

VPX283UC640-SA

Overview

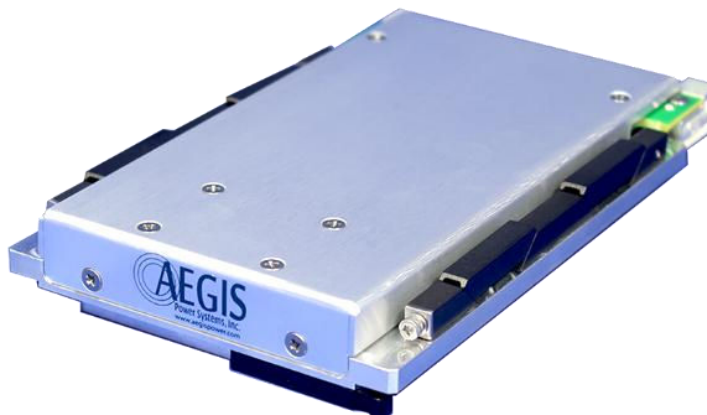
3U VPX DC-DC Power Converter Card
28Vdc Input, 2 Outputs
700W Max Combined Output

Market(s)

Defense

Typical Application(s)

Embedded Computing, C4ISR



Product Highlights

The VPX283UC640-SA is a single-slot (5HP) power card for interoperable systems in alignment with the SOSA™ Technical Standards. This power converter offers 28Vdc input and two DC outputs (+12V and +3.3V_AUX DC). This COTS military power supply solution is designed to the applicable VITA 62 Modular Power Supply and VITA 48.2 conduction-cooled requirements. It is also designed to meet applicable portions of the MIL-STD-810F vibration/shock requirements. The VPX283UC640-SA provides users with high efficiency (up to 92%) and high power (up to 700W). Up to three power cards can be paralleled for redundancy or increased power capability. Additionally, the redundant IPMB bus and I2C functionality allows users to monitor sensor data (temperature, voltage, current), obtain device ID, and retrieve self-test results per VITA 46.11 and SOSA™ Technical Standards.

Features

- 28Vdc per MIL-STD-704F
- 2 Output Voltages, 700W
- Single Slot 5HP VITA 48.2 VPX Power Card
- ANSI/VITA 46.11 Tier 2 IPMC *
- Redundant IPMB bus connections
- Conformal coated PWB

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

Table 1: Maximum Continuous Operating Ratings

Parameter	Rating	Unit	Notes
Vin max range	18 to 36	Vdc	28Vdc Nominal
Temperature	-40 to +85	°C	Baseplate @ wedgelocks (85C @ 600W total output) (80C @ 700W total output)
Input power	790	W	@ 700W out (28VDC input)
Combined output power	700	W	See Table 2 for DC output variations
Efficiency	90	%	Typical @ nominal conditions

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-704F Table IV (DC Normal Operation) 22Vdc to 29Vdc, 28 Vdc nominal, continuous operation during Figure 13 (Normal DC voltage transients) 50 Vdc max.
Input Current	35.4A max @ 22Vdc, 27.8A typical @ 28Vdc input (700W out).
Input Power	790W max @ 700W out.
Total Output Power	700W max. all outputs combined (see Table 4).
Output Voltages	(see Table 2).
Efficiency	88.5% minimum, 90% typical, 92% max.
Start-Up Time	1 second maximum.
Voltage Set Point	+/- 5% V Out nominal (for any combination).
Line/Load Regulation	+/- 5% V Out nominal (for any combination).
Output Ripple	50mVpk-pk Max. (20 MHz BW) all except; +/-12 Vdc 120mVpk-pk Max.
Current Limit	Short circuit protected with automatic recovery.
Isolation	500Vdc (Input-Chassis, Output-Chassis, Input-Output)
Temperature	-40°C to +85°C Operating baseplate (see Table 4). -40°C to +125°C Storage.
Cooling	Conduction cooling through wedgelocks to customer rack.
Package	Single slot pluggable slide in rack card.
Dimensions	3U x 5hp x 168.49mm (see mechanical drawing page) (VITA 48.2 Table 3).
Weight	1.7 lbs. (typical).
Connectors	1ea TE Connectivity 2314578-2 or equivalent (see Table 5).
Vibration	Designed to meet – ANSI/VITA 47-2005 (R2007), Section 4.4.3 Vibration Class V3. MIL-STD-810F, Method 514.5, Procedure I.
Shock:	Designed to meet - ANSI/VITA 47-2005 (R2007), Section 4.5.2 Operating Shock Class OS2. ANSI/VITA 47-2005 (R2007), Section 4.5.3 Bench Handling Shock. MIL-STD-810F, Method 516.5, Procedure I.
Humidity	0 – 95% non-condensing per ANSI/VITA 47-2005 (R2007), Section 4.6 Humidity.
Altitude	-1,500 to +70,000 ft.
EMI	Designed to meet MIL-STD-461G conducted emissions with external EMI filter (see Table 6).
Paralleling	Up to 3 supplies can be connected for redundancy or increased power. +12V sharing accuracy = +/-10% when DC load >= 50% total load capability
System Management	VITA 46.11 IPMI I2C interface with monitoring & dual IPMB bus

