# M811 SERIES

*DC/DC POWER SUPPLY*



## PRODUCT HIGHLIGHTS

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

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Amphenol
MILITARY HIGH SPEED

# M811 SERIES DC/DC POWER SUPPLY

## *Applications*

Military, Ruggedized, Telecom,
Industrial Power Supply

## *Special Features*

- Miniature size
- High efficiency
- Wide input range
- Up to 9.9 W/in$^3$
- 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

## *Environmental Conditions*

Designed to meet MIL-STD-810D

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 Fix conditions.

## *Electrical Specifications*

**DC INPUT**

DC Input range: 18 to 48 $V_{DC}$ Input transient protection:
All models meet or exceed (no damage)
MIL-STD-1275A (100 V for 50 ms) and
MIL-STD-704A, MIL-STD-704D (80 V for 0.1 s)

Over-voltage shutdown with auto-recovery Efficiency: Up to 82%

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:
Less than 2% (no load to full load, –55 °C to +85 °C)

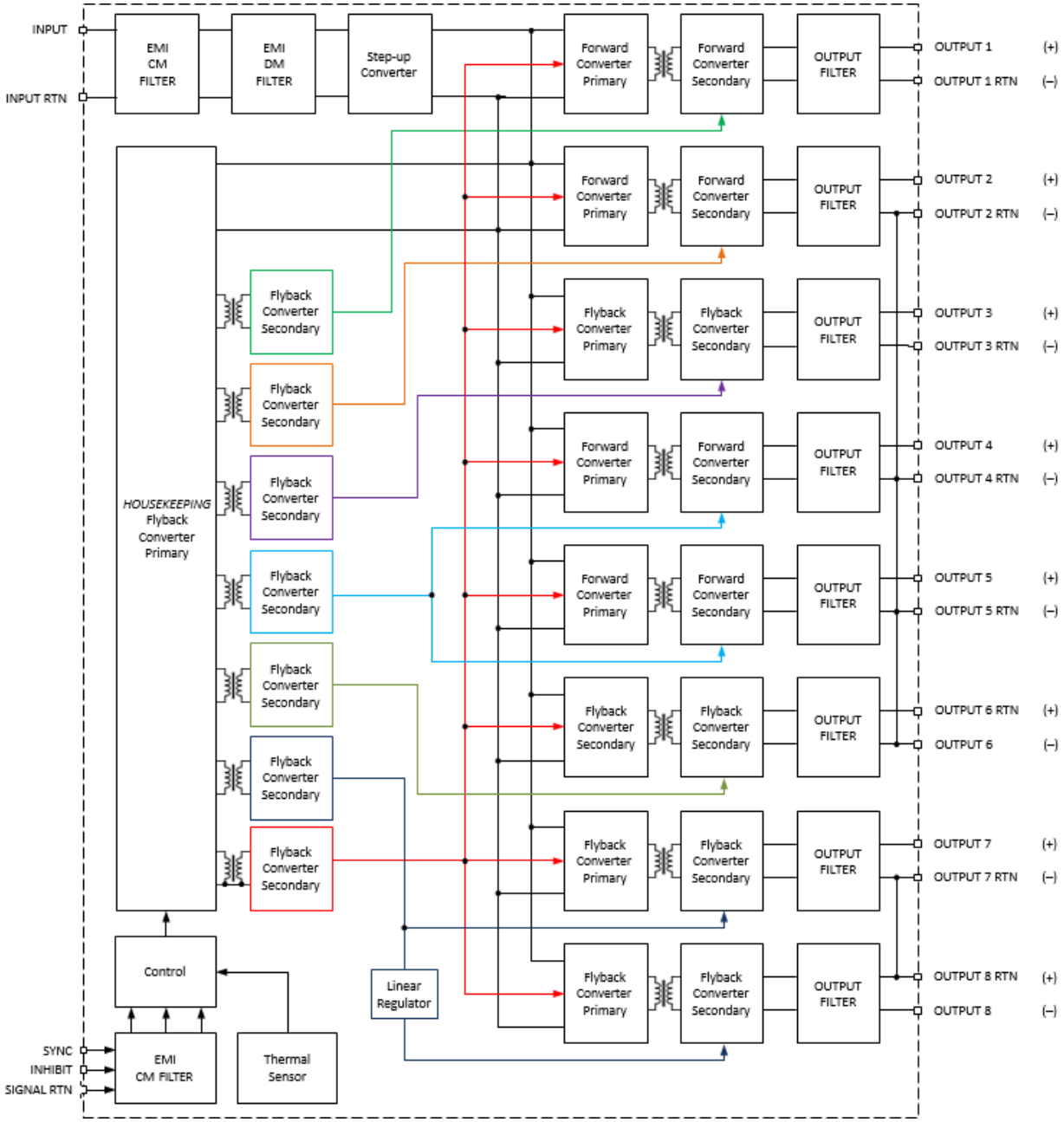
Ripple and Noise: 50 $mV_{p-p}$, typical (max. 1%) Current limiting (Hiccup):
Continuous protection for unlimited time Over-voltage protection:
Passive transorb on output.

