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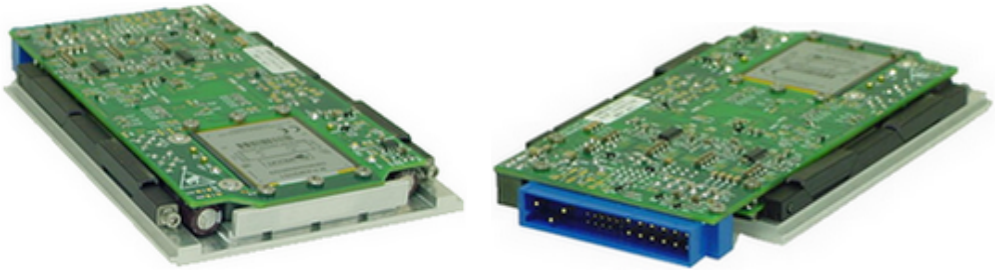
VME225

VME DC-DC Power Converter Card

(Document Rev B01, 11/03/2015)



28Vdc Input
1-4 Outputs, 225W Max Total Combined Output

Features

- 28Vdc per MIL-STD-704A/E/F * and MIL-STD-1275D *
- 1-4 Output Voltages, 225W
- MIL-STD-810F Environmental *****
- MIL-STD-461E/F EMI *****
- Single Slot VME Power Card

***** Designed to meet portions of the standard.

Table 1: Maximum Ratings

Parameter	Rating	Unit	Notes
Vin max range	18 to 36	Vdc	
Temperature (1-2 Output)	–40 to +85	°C	Baseplate temperature
Temperature (3-4 Output)	–40 to +75	°C	Baseplate temperature
Output power (maximum)	225	W	Total Combined Output
Input power (maximum)	271	W	@ 225W out (28Vdc input)
Max +5Vdc output	225	W	**
Max +3.3Vdc output	225	W	**
Max +12Vdc output	225	W	**
Max –12Vdc output	225	W	**

** Dependent on output configuration. See Table-2.

Product Highlights

This single slot filtered 28Vdc 4HP wide x 3U high VME225 dc-dc converter power card is factory configurable for combinations of one to four (1-4) outputs with available voltages of +3.3Vdc, +5Vdc, +12Vdc, or -12Vdc at 225W maximum total of all outputs combined. This dc-dc power converter card works well as a Military Mil-COTS solution designed to meet portions of Mil-Std-810F Vibration, Mil-Std-810F Shock, and Mil-Std-461E/F EMI requirements. When compared to VME dc-dc power converters using conventional technology, the single slot VME225 provides users with higher efficiency (83%), lower weight (1.2 pounds), and higher power (up to 225W).

AEGIS Power Systems, Inc. specializes in the front end design, development, and manufacture of Rapid Response Custom Switching Power Supplies for Mil-COTS, defense, industrial, telecomm, aircraft, shipboard, rack mount, and electric powered vehicle applications. Contact Aegis Power Systems for details on Mil-Specs that this product is designed to meet.

