



# IMPACT™ Backplane Connector System

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Visit the IMPACT connector webpage at: [www.te.com/products/Impact](http://www.te.com/products/Impact)

## Introduction

### Product Facts

- Differential pair density up to 80 pairs per linear inch
- Broad-edge-coupled, differential-pair system
- PCB routing complexity and costs are reduced by using 1.90 mm by 1.35 mm (.075" by .053") grid on backplane and daughter card
- Offers flexibility and advanced mechanical and electrical performance with two compliant-pin attach options
- Inline staggered, bifurcated contact beams in daughter card interface provides improved mating performance

### Industry Applications

- Telecommunications equipment
  - Hubs, routers, switches
- Central office, cellular infrastructure and multi-platform service (DSL, Cable Data) systems
- Data networking equipment
  - Servers
  - Storage
- Test and measurement equipment
- Medical diagnostic equipment



TE Connectivity offers a variety of backplane/midplane solutions to meet the demand for increased network bandwidth and advanced technology. Each solution is designed for high performance, increased density and compatibility with industry-standard interfaces. TE provides a user-friendly transition between the PCB-mounted connector and the backplane/midplane. TE has extensive knowledge and expertise on high-speed interface design. Your specific needs can be customized and transformed into new manufacturable designs.

The IMPACT backplane connector and cable system from TE pushes the speed and density envelope to meet the growing demands of next-generation telecommunication and data net-

working equipment; the system is available in 2-6 pair configurations with a complete range of guidance and power-solution options plus right-angle cable assemblies.

The IMPACT system is available in two compliant-pin design options on both daughter card and backplane connectors, providing customers ultimate flexibility to optimize their designs for advanced mechanical and electrical performance. The IMPACT system's mating interface provides in-line staggered, bifurcated contacts that provide 2 points of contact for the long-term reliability performance and built-in, ground-signal sequencing. This reduces the average mating force per connector to improve the mechanical mating performance of the system.

### Material and Finish

- Signal Contact** — High Performance Copper (Cu) Alloy
- Ground Contact** — High Performance Copper (Cu) Alloy
- Housing** — Liquid Crystal Polymer, UL 94V-0

### Platings

- Contact Area** — 0.76  $\mu\text{m}$  (30  $\mu\text{m}$ ) Gold (Au) min.
- Solder Tail Area** — Tin (Sn) or Tin/Lead (Sn/Pb)
- Underplating** — Nickel (Ni)
- PCB Thickness** — 1.60 mm (.062") typical

### Ratings

- Temperature Range** — -55°C to 85°C max.
- Current Rating** — 0.75 A per pin max.
- Durability** — 200 cycles
- Operating Voltage** — 30 VAC RMS/DC max.
- Mating Force** — 0.30 N (9.066 lb) max. per pin
- Compliant Pin Retention Force to PCB** — 3.56 N (.80 lb) per compliant pin average min.
- Compliant Pin Insertion Force to PCB** — 26.7 N (6.0 lb) max. per contact
- Signal Integrity**
- Insulation Resistance** — 10,000 Megohms min.

### Technical Documents

#### Product Specification

108-2351

#### Application Specification

114-13258

Visit the IMPACT connector webpage at: [www.te.com/products/Impact](http://www.te.com/products/Impact)

**Introduction** (Continued)



	Header Width (W)	Pairs/Inch
2 Pair IMPACT Connector	12.65 mm	27
3 Pair IMPACT Connector	16.70 mm	40
4 Pair IMPACT Connector	20.75 mm	54
5 Pair IMPACT Connector	24.8 mm	67
6 Pair IMPACT Connector	28.85 mm	80

	Receptacles	Headers
2 Pair	2057405-1	2057428-1
3 Pair	2007705-1	2007786-1
4 Pair	2007717-1	2007818-1
5 Pair	2110106-1	2007850-1
6 Pair	2007741-1	2007882-1

All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.



Visit the IMPACT connector webpage at: [www.te.com/products/Impact](http://www.te.com/products/Impact)

**Introduction** (Continued)

**IMPACT Connector Family**  
**Standard, Monoblock**  
**Solutions**

2 Pair IMPACT (W = 12.65 mm)  
Density = 27 Pairs/Inch  
10 column = 20 Diff. Pairs  
16 column = 32 Diff. Pairs



3 Pair IMPACT (W = 16.7 mm)  
Density = 40 Pairs/Inch  
10 column = 30 Diff. Pairs  
16 column = 48 Diff. Pairs



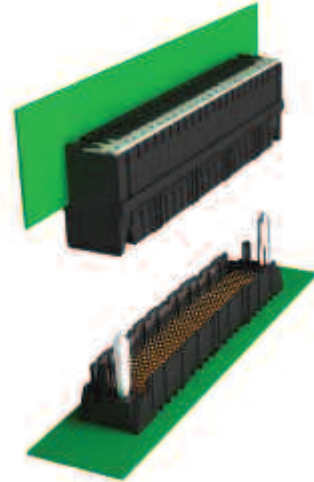
4 Pair IMPACT (W = 20.75 mm)  
Density = 54 Pairs/Inch  
10 column = 40 Diff. Pairs  
16 column = 64 Diff. Pairs