Over-temperature protection:
Shutdown if baseplate temperature rises above +100 °C ± 5 °C. Automatic recovery when baseplate cools down to below +90 °C ± 5 °C. Isolation:
Output to Case: 100 $V_{DC}$

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

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## *Operational Block Diagram*




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### *Outputs Configuration Range*

| Output # | Voltage Range | Current Range | Power Range |
|---|---|---|---|
| 1 | 2.5 to 28 $V_{DC}$ | 0 to 3 A | 0 to 40 W |
| 2 | 1.5 to 28 $V_{DC}$ | 0 to 4 A | 0 to 40 W |
| 3 | 2.5 to 28 $V_{DC}$ | 0 to 3 A | 0 to 20 W |
| 4 | 2.5 to 28 $V_{DC}$ | 0 to 5 A | 0 to 30 W |
| 5 | 2.5 to 28 $V_{DC}$ | 0 to 8 A | 0 to 30 W |
| 6 | 1.25 to 28 $V_{DC}$ | 0 to 5 A | 0 to 15 W |
| 7 | 2.5 to 28 $V_{DC}$ | 0 to 2.5 A | 0 to 15 W |
| 8 | -2.5 to -28 $V_{DC}$ | 0 to 2.5 A | 0 to 15 W |
| **Total** | | | 0 to 145 W |

### *Outputs Isolation (Ground RTN groups)*

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

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## *Pin Assignment*

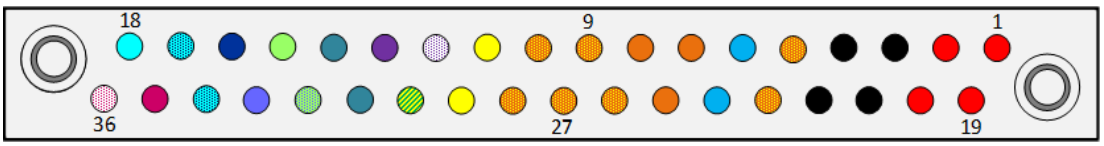
**Connector type:** M55302/61-A36 or eq.

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

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

| Pin # | Function | P |
|---|---|---|
| 13 | OUT 1 | + |
| 14 | OUT 2 | + |
| 15 | INHIBIT | + |
| 16 | OUT 8 | – |
| 17 | OUT 7,8 RTN | |
| 18 | OUT 7 | + |
| 19 | INPUT | + |
| 20 | INPUT | + |
| 21 | INPUT RTN | – |
| 22 | INPUT RTN | – |
| 23 | 2,4,5,6 RTN | – |
| 24 | OUT 6 | + |

| Pin # | Function | P |
|---|---|---|
| 25 | OUT 5 | + |
| 26 | 2,4,5,6 RTN | – |
| 27 | 2,4,5,6 RTN | – |
| 28 | 2,4,5,6 RTN | – |
| 29 | OUT 4 | + |
| 30 | CHASSIS | |
| 31 | OUT 2 | + |
| 32 | SIGNAL RTN | – |
| 33 | SYNC | + |
| 34 | OUT 7,8 RTN | |
| 35 | OUT 3 | + |
| 36 | OUT 3 RTN | – |




