

# MEG-ARRAY® MEZZANINE CONNECTOR SYSTEM

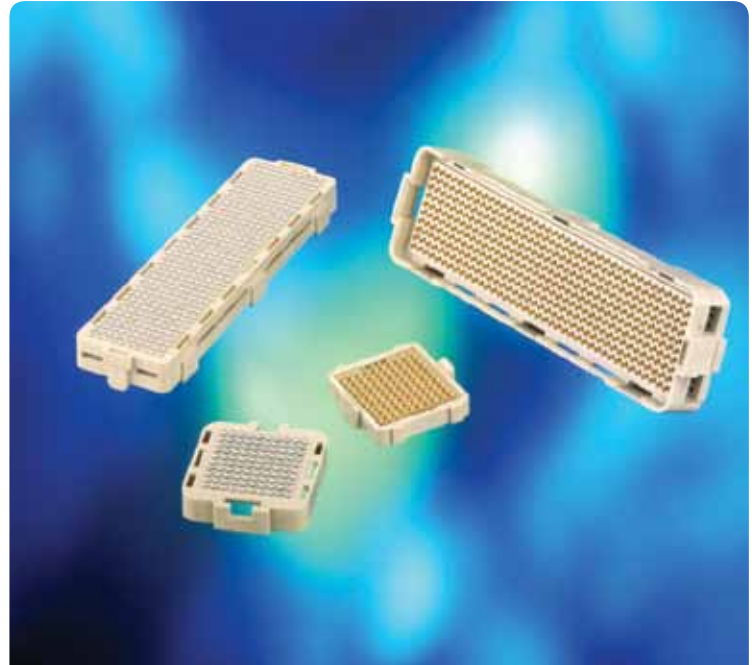
HIGH DENSITY, BGA DESIGN EXCELS AT HIGH SPEED PERFORMANCE AND RELIABILITY

## DESCRIPTION

The MEG-Array® Mezzanine Connector system provides the high density and high speed benefits of a large array supported by the reliability and low costs of standard surface mount PCB assembly.

1.27mm x 1.27mm array of discrete circuit contacts allows flexible ground distribution to optimize high speed signal integrity at speeds exceeding 10 Gb/s. MEG-Array is offered in a variety of PCB mezzanine stack heights.

FCI's advanced manufacturing supports a patented BGA interconnect design. Multiple in-process vision systems monitor BGA contact integrity including solder sphere size, location and co-planarity plus other critical-to-function attributes.



## FEATURES & BENEFITS

- ▀ High density, high speed, discrete contact, array connector
  - ▀ Flexible ground distribution optimizes high speed signal integrity
  - ▀ 10 Gb/s differential pair performance with under 1% cross-talk
  - ▀ 28 Gb/s high speed performance documented for 4mm and 6mm stack height
  - ▀ Online s-parameter files and signal integrity performance reports improve design accuracy and time-to-market
  - ▀ 1.27mm x 1.27mm grid provides 71 contacts per cm<sup>2</sup> density to save space
- ▀ Wide range of sizes and PCB stack heights increase mechanical design flexibility
  - ▀ 6 PCB Stack heights: 4mm to 14mm
  - ▀ 8 sizes: 81 to 528 positions
- ▀ Revolutionary, trusted BGA interconnect platform
  - ▀ High density standard BGA attachment lowers assembly costs by using standard SMT processes
  - ▀ BGA natural surface tension provides self-alignment and self-leveling for multiple connector usage
  - ▀ Patented BGA contact attachment preserves solder ball positioning
  - ▀ Optimized PCB routing enhances electrical performance
- ▀ Quality and Reliability
  - ▀ Time-tested reliability record includes Telcordia GR-1217-CORE and NPS-25298-2 options
  - ▀ 22+ year solder joint reliability per IPC-SM-785
  - ▀ 17 Billion + lines shipped to customer satisfaction
  - ▀ Precious metal plating options satisfy varying customer needs for environmental resistance

