

VME550

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 single slot very thin (4HP) filtered 28Vdc VME550 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 the MIL-STD-461E EMI requirements. When compared to VME power supplies using conventional technology, the single-slot VME550 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. The VME550 is a drop-in replacement for the VME450 series.

Features

- 28Vdc per MIL-STD-704A-F * and MIL-STD-1275A/B/D *
- Up to 6 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 Continuous Operating Ratings

Parameter	Rating	Unit	Notes
Vin max range	18 to 36	Vdc	
Temperature	-40 to +85	°C	Baseplate 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	28.73A 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 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 card.
Dimensions	6U x 4hp x 160mm (see mechanical drawing).
Weight	2.7 lb. Typical.
Connectors	1ea Positronic PCIH47M400A1 or equivalent (see Tables 4-10).
Vibration	MIL-STD-810F, Method 514.5, Procedure I.
Shock:	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)

VME550	V1	V2	V3	V4
VME550-001-XXX	+5VDC @ 224W	+3.3VDC @ 224W	+12VDC @ 112W	-12VDC @ 112W
VME550-003-XXX	+3.3VDC @ 112W	+5VDC @ 224W	+12VDC @ 224W	+19DC @ 112W
VME550-004-XXX	+12VDC @ 336W	+5VDC @ 112W	+15VDC @ 112W	-12VDC @ 112W
VME550-006-XXX	+3.3VDC @ 112W	+5VDC @ 224W	+12VDC @ 224W	-12VDC @ 112W
VME550-007-XXX	+5VDC @ 112W	+12VDC @ 448W		+3.3VDC @ 112W
VME550-008-XXX	+12VDC @ 550W			
VME550-009-XXX	+3.3VDC @ 112W	+5VDC @ 448W		+12VDC @ 112W (always on)

* V1-V4 output power levels indicate maximum power available per output. Total combined power of all outputs on VME550 cannot exceed 550W
 ** 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