VME225 SPECIFICATIONS

Specifications:	***(25ºC, nominal line, 100% load unless otherwise specified).***
DC Input Voltage:	Designed to meet Mil-Std-704A/E/F and Mil-Std-1275D Continuous. 28Vdc Nominal, 22Vdc to 36VDC input range. 100Vdc 50msec transient, see attached transient Curve (Figure-1).
DC Input Line Current:	12.4A Max @ 22Vdc input. 9.7A Typical @ 28Vdc input.
Input Power:	271W Maximum.
Output Power:	225W Max. all outputs combined.
Output Voltages:	See below Table-2.
Efficiency:	83% Typical.
Startup Time:	500 millisecond Maximum.
Voltage Setpoint, Line/Load Regulation:	+/- 2%, see Table 2 for exceptions.
Output Ripple:	50mV pk-pk max (5Vdc & 3.3Vdc); 150mV pk-pk max (12Vdc) (20MHz BW).
Current Limit:	Short Circuit protected with automatic recovery.
Temperature:	-40ºC to +75ºC Operating baseplate wedgelocks 3 or 4 output. -40ºC to +85ºC Operating baseplate wedgelocks 1 or 2 output. -40ºC to +100ºC Non-operating.
Cooling:	Base plate conduction cooling through wedgelocks attached to customer rack.
Package:	Single slot pluggable *slide-in* card with attached baseplate.
Dimension:	3U x 160mm x 4HP (0.8”).
Weight:	1.2 lbs. Typical.
Connector:	1ea Positronics PCIM30W15M400A1 or equivalent. Contact Aegis for connector pin-out for a particular part number.
Vibration:	Designed to meet Mil-Std-810F (Method 5.14 Procedure 1)*.
Shock:	Designed to meet Mil-Std-810F (Method 5.16 Procedure 1)*.
Humidity:	0-95% non-condensing.
EMI:	Designed to meet Mil-Std-461E/F (CE102, CS101)*.

*Call for details on which portions of the Standards the Power Card is compliant to.
Specifications subject to change without notice.

Stand-Alone Part Number: VME225-0YY-ZZZ (0YY = Output Configuration, ZZZ = Custom Options)

Master/Slave Configurations

Master Part Number: VME225-1YY-ZZZ (1YY = Output Configuration, ZZZ = Custom Options)
Slave Part Number: VME225-2YY-ZZZ (2YY = Output Configuration, ZZZ = Custom Options)