Specifications subject to change without notice.

Table 2: Voltage Output (Nominal)

VPX283UC640-XX	VS1	3.3V_AUX
VPX283UC640-SA	+12VDC @ 640W	+3.3VDC_AUX @ 60W

Output power levels indicate maximum power available per output.
Total combined power of all outputs on VPX283UC640-SA cannot exceed 700W @ 80°C
(Temperature measured on the unit's baseplate @ wedge locks)

Table 3: ENABLE / INHIBIT

Control Inputs		Power Outputs	
ENABLE	INHIBIT	3.3V_AUX	VS1
High	High	Off	Off
High	Low	Off	Off
Low	High	On	On
Low	Low	On	Off

Table 4: Power Derating

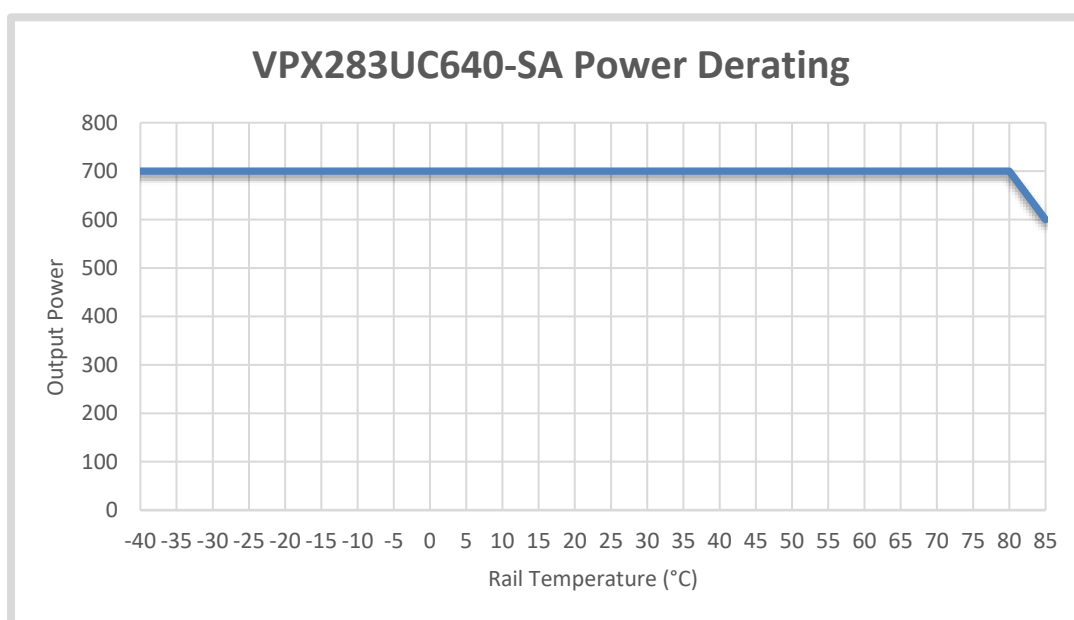


Table 5: Connector Specifications

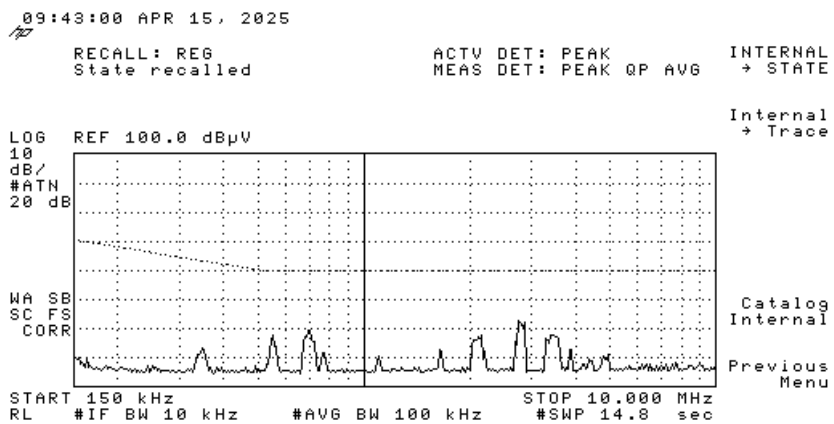
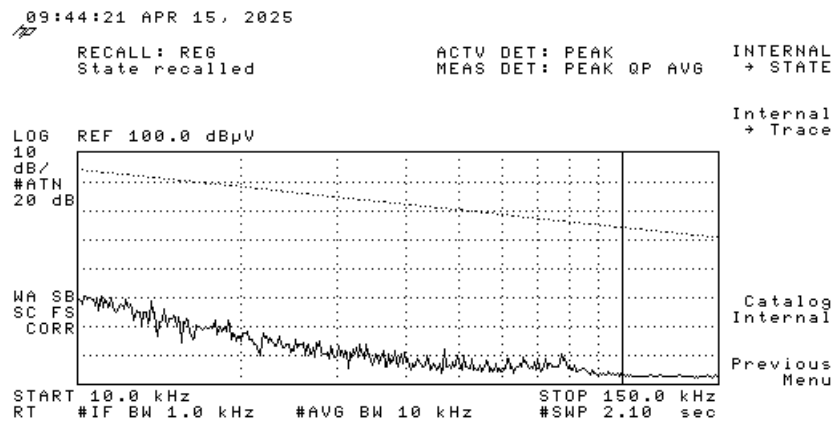
TE Connectivity Connector 2314578-2 or equivalent

