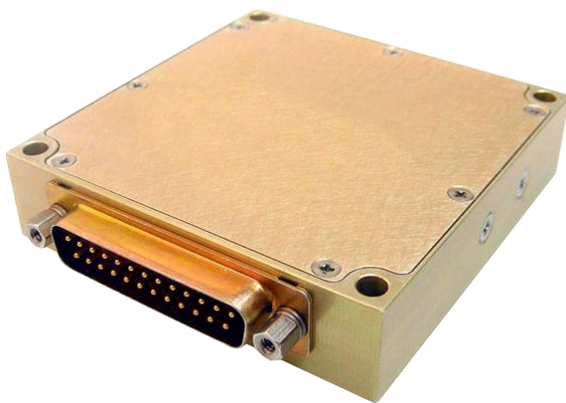


## M712 SERIES

*DC/DC POWER SUPPLY*



### PRODUCT HIGHLIGHTS

- MINIATURE, HIGH DENSITY
- DUAL OUTPUT
- UP TO 60 W
- 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<sup>3</sup>
- 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<sub>DC</sub> 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<sub>DC</sub> Input to Case:

200 V<sub>DC</sub>

### DC OUTPUT (floating)

### Line/Load regulation:

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

Ripple and Noise: 50 mV<sub>p-p</sub>, 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<sub>DC</sub>

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\*EMC compliance when tested with 5 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**.

### **SENSE**

The SENSE line is used to achieve accurate voltage regulation at load terminals. To use this feature, connect this pin directly to load's positive terminal.

If this function is not required, short **SENSE** pin to **OUTPUT** pins as close as possible to the unit or leave it open.

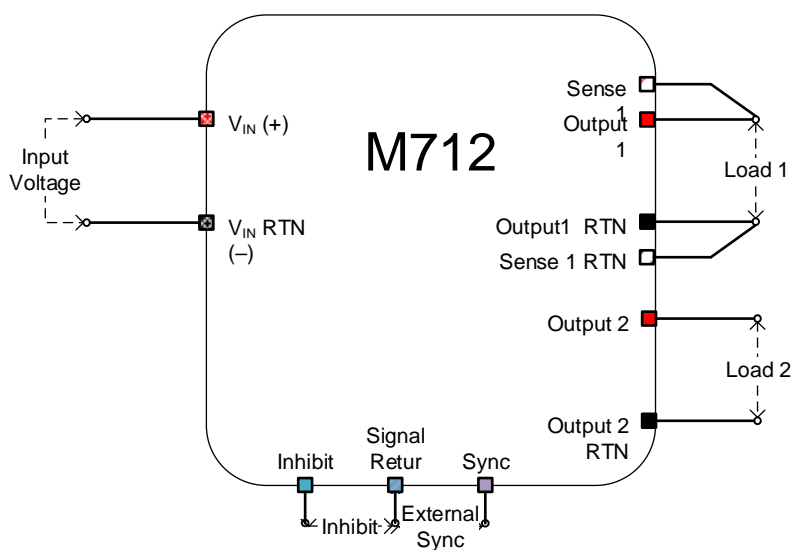
### **SENSE RTN**

The SENSE RTN line is used to achieve accurate voltage regulation at load terminals.

To use this feature, connect this pin directly to load's negative terminal.

If this function is not required, short **SENSE RTN** pin to **OUTPUT RTN** pins as close as possible to the unit or leave it open.

## Typical Connection Diagram



### Outputs Range

| Output #     | Voltage Range             | Current Range | Power Range |
|--------------|---------------------------|---------------|-------------|
| 1            | 1.8 to 50 V <sub>DC</sub> | 0 to 5 A      | 0 to 30 W   |
| 2            | 1.8 to 50 V <sub>DC</sub> | 0 to 5 A      | 0 to 30 W   |
| <b>Total</b> |                           |               | 0 to 60 W   |