## TARGET MARKETS / APPLICATIONS

### COMMUNICATIONS

- ▀ Transmission
- ▀ Access
- ▀ Switching
- ▀ Optics
- ▀ Networking

### DATA

- ▀ Servers
- ▀ Storage

### I & I

- ▀ Industrial controls & equipment
- ▀ Analytical & diagnostic
- ▀ Medical

# MEG-ARRAY® CONNECTOR SYSTEM

## MATERIALS

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

## MECHANICAL PERFORMANCE

- Durability: 50, 100, or 200 cycles  
Telcordia GR-1217-CORE, NPS-25298-2 Documents
- Contact Wipe: 0.80mm Nominal
- IPC-SM-785 Solder Joint Reliability: 22.1 year product end-of-life

## ELECTRICAL PERFORMANCE

- Current Rating:
  - 0.45 A / Contact  $\leq 30^{\circ}\text{C } \Delta T$  (100% Energized)
  - 2.0 A <  $30^{\circ}\text{C } \Delta T$  (Single Contact Energized)
- Low Level Contact Resistance: See product specification GS-12-100 for performance results of specific stack heights
- Dielectric Withstanding Voltage: 200 VAC max.
- Insulation resistance: 1000 m $\Omega$  min.
- Differential impedance ( $Z_0$ ), Propagation Delay, Near-End Cross-Talk, S21 (insertion loss) and S11 (return loss):  
For performance of various stack heights, please refer to [www.fci.com/megarray](http://www.fci.com/megarray).

## SPECIFICATIONS

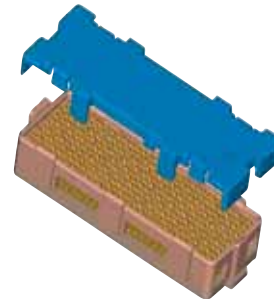
- Product specifications: GS-12-100
- Application specification: GS-20-033
- Meets requirements of Telcordia GR-1217-CORE issue I
- Meets requirements of NPS-25298-2 (25 year life expectancy) (supporting test reports can be obtained at: [www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed))

## PACKAGING

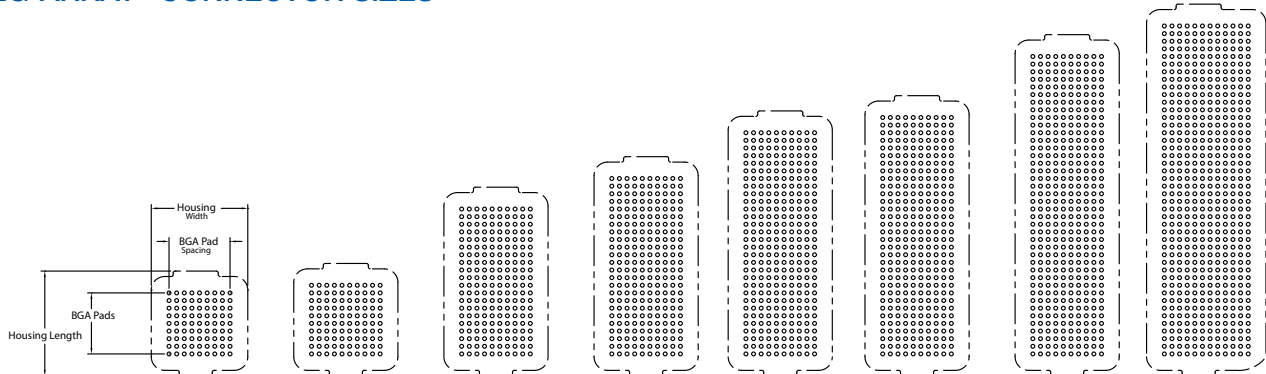
- Tape and Reel

## MORE DATA

- S- Parameter, IGES and ProE files, signal integrity reports and additional information available at: [www.fci.com/megarray](http://www.fci.com/megarray)
- Standard MEG-Array® plugs and receptacles shipped with a cap for product protection and for use by automated pick-and-place equipment



