

**Standard Product**

**VME450A-01**

**VME Power Converter**

(Rev A03, 06/25/13)



**28Vdc Input, 4 Output, 550W Max VME Card**

**Features**

- 28VDC per MIL-STD-704F\*
- 4 Output Voltages, 550W
- MIL-STD-810F Environment\*
- MIL-STD-461D/E/F EMI\*
- Dual Slot VME Power Card

\*Designed to meet this particular spec.

**Product Highlights**

This dual slot filtered 28Vdc VME450A power card has four outputs (3.3, 5, and ±12Vdc) at 550W. This military COTS solution is designed to meet MIL-STD-810F vibration requirements and MIL-STD-461D/E/F EMI requirements.

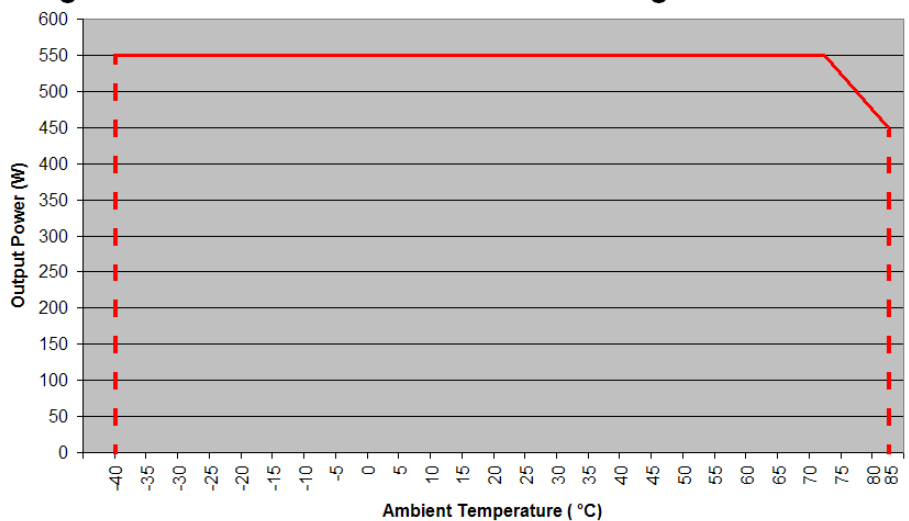
When compared to VME power supplies using conventional technology, the dual-slot VME450A provides users with higher efficiency (85%), lower weight (4.4 pounds), and higher power (up to 550W).

**AEGIS Power Systems, Inc.** specializes in the front end design, development, and manufacture of Rapid Response Custom switching power supplies for the defense, industrial, telecommunications industries and suppliers of Electric Vehicle Power Convertors.

**Table 1: Maximum Ratings**

| Parameter             | Rating     | Unit | Notes                      |
|-----------------------|------------|------|----------------------------|
| Vin max range         | 18 to 36   | Vdc  |                            |
| Temperature           | -40 to +85 | °C   | Use output derating Fig. 1 |
| Combined output power | 550        | W    |                            |
| Input power           | 650        | W    | @ 550W out                 |
| Max +5 V power        | 224        | W    |                            |
| Max +3.3 V power      | 224        | W    |                            |
| Max +12 V power       | 100        | W    |                            |
| Max -12 V power       | 100        | W    |                            |

**Figure 1. VME 450A Power Derating**



Operation from 0°C to 75°C - minimum 600LFM airflow required (800LFM recommended)  
 Operation from 75°C to 85°C - minimum 1200 LFM airflow required

