Standard Product

VME550-001-xxx

VME DC-DC Power Converter Card

(Document Rev A05, 06/30/2014)

Features

- 28Vdc per MIL-STD-704A-F *
- and MIL-STD-1275A/B/D *
- 4 Output Voltages, 550W
- MIL-STD-810F Environmental *
- MIL-STD-461E EMI *
- Single Slot VME Power Card
- CE Marked (Low Voltage Directive 2006/95/EC)

Table 1: Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Rating</th>
<th>Unit</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vin max range</td>
<td>18 to 36</td>
<td>Vdc</td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>–40 to +85</td>
<td>°C</td>
<td>Baseplate temperature</td>
</tr>
<tr>
<td>Combined output power</td>
<td>550</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>Input power</td>
<td>640</td>
<td>W</td>
<td>@ 550W out (28VDC input)</td>
</tr>
<tr>
<td>+5Vdc power</td>
<td>224</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>+3.3Vdc power</td>
<td>224</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>+12Vdc power</td>
<td>112</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>–12Vdc power</td>
<td>112</td>
<td>W</td>
<td></td>
</tr>
</tbody>
</table>

* Designed to meet portions of the standard. Contact Aegis Power for details.

Product Highlights

This single slot very thin (4HP) filtered 28Vdc VME550 power card with four outputs (3.3, 5, ±12Vdc) at 550W, is a COTS military power supply solution designed to meet portions of MIL-STD-810F vibration and shock requirements and designed to meet portions of the MIL-STD-461E EMI requirements. When compared to VME power supplies using conventional technology, the single-slot VME550-001 provides users with higher efficiency (87%), lower weight (2.7 pounds), and higher power (up to 550W). It also has a keyed connector that offers keying options when using multiple power supplies in one chassis.

AEGIS Power Systems, Inc. specializes in the front end design, development, and manufacture of Rapid Response Custom Switching Power Supplies for defense, industrial, telecommunication, electric powered vehicle and Mil-Cots military power supply applications. Contact Aegis Power Systems for details on Mil-Specs that this product is designed to meet.
SPECIFICATIONS

(Typical at 25°C, nominal line and 100% load, unless otherwise specified.)

DC input voltage: Designed to meet MIL-STD-704A-F, MIL-STD-1275A/B/D, continuous operation
22Vdc to 33Vdc, 28 Vdc nominal.
100Vdc 50 msec transient.

DC input line current: 29.1A max @ 22Vdc; 22.85A typical @ 28Vdc input (550W out).

Input power: 524W max @ 450W out, 640W max @ 550W out.

Output power: 550W max. all outputs combined.

Output voltages: See table 2.

Efficiency: 86% minimum, 87% typical.

Start up time: 500 millisecond maximum.

Voltage set point/
Line/Load regulation: +/- 2% Vout nominal (for any combination).

Temperature regulation: +/- 0.01% / °C.

Output ripple: 50mV pk-pk Max. (20 MHz BW) all except; +/-12 Vdc 100mV pk-pk Max.

Current Limit: Short circuit protected with automatic recovery.

Temperature: -40°C to +85°C Operating baseplate temperature 550W.
-55°C to +100°C Non-operating.

Cooling: Conduction cooling through wedgelocks attached to customer rack.

Package: Single slot pluggable slide in rack card.

Dimension: 6U x 4hp x 160mm (see mechanical drawing page).

Weight: 2.7 lb. Typical.

Connector: 1ea Positronics PCIH47M400A1 or equivalent (see pin assignments page).

Vibration: Designed to meet MIL-STD-810F, Method 514.5, Procedure I.

Shock: Designed to meet MIL-STD-810F, Method 516.5, Procedure I.

Humidity: 0 – 95% non-condensing.

EMI: Designed to meet MIL-STD-461E (CE101, CE102, and CS101).

Table 2: Voltage Outputs

<table>
<thead>
<tr>
<th></th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>V4</th>
</tr>
</thead>
<tbody>
<tr>
<td>VME550-001-xxx</td>
<td>+5Vdc</td>
<td>+3.3Vdc</td>
<td>+12Vdc</td>
<td>-12Vdc</td>
</tr>
<tr>
<td>Maximum individual DC outputs</td>
<td>44.8A</td>
<td>67.8A</td>
<td>9.33A</td>
<td>9.33A</td>
</tr>
<tr>
<td></td>
<td>224W</td>
<td>224W</td>
<td>112W</td>
<td>112W</td>
</tr>
</tbody>
</table>

* VME550-001 Maximum total output power is 550W (all DC outputs combined).
Output voltage variants possible. VME550 can be configured with one to six outputs (one can be negative) (-48VDC to +48VDC).
Contact AEGIS sales for details.