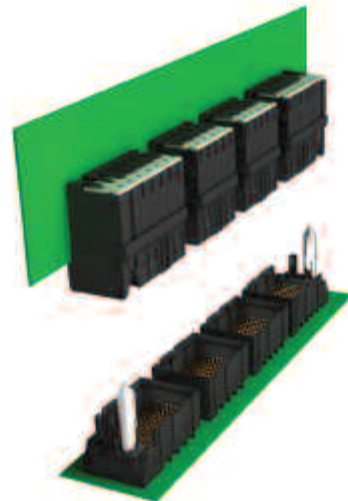
5 Pair IMPACT (W = 24.80 mm)  
Density = 67 Pairs/Inch  
10 column = 50 Diff. Pairs  
16 column = 80 Diff. Pairs



6 Pair IMPACT (W = 28.85 mm)  
Density = 80 Pairs/Inch  
10 column = 60 Diff. Pairs  
16 column = 96 Diff. Pairs



End-to-End Stackable Example



End Wall Separation Example

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**Introduction** (Continued)

**Worst Case Crosstalk**

All NEXT	2.7%
All FeXT	0.7%
<b>Recommended Pinout (as shown below)</b>	<b>1.5%</b>



**Test Data**

- Vertical Header — Right-Angle Receptacle
  - 4 pair connector module
  - 1.9 mm column pitch
  - 0.0146" plated through holes
- 50 ps (20-80%) edge rate
- Includes two 1.5 mm [0.060] vias to bottom layer traces
- Asynchronous noise sum of peaks from each aggressor, divided by differential swing (A-B)

**Differential Insertion Loss**



**Differential Impedance**

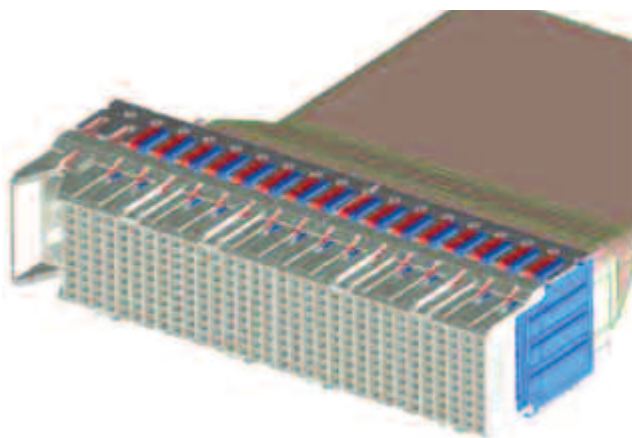


Visit the IMPACT connector webpage at: [www.te.com/products/Impact](http://www.te.com/products/Impact)

**Introduction** (Continued)

**IMPACT High Performance Cable Assembly Planned:**

- 3 x 16 wafer stack — 96 diff. pair total
- IMPACT wafer to wafer pitch — 3.8 mm
- Assumes 3 m length — 26 AWG raw cable
- Integral guidance
- Robust, stamped, metal wafer stack stiffener



**100 Ohm**

Pair Size	Columns	Pins	Pairs
2 Pair	10	60	20
	16	96	32
3 Pair	8	72	24
	10	90	30
	16	144	48
4 Pair	8	96	32
	10	120	40
	16	192	64
5 Pair	10	150	50
	12	180	60
	16	240	80
6 Pair	10	180	60
	14	252	84
	16	288	96

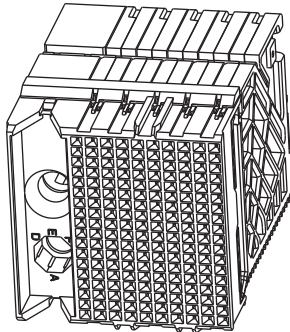
**85 Ohm**

Pair Size	Columns	Pins	Pairs
5 Pair	10	150	50
	16	240	80

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## Daughter Card Receptacle Assemblies

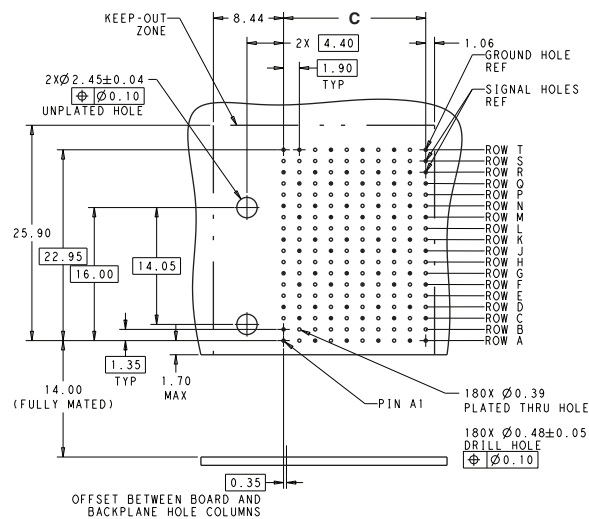
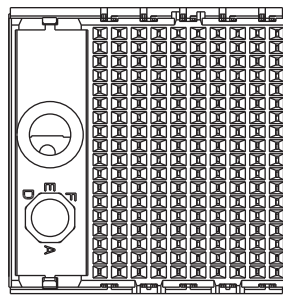
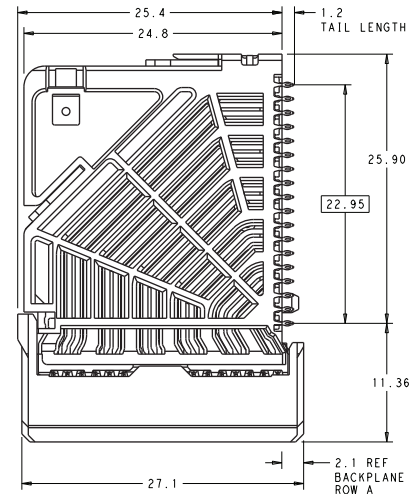
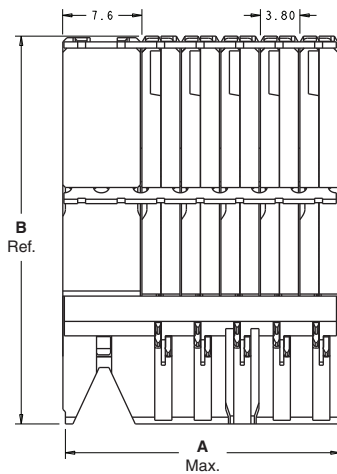
### 6 Pair Daughter Card Receptacle Assemblies