## SPECIFICATIONS

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

|                                                     |                                                                                                                                                                                                             |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DC input voltage:</b>                            | Designed to meet MIL-STD-704F normal range.<br>22 Vdc to 29 Vdc, 28 Vdc nominal.<br>50 Vdc 12.5 msec transient, shut down for longer automatic restart.<br>Shuts down for abnormal range automatic restart. |
| <b>DC input line current:</b>                       | 24.1 A max @ 22 Vdc; 18.5 A typical @ 28 Vdc input (450 Wout).<br>29.4 A max @ 22 Vdc; 22.6 A typical @ 28 Vdc input (550 Wout).                                                                            |
| <b>Input power:</b>                                 | 529 W max @ 450 Wout, 650 W max @ 550 Wout.                                                                                                                                                                 |
| <b>Output power:</b>                                | 450 to 550 W max. all outputs combined (see Fig. 1).                                                                                                                                                        |
| <b>Output voltages:</b>                             | See table 2.                                                                                                                                                                                                |
| <b>Efficiency:</b>                                  | 85% minimum, 87% typical.                                                                                                                                                                                   |
| <b>Start up time:</b>                               | 500 millisecond maximum.                                                                                                                                                                                    |
| <b>Voltage set point/<br/>Line/Load regulation:</b> | +/- 2% Vout nominal (for any combination).                                                                                                                                                                  |
| <b>Temperature regulation:</b>                      | +/- 0.01% / °C.                                                                                                                                                                                             |
| <b>Output ripple:</b>                               | 50 mV pk-pk Max. (20 MHz BW) all except; +/-12 Vdc 100 mV pk-pk Max.                                                                                                                                        |
| <b>Current Limit:</b>                               | Short circuit protected with automatic recovery.                                                                                                                                                            |
| <b>Temperature:</b>                                 | -40°C to +75°C Operating ambient 550 W (See Figure 1).<br>-40°C to +85°C Operating ambient 450 W (See Figure 1).<br>-55°C to +100°C Non-operating.                                                          |
| <b>Size:</b>                                        | 6U x 8hp x 160 mm (see mechanical drawing).                                                                                                                                                                 |
| <b>Weight:</b>                                      | 4.4 lb. Typical.                                                                                                                                                                                            |
| <b>Connector:</b>                                   | 1ea Positronics PCIH47M400A1 or equivalent (see page 3 for pin assignments).                                                                                                                                |
| <b>Vibration:</b>                                   | Designed to meet MIL-STD-810F, Method 514.5, Procedure I.                                                                                                                                                   |
| <b>Shock:</b>                                       | Designed to meet MIL-STD-810F, Method 516.5, Procedure I.                                                                                                                                                   |
| <b>Humidity:</b>                                    | 0 – 95% non-condensing.                                                                                                                                                                                     |
| <b>EMI:</b>                                         | Designed to meet MIL-STD-461E (CE102 and CS101).                                                                                                                                                            |

**Table 2: Voltage Outputs**

| VME450A-XX | V1    | V2      | V3     | V4     |
|------------|-------|---------|--------|--------|
| 01         | +5Vdc | +3.3Vdc | +12Vdc | -12Vdc |
|            | 40A   | 55A     | 7.1A   | 7.1A   |
|            | 200W  | 182W    | 85W    | 85W    |

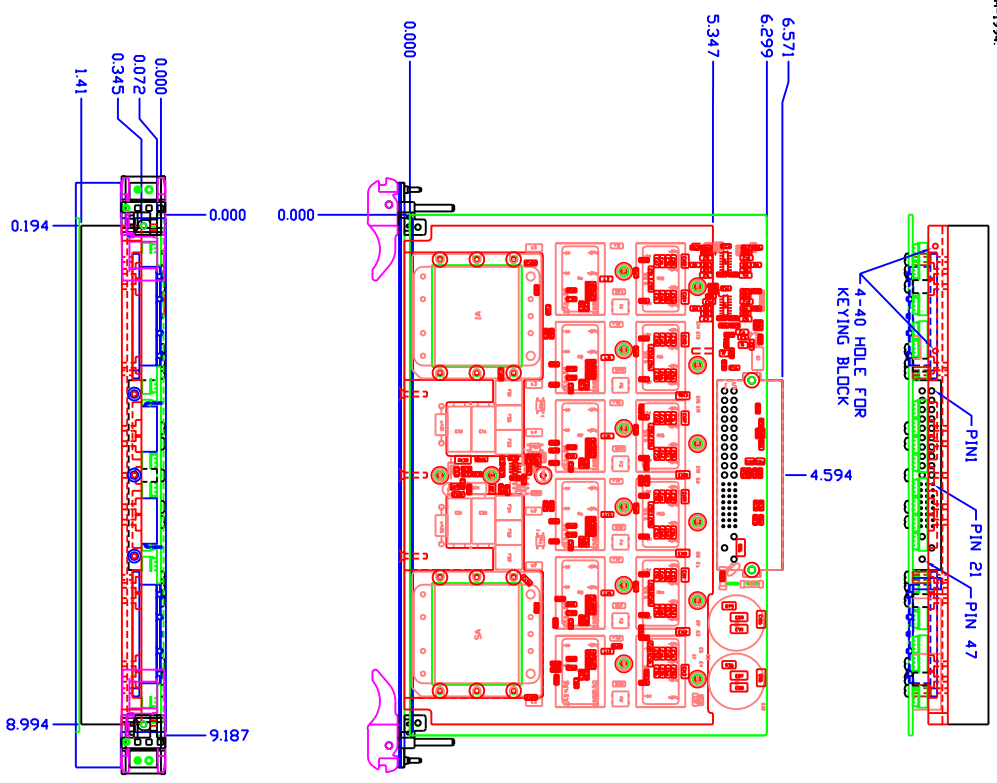
Output voltage variants possible. Contact AEGIS sales for details.

