(Document Rev A05, 4/20/20)

VME550A

Overview
VME DC-DC Power Converter Card
28Vdc Input, 1-6 Outputs
550W Max Combined Output

Market(s)
MIL-COTS

Typical Application(s)
Electronic Equipment Rack

Product Highlights
This dual slot filtered 28Vdc VME550A power card with up to six outputs at 550W maximum power, 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 MIL-STD-461E EMI requirements. When compared to VME power supplies using conventional technology, the dual-slot VME550A provides users with higher efficiency (87%), lower weight (4.14 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.

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 *
- Dual Slot VME Power Card
- CE Marked (Low Voltage Directive 2006/95/EC)

Table 1: Maximum Continuous Operating Ratings

Parameter	Rating	Unit	Notes
Vin max range	18 to 36	Vdc	
Temperature	–40 to +85	°C	Ambient air temperature
Input power	640	W	@ 550W out (28VDC input)
Combined output power	550	W	See Table 2 for DC output variations

***** Designed to meet applicable portions of this standard. Contact Aegis Power Systems, Inc. for specific details.

About Us
Aegis Power Systems, Inc. specializes in the design, development, and manufacture of AC-DC and DC-DC power supplies for high-performance, rugged, critical, and specialty applications. Markets served include defense, industrial, communications, aircraft, shipboard, rack mount, embedded computing, and electric vehicle applications.

Contact us to find out if this item can be configured or redesigned to meet your specific technology need.

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

Parameter	Notes
Input Voltage	Designed to meet MIL-STD-704A-F & MIL-STD-1275A/B/D, continuous operation 22Vdc to 33Vdc, 28Vdc nominal. 100Vdc 50msec transient (see Figure 1).
Input Current	28.7A max @ 22Vdc; 22.58A typical @ 28Vdc input (550W out).
Input Power	640W max @ 550W out.
Total Output Power	550W max. output. (All outputs combined).
Output Voltages	See table 2.
Efficiency	86% minimum, 87% typical.
Start-Up Time	500 milliseconds maximum.
Voltage Set Point	+/– 2% V Out nominal (for any combination).
Line/Load Regulation	+/– 2% V Out nominal (for any combination).
Temperature Regulation	+/– 0.01% / °C.
Output Ripple	50mVpk-pk Max. (20 MHz BW) all except; +/-12 Vdc 100mVpk-pk Max.
Current Limit	Short circuit protected with automatic recovery.
Temperature	–40°C to +85°C (Ambient air temperature 550W) –55°C to +100°C Non-operating.
Cooling	Convection. Customer provided 1000lfm air flow across attached cooling fins.
Package	Dual slot pluggable slide in rack card.
Dimensions	6U x 8hp x 160mm (see mechanical drawing).
Weight	4.14 lb. Typical.
Connectors	1ea Positronic PCIH47M400A1 or equivalent (see Table 4).
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).
Safety Approvals	CE Mark (Low Voltage Directive 2006/95/EC).

Specifications subject to change without notice.

Table 2: Voltage Output (Nominal)

VME550A	V1	V2	V3	V4
VME550A-001-XXX	+5VDC @ 224W	+3.3VDC @ 224W	+12VDC @ 112W	-12VDC @ 112W

* V1-V4 output power levels indicate maximum power available per output. Total combined power of all outputs on VME550A cannot exceed 550W
** Output voltage variants possible. VME550A 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

-XXX	Custom Options
-000	No Options
-001	Conformal coating on PWB
-002	Metric wedgelock screws (conduction-cooled units only)
-003	Split inhibit control for V1/V3 and V2/V4
-004	Connector keyed (position #1)
-005	Connector keyed (position #2)
-006	Connector keyed (position #3)
-007	Conformal coating & Split inhibit for V4
-008	ESD pin removed (air-cooled units only)
-009	70k ft. operational altitude

