M6212 SERIES

DC/DC POWER SUPPLY

PRODUCT HIGHLIGHTS

- MINIATURE
- HIGH DENSITY
- HIGH EFFICIENCY
- SINGLE OUTPUT
- DC/DC POWER SUPPLY
- UP TO 200 W

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• www.amphenol-aerospace.com

M6212 SERIES DC/DC POWER SUPPLY

Applications

Military (ground-fix, shipboard), Ruggedized, Telecom, Industrial

Special Features

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- Remote Inhibit
- Zero Voltage Switching Topology
- Fixed switching freq. (250 kHz)
- External sync capability
- EMI filters included
- Remote sense compensation
- Indefinite short circuit protection with auto-recovery
- Over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery

Electrical Specifications

DC Input

Voltage range: 18 to 48 V_{DC}

Transient protection (no damage) IAW MIL-STD-1275A (100 V for 50 ms) and IAW MIL-STD-704A (80 V for 0.1 s)

DC Output

Voltage range: 1.5 to 28 V_{DC}
Current range: 0 to 40 A
Power range: 0 to 200 W

Isolation

Input to output: 200 V_{DC}
Input to case: 200 V_{DC}
Output to case: 100 V_{DC}

Line/Load regulation

Less than ±1%
(No load to full load, –55 °C to +85 °C, and over input voltage range).

Efficiency

Typical 90-92% - (full load, room temperature)

EMC

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

Ripple and Noise:

Less than 50 mV_{p-p}, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.

Transient Over-and-undershoot

Output resistance at load change of 50%-100% is 30-200 mΩ (depending on output voltage). Output back to steady stated within 300-500 µs

Turn on Transient

No overshoot

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

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Protections *

Input

- **Under Voltage Lock-Out**
  Unit shuts down below 16.5 V_{DC} ± 1 V_{DC}
- **Over Voltage Lock-Out**
  Unit shuts down above 52 V_{DC} ± 2 V_{DC}

Output

- **Active Over Voltage Protection**
  Internal control protects unit and load (no damage) if output exceeds nominal voltage by 10% ± 5% due to internal failure.
- **Passive Over Voltage Protection**
  Transorb across output selected at 20% ± 10% above nominal voltage.
- **Current Limiting**
  Continuous protection (10-30% above maximum current) for unlimited time (Hiccup).

General

- **Over Temperature Protection**
  Output shuts down if base plate temperature exceeds +105 °C ± 5 °C.
  Output recovers automatically when base plate temperature returns to below +95 °C ± 5 °C.

Environmental Conditions **

Designed to meet MIL-STD-810F

Temperature
Operating: –55 °C to +85 °C
(measured at base plate)
Storage: –55 °C to +125 °C

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

Salt Fog
Method 509-4

Humidity
Method 507.4
Up to 95%.

Vibration
Method 514.5
Category 4
General minimum integrity exposure IAW Figure 514.5C-17, 1 hour per axis.

Shock
Method 516.5
Procedure I
Saw-tooth, 20 g peak, 11 ms

Reliability

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

Environmental Stress Screening (ESS)

Including random vibration and thermal cycles is also available. **Please consult factory for details.**

* Thresholds and protections can be modified / removed – please consult factory.

** All environmental requirements can be tailored per customer needs – please consult factory.

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Functions and Signals

INHIBIT

The INHIBIT signal is used to turn the power supply ON and OFF.
TTL "1" or OPEN – will turn on the power supply. (For normal operation leave the signal not connected.)
TTL "0" – will turn off the power supply.

SYNC IN

The SYNC signal is used to allow the power supply frequency to sync with the system frequency.
The synchronization frequency should be 250 kHz ± 10 kHz.
When not connected the power supply will work from internal clock at 250 kHz ± 10 kHz.

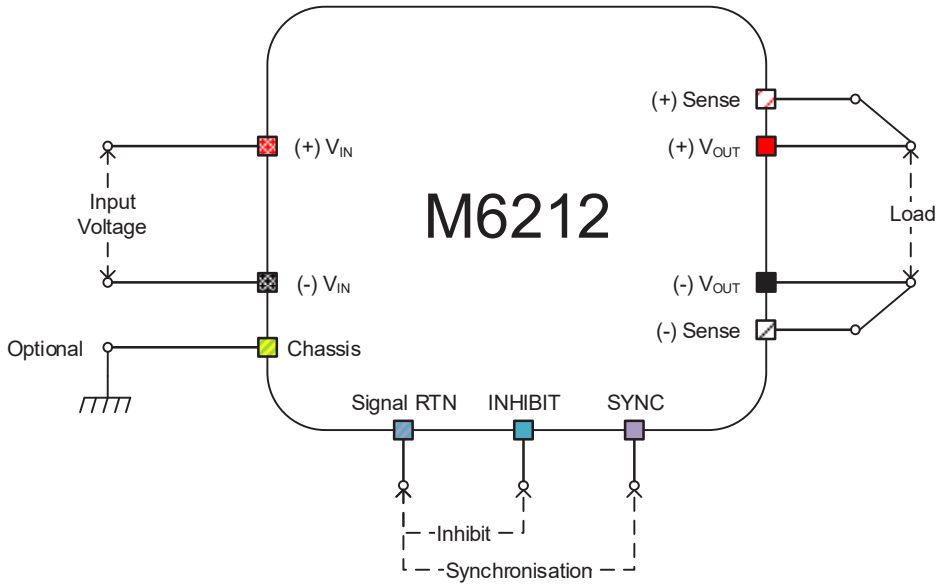
SIGNAL RTN

The SIGNAL RTN is referenced to the VIN RTN.
This is used as grounding for SYNC IN and INHIBIT signals.