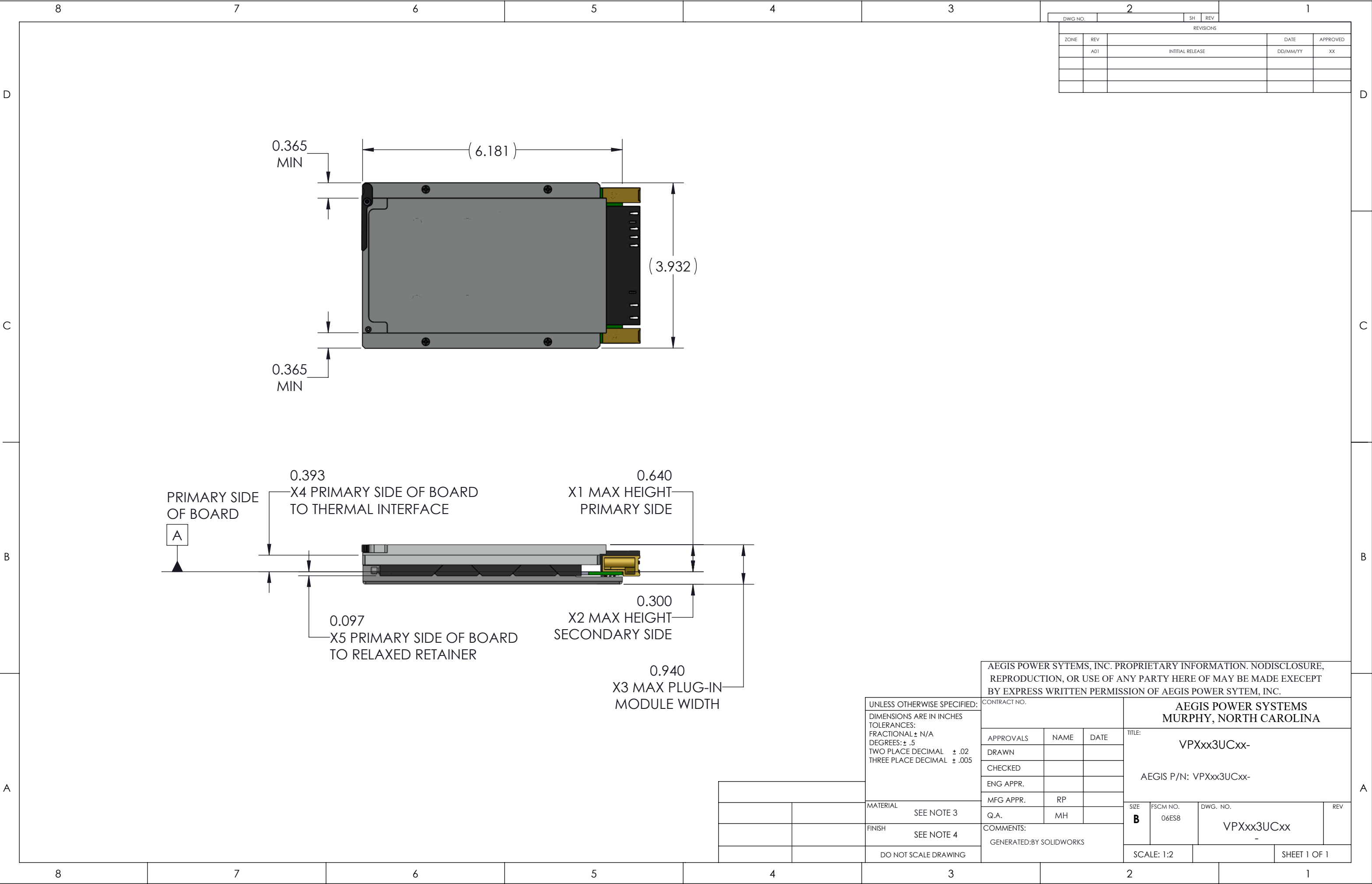
Contact Designation		Conductor Circuit
P1	40A	-DC_IN/ACN
P2	40A	+DC_IN/ACL
LP1	20A	CHASSIS
A1	<1A	(NC)
B1	<1A	(NC)
C1	<1A	GA2*
D1	<1A	(NC)
A2	<1A	(NC)
B2	<1A	FAIL*
C2	<1A	INHIBIT*
D2	<1A	ENABLE*
A3	<1A	(NC)
B3	<1.5A	(NC)
C3	<1A	(NC)
D3	<1A	(NC)
A4	<1.5A	(NC)
B4	<1.5A	(NC)
C4	<1.5A	(NC)
D4	<1.5A	(NC)
A5	<1A	GA0*
B5	<1A	GA1*
C5	<1A	SM0 (I2C/SCL)
D5	<1A	SM1 (I2C/SDA)
A6	<1A	SM2 (I2C/SCL)
B6	<1A	SM3 (I2C/SDA)
C6	<1.5A	(NC)
D6	<1A	SYSRESET*
A7	<1A	(NC)
B7	<1A	(NC)
C7	<1A	(NC)
D7	<1A	SIGNAL_RETURN
A8	<1A	+12VDC SENSE
B8	<1A	+3.3V_AUX SENSE
C8	<1A	+12VDC SENSE
D8	<1A	SENSE_RETURN
P3	40A	+12VDC (VS1)
P4	40A	POWER_RETURN
P5	40A	POWER_RETURN
LP2	20A	+3.3V_AUX
P6	40A	+12VDC (VS1)

* Use of a trailing asterisk indicates a logic signal which is active when at the less positive level of its allowable range

Table 6: CE102 Conducted Emissions

Typical conducted emissions tested per MIL-STD-461G using external filter JMK P/N MM-0637A-40B





2		1	
DWG NO.		SH	REV
REVISIONS			
ZONE	REV	DATE	APPROVED
	A01	INITIAL RELEASE	DD/MM/YY XX

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UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± N/A DEGREES: ± .5 TWO PLACE DECIMAL ± .02 THREE PLACE DECIMAL ± .005			CONTRACT NO.			AEGIS POWER SYSTEMS MURPHY, NORTH CAROLINA		
MATERIAL SEE NOTE 3			APPROVALS	NAME	DATE	TITLE: VPXxx3UCxx- AEGIS P/N: VPXxx3UCxx-		
FINISH SEE NOTE 4			DRAWN					
DO NOT SCALE DRAWING			CHECKED					
			ENG APPR.					
			MFG APPR.	RP		SIZE B		
			Q.A.	MH		FSCM NO. 06ES8	DWG. NO. VPXxx3UCxx	REV
			COMMENTS: GENERATED:BY SOLIDWORKS			SCALE: 1:2		
						SHEET 1 OF 1		