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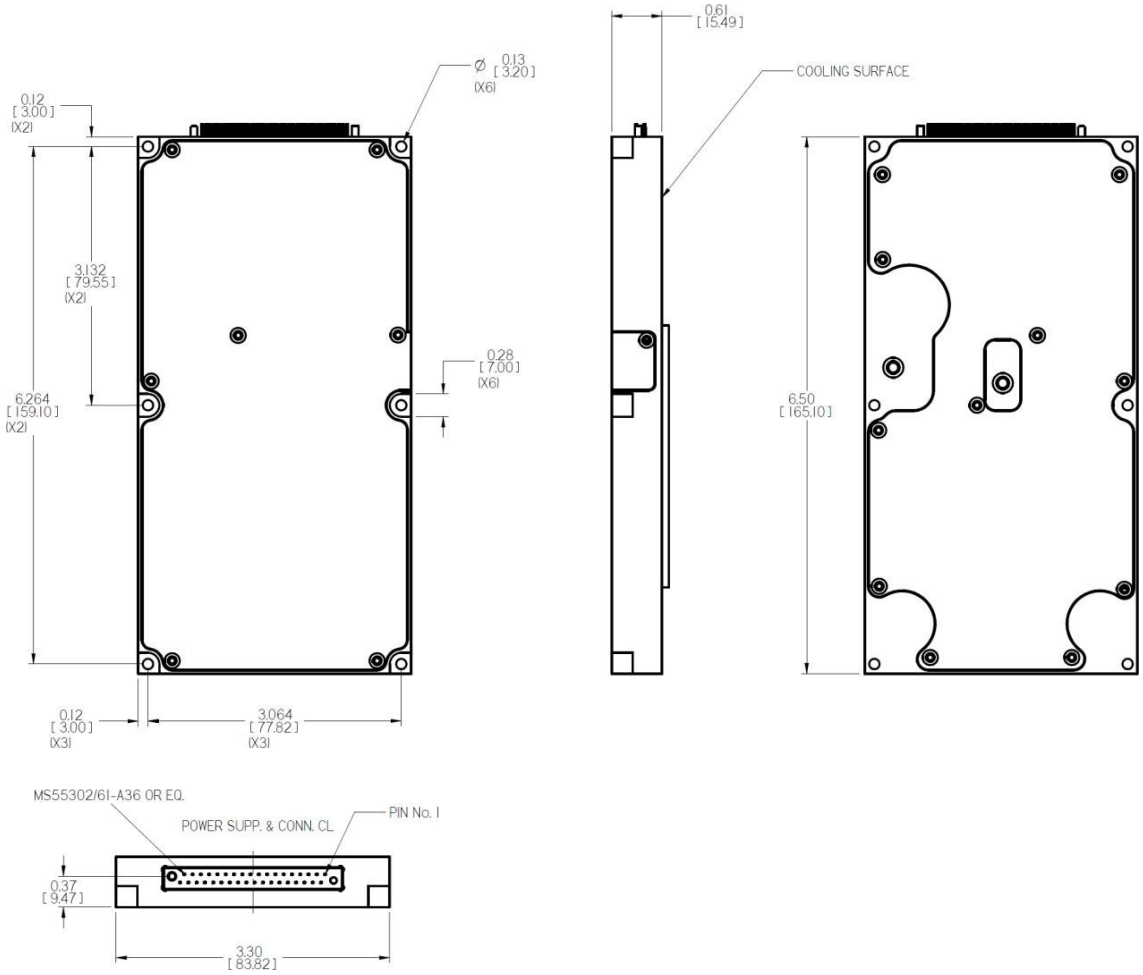
## *Signals Description*

**INHIBIT** (pin 31)
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 32)

**SYNC** (pin 33)
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 32)

**SIGNAL RTN** (pin 32)
Both ***INHIBIT*** and ***SYNC*** signals are referenced to this pin. This pin is referenced to ***INPUT TN*** (pins 3, 4, 21 and 22).

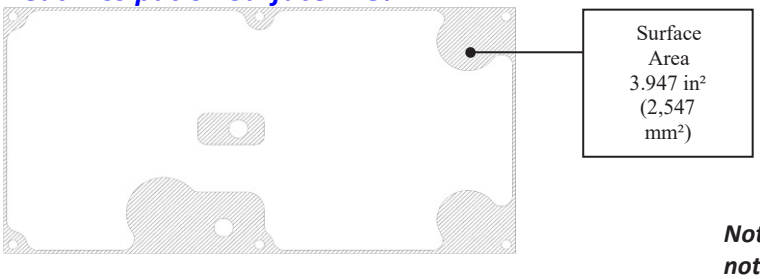
## *Outline Drawin*




**Notes**

1. Dimensions are in inches [mm]
2. Tolerance is:
   .XX ±.02 in
   .XXX ±.01 in
3. Weight: Approx. 14 oz [400 ]

## *Heat Dissipation Surface Area*




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

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