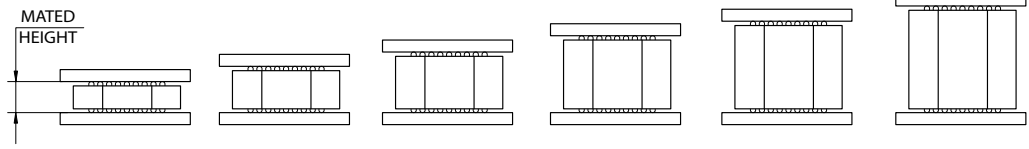
## MEG-ARRAY® CONNECTOR SIZES



Feature Description	81 Position (9x9)	100 Position (10x10)	200 Position (10x20)	240 Position (8x30)	300 Position (10x30)	320 Position (10x32)	400 Position (10x40)	528 Position (12x44)
Housing Length	17.43	18.7	31.4	42.3	44.1	46.64	56.8	61.88
Housing Width	16.07	17.34	17.34	14.8	17.34	17.34	17.34	19.88
BGA/Pad Length	10.16	11.43	24.13	36.83	36.83	39.37	49.53	54.61
BGA/Pad Width	10.16	11.43	11.43	8.89	11.43	11.43	11.43	13.97

All Dimensions in mm.

**MEG-ARRAY® MATED HEIGHTS - BASE PART NUMBER SELECTOR**



Size	Type	4.0mm	6.0mm	8.0mm	10.0mm	12.0mm	14.0mm
81 Position (9x9)	Plug	55714 0mm					
	Receptacle	55715 4mm					
100 Position (10x10)	Plug	84512 0mm					
	Receptacle	84513 4mm					
200 Position (10x20)	Plug	84516 0mm	84516 0mm	84516 0mm	84530 6mm	84530 6mm	84530 6mm
	Receptacle	84517 4mm	55724 6mm	84535 8mm	84517 4mm	55724 6mm	84535 8mm
240 Position (8x30)	Plug	74213 0mm	74213 0mm				
	Receptacle	74217 4mm	55755 6mm				
300 Position (10x30)	Plug	84500 0mm	84500 0mm	84500 0mm	84578 6mm	84578 6mm	84578 6mm
	Receptacle	84501 4mm	84502 5.5mm (5.5mm)	84553 8mm	84501 4mm	84502 5.5mm (11.5mm)	84553 8mm
320 Position (10x32)	Plug	10123981 0mm					
	Receptacle	10123982 4mm					
400 Position (10x40)	Plug	84740 0mm	84740 0mm	84740 0mm	84520 6mm	84520 6mm	84520 6mm
	Receptacle	74221 4mm	74388 6mm	74390 8mm	74221 4mm	74388 6mm	74390 8mm
528 Position (12x44)	Plug		10022671 0mm				
	Receptacle		10026846 6mm				