Table 3: Customer selected options

<table>
<thead>
<tr>
<th>-xxx</th>
<th>Custom Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>-000</td>
<td>No Options</td>
</tr>
<tr>
<td>-001</td>
<td>Conformal coating on PWB</td>
</tr>
<tr>
<td>-002</td>
<td>Metric wedgelocks</td>
</tr>
<tr>
<td>-003</td>
<td>Split inhibit control for V1/V3 and V2/V4</td>
</tr>
<tr>
<td>-004</td>
<td>Connector keyed (position #1)</td>
</tr>
<tr>
<td>-005</td>
<td>Connector keyed (position #2)</td>
</tr>
<tr>
<td>-006</td>
<td>Connector keyed (position #3)</td>
</tr>
<tr>
<td>-007</td>
<td>Conformal coating &amp; Split inhibit for V4</td>
</tr>
</tbody>
</table>

Figure 1: Transient Immunity

Notes:
The solid line includes ripple voltage
Surge Source Impedance:
Surges originate from a source impedance of approx. 500 mΩ.
Connector Pin Out Assignment

Positronic Connector P/N PCIH47M400A1 or Equivalent

**Pins 1, 2, 3, 4**  
+5 Vdc

**Pins 5, 6, 7, 8**  
+5 V RTN (Common)

**Pins 9, 10, 11, 12**  
+3.3 V RTN (Common)

**Pins 13, 14, 15, 16**  
+3.3 Vdc

**Pin 17**  
+12 Vdc

**Pin 18**  
+12 V RTN (Common)

**Pin 19**  
-12 Vdc

**Pin 20**  
-12 V RTN (Common)

**Pin 21**  
NC

**Pin 22**  
POWER OK RTN (Common)

**Pins 23, 24, 25, 26**  
NC

**Pins 27, 28, 29**  
NC

**Pin 30**  
NC

**Pin 31**  
NC

**Pins 33, 34, 35, 36**  
NC

**Pins 37, 38**  
NC

**Pin 39**  
Inhibit (Connect this pin to negative input pin to disable)

**Pins 40, 41**  
NC

**Pin 42**  
Power OK, (Open collector = Fail)

**Pins 43, 44**  
NC

**Pin 45**  
Chassis Ground

**Pin 46**  
Positive Input

**Pin 47**  
Negative Input

**Pin 48, 49**  
(Available for unique keying of supply)

**ALL PINS DESIGNATED NC SHOULD HAVE NO CONNECTION ON THE BACKPLANE**

**ALL OUTPUT RTN PINS (COMMON) SHOULD BE TIED TOGETHER ON BACKPLANE**

**ALL PINS OF THE SAME VOLTAGE SHOULD BE TIED TOGETHER ON THE BACKPLANE (i.e. ALL 4 OF THE +5V PINS SHOULD BE TIED TOGETHER)**

**TO DISABLE ALL OF THE DC OUTPUTS FROM THIS CARD-CONNECT PIN 39 (INHIBIT) TO PIN 47 (NEGATIVE INPUT). THIS CAN BE ACCOMPLISHED USING A FET, TRANSISTOR, RELAY OR SWITCH THAT CAN SINK AT LEAST 15ma**

**POWER OK SIGNAL IS AN OPEN-COLLECTOR TRANSISTOR OUTPUT. IT WILL BE LOW WHEN ALL OUTPUT VOLTAGES ARE WITHIN THEIR REGULATION WINDOW – IF ANY VOLTAGE IS INCORRECT POWER OK WILL BE HIGH. THIS OUTPUT IS REFERENCED TO THE COMMON DC OUTPUT RETURN AND CAN BE PULLED UP TO ANY OF THE DC OUTPUT VOLTAGES. SELECT A PULL-UP RESISTOR TO LIMIT THE CURRENT THROUGH THE TRANSISTOR TO LESS THAN 50Ma. (Example – use a 1K pull-up for 5mA of current when pulled up to +5V output.)**