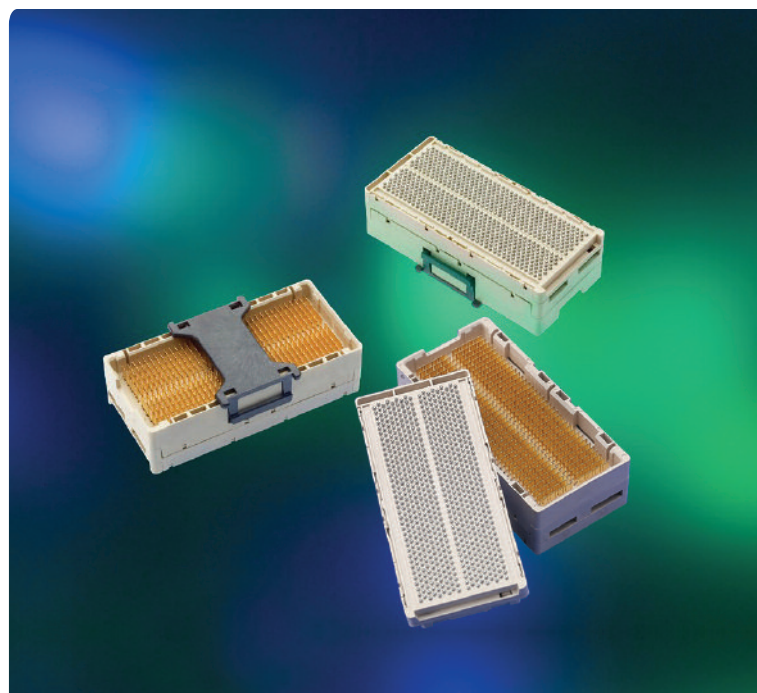


GIG-ARRAY® CONNECTOR SYSTEM

DESCRIPTION

The GIG-ARRAY® connector is designed to meet the needs of up to 10Gb/s applications requiring up to 296 signal pins per connector. FCI's long tradition as a BGA connector innovator assures expertise and reliability in the GIG-ARRAY® BGA design. The combination of multiple stack heights (15mm to 40mm) and multiple sizes (200 signals to 296 signals) utilizing a 100-Ohm differential matched impedance design allows for optimal design flexibility while yielding less than 1% cross-talk performance.

FCI has produced BGA mezzanine connectors since 1996, shipping over 10 billion BGA contact interfaces demonstrating FCI's extensive experience as the premier BGA interconnect innovator and supplier. FCI's patented BGA design is supported by fully automated quality control systems featuring 100% inspections of assembly coplanarity, solder sphere size and location, as well as critical-to-function terminal component attributes. Multiple in-line vision systems, quality control product audits, and statistical process controls are all a part of our state-of-the-art manufacturing facility.



FEATURES & BENEFITS

- RoHS compliant (Lead-Free) options are available
- Optimized design for utilization in high-density, high-speed mezzanine applications
- Ball Grid Array (BGA) termination for process friendly attachment
- 1mm x 0.65mm BGA interface pitch optimizes routing and electrical performance
- Stack Heights available from 15mm to 40mm provide mezzanine design flexibility
- Connector sizes of 200 and 296 signals providing 62 signal contacts per linear cm (158 signal contacts per linear inch) allow for optimization of board space and signal requirements
- 100 Ohm differential pair matched impedance assures consistent high speed performance
- Up to 10 Gb/s differential pair performance
- Very low cross-talk (VLC) design of less than 1% allows for required signal integrity performance
- Dual beam signal contacts provide two points of contact increasing product reliability
- Polarized design assures proper mating of the connector

TARGET MARKETS / APPLICATIONS

- Communications
 - Transmission
 - Access
 - Switching
 - Optics
 - Networking
- Data
 - Servers
 - Storage
- I & I
 - Industrial controls & equipment

MATERIALS

- Housing: Liquid Crystal Polymer
- Contact: High Strength Copper Alloy
- Plating: Au over Ni
- SnPb – Solderballs: 63Sn/37Pb Ø 0.76mm
- Pb-Free – Solderballs: 95.5 Sn/4 Ag/0.5 Cu