Table 2 - Output configuration variations

Part Order Number	Usage	Notes		# Out	Output Pins 1,2	Output Pins 7,8	Output Pin 11	Output Pin12	Max Power
VME225-001-ZZZ	Stand-Alone	2		2	V1: 5VDC 112W		V2: 3.3VDC 112W		225W 85ºC
VME225-002-ZZZ	Stand-Alone			2	V1: +12VDC 112W		V2: -12VDC 112W		225W 85ºC
VME225-003-ZZZ	Stand-Alone	2,3		4	V1 5VDC 112W	V2 3.3VDC 82W	V3 +12VDC 24W	V4 -12VDC 24W	225W 85ºC
VME225-103-ZZZ	Master	2,3		4	V1 5VDC 112W	V2 3.3VDC 82W	V3 +12VDC 24W	V4 -12VDC 24W	225W 85ºC
VME225-203-ZZZ	Slave	2,3		4	V1 5VDC 112W	V2 3.3VDC 82W	V3 +12VDC 24W	V4 -12VDC 24W	225W 85ºC
VME225-004-ZZZ	Stand-Alone	2,3		4	V1 3.3VDC 112W	V2 5VDC 100W	V3 +12VDC 24W	V4 -12VDC 24W	225W 85ºC
VME225-005-ZZZ	Stand-Alone			1	V1: 5VDC 224W				225W 85ºC
VME225-105-ZZZ	Master			1	V1: 5VDC 224W				225W 85ºC
VME225-205-ZZZ	Slave			1	V1: 5VDC 224W				225W 85ºC
VME225-006-ZZZ	Stand-Alone			1	V1: 3.3VDC 224W				225W 85ºC
VME225-007-ZZZ	Stand-Alone	1,2		2	V1 5VDC 198W	V2 3.3VDC 26W	V1 Combined with pins 1 and 2		225W 85ºC
VME225-107-ZZZ	Master	1,2		2	V1 5VDC 198W	V2 3.3VDC 26W	V1 Combined with pins 1 and 2		225W 85ºC
VME225-207-ZZZ	Slave	1,2		2	V1 5VDC 198W	V2 3.3VDC 26W	V1 Combined with pins 1 and 2		225W 85ºC
VME225-008-ZZZ	Stand-Alone			3	V1 5VDC 112W	V2 -12VDC 24W	V3 +12VDC 60W		196W 85ºC
VME225-108-ZZZ	Master			3	V1 5VDC 112W	V2 -12VDC 24W	V3 +12VDC 60W		196W 85ºC
VME225-208-ZZZ	Slave			3	V1 5VDC 112W	V2 -12VDC 24W	V3 +12VDC 60W		196W 85ºC
VME225-009-ZZZ	Stand-Alone			1	V1: +12VDC 225W				225W 85ºC
VME225-109-ZZZ	Master			1	V1: +12VDC 225W				225W 85ºC
VME225-209-ZZZ	Slave			1	V1: +12VDC 225W				225W 85ºC
VME225-010-ZZZ	Stand-Alone	1,2,4		3	V1 5VDC 60W	V2 3.3VDC 50W	V3 +12VDC 112W		222W 85ºC
VME225-011-ZZZ	Stand-Alone	1,2		2	V1 5VDC 180W	V2 3.3VDC 45W	V1 Combined with pins 1 and 2		225W 85ºC
VME225-111-ZZZ	Master	1,2		2	V1 5VDC 180W	V2 3.3VDC 45W	V1 Combined with pins 1 and 2		225W 85ºC
VME225-211-ZZZ	Slave	1,2		2	V1 5VDC 180W	V2 3.3VDC 45W	V1 Combined with pins 1 and 2		225W 85ºC
VME225-012-ZZZ	Stand-Alone	1,3		3	V1 5VDC 100W	V2 3.3VDC 60W	V3 +12VDC 50W		210W 85ºC
VME225-112-ZZZ	Master	1,3		3	V1 5VDC 100W	V2 3.3VDC 60W	V3 +12VDC 50W		210W 85ºC
VME225-212-ZZZ	Slave	1,3		3	V1 5VDC 100W	V2 3.3VDC 60W	V3 +12VDC 50W		210W 85ºC
VME225-013-ZZZ					Reserved				
VME225-014-ZZZ	Stand-Alone	1,2,4,5		4	V1 5VDC 100W	V2 3.3VDC 60W	V3 +12VDC 100W	V4 -12VDC 24W	225W 85ºC
VME225-015-ZZZ	Stand-Alone			3	V1 5VDC 112W	V2 +12VDC 60W	V3 -12VDC 24W		196W 85ºC

Notes: (1) 3.3VDC outputs less than 60W have +/-3% over line/load/temp.
(2) Overall Efficiency for units with 3.3VDC is typically 80%.

(3) Max combined output V2+V3+V4 = 112W.
(4) Max combined output V1 + V2 = 112W.
(5) Maximum combined output V3 + V4 = 112W