SENSE

The SENSE is used to achieve accurate load regulations at load terminals (this is done by connecting the pins directly to the load's terminals).
The use of remote sense has a limit of voltage dropout between converter's output and load terminals of 2% to 10% of voltage output.
When not used connect SENSE to OUT and SENSE RTN to OUT RTN

Typical Connection Diagram



Pin Assignment

Connector type: Positronic DD44M3000S-759.1 or eq.

Mates with: Positronic DD44S###0S-759.0 or eq.

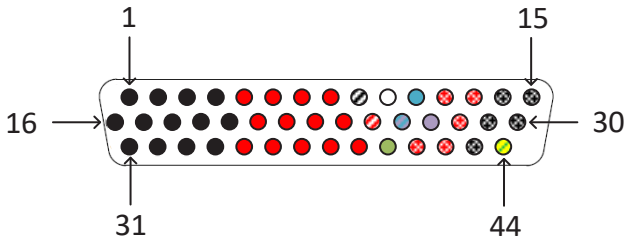
Pin #	Function
1	OUT RTN (–)
2	OUT RTN (–)
3	OUT RTN (–)
4	OUT RTN (–)
5	OUT (+)
6	OUT (+)
7	OUT (+)
8	OUT (+)
9	SENSE RTN (–)
10	N.C.
11	INHIBIT

Pin #	Function
12	VIN (+)
13	VIN (+)
14	VIN RTN (–)
15	VIN RTN (–)
16	OUT RTN (–)
17	OUT RTN (–)
18	OUT RTN (–)
19	OUT RTN (–)
20	OUT RTN (–)
21	OUT (+)
22	OUT (+)

Pin #	Function
23	OUT (+)
24	OUT (+)
25	SENSE (+)
26	SIGNAL RTN
27	SYNC IN
28	VIN (+)
29	VIN RTN (–)
30	VIN RTN (–)
31	OUT RTN (–)
32	OUT RTN (–)
33	OUT RTN (–)

Pin #	Function
34	OUT RTN (–)
35	OUT (+)
36	OUT (+)
37	OUT (+)
38	OUT (+)
39	OUT (+)
40	N.C.
41	VIN (+)
42	VIN (+)
43	VIN RTN (–)
44	CHASSIS

Note: All identically designated pins should be connected together for best performance.



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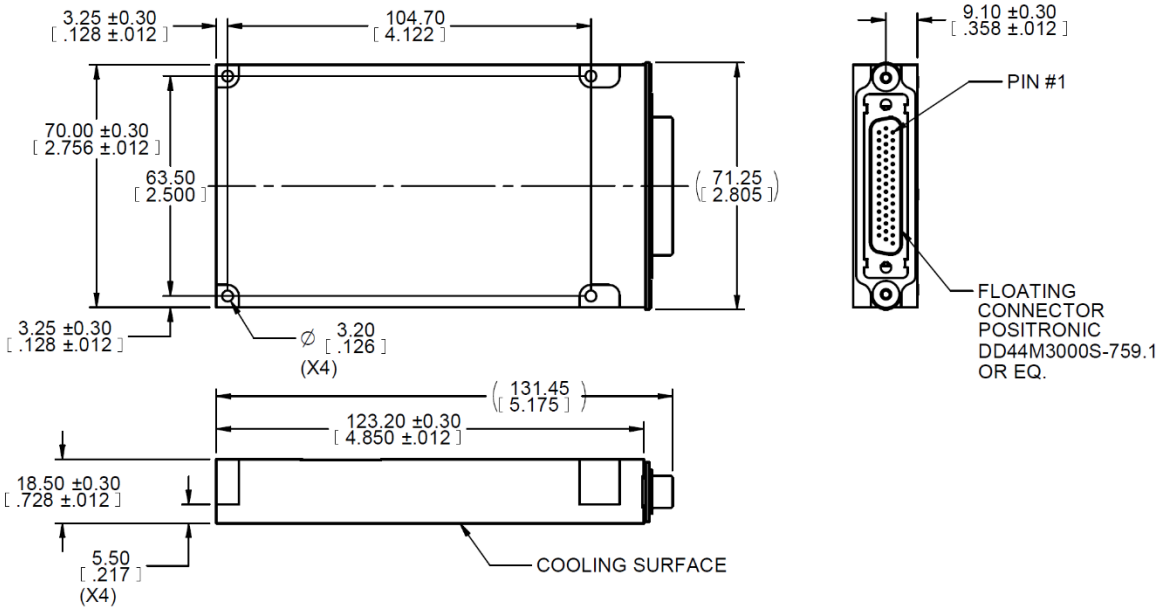
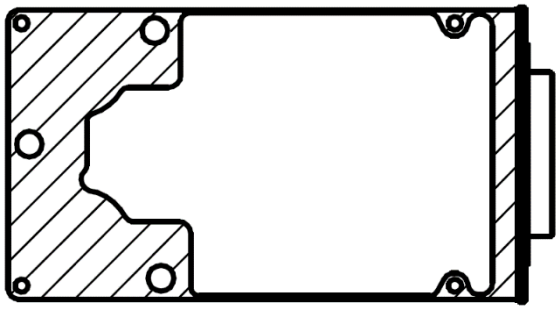
Outline Drawing



Heat Dissipation Surface

Dissipation Area
4.36 in²
(2800 mm²)



Notes

1. Dimensions are in Inches [mm]
2. Tolerance is:
   .XX ± 0.01 IN
   .XXX ± 0.005 IN
3. Weight: TBD

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

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