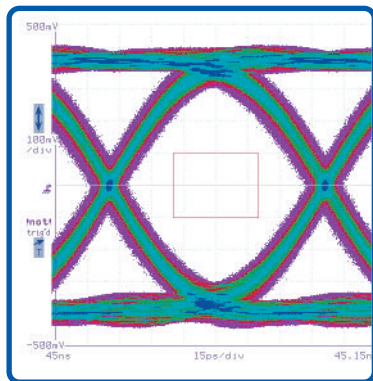
MECHANICAL PERFORMANCE

- Durability: 25 Cycles
- Contact Wipe: 2.00mm Nominal
- Telcordia GR-1217-CORE
- IPC-SM-785 Solder Joint Reliability
- Passed 6000 cycle solder joint reliability

SPECIFICATIONS

- Product specifications: GS-12-192
- Application specification: GS-20-016

EYE-PATTERN



20mm GIG-ARRAY® Measured Eye Pattern at 10 Gb/s

Mask Opening:
 25% Amplitude
 40% Period

MORE DATA

- Spice files, signal integrity data, drawings and more available at: www.fciconnect.com/highspeed

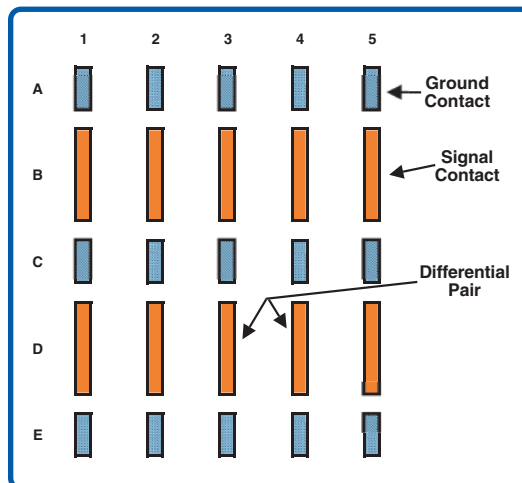
ELECTRICAL PERFORMANCE

- Current Rating: 1A / Contact <30°C ΔT
- Low Level Contact Resistance:
 - < 20mΩ for 15mm mated height
 - < 32mΩ for 35mm mated height
- Dielectric Withstanding Voltage=500 VAC
- Withstanding Voltage=167 VAC max.
- Propagation Delay:
 - 100 pS for 15mm mated height
 - 200 pS for 35mm mated height
- Differential Impedance: 100 ± 10%Ω
- Near-End Cross-Talk @ 100pS: < 3%