Column	Guide	Part Number	Dimension			Application Tooling	Mates With
			A	B	C		
10	Left	2007739-1	26.6	37.3	17.1	2018534-1	2007873-1
	Right	2007740-1	26.6	37.3	17.1	2018534-1	2007877-1
	Unguided	2007741-1	19	37.3	17.1	2018534-1	2007886-1
16	Left	2007745-1	38	37.3	28.5	2018535-1	2007889-1
	Right	2007746-1	38	37.3	28.5	2018535-1	2007893-1
	Unguided	2007747-1	30.4	37.3	28.5	2018535-1	2007902-1

**Note:** 10 column part number 2007739-1 is pictured below.

All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.



	None

**Recommended PCB Layout**  
Min. Board Thickness 1.0

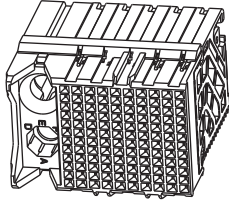
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**Daughter Card Receptacle Assemblies (Continued)**

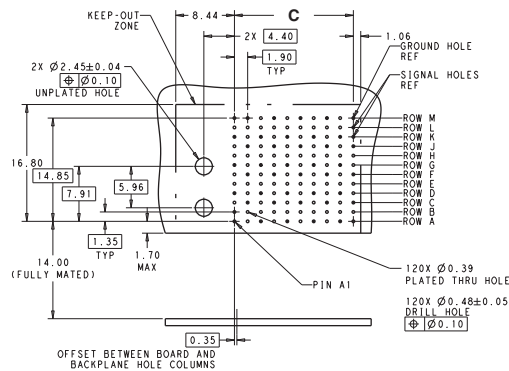
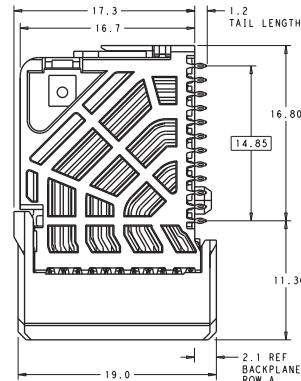
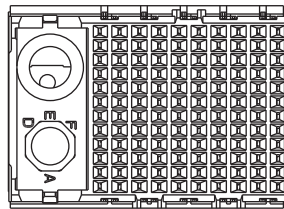
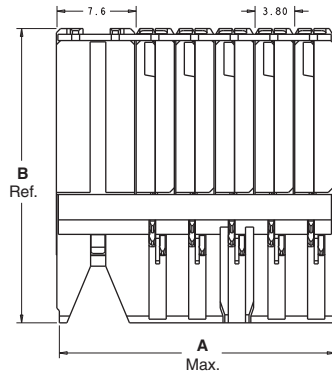
**4 Pair Daughter Card Receptacle Assemblies**



Column	Guide	Part Number	Dimension			Application Tooling	Mates With
			A	B	C		
10	Left	2007715-1	26.6	28.2	17.1	2018530-1	2007809-1
	Right	2007716-1	26.6	28.2	17.1	2018530-1	2007813-1
	Unguided	2007717-1	19	28.2	17.1	2018530-1	2007822-1
16	Left	2007721-1	38	28.2	28.5	2018531-1	2007825-1
	Right	2007722-1	38	28.2	28.5	2018531-1	2007829-1
	Unguided	2007723-1	30.4	28.2	28.5	2018531-1	2007838-1

**Note:** 10 column part number 2007715-1 is pictured below.

All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.



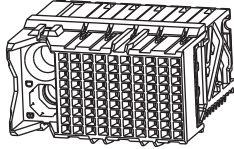
**Recommended PCB Layout  
Min. Board Thickness 1.0**

Key Position Chart	
	None

Visit the IMPACT connector webpage at: [www.te.com/products/Impact](http://www.te.com/products/Impact)

