

STEP-Z High Speed, High Density Mezzanine Connector

Now Offering Two New Products:

- **11 mm Receptacle With 6 New Stack Heights**
- **25 mm Plug to Expand Stacking Height Options up to 40 mm**

DESCRIPTION

The STEP-Z connector is a grid array mezzanine connector specifically designed for high speed and high density applications up to 10+ gigabit per second data rates. Pin out patterns for either differential pair or single ended applications provide excellent isolation of high speed signals. Ground connections in close proximity to signal connections enable proper electrical coupling throughout the entire interconnect, dramatically reducing crosstalk. Ball Grid Array board attachment for both connector halves minimizes through hole effects and improves routing. The connector housing is polarized to ensure proper mating.

APPLICATIONS

- Ideally designed for vertical stacking mezzanine applications requiring high speed electrical connections to smaller boards containing ASICs, CPUs, I/O devices, or memory.
- High speed connections between daughter cards.
- Systems enabling modularization of I/Os, ASICs, and other high cost components.
- PCB backside applications.

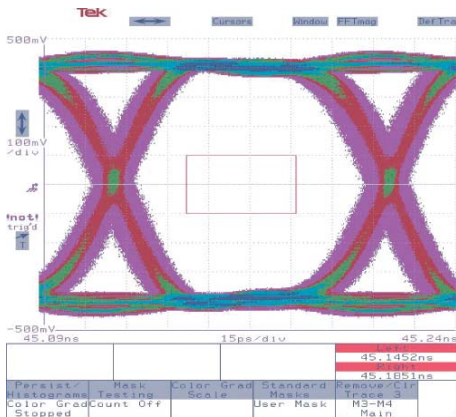
KEY FEATURES & BENEFITS

- Excellent electrical performance to 10+ Gb/s
- Stack heights available ranging from 15 mm to 40 mm
- Connector sizes include 104, 200, or 296 signal contacts
- SMT BGA board connection on both connector halves
- Receptacle contacts completely protected
- Reliable, redundant contact design on every signal contact
- High temperature plastic housing
- Protective tray packaging available
- Caps for use with vacuum pick & place equipment
- Polarized housing design
- RoHS part numbers released

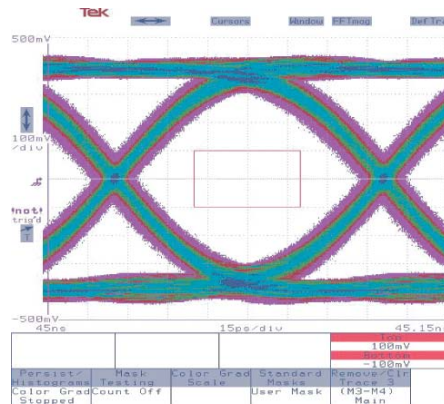
SIGNAL INTEGRITY

- Characteristic Impedance:
 - Single Ended Configuration @ 50 ohms +/- 10%
 - Differential Pair Configuration @ 100 ohms +10% / -15%
- Crosstalk:
 - Multi-pair differential crosstalk < 3% @ 100 ps for all stack heights

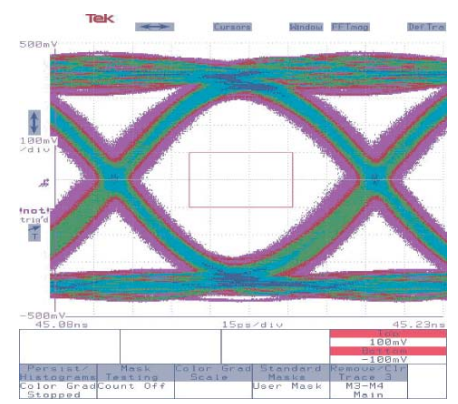
10 Gbps Reference Eye Pattern



20 mm Stack 10 Gbps Differential Eye Pattern



25 mm Stack 10 Gbps Differential Eye Pattern



Mask Amplitude was set 25% (200mv p-p) of the input signal and mask width was set to 40% (40ps) of the input signal.

RATINGS

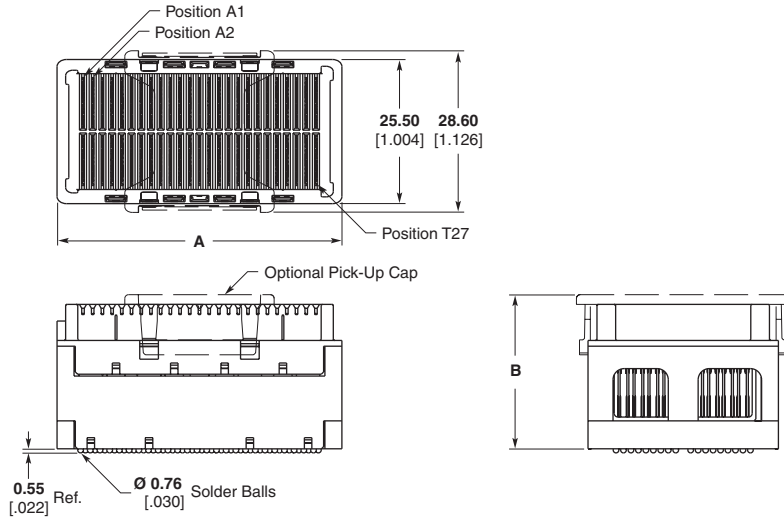
- Temperature Range: -55°C to +125°C
- Current Rating: 1 A/contact @ < 30°C T-Rise
- Durability: 25 cycles
- Dielectric Withstanding Voltage: 500 VAC
- Withstanding Voltage: 167 VAC max