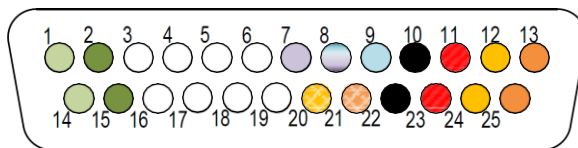
### Pin Assignment

**Connector type:** M24308/24-39F or eq.

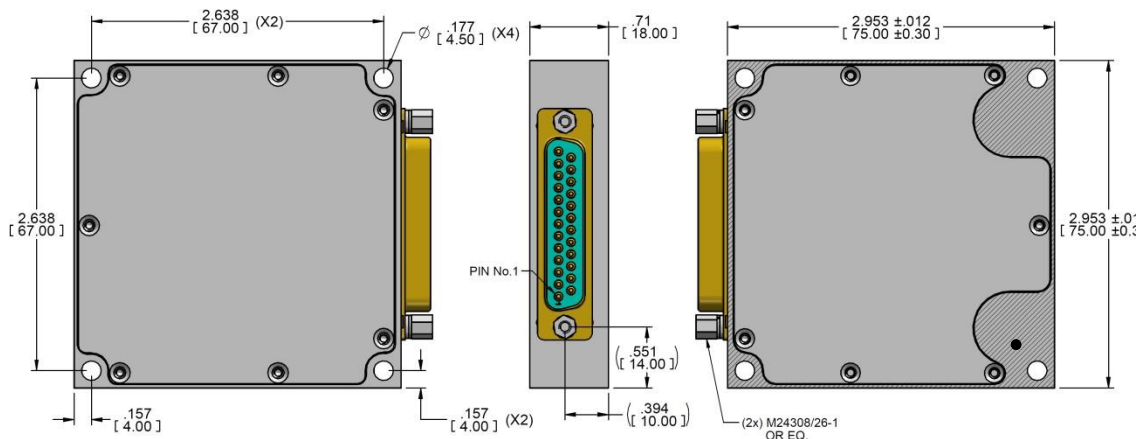
**Mates with:** M24308/2-3F or eq.

| Pin No. | Function    | P |   |
|---------|-------------|---|---|
| 1       | OUT 2       | + | ○ |
| 2       | OUT 2 RTN   | - | ● |
| 3       | N/C         |   |   |
| 4       | N/C         |   |   |
| 5       | N/C         |   |   |
| 6       | N/C         |   |   |
| 7       | SYNC IN     | + | ○ |
| 8       | SIGNAL RTN  | - | ○ |
| 9       | INHIBIT     | + | ● |
| 10      | VIN RTN     | - | ● |
| 11      | VIN         | + | ● |
| 12      | OUT 1       | + | ● |
| 14      | OUT 2       | + | ○ |
| 15      | OUT 2 RTN   | - | ● |
| 16      | N/C         |   |   |
| 17      | N/C         |   |   |
| 18      | N/C         |   |   |
| 19      | N/C         |   |   |
| 20      | SENSE 1     | + | ● |
| 21      | SENSE 1 RTN | - | ● |
| 22      | VIN RTN     | - | ● |
| 23      | VIN         | + | ● |
| 24      | OUT 1       | + | ● |
| 25      | OUT 1 RTN   | - | ● |

|    |           |   |   |  |  |  |  |
|----|-----------|---|---|--|--|--|--|
| 13 | OUT 1 RTN | - | ● |  |  |  |  |
|----|-----------|---|---|--|--|--|--|



**Outline Drawing**



**Heat  
Dissipation  
Surface Area**  
908.56 mm<sup>2</sup>  
[1.46 in<sup>2</sup>]

**Notes**

1. Dimensions are in mm
2. Tolerance is:  
.X ± .5 mm  
.XX ± .25 mm
3. Weight: Approx. 150 g [5.3 oz]

**Standard Models List** (for other voltages – consult factory)

| Part number | Input    | Output #1           |         | Output #2           |         |
|-------------|----------|---------------------|---------|---------------------|---------|
|             |          | Voltage             | Current | Voltage             | Current |
| M712-100    | 18-48VDC | 3.3 V <sub>DC</sub> | 5 A     | 5 V <sub>DC</sub>   | 5 A     |
| M712-101    | 18-48VDC | 5 V <sub>DC</sub>   | 5 A     | 12 V <sub>DC</sub>  | 2.5 A   |
| M712-102    | 18-48VDC | 12 V <sub>DC</sub>  | 2.5 A   | 3.3 V <sub>DC</sub> | 5 A     |
| M712-103    | 18-48VDC | 28 V <sub>DC</sub>  | 1 A     | 5 V <sub>DC</sub>   | 5 A     |
| M712-104    | 18-48VDC | 48 V <sub>DC</sub>  | 0.6 A   | 5 V <sub>DC</sub>   | 5 A     |
| M712-105    | 18-48VDC | 15 V <sub>DC</sub>  | 2 A     | 15 V <sub>DC</sub>  | 2 A     |

- Additional standard configurations available. **Contact factory for more details.**
- All of our products can be configured to comply with EU REACH regulations. **Contact factory for more details.**

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