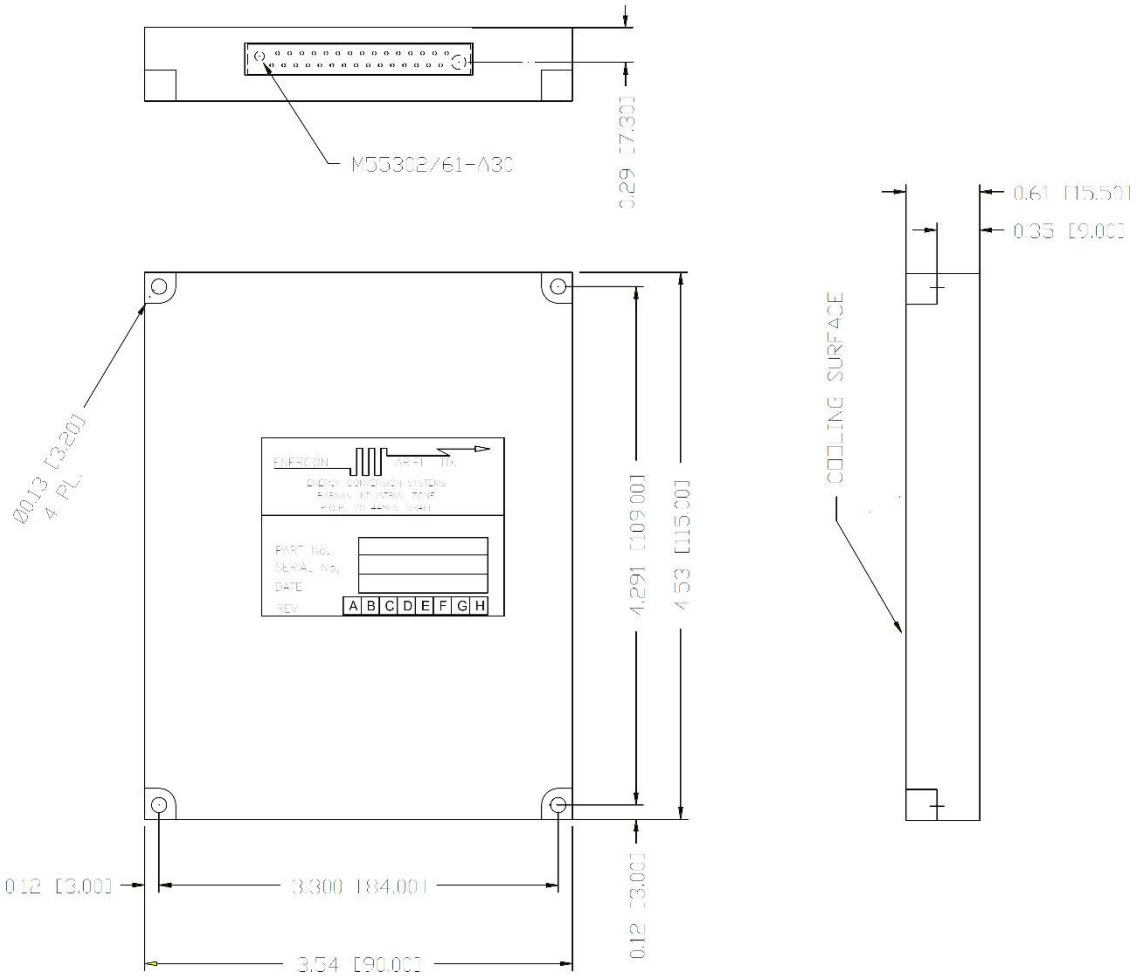
SYNC

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 kHz ± 10 kHz.
When this pin is left open (unconnected) the power supply will synchronize to its internal clock, set at 250 kHz ± 10 kHz.

SIGNAL RTN

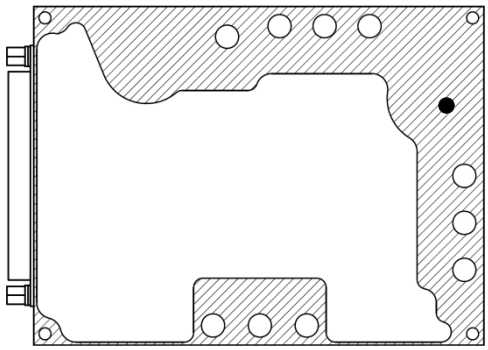
The ***SIGNAL RTN*** is used as a return path for the ***SYNC*** and ***INHIBIT*** signals.
This pin is referenced to ***VIN RTN***.

Outline Drawing



1. Dimensions are in inches [mm]
2. Tolerance is:
   .XX ± 0.01 in
   .XXX ± 0.005 in
3. Weight: 13.4 oz [380 g]

Heat Dissipation Surface



Heat Dissipation Area:
6.045 in²
[3,900 mm²]

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