### Daughter Card Receptacle Assemblies (Continued)

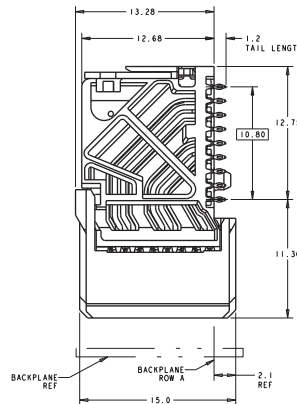
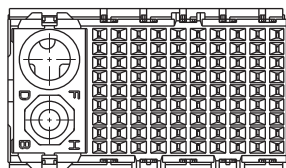
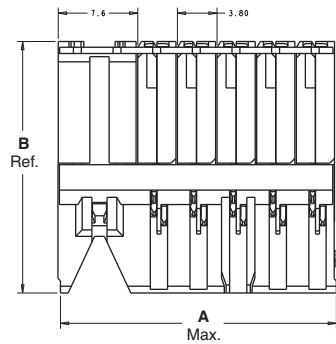
#### 3 Pair Daughter Card Receptacle Assemblies



Column	Guide	Part Number	Dimension			Application Tooling	Mates With
			A	B	C		
10	Left	2007703-1	26.6	24.2	17.1	2018380-1	2007777-1
	Right	2007704-1	26.6	24.2	17.1	2018380-1	2007781-1
	Unguided	2007705-1	19	24.2	17.1	2018380-1	2007789-1
16	Left	2007709-1	38	24.2	28.5	2018381-1	2007793-1
	Right	2007710-1	38	24.2	28.5	2018381-1	2007797-1
	Unguided	2007711-1	30.4	24.2	28.5	2018381-1	2007805-1

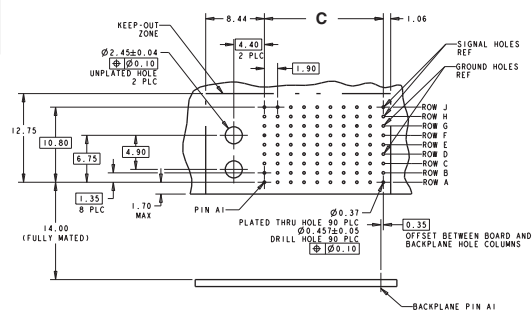
**Note:** 10 column part number 2007703-1 is pictured below.

All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.



**Key Position Chart**

	None

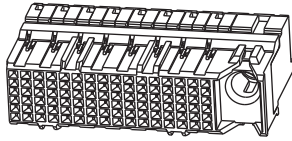


**Recommended PCB Layout**  
Min. Board Thickness 1.0

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## Daughter Card Receptacle Assemblies (Continued)

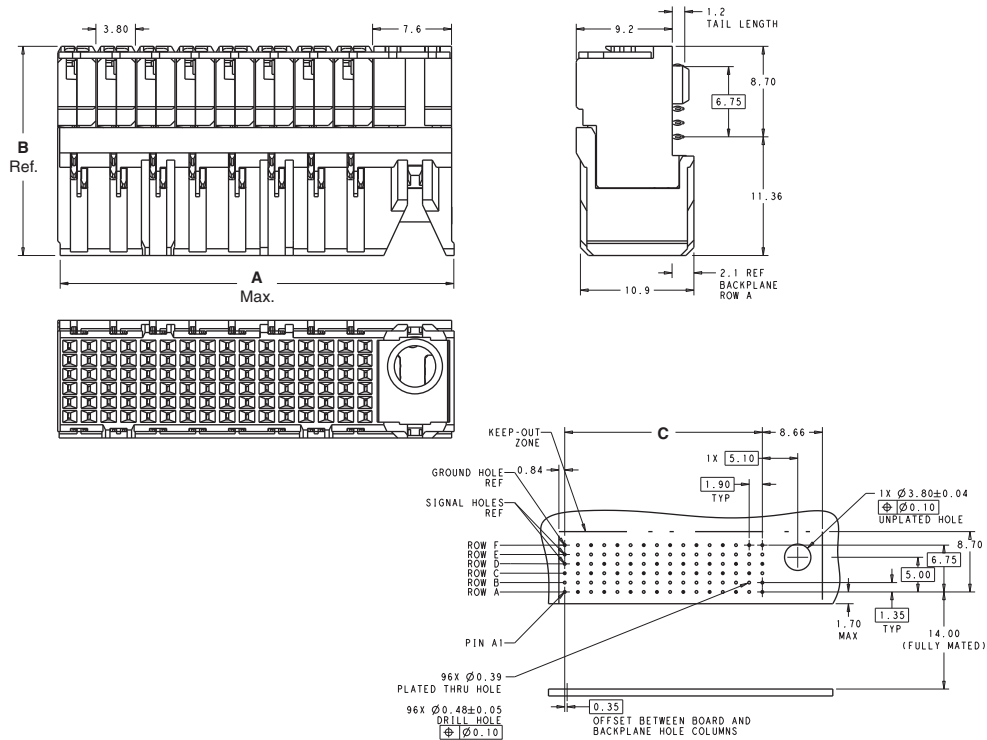
### 2 Pair Daughter Card Receptacle Assemblies



Column	Guide	Part Number	Dimension			Application Tooling	Mates With
			A	B	C		
10	Left	2057403-1	26.6	20.1	17.1	2018538-1	2057419-1
	Right	2057404-1	26.6	20.1	17.1	2018538-1	2057423-1
	Unguided	2057405-1	19	20.1	17.1	2018538-1	2057432-1
16	Left	2057409-1	38	20.1	28.5	2018539-1	2057737-1
	Right	2057410-1	38	20.1	28.5	2018539-1	2057741-1
	Unguided	2057411-1	30.4	20.1	28.5	2018539-1	2057750-1

**Note:** 16 column part number 2057410-1 is pictured below.

All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.

