

# AirMax VS2® BACKPLANE CONNECTOR SYSTEM

## OVERVIEW

AirMax VS2® connectors provide a migration path from AirMax VS® for speeds up to 20Gb/s, providing margin of safety for typical 802.3ap system performance with the flexibility of an open pin field design. The connectors leverage AirMax VS® and VSe® design features and technology to achieve improved signal integrity and mechanical attributes compared to AirMax VS® connectors.

The connector utilizes FCI technology for a shieldless design with no metallic plates and closely coupled differential pair design to yield low loss and low crosstalk.

AirMax VS2® connectors are mating-compatible to both AirMax VS® and AirMax VSe® connectors and require no changes to connector PCB footprints. The mating-compatible interfaces and capability to preserve critical pin assignments can provide opportunities for cost savings as new and upgraded equipment is deployed. For example, a backplane or chassis can be designed to allow the installation and continued use of legacy daughter cards, line cards, or blades that are already in the field as well as new or future higher-speed module cards.

Right angle and vertical receptacles and headers support backplane, midplane and coplanar applications.



## FEATURES

- Provides a migration path to 20Gb/s per differential pair
- Shieldless design with closely coupled pairs
- Backward mateable to existing VS and VS2 designs
- 3, 4 and 5 pair backplane and coplanar versions are available
- Available with 0.5mm or 0.4mm compliant pins
- Hard metric design practice

## BENEFITS

- Enables users to upgrade systems for higher performance in the same form factor
- Cost-effective solution yields low XT and Insertion Loss
- Drop in upgrade to previous generation systems
- Same product covers a wide range of customer applications
- 0.5mm vias provide a drop-in replacement for VS parts
- Improved SI with the 0.4mm tails, same as VSe
- Can mix-and-match with other metric power and guidance components to create the precise system configuration that is needed

## TECHNICAL INFORMATION

### MATERIALS

- Contacts: High performance Copper Alloy
- Contact Finish:
  - Performance-based plating at separable interface (Telcordia GR-1217-CORE Central Office)
  - Tin over Nickel on press-fit tails
  - Tin-lead option
- Housings: High Performance Thermoplastic, 94-V0
- Plating GXT+™

### ELECTRICAL PERFORMANCES

- Contact Resistance:  $\leq 60$  m $\Omega$  initial in backplane application,  $\leq 120$  m $\Omega$  initial in coplanar application
- Current Rating (with  $\leq 30^{\circ}\text{C}$  temperature rise above ambient): 0.5 A/contact with all contacts powered
- Insertion Loss Performance: see graph below
- Crosstalk Performance: see graph below

### ENVIRONMENTAL

- Telcordia GR-1217-CORE Central Office qualification passed

### MECHANICAL PERFORMANCE

- Durability: 200 cycles
- Mating Force: 0.50N max./contact
- Unmating Force: 0.15N min./contact
- Average Compliant Pin Insertion Force/ pin:
  - 0.4mm PCB hole: 15N max.
  - 0.5mm PCB hole: 30N max.

### SPECIFICATIONS

- Product: GS-12-0956
- Application: GS-20-0305

### APPROVALS AND CERTIFICATIONS

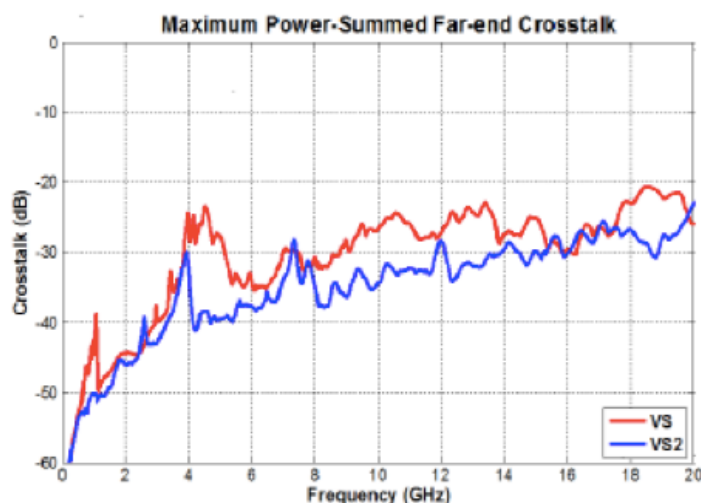
- UL approved

### PACKAGING

- Trays or Tubes

### TARGET MARKETS/APPLICATIONS

- Communications
  - Switches
  - Routers
  - Access
  - Optical Transmission
  - Wireless Base Stations
- Data
  - Servers
  - Switches
  - Storage
- Industrial & Instrumentation
  - Test & Measurement
- Medical



