

THE SCIENCE OF CERTAINTY

VPX Series Features

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Three level of sequential mating Compatible with IEEE 1101.2 conduction cooled boards Compatible with popular high speed data connectors, no notching of the board required High reliability large surface area contact system

Compliant to VITA 41 VXS power connector requirements



The dedicated power interface between plug-in boards and backplanes

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C-035 Rev. D 19/11

Today, some customer applications have requirements for high bandwidth transfer between VMEbus cards. Requirements which even the most updated VME parallel bus cannot support. To meet this need the VITA 41 specification has been developed. VITA 41 VXS (VME Switched Serial) defines a common data plane interconnect using switched serial topologies.

Positronic's VPX power connector was **developed** to support **VITA 41**. The **VPX series** provides a dedicated power interface between boards and backplanes eliminating the need to use valuable high speed contacts to carry power.

The VPX series has a unique package size which allows compatibility with conduction cooled boards per IEEE 1101.2.

A unique size, multiple power contacts, three levels of sequential mating and high reliability make the **VPX series** suitable for VITA 41 or any similar application.



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TECHNICAL CHARACTERISTICS

| MATERIALS AND FINISHE | S: | MECHANICAL CHARACT | ERISTICS: | | |
|---|--|---|---|--|--|
| Insulator: | Glass-filled polyester, UL 94V-0, blue color. | Blind Mating System: | Male and female connector bodies provide "lead-in" for 1 0 mm [039 inch] | | |
| Contacts: | Precision-machined copper | | diametral misalignment. | | |
| | plate. Other finishes available upon request. | Polarization: | Provided by contact arrangement. | | |
| ELECTRICAL CHARACTE | RISTICS: | Fixed Contacts: | Printed board terminations. | | |
| Contact Current Ratings, per UL 1977 | See temperature rise curve for details. | | Female contacts feature "Closed Entry" design. | | |
| Size 20 Power Contacts: | 24 amperes continuous, all contacts under load. | Fixed Contact Retention in Connector Body: | 40 N [9 lbs.] | | |
| Initial Contact Resistance: | 0.001 ohms maximum, per IEC 60512-2, Test 2b. | Sequential Contact Mating System ^{*1} : | First mate, second mate and third mate contacts available. | | |
| Insulation Resistance: | 5 G ohms per IEC 60512-2, Test 3a. | *1 Power to be enabled through a last mate contact within VP; another connector. See Sequential Mating Code section on | | | |
| Working Voltage: | 200 V r.m.s | more information. | | | |
| Creepage and Clearance | | Printed Board Mounting: | Mounting holes provided in connector body for printed board Self-tapping screws are | | |
| | 2.0 mm [.079 inch] | | available, see ordering information page. | | |

Mechanical Operations:

250 couplings, minimum.

-55°C to +125°C.

CLIMATIC CHARACTERISTICS:

Working Temperature:



VPX6W6F9300A1 and VPX6W6M400A1

MALE CONNECTOR WITH RIGHT ANGLE (90°) SOLDER TERMINATIONS CODE 4



CONTACT HOLE PATTERN

FEMALE CONNECTOR WITH COMPLIANT PRESS-FIT TERMINIATIONS CODE 93



SUGGESTED PRINTED BOARD HOLE SIZES FOR COMPLIANT PRESS-FIT CONNECTORS

| BI-SPRING COMPLIANT PRESS-FIT CONTACT HOLE | | | | | | | |
|--|-------------|-----------|------------------------------|-------------------|--|--|--|
| BOARD | CONTACT | DRILL | RECOMMENDED PLATING | FINISHED | | | |
| TYPE | SIZE / TYPE | HOLE SIZE | | HOLE SIZES | | | |
| TIN-LEAD | 20 | | 3µ [.0001] minimum solder | <u>ø1.19±0.05</u> | | | |
| SOLDER PCB | BI-SPRING | | over 25µ [.0010] min. copper | [ø.047±.002] | | | |

"Bi-Spring" Termination





COMPLIANT PRESS-FIT CONTACT HOLE

Note: For PCB plating compositions, i.e. ENIG (Electroless Nickel, Immersion Gold), consult Technical Sales.

