Amphenol
MILITARY HIGH SPEED

M6203 SERIES
DC/DC POWER SUPPLY

DESCRIPTION

The M6203 military power supply is a rugged single output DC to DC converter which accepts an 220 - 350VDC input voltage range and provides a single DC output from 3.3 to 50V at up to 500W. Custom outputs available upon request and the unit is Designed to meet military standards, MIL-STD-810, MIL-STD-461.

FEATURES

- Miniature size
- High efficiency
- High density – up to 35.6 W/in^3
- Wide input range
- Input / Output isolation
- EMI filters included
- Fixed switching freq. (250 kHz)
- External sync. capability
- Inrush current limiter circuit
- Remote ENABLE (On/Off)
- Remote sense compensation
- Non-latching protections:
  - o Reverse input polarity
  - o Overload/short-circuit
  - o Output overvoltage
  - o Input UVLO/OVLO
  - o Over temperature

HOW TO ORDER

Part Number	CF-02EM6203	DC/DC Power supply

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ELECTRICAL SPECIFICATIONS:		
DC Input Normal range: 220-350VDC Wider range possible	**DC Output Voltage range:** 3.3 to 50 VDC **Current range:** 0 to 30 A **Power range:** 0 to 500 W	**Isolation Input to Output:** 500 VDC **Input to Case:** 500 VDC **Output to Case:** 200 VDC
Output Voltage Regulation: Better than ±1% (no load to full load, –55°C to +85°C and over input voltage range).	**Efficiency:** Typical 88-90% (28VDC output, full load, room temperature)	**EMC:** Designed to meet MIL-STD461F* CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103

PROTECTIONS		
Input	**Output**	**General**
Inrush Current Limiter	**Active Over Voltage Protection:** Internal control shuts down unit 10 ± 5% above nominal voltage.	**Over temperature protection:** Unit shuts down if baseplate temperature exceeds +105 ± 5°C. Automatic recovery upon cooldown to below +95 ± 5°C.
Reverse Polarity Protection: No damage (unlimited time)	**Passive Over Voltage Protection:** Transorb protects unit and load 20 ± 10% above nominal voltage.	
Under Voltage Lock-Out: Unit turns off below 200 VDC.	Current limiting Output shuts down and attempts to restart peri-odically, until fault condition removed (hicup).	

Environmental Conditions		
Temperature: Methods 501.4 & 502.4 Operating: –55°C to +85°C (at baseplate) Storage: –55°C to +125°C (ambient)	**Altitude:** Method 500.4 Procedures I – Storage/Air transport: up to 70,000 ft. (non-operational) Procedure II – Operation/Air Carriage: up to 55,000 ft. (operational)	**Vibration:** Method 514.5 Procedure I, Category 24 General minimum integrity exposure IAW Figure 514.5C-17 1 hour per axis.
Humidity: Method 507.4 Up to 95% RH	**Salt Fog:** Method 509.4	**Shock:** Method 516.5 Procedure I 20 g / 11 ms terminal peak sawtooth shock pulse

PIN ASSIGNMENT:

Connector type: Positronic ODD44M40000/AA-50 or eq.
Mates with: Positronic DD44S1000C or eq.

Pin #	Function	P
1	OUTPUT	+
2	OUTPUT	+
3	OUTPUT RTN	–
4	OUTPUT RTN	–
5	OUTPUT	+
6	OUTPUT	+
7	OUTPUT RTN	–
8	OUTPUT RTN	–
9	OUT GOOD	+
10	SIGNAL RTN	–
11	N.C.	
12	N.C.	
13	INPUT RTN	–
14	N.C.	

Pin #	Function	P
15	INPUT	+
16	OUTPUT	+
17	OUTPUT	+
18	OUTPUT RTN	–
19	OUTPUT RTN	–
20	OUTPUT	+
21	OUTPUT	+
22	OUTPUT RTN	–
23	OUTPUT RTN	–
24	SENSE RTN	–
25	ENABLE	+
26	N.C.	
27	N.C.	
28	INPUT RTN	–

Pin #	Function	P
29	N.C.	
30	INPUT	+
31	OUTPUT	+
32	OUTPUT	+
33	OUTPUT RTN	–
34	OUTPUT RTN	–
35	OUTPUT	+
36	OUTPUT	+
37	OUTPUT RTN	–
38	OUTPUT RTN	–
39	SENSE	+
40	SYNC	+

FUNCTIONS AND SIGNALS:

ENABLE

The ENABLE signal is used to turn the power supply ON and OFF.
TTL “0” or SHORT - For normal operation connect to GND
TTL “1” or OPEN – will turn off the power supply.