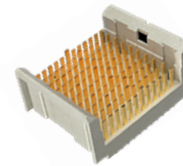
## PART NUMBERS

### AirMax VS2® TRADITIONAL MOTHER-DAUGHTER BOARD CONNECTORS 0.5mm PTH PRESS-FIT\*

| Product Variation |         |                    | 2.0mm Column Pitch      |                        | Differential Impedance |
|-------------------|---------|--------------------|-------------------------|------------------------|------------------------|
| Pairs             | Columns | Differential Pairs | Mating Connector System |                        |                        |
|                   |         |                    | Vertical Header         | Right Angle Receptacle |                        |
| 3                 | 6       | 18                 | 10122769-101LF          | 10122643-101LF         | 100 OHMS               |
|                   | 8       | 24                 | 10127937-101LF          | 10124355-101LF         |                        |
|                   | 10      | 30                 | 10127939-101LF          | 10124420-101LF         |                        |
| 4                 | 6       | 24                 | 10130556-101LF          | 10130565-101LF         |                        |
|                   | 8       | 32                 | 10130557-101LF          | 10130566-101LF         |                        |
|                   | 10      | 40                 | 10122770-101LF          | 10122655-101LF         |                        |
| 5                 | 8       | 40                 | 10130558-101LF          | 10128702-101LF         |                        |
|                   | 10      | 50                 | 10122771-101LF          | 10122665-101LF         |                        |



Right Angle Receptacle



Vertical Header  
(2 Wall)

### AirMax VS2® INVERSE MOTHER-DAUGHTER BOARD CONNECTORS 0.5mm PTH PRESS-FIT\*

| Product Variation |         |                    | 2.0mm Column Pitch      |                             | Differential Impedance |
|-------------------|---------|--------------------|-------------------------|-----------------------------|------------------------|
| Pairs             | Columns | Differential Pairs | Mating Connector System |                             |                        |
|                   |         |                    | Vertical Receptacle     | Right Angle Header (4 Wall) |                        |
| 3                 | 6       | 18                 | 10124469-102LF          | 10123543-101LF              | 100 OHMS               |
|                   | 8       | 24                 | 10125811-102LF          | 10124408-101LF              |                        |
|                   | 10      | 30                 | 10127116-102LF          | 10124422-101LF              |                        |
| 4                 | 6       | 24                 | 10127117-102LF          | 10125538-101LF              |                        |
|                   | 8       | 32                 | 10126796-102LF          | 10125530-101LF              |                        |
|                   | 10      | 40                 | 10125559-102LF          | 10123536-101LF              |                        |
| 5                 | 8       | 40                 | 10127118-102LF          | 10128706-101LF              |                        |
|                   | 10      | 50                 | 10124470-102LF          | 10123529-100LF              |                        |



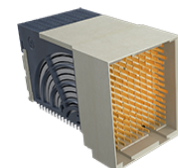
Right Angle Header  
(4 Wall)



Vertical Receptacle

### AirMax VS2® COPLANAR CONNECTORS 0.5mm PTH PRESS-FIT\*

| Product Variation |         |                    | 2.0mm Column Pitch      |                             | Differential Impedance |
|-------------------|---------|--------------------|-------------------------|-----------------------------|------------------------|
| Pairs             | Columns | Differential Pairs | Mating Connector System |                             |                        |
|                   |         |                    | Right Angle Receptacle  | Right Angle Header (4 Wall) |                        |
| 3                 | 6       | 18                 | 10122643-101LF          | 10123543-101LF              | 100 OHMS               |
|                   | 8       | 24                 | 10124355-101LF          | 10124408-101LF              |                        |
|                   | 10      | 30                 | 10124420-101LF          | 10124422-101LF              |                        |
| 4                 | 6       | 24                 | 10130565-101LF          | 10125538-101LF              |                        |
|                   | 8       | 32                 | 10130566-101LF          | 10125530-101LF              |                        |
|                   | 10      | 40                 | 10122655-101LF          | 10123536-101LF              |                        |
| 5                 | 8       | 40                 | 10128702-101LF          | 10128706-101LF              |                        |
|                   | 10      | 50                 | 10122665-101LF          | 10123529-101LF              |                        |



Right Angle Header  
(4 Wall)