**MEG-ARRAY® INTERCONNECT PART NUMBERS – PLUGS**

# of Positions	Description	Contact Area Finish (in microinches)	Part Numbers	
			SnPb BGA	RoHS Compliant Pb-Free BGA
81	0mm	15 Au	55714-002	55714-002LF
		30 Au	55714-102	55714-102LF
		50 Au (Telcordia)	55714-202	55714-202LF
100	0mm	15 Au	84512-002	84512-002LF
		30 Au	84512-102	84512-102LF
		50 Au (Telcordia)	84512-202	84512-202LF
200	0mm	15 Au	84516-002	84516-002LF
		30 Au	84516-102	84516-102LF
		50 Au (Telcordia)	84516-202	84516-202LF
	6mm	15 Au	84530-002	84530-002LF
		30 Au	84530-102	84530-102LF
		50 Au (Telcordia)	84530-202	84530-202LF
240	0mm	15 Au	74213-002	74213-002LF
		30 Au	74213-102	74213-102LF
		50 Au (Telcordia)	74213-202	74213-202LF
300	0mm	15 Au	84500-002	84500-002LF
		30 Au	84500-102	84500-102LF
		50 Au (Telcordia)	84500-202	84500-202LF
	6mm	15 Au	84578-002	84578-002LF
		30 Au	84578-102	84578-102LF
		50 Au (Telcordia)	84578-202	84578-202LF
320	0mm	15 Au	10123981-002	10123981-002LF
		30 Au	10123981-102	10123981-102LF
		50 Au (Telcordia)	10123981-202	10123981-202LF
400	0mm	15 Au	84740-002	84740-002LF
		30 Au	84740-102	84740-102LF
		50 Au (Telcordia)	84740-202	84740-202LF
	6mm	15 Au	84520-002	84520-002LF
		30 Au	84520-102	84520-102LF
		50 Au (Telcordia)	84520-202	84520-202LF
528	0mm	15 Au	10022671-002	10022671-002LF
		30 Au	10022671-102	10022671-102LF
		50 Au (Telcordia)	10022671-202	10022671-202LF
81	0mm	15 GXT	55714-092	55714-092LF
		30 GXT	55714-192	55714-192LF
		50 GXT (Telcordia)	55714-292	55714-292LF
100	0mm	15 GXT	84512-092	84512-092LF
		30 GXT	84512-192	84512-192LF
		50 GXT (Telcordia)	84512-292	84512-292LF
200	0mm	15 GXT	84516-092	84516-092LF
		30 GXT	84516-192	84516-192LF
		50 GXT (Telcordia)	84516-292	84516-292LF
	6mm	15 GXT	84530-092	84530-092LF
		30 GXT	84530-192	84530-192LF
		50 GXT (Telcordia)	84530-292	84530-292LF
240	0mm	15 GXT	74213-092	74213-092LF
		30 GXT	74213-192	74213-192LF
		50 GXT (Telcordia)	74213-292	74213-292LF
300	0mm	15 GXT	84500-092	84500-092LF
		30 GXT	84500-192	84500-192LF
		50 GXT (Telcordia)	84500-292	84500-292LF
	6mm	15 GXT	84578-092	84578-092LF
		30 GXT	84578-192	84578-192LF
		50 GXT (Telcordia)	84578-292	84578-292LF
320	0mm	15 GXT	10123981-092	10123981-092LF
		30 GXT	10123981-192	10123981-192LF
		50 GXT (Telcordia)	10123981-292	10123981-292LF
400	0mm	15 GXT	84740-092	84740-092LF
		30 GXT	84740-192	84740-192LF
		50 GXT (Telcordia)	84740-292	84740-292LF
	6mm	15 GXT	84520-092	84520-092LF
		30 GXT	84520-192	84520-192LF
		50 GXT (Telcordia)	84520-292	84520-292LF
528	0mm	15 GXT	10022671-092	10022671-092LF
		30 GXT	10022671-192	10022671-192LF
		50 GXT (Telcordia)	10022671-292	10022671-292LF

# MEG-ARRAY® CONNECTOR SYSTEM

## MEG-ARRAY® INTERCONNECT PART NUMBERS - Au RECEPTACLES

# of Positions	Description	Contact Area Finish (in microinches)	Part Numbers	
			SnPb BGA	RoHS Compliant Pb-Free BGA
81	4mm	15 Au	55715-001	55715-001LF
		30 Au	55715-101	55715-101LF
		50 Au (Telcordia)	55715-201	55715-201LF
100	4mm	15 Au	84513-001	84513-001LF
		30 Au	84513-101	84513-101LF
		50 Au (Telcordia)	84513-201	84513-201LF
200	4mm	15 Au	84517-001	84517-001LF
		30 Au	84517-101	84517-101LF
		50 Au (Telcordia)	84517-201	84517-201LF
	6mm	15 Au	55724-001	55724-001LF
		30 Au	55724-101	55724-101LF
		50 Au (Telcordia)	55724-201	55724-201LF
	8mm	15 Au	84535-001	84535-001LF
		30 Au	84535-101	84535-101LF
		50 Au (Telcordia)	84535-201	84535-201LF
240	4mm	15 Au	74217-001	74217-001LF
		30 Au	74217-101	74217-101LF
		50 Au (Telcordia)	74217-201	74217-201LF
	6mm	15 Au	55755-001	55755-001LF
		30 Au	55755-101	55755-101LF
		50 Au (Telcordia)	55755-201	55755-201LF
300	4mm	15 Au	84501-001	84501-001LF
		30 Au	84501-101	84501-101LF
		50 Au (Telcordia)	84501-201	84501-201LF
	5.5mm	15 Au	84502-001	84502-001LF
		30 Au	84502-101	84502-101LF
		50 Au (Telcordia)	84502-201	84502-201LF
	8mm	15 Au	84553-001	84553-001LF
		30 Au	84553-101	84553-101LF
		50 Au (Telcordia)	84553-201	84553-201LF
320	4mm	15 Au	10123982-001	10123982-001LF
		30 Au	10123982-101	10123982-101LF
		50 Au (Telcordia)	10123982-201	10123982-201LF
400	4mm	15 Au	74221-001	74221-001LF
		30 Au	74221-101	74221-101LF
		50 Au (Telcordia)	74221-201	74221-201LF
	6mm	15 Au	74388-001	74388-001LF
		30 Au	74388-101	74388-101LF
		50 Au (Telcordia)	74388-201	74388-201LF
	8mm	15 Au	74390-001	74390-001LF
		30 Au	74390-101	74390-101LF
		50 Au (Telcordia)	74390-201	74390-201LF
528	6mm	15 Au	10026846-001	10026846-001LF
		30 Au	10026846-101	10026846-101LF
		50 Au (Telcordia)	10026846-201	10026846-201LF