SYNC

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

SIGNAL RTN

The INPUT SIGNAL RTN is used as grounding for SYN IN, ENABLE, and OUT GOOD signals.

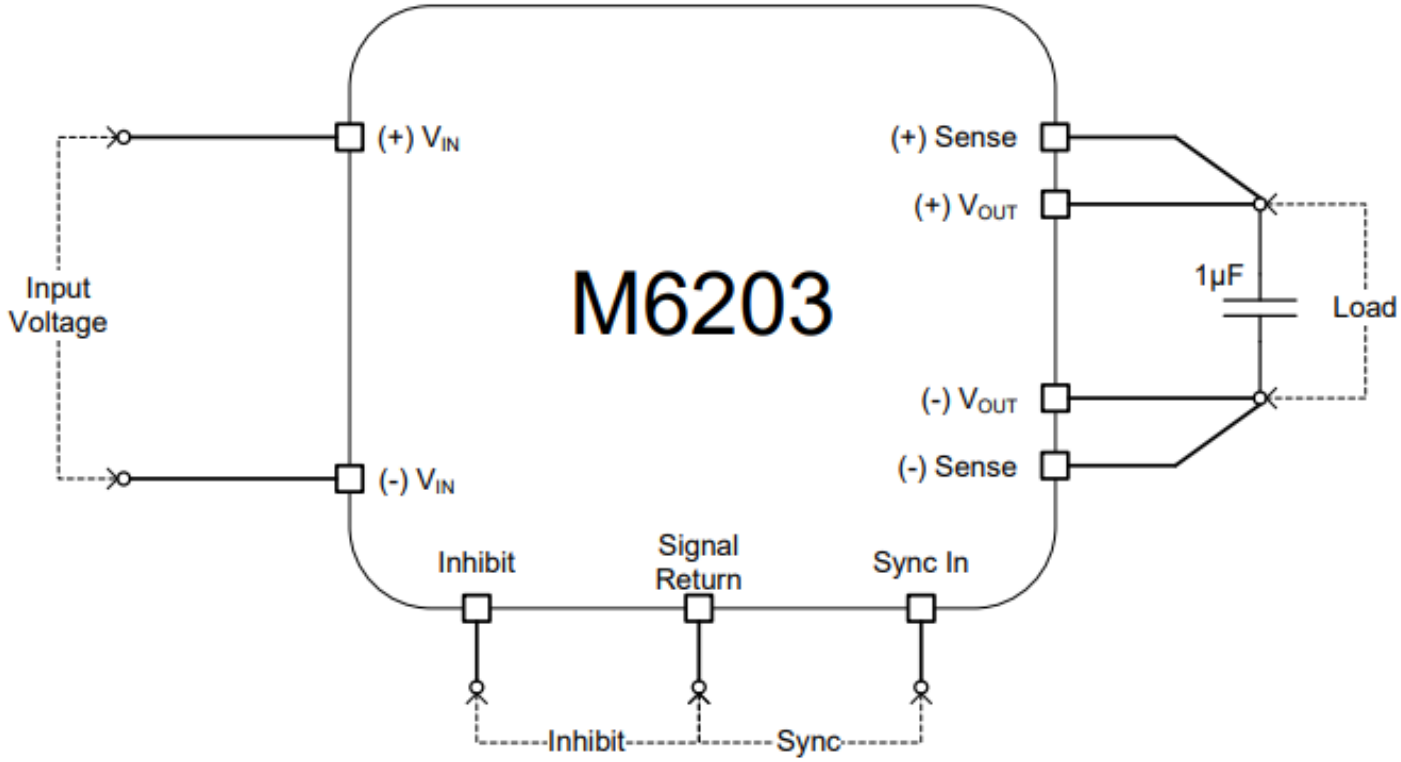
SENSE

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
2-10% of voltage output.
When not used connect + SENSE to +VOUT and –SENSE to –VOUT