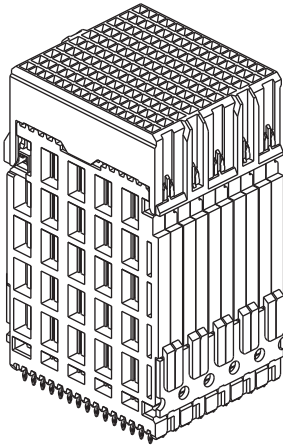


**Recommended PCB Layout**  
Min. Board Thickness 1.6

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## Mezzanine Assemblies

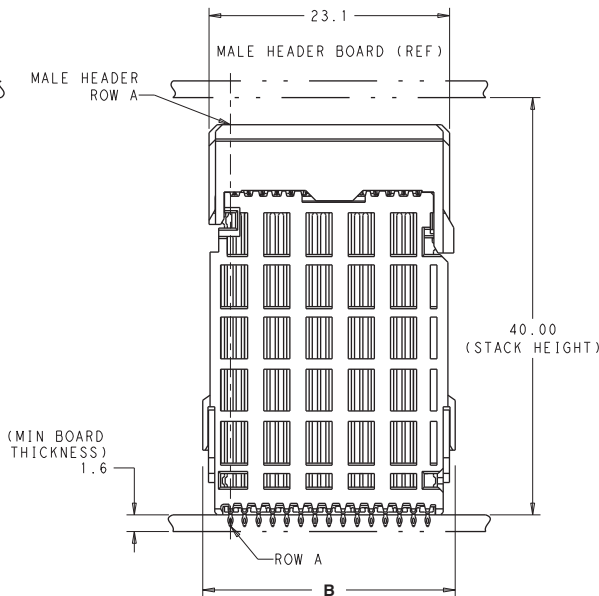
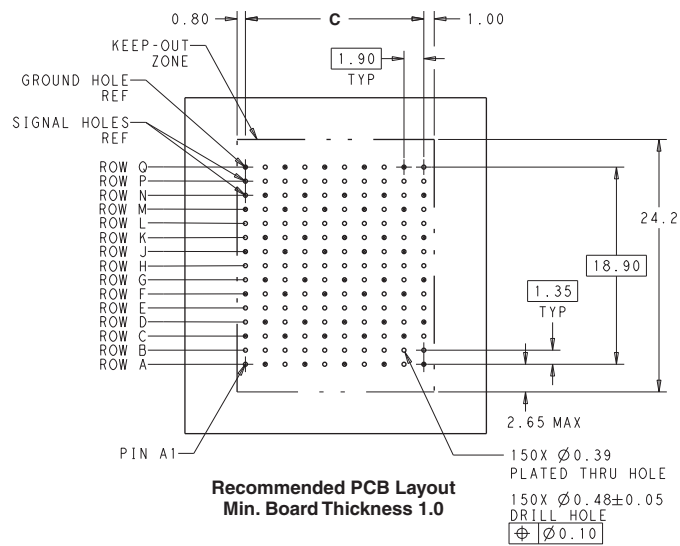
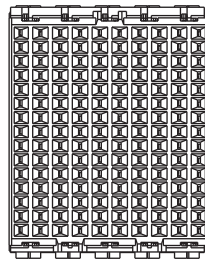
### 5 Pair Mezzanine Receptacle Assemblies



Column	Stack Height	Guide	Part Number	Dimension			Application Tooling	Mates With
				A	B	C		
10	40 mm	Left	2149911-1	26.6	24.2	17.1	2018774-1	2007840-1
		Right	2149912-1	26.6	24.2	17.1	2018774-1	2007844-1
		Unguided	2149913-1	19.0	24.2	17.1	2018774-1	2007850-1
16	28 mm	Left	2149392-1	26.6	24.2	28.5	2018774-2	2007856-1
		Right	2149393-1	26.6	24.2	28.5	2018774-2	2007860-1
		Unguided	2149394-1	19.0	24.2	28.5	2018774-2	2007866-1

**Note:** 10 column part number 2149913-1 is pictured below.

All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.



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## Backplane Header Assemblies