SEQUENTIAL MATING CODE

SELECTION GUIDE FOR ORDERING DIFFERENT CONTACT LENGTHS STEP 9 OF ORDERING INFORMATION

SELECT CONNECTOR USING ORDERING INFORMATION ON PAGE 6 THEN CHOOSE STEPS BELOW FOR SEQUENTIAL MATING SYSTEM CONTACTS

| | STEP | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
|---|------------------------------|---|---|---|---|---|---|---|---|---|--|
| | EXAMPLE | Α | 1 | В | 2 | В | 3 | С | 4 | С | |
| STEP 1 Specify code for most fr used contact mating len | requently ligth. This | | | | | | | | | | STEP 9 Length of contact specified in step 8 (Choose from length code chart). |
| specified in steps 2 thro | ugh 9. | |] | | | | | | | | STEP 8 Position number for fourth special |
| STEP 2 | | | | | | | | | | | length contact. |
| length contact. | special | | | | | | | | | | STEP 7 Length of contact specified in step 6 |
| STEP 3 | | | | | | | | | | | (Choose from length code chart). |
| Length of contact speci (Choose from length co | fied in step 2. de chart) | | | | | | | I | | | STEP 6 Position number for third special |
| STEP 4 | | | | | | | | | | | length contact. |
| Position number for sec length contact. | ond special | | | | | | | | | | STEP 5 Length of contact specified in step 4 (Choose from length code chart) |
| | | | | | | | | | | | (encede nem lenger bodo ondry) |

| CONTACT CODE | CONTACT LENGTH | | | |
|--------------|-------------------------|--|--|--|
| А | 8.50 [.335] | | | |
| В | 7.00 [.276] STANDARD | | | |
| с | 5.50 [.217] | | | |





Limited depth into the daughtercard allows compatibility with many popular PMC card configurations. (Alignment piece may need to be removed prior to installation).

| Products described within this catalog may be protected by one or more of the following US. patents: | | | | | | | | |
|--|--------------------------|--------------------------|--------------------------|--|--|--|--|--|
| #4,900,261 #6,835,079 | #5,255,580 #7,115,002 | #5,329,697 #8,944,697 | #6,260,268 #9,304,263 | | | | | |
| Patented i | in Canada, 1992 | Other Paten | ts Pending | | | | | |

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ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 7

| STEP | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--|--------|-------|---|----|--|------------|-------------------------------------|--|--|
| EXAMPLE | VPX | 6W6 | F | 93 | 0 | 0 | A1 | /AA | |
| STEP 1 - BASIC SE VPX - VP Series | RIES | | | | | | | | STEP 9 - SPECIAL OPTIONS Sequential mating system - See page 4 for details. CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS |
| STEP 2 - CONNECT 6W6 - All contact po populated. | OR VAR | IANTS | | | | | | /AA Note: If tion is no Example | EP 8 - ENVIRONMENTAL COMPLIANCE OPTIONS Compliant per EU Directive 2002/95/EC (RoHS) compliance to environmental legista- bit required, this step will not be used. VPX6W6F9300A1 |
| STEP 3 - CONNECT M - Male F - Female | OR GEN | IDER | | | | | STEP | 7 - CON Gold flash | over 0.76µm Ni (nominal) over Cu |
| STEP 4 - TYPE OF CONTACT 4 - Right angle solder, board mount. Male only. 93 - Straight press-fit PCB. Female only. | | | | | A2 - Gold flash over 0.76μm Ni (nominal) over Cu, solder coat tails.*1 C1 - 0.76μm Au (min) over 0.76μm Ni (nominal) over Cu C2 - 0.76μm Au (min) over 0.76μm Ni (nominal) | | | | |
| STEP 5 0 - None | | | | | over Cu, solder coat tails.*1 D1 - 1.27μm Au (min) over 1.27μm Ni (min) over Cu D2 - 1.27μm Au (min) over 1.27μm Ni (min) over Cu solder coat tails.*1 | | | | |
| VP Series connectors are designed to be mounted to the PCB with screws. Please use the following type: Phillips Pan Head Self-Tapping Screw, 2-28 Triplask II Trilobular threads or equivalent. Screws are available from Positronic. See chart for part number. Female contact press-fit connectors require a press-fit tool, part number 9513-308-4-41, for installation. | | | | | | STE PAR | * STEP 6) - None EL SCREV | Not availat | NTING SCREWS |
| | | | | | | A4 | 546-7-1-97 | | A4546-7-6-4 |

A4546-7-2-97

A4546-7-3-97

A4546-7-4-97

screw information.

A4546-7-7-4

A4546-7-8-4

A4546-7-9-4

Mounting hole in connector is 4.00 [.157] deep.

Contact Technical Sales for RoHS compliant mounting

Let us work with you to develop variants of the VP Series to meet your specific requirements.

Unless otherwise specified, dimensional tolerances are:

- 1) ±0.03 mm [.001 inches] for male contact mating diameters.
- ±0.08 mm [.003 inches] for contact termination diameters. 2)
- 3) ±0.13 mm [.005 inches] for all other diameters.
- 4) ±0.38 mm [.015 inches] for all other dimensions.

[.250+.000-.030]

7.93+0.00-0.76

[.312+.000-.030]

9.53+0.00-0.76

[.375+.000-.030] 11.11+0.00-0.76

[.438+.000-.030]

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

<u>VPX6W6M400A1-B1A5A6A</u> <u>VPX6W6M400A1</u> <u>VPX6W6M400A1/AA</u> <u>VPX6W6M400A1/AA-B1A5A6A</u> VPX6W6F9300A1 VPX6W6F9300A1/AA