Figure 1: Transient Immunity

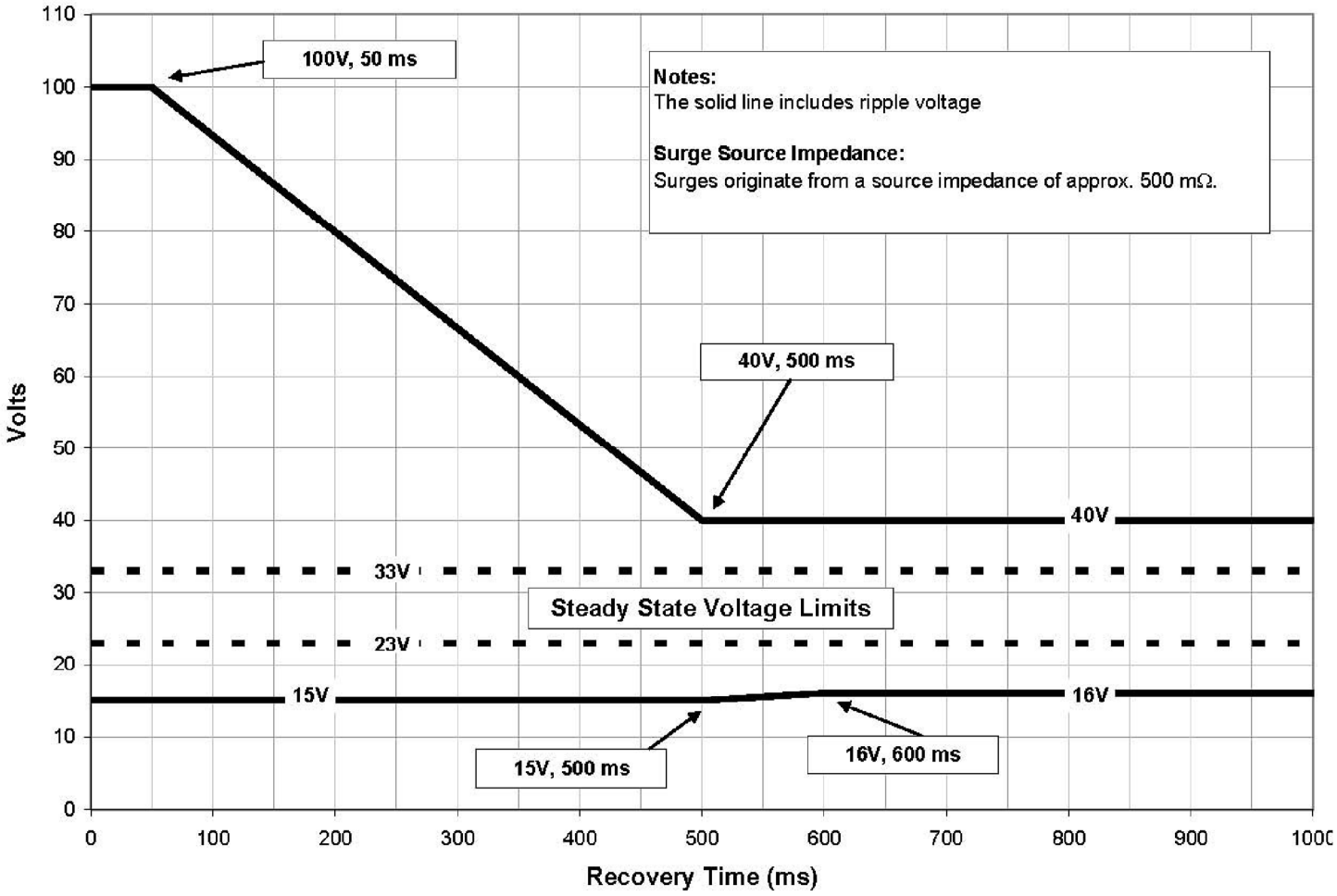


Table 4: VME550A-001-XXX - Connector Specifications

Connector Positronic P/N PCIH47M400A1 or Equivalent

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

DWG NO.	SH	REV

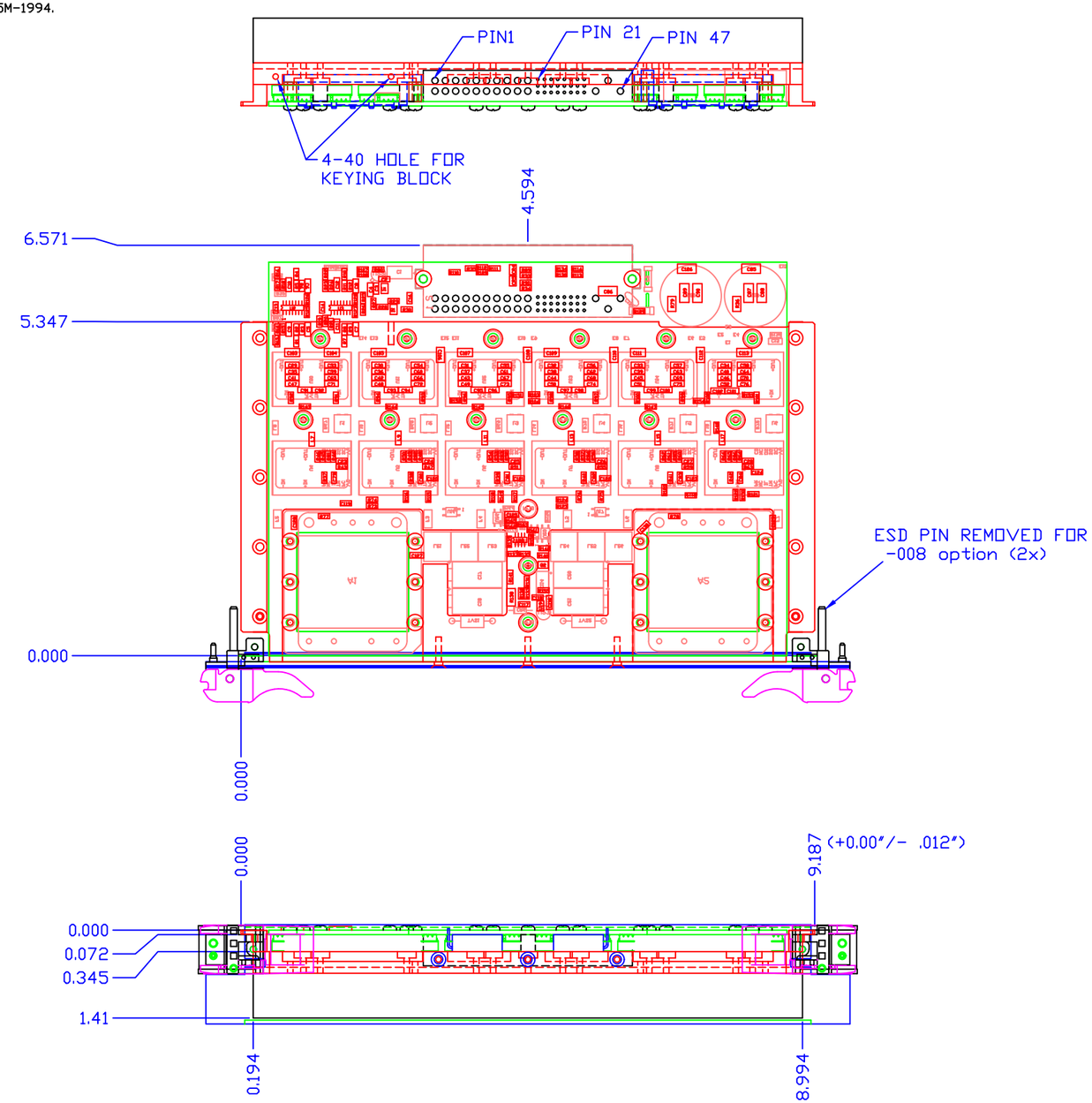
REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED
	C01	INITIAL RELEASE	01/14/09	MVS
	D02	UPDATED HEATSINK AND PWB	11/09/09	MVS
	D03	UPDATED TO REV D03 PWB	02/10/10	MVS
	E03	UPDATED TO REV E03 PWB	04/04/11	MVS
	E04	ADDED SIDE RAILS TO HEATSINK	06/18/13	MVS
	E05	UPDATED WIDTH TOLERANCE	09/18/14	MVS

NOTES: UNLESS OTHERWISE SPECIFIED

1. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M-1994.

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.



NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± N/A DECIMALS .XX ± .02 .XXX ± .005 DEGREES ± .5

MATERIAL: SEE NOTE 2

FINISH: SEE NOTE 3

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN JFS	08/20/07
CHECKED	
PROJ. ENG.	
MFG.	
QUALITY	

AEGIS POWER SYSTEMS
MURPHY, NORTH CAROLINA

TITLE: VME400A-VME650A MECH LAYOUT

AEGIS P/N: VME400A-VME650A-XXX

SIZE	FSCM NO.	DWG NO.	REV
D	06ES8	VME400A-VME650A-M00	E05

SCALE 1/1 SHEET 1 OF 1