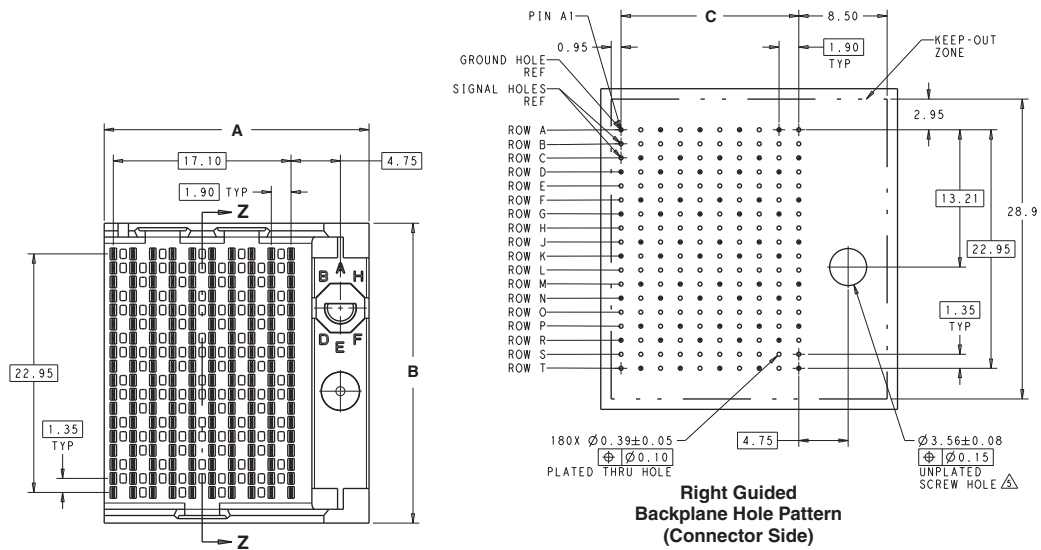
### 6 Pair Backplane Header Assemblies



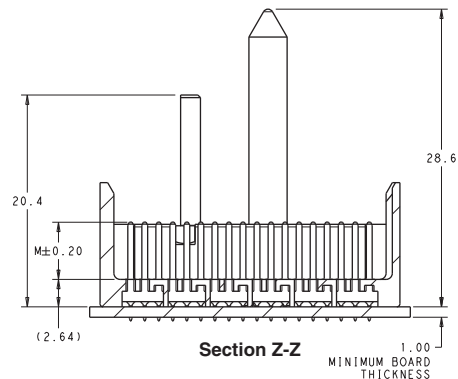
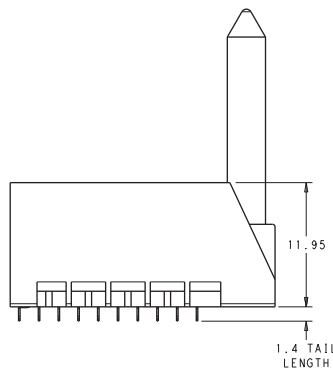
Column	Guide	Wall End	Part Number	Dimension			Application Tooling	Mates With
				A	B	C		
10	Left	Right	2007875-1	26.9	28.9	17.1	2018527-1	2007739-1
		Open	2007873-1	25.5	28.9	17.1	2018527-1	2007739-1
	Right	Left	2007879-1	26.9	28.9	17.1	2018527-1	2007740-1
		Open	2007877-1	25.5	28.9	17.1	2018527-1	2007740-1
	Unguided	Left	2007885-1	20.3	28.9	17.1	2018527-1	2007741-1
		Right	2007887-1	20.3	28.9	17.1	2018527-1	2007741-1
16	Left	Open	2007884-1	18.9	28.9	17.1	2018527-1	2007741-1
		Right	2007891-1	38.3	28.9	28.5	2018528-1	2007745-1
	Right	Left	2007889-1	36.9	28.9	28.5	2018528-1	2007745-1
		Open	2007895-1	38.3	28.9	28.5	2018528-1	2007746-1
	Unguided	Open	2007893-1	36.9	28.9	28.5	2018528-1	2007746-1
		Left	2007901-1	31.7	28.9	28.5	2018528-1	2007747-1
	Right	Right	2007903-1	31.7	28.9	28.5	2018528-1	2007747-1
		Dual	2007902-1	33.1	28.9	28.5	2018528-1	2007747-1
	Open	2007900-1	30.3	28.9	28.5	2018528-1	2007747-1	

**Note:** 10 column part number 2007877-1 is pictured below.

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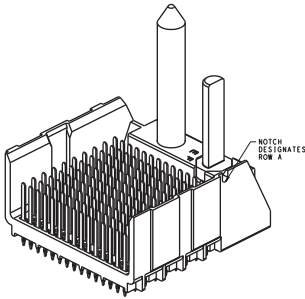
Key Position Chart	
	None



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### Backplane Header Assemblies (Continued)

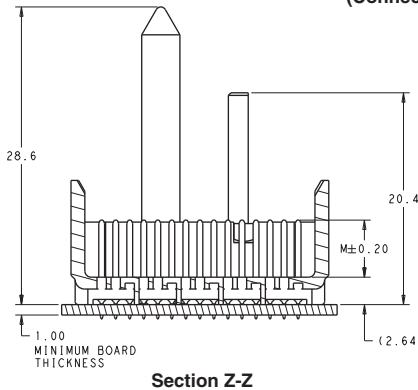
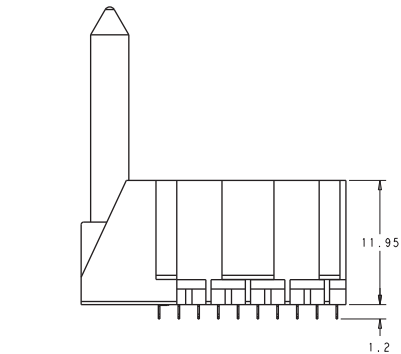
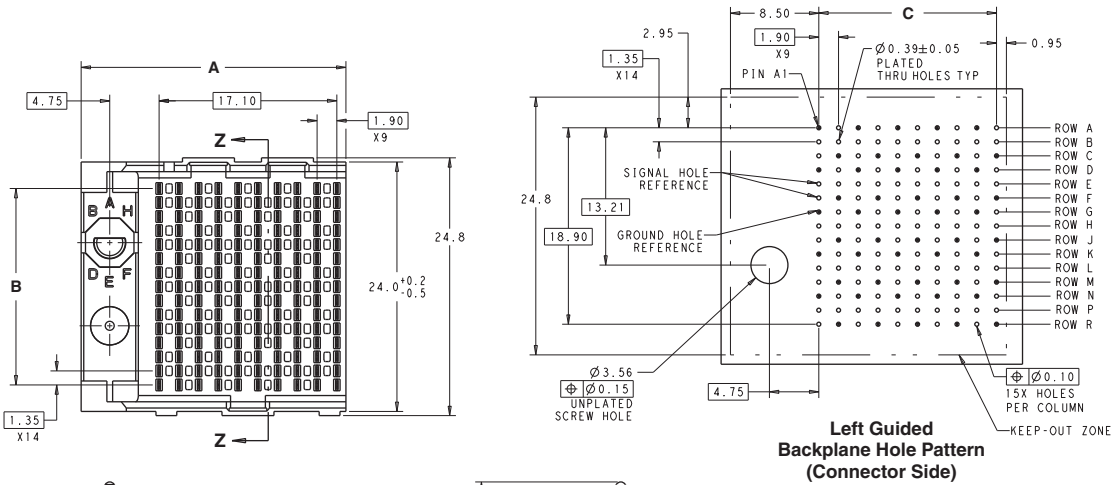
#### 5 Pair Backplane Header Assemblies