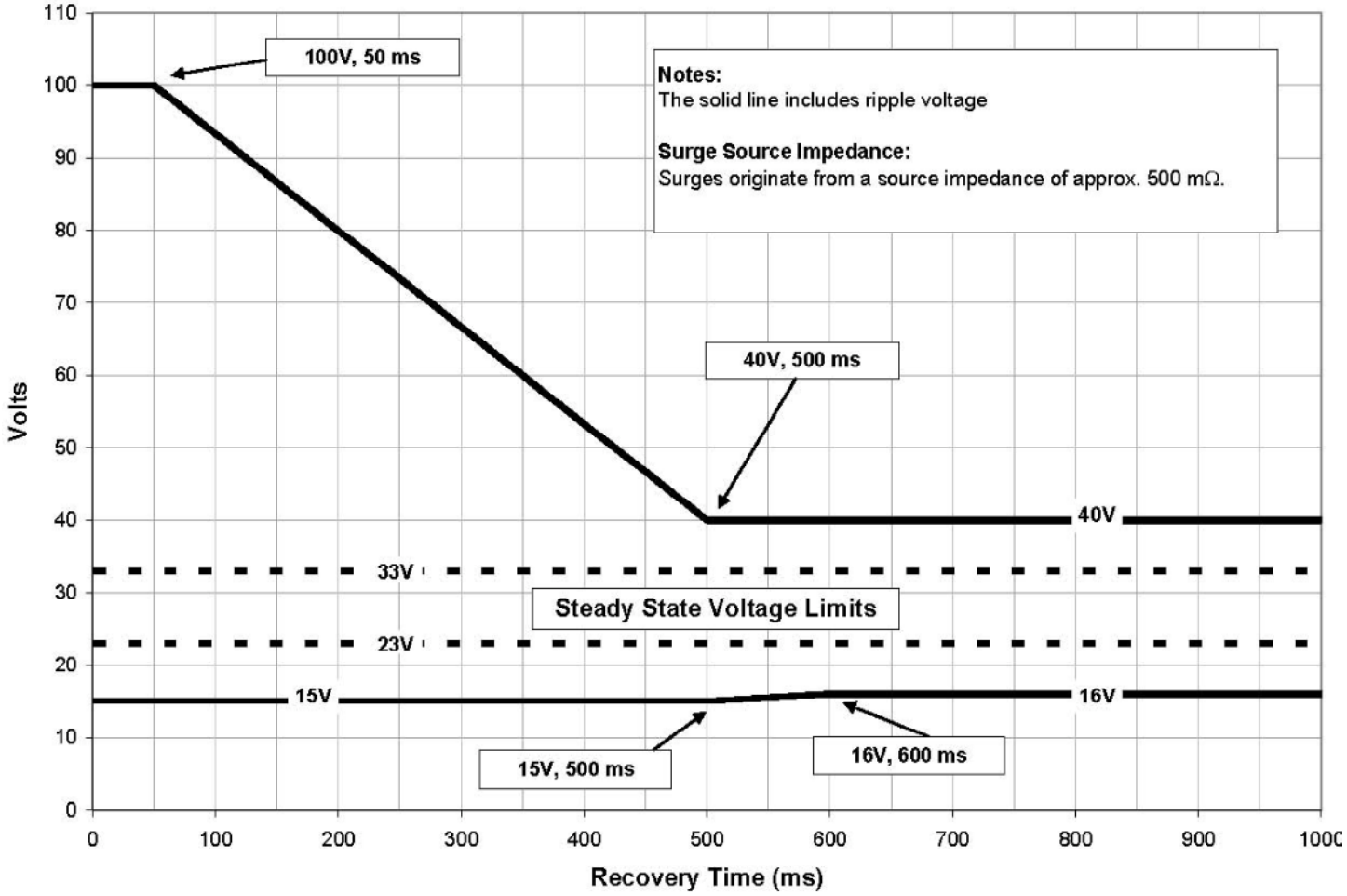
Note: Connector pin outs are not standard and vary for each Part Number.
Contact Aegis for connector pin outs for a particular Part Number.
Pins 3,4,5,6,9, and 10 are common returns

Note: Cards can be set up as a custom (2) card pair for current sharing of output V1. Please consult Aegis Power System to determine if a configuration is available to meet output requirements.

Table 3: Customer selected options

Part Number	Custom Options
VME225-YYY-000	No Options
VME225-YYY -001	Conformal Coating on PWB
VME225-YYY -002	Metric Wedgelocks