### Table 3: VME450A-01 Pin Out Assignment

Connector Positronic P/N PCIH47M400A1 or Equivalent

|                            |                                                           |
|----------------------------|-----------------------------------------------------------|
| <b>Pins 1, 2, 3, 4</b>     | <b>+5 Vdc</b>                                             |
| Pins 5, 6, 7, 8            | +5 V RTN (Common)                                         |
| Pins 9, 10, 11, 12         | +3.3 V RTN (Common)                                       |
| <b>Pins 13, 14, 15, 16</b> | <b>+3.3 Vdc</b>                                           |
| <b>Pin 17</b>              | <b>+12 Vdc</b>                                            |
| <b>Pin 18</b>              | <b>+12 V RTN (Common)</b>                                 |
| Pin 19                     | -12 Vdc                                                   |
| Pin 20                     | -12 V RTN (Common)                                        |
| Pin 21                     | NC                                                        |
| Pin 22                     | Signal RTN (Common)                                       |
| Pins 23, 24, 25, 26        | NC                                                        |
| Pins 27, 28, 29            | NC                                                        |
| Pin 30                     | NC                                                        |
| Pin 31                     | NC                                                        |
| Pin 32                     | NC                                                        |
| Pins 33, 34, 35, 36        | NC                                                        |
| Pins 37, 38                | NC                                                        |
| <b>Pin 39</b>              | <b>Inhibit (Connect pin to negative input to disable)</b> |
| Pins 40, 41                | NC                                                        |
| <b>Pin 42</b>              | <b>Power OK, (Open collector = Fail)</b>                  |
| Pins 43, 44                | NC                                                        |
| <b>Pin 45</b>              | <b>Chassis Ground</b>                                     |
| <b>Pin 46</b>              | <b>Positive</b>                                           |
| <b>Pin 47</b>              | <b>Negative Input</b>                                     |

NOTES: UNLESS OTHERWISE SPECIFIED  
 1. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M-1994.



CAO MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY

| REV | DESCRIPTION             | DATE     | APPROVED |
|-----|-------------------------|----------|----------|
| 001 | INITIAL RELEASE         | 01/14/09 | NWS      |
| 002 | UPDATED HEATSIK AND PVB | 11/09/09 | NWS      |
| 003 | UPDATED TO REV 003 PVB  | 02/19/10 | NWS      |

UNLESS OTHERWISE SPECIFIED  
 DIMENSIONS ARE IN INCHES  
 DECIMALS ARE TO 3 PLACES  
 FRACTIONS ARE TO 16 PLACES  
 UNLESS OTHERWISE SPECIFIED  
 TOLERANCES ARE AS FOLLOWS:  
 FRACTIONS: ±0.005  
 DECIMALS: ±0.005

APPROVALS

|          |                              |
|----------|------------------------------|
| DATE     | TITLE                        |
| 08/20/07 | VME 450A/VME550A MECH LAYOUT |
| DATE     | ORDER                        |
| 08/20/07 | 0000000000                   |
| DATE     | REV                          |
| 08/20/07 | 0000000000                   |
| DATE     | REV                          |
| 08/20/07 | 0000000000                   |

AGCIS P/N: VME450A/VME550A-XXX

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 ALBERTA, NORTH CAROLINA

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