Column	Guide	Wall End	Part Number	Dimension			Application Tooling	Mates With
				A	B	C		
10	Left	Right	2007843-1	26.9	24.8	17.1	2018446-1	2110104-1
		Open	2007841-1	25.5	24.8	17.1	2018446-1	2110104-1
	Right	Left	2007847-1	26.9	24.8	17.1	2018446-1	2110105-1
		Open	2007845-1	25.5	24.8	17.1	2018446-1	2110105-1
	Unguided	Left	2007853-1	20.3	24.8	17.1	2018446-1	2110106-1
		Right	2007855-1	20.3	24.8	17.1	2018446-1	2110106-1
		Dual	2007854-1	21.7	24.8	17.1	2018446-1	2110106-1
		Open	2007852-1	18.9	24.8	17.1	2018446-1	2110106-1
16	Left	Right	2007853-1	38.3	24.8	28.5	2018525-1	2110122-1
		Open	2007857-1	36.9	24.8	28.5	2018525-1	2110122-1
	Right	Left	2007863-1	38.3	24.8	28.5	2018525-1	2110123-1
		Open	2007861-1	36.9	24.8	28.5	2018525-1	2110123-1
	Unguided	Left	2007869-1	31.7	24.8	28.5	2018525-1	2110124-1
		Right	2007871-1	31.7	24.8	28.5	2018525-1	2110124-1
		Dual	2007870-1	33.1	24.8	28.5	2018525-1	2110124-1
		Open	2007868-1	30.3	24.8	28.5	2018525-1	2110124-1

**Note:** 10 column part number 2007841-1 is pictured below.

All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.

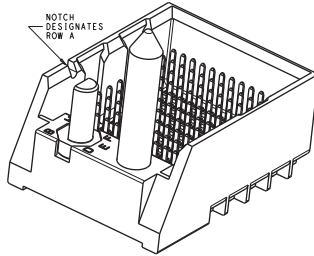


A	None
B	E
C	F
D	G
E	H

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### Backplane Header Assemblies (Continued)