\*All connectors are supplied with a pre-installed pickup cap.

**MEG-ARRAY® INTERCONNECT PART NUMBERS - GXT ON BACK**



MEG-ARRAY® INTERCONNECT PART NUMBERS - GXT  
RECEPTACLES

# of Positions	Description	Contact Area Finish (in microinches)	Part Numbers	
			SnPb BGA	RoHS Compliant Pb-Free BGA
81	4mm	15 GXT	55715-091	55715-091LF
		30 GXT	55715-191	55715-191LF
		50 GXT (Telcordia)	55715-291	55715-291LF
100	4mm	15 GXT	84513-091	84513-091LF
		30 GXT	84513-191	84513-191LF
		50 GXT (Telcordia)	84513-291	84513-291LF
200	4mm	15 GXT	84517-091	84517-091LF
		30 GXT	84517-191	84517-191LF
		50 GXT (Telcordia)	84517-291	84517-291LF
	6mm	15 GXT	55724-091	55724-091LF
		30 GXT	55724-191	55724-191LF
		50 GXT (Telcordia)	55724-291	55724-291LF
	8mm	15 GXT	84535-091	84535-091LF
		30 GXT	84535-191	84535-191LF
		50 GXT (Telcordia)	84535-291	84535-291LF
240	4mm	15 GXT	74217-091	74217-091LF
		30 GXT	74217-191	74217-191LF
		50 GXT (Telcordia)	74217-291	74217-291LF
	6mm	15 GXT	55755-091	55755-091LF
		30 GXT	55755-191	55755-191LF
		50 GXT (Telcordia)	55755-291	55755-291LF
300	4mm	15 GXT	84501-091	84501-091LF
		30 GXT	84501-191	84501-191LF
		50 GXT (Telcordia)	84501-291	84501-291LF
	5.5mm	15 GXT	84502-091	84502-091LF
		30 GXT	84502-191	84502-191LF
		50 GXT (Telcordia)	84502-291	84502-121LF
	8mm	15 GXT	84553-091	84553-091LF
		30 GXT	84553-191	84553-191LF
		50 GXT (Telcordia)	84553-291	84553-291LF
320	4mm	15 GXT	10123982-091	10123982-091LF
		30 GXT	10123982-191	10123982-191LF
		50 GXT (Telcordia)	10123982-291	10123982-291LF
400	4mm	15 GXT	74221-091	74221-091LF
		30 GXT	74221-191	74221-191LF
		50 GXT (Telcordia)	74221-291	74221-291LF
	6mm	15 GXT	74388-091	74388-091LF
		30 GXT	74388-191	74388-191LF
		50 GXT (Telcordia)	74388-291	74388-291LF
	8mm	15 GXT	74390-091	74390-091LF
		30 GXT	74390-191	74390-191LF
		50 GXT (Telcordia)	74390-291	74390-291LF
528	6mm	15 GXT	10026846-091	10026846-091LF
		30 GXT	10026846-191	10026846-191LF
		50 GXT (Telcordia)	10026846-291	10026846-291LF

\*All connectors are supplied with a pre-installed pickup cap.

Use web link [www.fciconnect.com/megarray](http://www.fciconnect.com/megarray) to obtain product drawings and additional technical information