-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

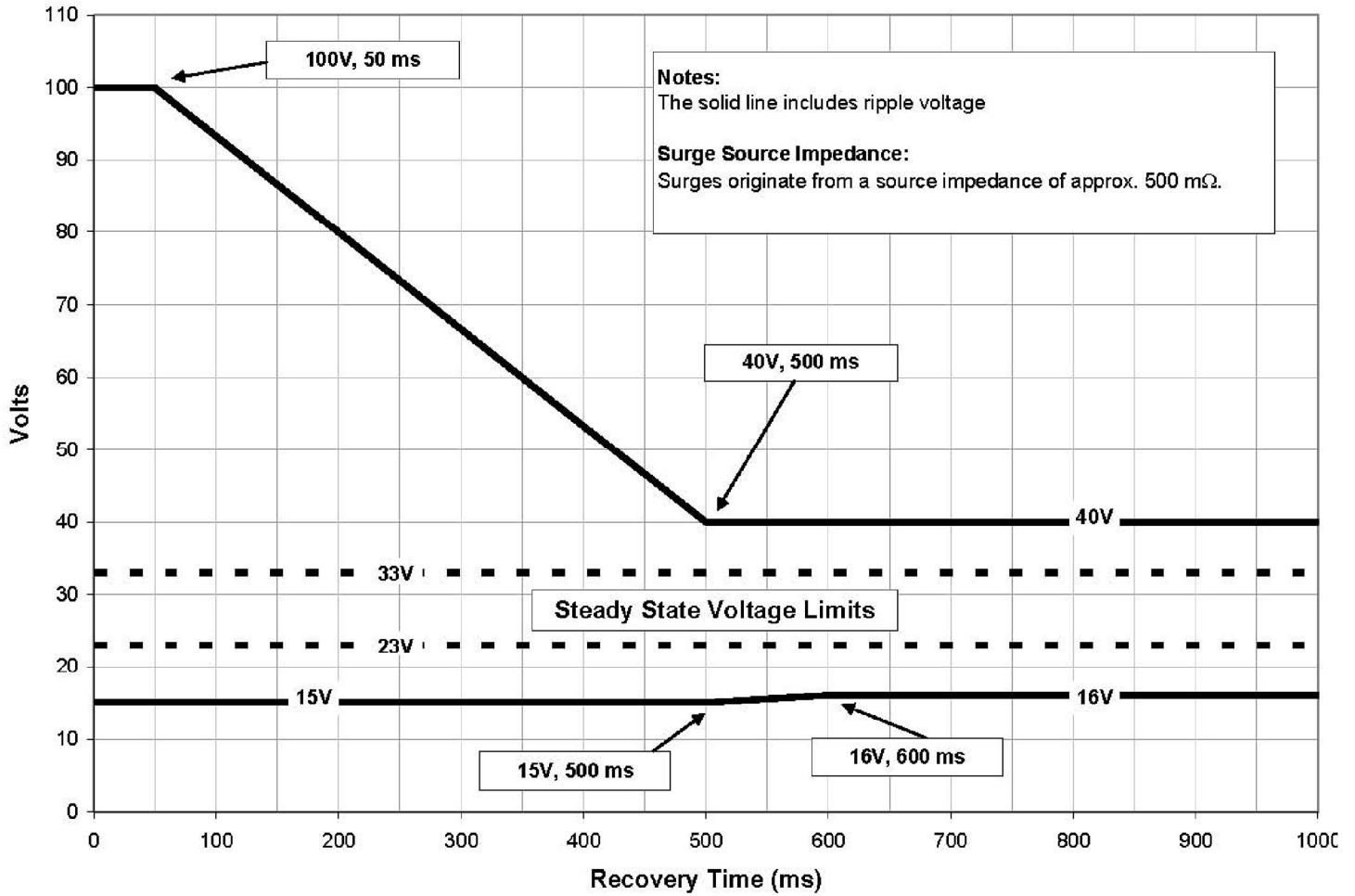


Table 4: VME550-001-XXX - Connector Specifications

Connector Positronic P/N PCIH47M400A1 or Equivalent

Contact Designation	Conductor Circuit
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
Pin 32	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
Pins 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.)

Table 5: VME550-003-XXX - Connector Specifications
Connector Positronic P/N PCIH47M400A1 or Equivalent

Contact Designation	Conductor Circuit
Pins 1, 2	+3.3 Vdc
Pins 3, 4	+12 Vdc
Pins 5, 6, 7, 8	+3.3 V RTN (Common)
Pins 9, 10, 11, 12	+5 V RTN (Common)
Pins 13, 14, 15, 16	+5 Vdc
Pin 17	+12 Vdc
Pin 18	+12 V RTN (Common)
Pin 19	+19 Vdc
Pin 20	+19 V RTN (Common)
Pin 21	NC (Split Inhibit for V4 with -007 option)
Pin 22	POWER OK RTN (Common)
Pins 23-38	NC
Pin 39	Inhibit (Connect 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
Pins 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.)

Table 6: VME550-004-XXX - Connector Specifications

Connector Positronic P/N PCIH47M400A1 or Equivalent

Contact Designation	Conductor Circuit
Pins 1, 2, 3, 4	+12 Vdc
Pins 5, 6, 7, 8	+12 V RTN (Common)
Pins 9, 10, 11, 12	+5 V RTN (Common)
Pins 13, 14	+5 Vdc
Pins 15, 16	+15 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 23-38	NC
Pin 39	Inhibit (Connect 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
Pins 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 5 OF THE +12V 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.)

Table 7: VME550-006-XXX - Connector Specifications

Connector Positronic P/N PCIH47M400A1 or Equivalent

Contact Designation	Conductor Circuit
Pins 1, 2	+3.3 Vdc
Pins 3, 4	+12 Vdc
Pins 5, 6, 7, 8	+3.3 V RTN (Common)
Pins 9, 10, 11, 12	+5 V RTN (Common)
Pins 13, 14, 15, 16	+5 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 23-38	NC
Pin 39	Inhibit (Connect 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
Pins 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

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Table 8: VME550-007-XXX - Connector Specifications

Connector Positronic P/N PCIH47M400A1 or Equivalent

Contact Designation	Conductor Circuit
Pins 1, 2	+5 Vdc
Pins 3, 4	+3.3 Vdc
Pins 5, 6	+5 V RTN (Common)
Pins 7, 8	+3.3 V RTN (Common)
Pins 9, 10, 11, 12	+12 V RTN (Common)
Pins 13, 14, 15, 16	+12 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 23-38	NC
Pin 39	Inhibit (Connect 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
Pins 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 6 OF THE +12V 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.)