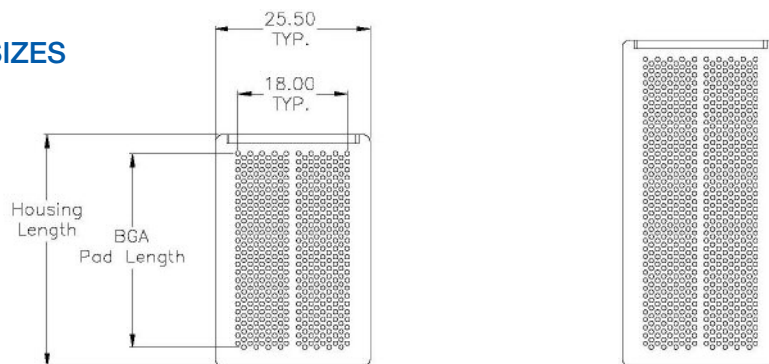
PACKAGING

- Trays

CONTACT STRIPLINE STRUCTURE

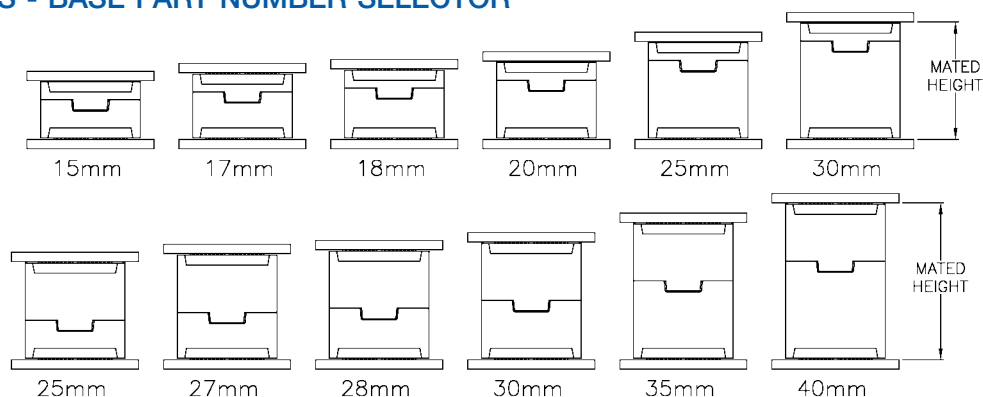


GIG-ARRAY® CONNECTOR SIZES



| Description | 200 Positions* | 296 Positions* |
|-----------------------------------|----------------|----------------|
| Housing Length | 38.15 mm | 53.75 mm |
| BGA Pad Length | 31.85 mm | 47.45 mm |
| Number of Signal Contacts | 200 | 296 |
| Number of Ground Contacts | 250 | 370 |
| Number of BGA Balls | 450 | 666 |
| Fully Shielded Differential Pairs | 64 | 96 |
| Continuous Differential Pairs | 96 | 144 |

GIG-ARRAY® MATED HEIGHTS - BASE PART NUMBER SELECTOR



| 200 Positions* | | Plug Height** | | | | | |
|---------------------|------------------|---------------|----------|----------|-------|-------|----------|
| | | 10mm | 12mm | 13mm | 15mm | 20mm | 25mm |
| Receptacle Height** | 5mm 55740 | 15 mm | 17mm | 18mm | 20mm | 25mm | 30mm |
| | 15mm 10060912 | 25 mm | 27mm | 28mm | 30mm | 35mm | 40mm |
| | | 55737 | 10026802 | 10060910 | 55738 | 55739 | 10054783 |

| 296 Positions* | | Plug Height** | | | | | |
|---------------------|------------------|---------------|----------|----------|-------|-------|----------|
| | | 10mm | 12mm | 13mm | 15mm | 20mm | 25mm |
| Receptacle Height** | 5mm 55701 | 15 mm | 17mm | 18mm | 20mm | 25mm | 30mm |
| | 15mm 10060913 | 25 mm | 27mm | 28mm | 30mm | 35mm | 40mm |
| | | 55720 | 10026804 | 10060911 | 55700 | 55727 | 10054784 |

*Signal contacts only, ground contacts not included

**Base part number listed under connector height

GIG-ARRAY® INTERCONNECT PART SYSTEM

PLUGS

| Number of Positions* | Description | Contact Area Finish (in microinches) | Part Numbers | |
|----------------------|-------------|--------------------------------------|--------------|----------------------------|
| | | | SnPb BGA | RoHS Compliant Pb-Free BGA |
| 200 | 10mm | 30 Au | 55737-001 | 55737-001LF |
| | 12mm | 30 Au | 10026802-001 | 10026802-001LF |
| | 13mm | 30 Au | 10060910-001 | 10060910-001LF |
| | 15mm | 30 Au | 55738-001 | 55738-001LF |
| | 20mm | 30 Au | 55739-001 | 55739-001LF |
| | 25mm | 30 Au | 10054783-001 | 10054783-001LF |
| 296 | 10mm | 30 Au | 55720-001 | 55720-001LF |
| | 12mm | 30 Au | 10026804-001 | 10026804-001LF |
| | 13mm | 30 Au | 10060911-001 | 10060911-001LF |
| | 15mm | 30 Au | 55700-001 | 55700-001LF |
| | 20mm | 30 Au | 55727-001 | 55727-001LF |
| | 25mm | 30 Au | 10054784-001 | 10054784-001LF |

RECEPTACLES

| Number of Positions* | Description | Contact Area Finish (in microinches) | Part Numbers | |
|----------------------|-------------|--------------------------------------|--------------|----------------------------|
| | | | SnPb BGA | RoHS Compliant Pb-Free BGA |
| 200 | 5mm | 30 Au | 55740-001 | 55740-001LF |
| | 15mm | 30 Au | 10060912-001 | 10060912-001LF |
| 296 | 5mm | 30 Au | 55701-001 | 55701-001LF |
| | 15mm | 30 Au | 10060913-001 | 10060913-001LF |

*Signal contacts only, ground contacts not included
All connectors are supplied with a pre-installed pickup cap.

Use web link www.fciconnect.com/gigarray to obtain product drawings and additional technical information