

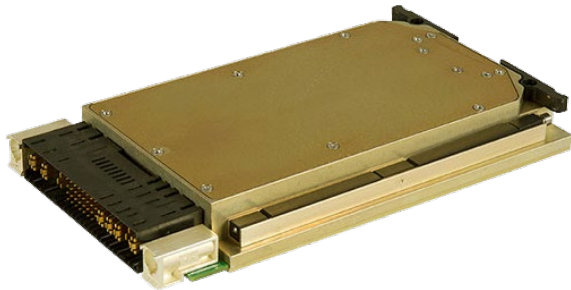


FIELD-PROVEN COTS, MOTS AND CUSTOM MILITARY POWER SOLUTIONS

DPM4013 SERIES

DPM4013 SERIES

DC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

- VITA 62 COMPLIANT
- 3U VPX FORM FACTOR
- SIX OUTPUTS
- DC/DC CONVERTER
- 350W
- Input Options:
 - MIL-STD-704
- Cyber secure



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Applications

Military, Ruggedized, Telecom, Industrial

Special Features

- VITA 62 compliant
- Wide input range
- Remote sense
- Fixed switching frequency (220kHz)
- External synchronization capability
- Indefinite short circuit Protection
- Over-voltage shutdown with auto-recovery
- Reverse battery protection
- Over temperature shutdown with auto-recovery
- EMI filters included
- I2C communication

Environmental

Design to Meet MIL-STD-810G

Temperature

Operating: -55°C to +85°C at unit edge

Storage: -55°C to +125°C

Altitude

Method 500.5, Procedure I & II Storage/Air

Transport: 40 Kft

Operation/Air carriage: 70 Kft

Humidity

Method 507.5, Up to 95% RH

Fungus

Does not support fungus growth, in accordance with the guidelines of MIL-STD-454, Requirement 4.

Shock

Method 516.6

40g, 11msec saw-tooth (all directions)

Vibration

Vibration: Figure 514.6E-1. General minimum integrity exposure. (1 hour per axis.)

Salt Fog:

Method 509.5

Reliability: 510,000 Hours, calculated IAW MIL-HDBK-217F Notice 2 at +65 °C, GF.

Note: Environmental Stress Screening (ESS) Including random vibration and thermal cycles is also available. Please consult factory for details.

Electrical Specifications

DC Input

18 to 48 V_{DC}

Max Non-Operating 100V

Options:

- 1) MIL-STD-704 (A-F) Normal and Abnormal Steady State
- 2) MIL-STD-704(A-F) transients Up to 50V, 80V.

Efficiency

Up to 86%

(Full load room temperature)

EMC

Design to meet with MIL-STD 461F (5μH LISN): CE101, CE102, CS101, CS114, CS115, CS116

Load Transient Overshoot and

Undershoot

Output dynamic response of less than 5% at load Step of 60%-90%.

Output returns to regulation in less than 1mSec

Ripple and Noise

Typically, less than 50mV_{p-p} (max.1%_p). Measured across a 0.1μF capacitor and 10μF capacitor on load at Input Voltage of 18V-36V, all Temperature Range.

Communication

I2C protocol available for voltages, currents and temperature for all outputs (GAX, SCL, SDA)

DC Output

VS1: 12V, up to 20A

VS2: 3.3V, up to 5A

VS3: 5V, up to 12A

12V_Aux: 12V, up to 1A

-12V_Aux: -12V, up to 1A

3.3V_Aux: 3.3V, up to 5A

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Protections

Input

- **Inrush Current Limiter**
Peak value of $5 \times I_{IN}$ for initial inrush currents lasting more than 50 μ Sec.
- **Under Voltage**
Unit shuts down when input steady state voltage drops
Automatic restart when input voltage returns to nominal range.
- **Over Voltage Lock-Out**
Unit shuts down when input steady state voltage rise above $55 \pm 2V_{DC}$.
Automatic restart when input voltage returns to nominal range.

Output

- **Passive or Active over voltage protection on VS2, VS3, 3.3Vaux and -12Vaux**
Transorb, selected at $25\% \pm 5\%$ above nominal voltage, is placed across the output for passive voltage limit.
- **Active over voltage protection on VS1 and 12Vaux**
 $20\% \pm 5\%$ above nominal voltage.
Automatic recovery when output voltage drops below threshold.
- **Overload / Short-Circuit Protection**
VS#: Continuous protection (10-30% above maximum current) for unlimited time (Hiccup). Automatic recovery when overload/short circuit removed.
12Vaux: typical 1.5A to 2A
-12Vaux: typical 2.5A to 3A
3.3Vaux: typical 8A

General

- **Over Temperature Protection**
Automatic shutdown at internal temperature of $95 \pm 5^{\circ}C$.
Automatic recovery when temperature drops below $90 \pm 5^{\circ}C$.