STEP-Z High Speed, High Density Mezzanine Connector

PRODUCT DIMENSIONS AND PART NUMBERS

STEP-Z Receptacle

Representative Drawing



Receptacle Nominal Dimensions Per No. of Positions (mm)

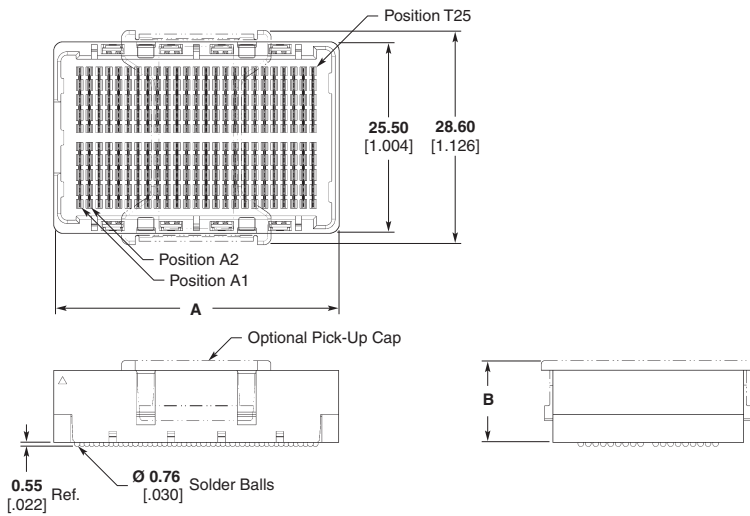
Rept. Height	Receptacle Nominal Dimensions Per No. of Positions (mm)					
	104		200		296	
	A	B	A	B	A	B
5 mm	22.55	10.65	38.55	10.65	53.76	10.65
11 mm	22.55	16.65	38.55	16.65	53.76	16.65
15 mm	22.55	20.65	38.55	20.65	53.75	20.65

Receptacle Part Numbers

Receptacle Height	No. of Positions	Plating	Part Numbers with Pick & Place Cap
5 mm	104	SnPb	1761613-5
		Pb-free	5-1761613-5
	200	SnPb	1761615-5
		Pb-free	5-1761615-5
	296	SnPb	1761617-5
		Pb-free	5-1761617-5
11 mm	104	SnPb	1-1761613-1
		Pb-free	6-1761613-1
	200	SnPb	1-1761615-1
		Pb-free	6-1761615-1
	296	SnPb	1-1761617-1
		Pb-free	6-1761617-1
15 mm	104	SnPb	1-1761613-5
		Pb-free	6-1761613-5
	200	SnPb	1-1761615-5
		Pb-free	6-1761615-5
	296	SnPb	1-1761617-5
		Pb-free	6-1761617-5

STEP-Z Plug

Representative Drawing



Plug Nominal Dimensions Per No. of Positions (mm)

Plug Height	Plug Nominal Dimensions Per No. of Positions (mm)					
	104		200		296	
	A	B	A	B	A	B
10 mm	22.55	10.95	38.15	10.95	53.75	10.95
12 mm	22.55	12.95	38.15	12.95	53.75	12.95
13 mm	22.55	13.95	38.15	13.95	53.75	13.95
15 mm	22.55	15.95	38.15	15.95	53.75	15.95
20 mm	22.55	20.94	38.15	20.94	53.75	20.94
25 mm	—	—	38.15	25.95	53.75	25.95

Plug Part Numbers

Plug Height	No. of Positions	Plating	Part Numbers with Pick & Place Cap
10 mm	104	SnPb	1-1761612-0
		Pb-free	6-1761612-0
	200	SnPb	1-1761614-0
		Pb-free	6-1761614-0
	296	SnPb	1-1761616-0
		Pb-free	6-1761616-0
12 mm	104	SnPb	1-1761612-2
		Pb-free	6-1761612-2
	200	SnPb	1-1761614-2
		Pb-free	6-1761614-2
	296	SnPb	1-1761616-2
		Pb-free	6-1761616-2
13 mm	104	SnPb	1-1761612-3
		Pb-free	6-1761612-3
	200	SnPb	1-1761614-3
		Pb-free	6-1761614-3
	296	SnPb	1-1761616-3
		Pb-free	6-1761616-3
15 mm	104	SnPb	1-1761612-5
		Pb-free	6-1761612-5
	200	SnPb	1-1761614-5
		Pb-free	6-1761614-5
	296	SnPb	1-1761616-5
		Pb-free	6-1761616-5
20 mm	104	SnPb	2-1761612-0
		Pb-free	7-1761612-0
	200	SnPb	2-1761614-0
		Pb-free	7-1761614-0
	296	SnPb	2-1761616-0
		Pb-free	7-1761616-0
25 mm	200	SnPb	2-1761614-5
		Pb-free	7-1761614-5
	296	SnPb	2-1761616-5
		Pb-free	7-1761616-5

STACKING HEIGHT MATRIX

Stacking Height		Plug Height					
		10mm	12mm	13mm	15mm	20mm	25mm
Receptacle Height	5 mm	15mm	17mm	18mm	20mm	25mm	30mm
	11 mm	21mm	23mm	24mm	26mm	31mm	36mm
	15 mm	25mm	27mm	28mm	30mm	35mm	40mm

FOR MORE INFORMATION

Technical Documents:

Product Specification: 108-2143

Technical Specification: 114-13101

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Dimensions are in millimeters with inches (if shown) in brackets.

For more information, see High Speed Fine Pitch Connectors Product Catalog No. 65194, contact your Tyco Electronics sales engineer, call 1-800-522-6752, or visit our Website at: <http://www.tycoelectronics.com>. Specifications subject to change.

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