Right Angle Receptacle

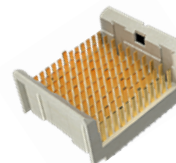
\*0.5mm standard press-fit pin is the same as the standard AirMax VS® connectors

**AirMax VS2® TRADITIONAL MOTHER-DAUGHTER BOARD CONNECTORS 0.4mm PTH PRESS-FIT\***

| Product Variation |         |                    | 2.0mm Column Pitch      |                        | Differential Impedance |
|-------------------|---------|--------------------|-------------------------|------------------------|------------------------|
| Pairs             | Columns | Differential Pairs | Mating Connector System |                        |                        |
|                   |         |                    | Vertical Header         | Right Angle Receptacle |                        |
| 3                 | 6       | 18                 | 10123358-101LF          | 10123420-101LF         | 100 OHMS               |
|                   | 8       | 24                 | 10127979-101LF          | 10124756-101LF         |                        |
|                   | 10      | 30                 | 10129300-101LF          | 10126913-101LF         |                        |
| 4                 | 6       | 24                 | 10130559-101LF          | 10130567-101LF         |                        |
|                   | 8       | 32                 | 10124957-101LF          | 10124997-101LF         |                        |
|                   | 10      | 40                 | 10123359-101LF          | 10123421-101LF         |                        |
| 5                 | 8       | 40                 | 10130013-101LF          | 10129941-101LF         |                        |
|                   | 10      | 50                 | 10123360-101LF          | 10123422-101LF         |                        |



**Right Angle Receptacle**



**Vertical Header  
(2 Wall)**

**AirMax VS2® INVERSE MOTHER-DAUGHTER BOARD CONNECTORS 0.4mm PTH PRESS-FIT\***

| Product Variation |         |                    | 2.0mm Column Pitch      |                             | Differential Impedance |
|-------------------|---------|--------------------|-------------------------|-----------------------------|------------------------|
| Pairs             | Columns | Differential Pairs | Mating Connector System |                             |                        |
|                   |         |                    | Vertical Receptacle     | Right Angle Header (4 Wall) |                        |
| 3                 | 6       | 18                 | 10130665-102LF          | 10124149-101LF              | 100 OHMS               |
|                   | 8       | 24                 | 10128101-102LF          | 10124755-101LF              |                        |
|                   | 10      | 30                 | 10130666-102LF          | 10126918-101LF              |                        |
| 4                 | 6       | 24                 | 10130667-102LF          | 10130571-101LF              |                        |
|                   | 8       | 32                 | 10130668-102LF          | 10130572-101LF              |                        |
|                   | 10      | 40                 | 10130669-102LF          | 10124150-101LF              |                        |
| 5                 | 8       | 40                 | 10130670-102LF          | 10129940-101LF              |                        |
|                   | 10      | 50                 | 10127982-102LF          | 10124151-101LF              |                        |



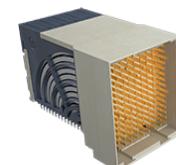
**Right Angle Header  
(4 Wall)**



**Vertical Receptacle**

**AirMax VS2® COPLANAR CONNECTORS 0.4mm PTH PRESS-FIT\***

| Product Variation |         |                    | 2.0mm Column Pitch      |                             | Differential Impedance |
|-------------------|---------|--------------------|-------------------------|-----------------------------|------------------------|
| Pairs             | Columns | Differential Pairs | Mating Connector System |                             |                        |
|                   |         |                    | Right Angle Receptacle  | Right Angle Header (4 Wall) |                        |
| 3                 | 6       | 18                 | 10123420-101LF          | 10124149-101LF              | 100 OHMS               |
|                   | 8       | 24                 | 10124756-101LF          | 10124755-101LF              |                        |
|                   | 10      | 30                 | 10126913-101LF          | 10126918-101LF              |                        |
| 4                 | 6       | 24                 | 10130567-101LF          | 10130571-101LF              |                        |
|                   | 8       | 32                 | 10124997-101LF          | 10130572-101LF              |                        |
|                   | 10      | 40                 | 10123421-101LF          | 10124150-101LF              |                        |
| 5                 | 8       | 40                 | 10129941-101LF          | 10129940-101LF              |                        |
|                   | 10      | 50                 | 12123422-101LF          | 10124151-101LF              |                        |



**Right Angle Header  
(4 Wall)**



**Right Angle Receptacle**

\*0.4mm PTH press-fit pins maximizes signal integrity performance

\*0.5mm PTH press-fit pins maximizes aspect ratio

BPLAIRMVSE115EA4

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