Table 9: VME550-008-XXX - Connector Specifications

Connector Positronic P/N PCIH47M400A1 or Equivalent

Contact Designation	Conductor Circuit
Pins 1, 2	+12 Vdc
Pins 3, 4	+12 Vdc
Pins 5, 6	+12 V RTN (Common)
Pins 7, 8	+12 V RTN (Common)
Pins 9, 10, 11, 12	+12 V RTN (Common)
Pins 13, 14, 15, 16	+12 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 23-38	NC
Pin 39	Inhibit (Connect 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
Pins 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 10 OF THE +12V 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

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Table 10: VME550-009-XXX - Connector Specifications

Connector Positronic P/N PCIH47M400A1 or Equivalent

Contact Designation	Conductor Circuit
Pins 1, 2	+3.3 Vdc
Pins 3, 4	+5 Vdc
Pins 5, 6	+3.3 V RTN (Common)
Pins 7, 8	+5 V RTN (Common)
Pins 9, 10, 11, 12	+5 V RTN (Common)
Pins 13, 14, 15, 16	+5 Vdc
Pin 17	+5 Vdc
Pin 18	+5 V RTN (Common)
Pin 19	+12 Vdc (always on)
Pin 20	+12 V RTN (Common)
Pin 21	NC
Pin 22	POWER OK RTN (Common)
Pins 23-38	NC
Pin 39	Inhibit (Connect 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
Pins 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

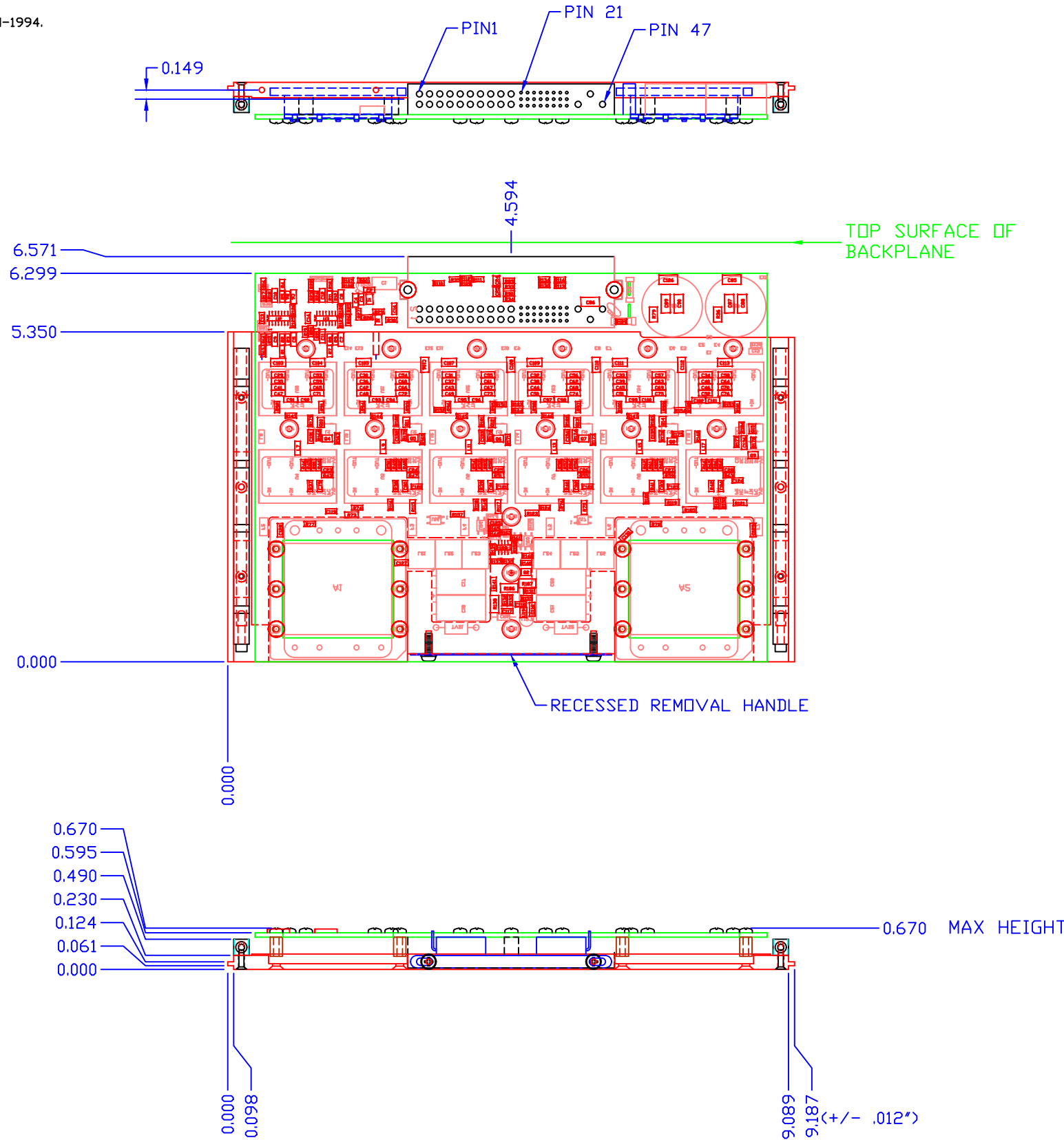
** ALL PINS OF THE SAME VOLTAGE SHOULD BE TIED TOGETHER ON THE BACKPLANE (i.e. ALL 7 OF THE +5V PINS SHOULD BE TIED TOGETHER)