Note: Thresholds and protections can be modified / removed (please consult factory)

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Functions and Signals - According to VITA 62

Signal No.	Signal Name	Type	Description
1	FAIL*	Output	Indicates to other modules in the system that a failure has occurred in one of the outputs. Please refer to Figure 2 This signal is referenced to SIGNAL RTN .
2	SYSRESET*	Output	Indicates to other modules in the system that all outputs are within their working level. Please refer to Figure 2 This signal is referenced to SIGNAL RTN .
3	INHIBIT*	Input	Controls power supply outputs. This signal in conjunction with INHIBIT controls the outputs. Please refer to Table 1 and Figure 1 This signal is referenced to SIGNAL RTN .
4	ENABLE*	Input	Controls power supply outputs. This signal in conjunction with INHIBIT controls the outputs. Please refer to Table 1 and Figure 1 This signal is referenced to SIGNAL RTN .
5	GA0*, GA1	Input	Used for geographical addressing. GA1 is the most significant bit and GA0 is the least significant bit.
6	SCL, SDA	Bidirectional	I2C bus Clock and Data respectively. Through this bus the voltage and temperature readouts can be shared.
7	REF_CLK	Input	The Sync signal is used to allow the power supply frequency to sync with the system frequency. (Optional)
8	VOUT SENSE	Input	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).

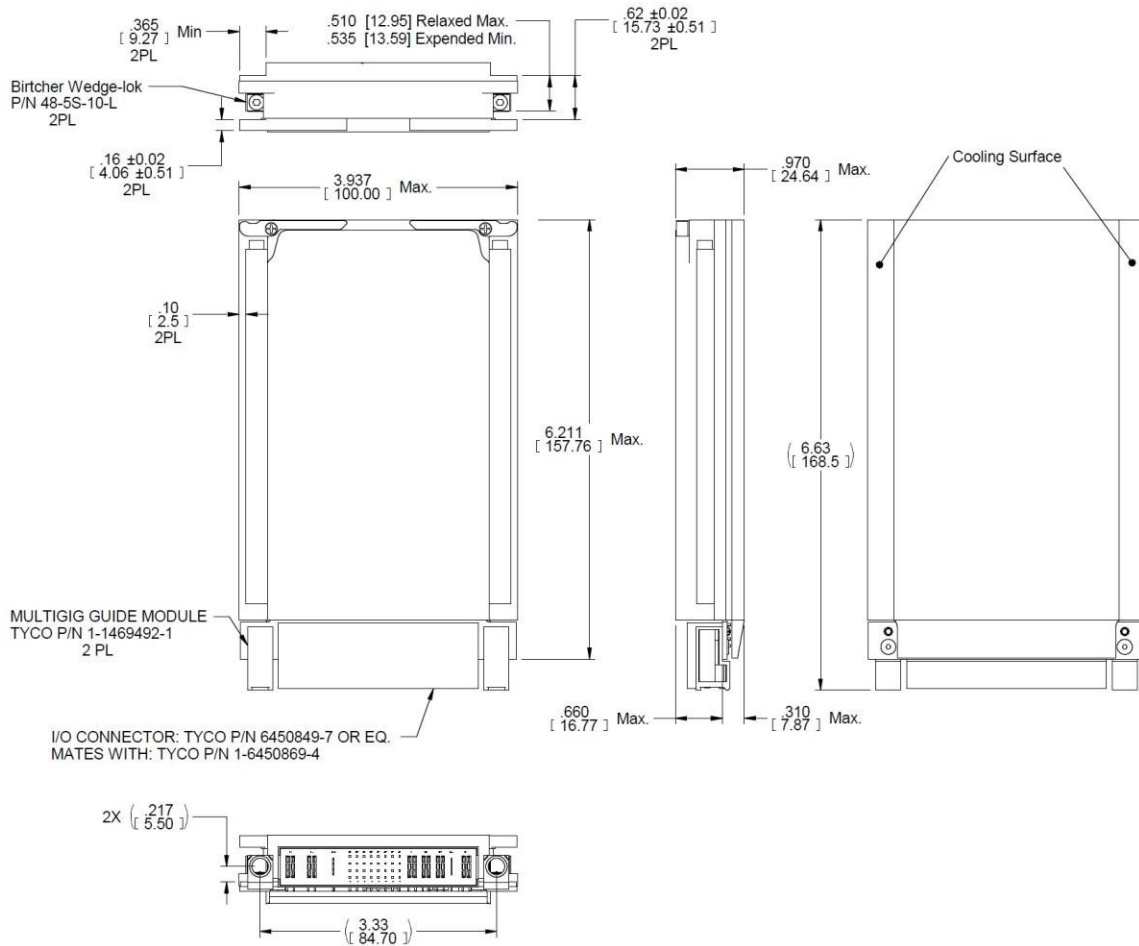
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Outline Drawing



Notes

1. Dimensions are in Inches [mm]
2. Tolerance is:
 .XX ± 0.02 IN
 .XXX ± 0.008 IN
3. Weight: Approx. 690 g (24.34) oz
4. 3D model available

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

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