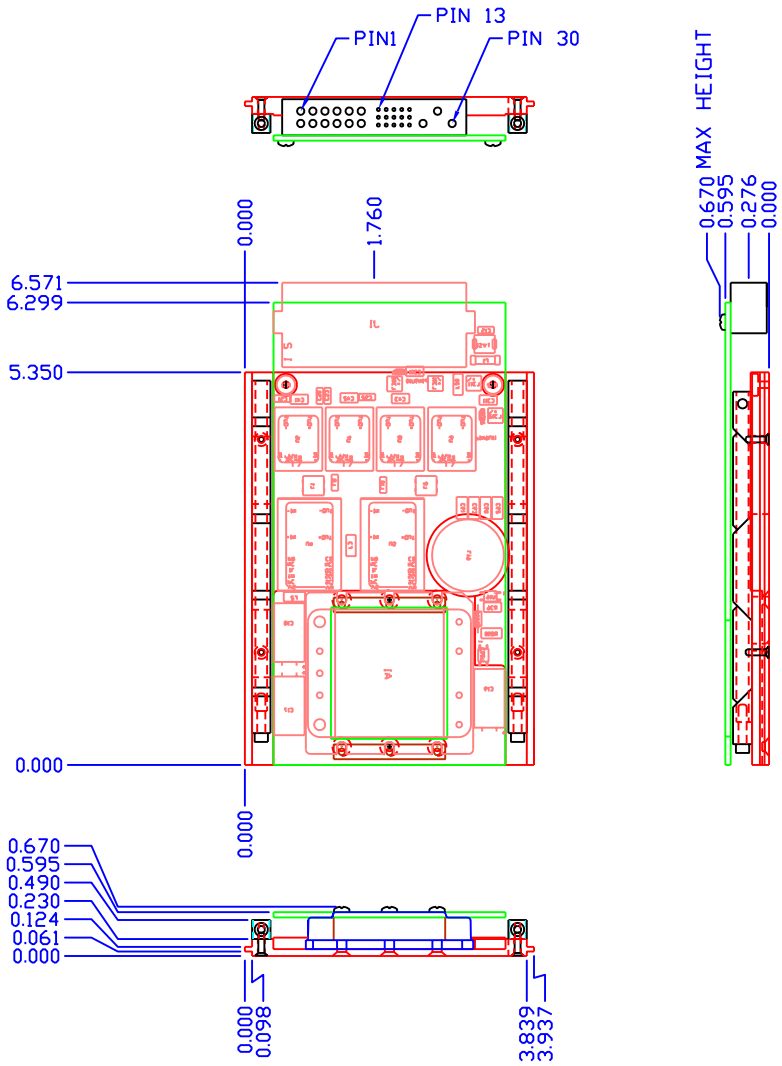
Figure 1: Transient Immunity



NOTES: UNLESS OTHERWISE SPECIFIED

1. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M-1994.
2. MATERIAL:
3. FINISH:

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A01	INITIAL RELEASE	09/12/09	MRA



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

CONNECTOR: POSITRONICS PCIM30W15M400A1 OR EQUIVALENT
PINS 1,2: V1 OUTPUT
PINS 3,4,5,6: COMMON RTN
PINS 7,8: V2 OUTPUT
PINS 9,10: COMMON RTN
PIN 11: V3 OUTPUT
PIN 12: V4 OUTPUT
PINS 13,14,15,16,17,18: NC
PIN 19: SIGNAL RTN (COMMON)
PINS 20,21: NC
PIN 22: INHIBIT (CONNECTED TO NEG INPUT = DISABLED)
PINS 23,24,25,26: NC
PIN 27: POWER OK (OPEN COLLECTOR = FAIL)
PIN 28: CHASSIS GND
PIN 29: POSITIVE INPUT
PIN 30: NEGATIVE INPUT

NOTE: FOR 1 OUTPUT CARDS - PINS FOR V1 AND V2 ARE COMBINED

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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

NEXT ASSY | USED ON
APPLICATION

CONTRACT NO.

APPROVALS		DATE
DRAWN	MRA	06/04/09
CHECKED		
PROJ. ENG.		
MFG.		
QUALITY		

AEGIS POWER SYSTEMS
MURPHY, NORTH CAROLINA

TITLE: VME225 MECH LAYOUT

AEGIS P/N: VME225

SIZE D | FSCM NO. 06ES8 | DWG NO. VME225-M00 | REV A01

SCALE 1/1 | SHEET 1 OF 1