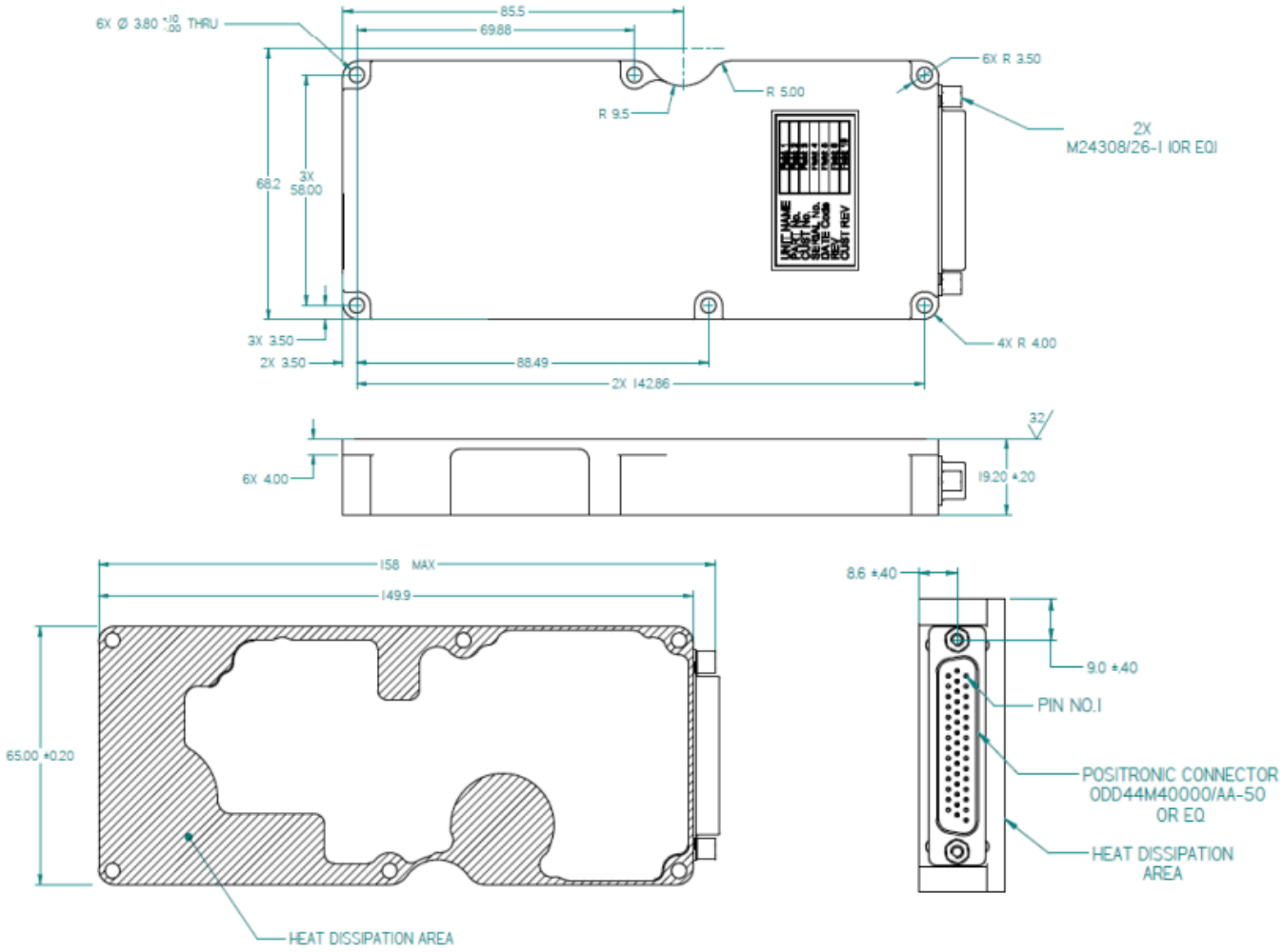
OUT GOOD

The VOLTS GOOD TTL signal is used to indicate if the output voltage is within the calibrated tolerances
(above 90%).
TTL “1”- output is within the required tolerances.
TTL “0” - output is not within the required tolerances.

Typical Connection:



OUTLINE DRAWING:



NOTES:
1. WORKMANSHIP SHALL BE MIL-STD-454, REQT. 9.
2. MTL. AL 6061-T651& AL 5052-H32.
3. CONVERSION COATING PER MIL-DTL-5541 LAST REV., TYPE I, CLASS 1A.
4. HEAT DISSIPATION AREA - 3680 mm².
5.Weight: Typical 360g

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