** 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

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NOTES: UNLESS OTHERWISE SPECIFIED

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



REVISIONS				
ZDNE	REV	DESCRIPTION	DATE	APPROVED
	A01	INITIAL RELEASE	XX/XX/XX	JFS
	A02	RECESSED HANDLE, P/N NAME CHG	03/05/07	JFS
	A03	UPDATED TO SHOW INPUT INDUCTORS	07/03/07	JFS
	A04	MOVED ONE KEYING HOLE LOCATION	07/25/07	JFS
	A05	ADDED KEYING BLOCK	11/18/08	MVS
	C01	UPDATED FOR REV C01 PWB	01/14/09	MVS
	D02	UPDATED FOR REV D02 PWB	10/28/09	MVS
	D03	UPDATED FOR REV D03 PWB	02/12/10	MVS
	E02	UPDATED FOR REV E02 PWB	08/18/11	MVS
	E03	UPDATED WIDTH TOLERANCE	08/27/14	MVS
	F02	UPDATED FOR REV F02 PWB	01/25/17	MVS

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

AEGIS POWER SYSTEMS, INC. PROPRIETARY INFORMATION. NO DISCLOSURE, REPRODUCTION, OR USE OF ANY PART HEREOF MAY BE MADE EXCEPT BY EXPRESS WRITTEN PERMISSION OF AEGIS POWER SYSTEMS, INC.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		
FRACTIONS	DECIMALS	DEGREES
± N/A	.XX ± .02	± 5
	.XXX ± .005	
MATERIAL	SEE NOTE 2	
FINISH	SEE NOTE 3	
DO NOT SCALE DRAWING		

CONTRACT NO.		AEGIS POWER SYSTEMS MURPHY, NORTH CAROLINA	
APPROVALS	DATE	TITLE	
DRAWN MVS	08/18/11	VME400-VME650 MECH LAYOUT	
CHECKED		AEGIS P/N: VME400/VME650-XXX	
PROJ. ENG.		SIZE	FSCM NO.
MFG.		D	06ES8
QUALITY		DWG NO.	REV
		VME400-VME650-M00F02	
APPLICATION	SCALE 1/1	SHEET 1 OF 1	