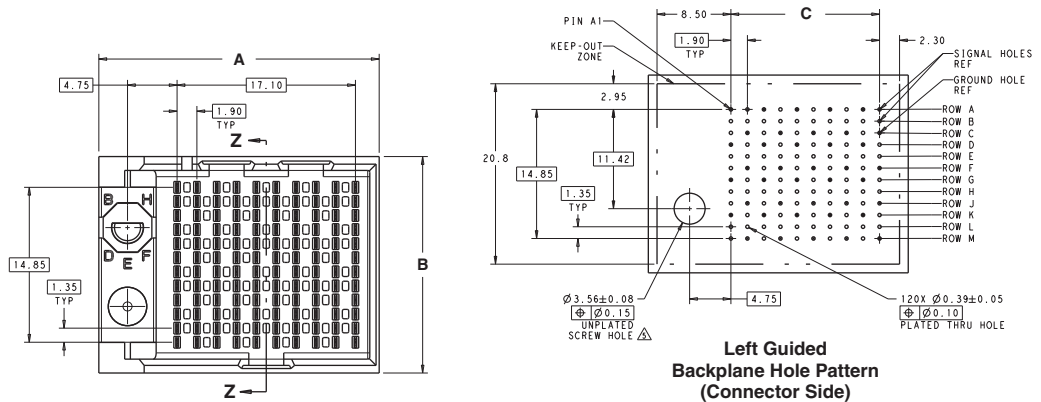
#### 4 Pair Backplane Header Assemblies



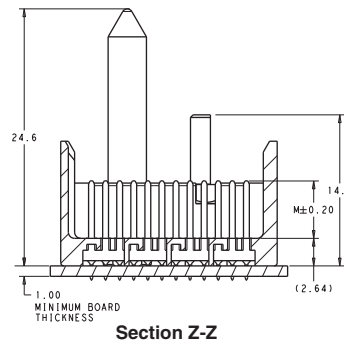
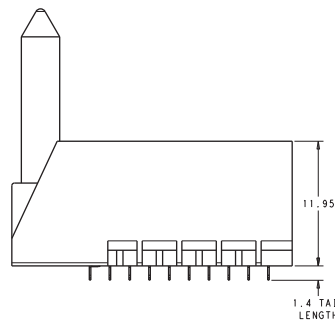
Column	Guide	Wall End	Part Number	Dimension			Application Tooling	Mates With
				A	B	C		
10	Left	Right	2007811-1	26.9	20.8	17.1	2018524-1	2007715-1
		Open	2007809-1	25.5	20.8	17.1	2018524-1	2007715-1
	Right	Left	2007815-1	26.9	20.8	17.1	2018524-1	2007716-1
		Open	2007813-1	25.5	20.8	17.1	2018524-1	2007716-1
	Unguided	Left	2007821-1	20.3	20.8	17.1	2018524-1	2007717-1
		Right	2007823-1	20.3	20.8	17.1	2018524-1	2007717-1
		Dual	2007822-1	21.7	20.8	17.1	2018524-1	2007717-1
		Open	2007820-1	18.9	20.8	17.1	2018524-1	2007717-1
16	Left	Right	2007827-1	38.3	20.8	28.5	2018513-1	2007721-1
		Open	2007825-1	36.9	20.8	28.5	2018513-1	2007721-1
	Right	Left	2007831-1	38.3	20.8	28.5	2018513-1	2007722-1
		Open	2007829-1	36.9	20.8	28.5	2018513-1	2007722-1
	Unguided	Left	2007837-1	31.7	20.8	28.5	2018513-1	2007723-1
		Right	2007839-1	31.7	20.8	28.5	2018513-1	2007723-1
		Dual	2007838-1	33.1	20.8	28.5	2018513-1	2007723-1
		Open	2007836-1	30.3	20.8	28.5	2018513-1	2007723-1

**Note:** 10 column part number 2007811-1 is pictured below.

All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.



Key Position Chart	
	None

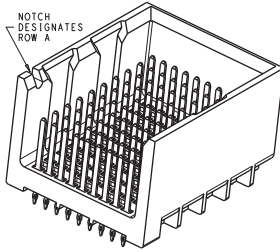


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### Backplane Header Assemblies (Continued)

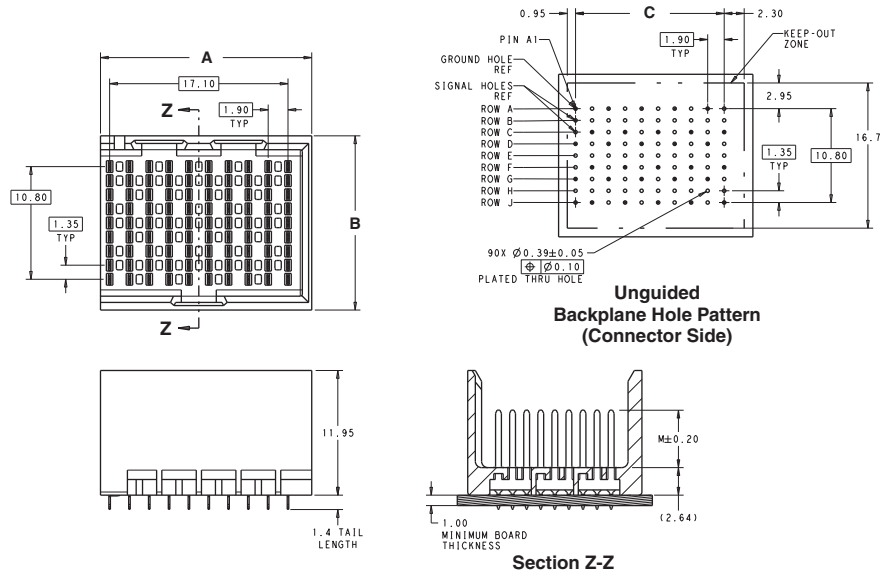
#### 3 Pair Backplane Header Assemblies



Column	Guide	Wall End	Part Number	Dimension			Application Tooling	Mates With	
				A	B	C			
10	Left	Right	2007779-1	26.9	16.7	17.1	2018377-1	2007703-1	
		Open	2007777-1	25.5	16.7	17.1	2018377-1	2007703-1	
	Right	Left	2007783-1	26.9	16.7	17.1	2018377-1	2007704-1	
		Open	2007781-1	25.5	16.7	17.1	2018377-1	2007704-1	
	Unguided	Left	2007789-1	20.3	16.7	17.1	2018377-1	2007705-1	
		Right	2007791-1	20.3	16.7	17.1	2018377-1	2007705-1	
		Dual	2007790-1	21.7	16.7	17.1	2018377-1	2007705-1	
		Open	2007788-1	18.9	16.7	17.1	2018377-1	2007705-1	
	16	Left	Right	2007795-1	38.3	16.7	28.5	2018378-1	2007709-1
			Open	2007793-1	36.9	16.7	28.5	2018378-1	2007709-1
Right		Left	2007799-1	38.3	16.7	28.5	2018378-1	2007710-1	
		Open	2007797-1	36.9	16.7	28.5	2018378-1	2007710-1	
Unguided		Left	2007805-1	31.7	16.7	28.5	2018378-1	2007711-1	
		Right	2007807-1	31.7	16.7	28.5	2018378-1	2007711-1	
		Dual	2007806-1	33.1	16.7	28.5	2018378-1	2007711-1	
		Open	2007804-1	30.3	16.7	28.5	2018378-1	2007711-1	

**Note:** 10 column part number 2007791-1 is pictured below.

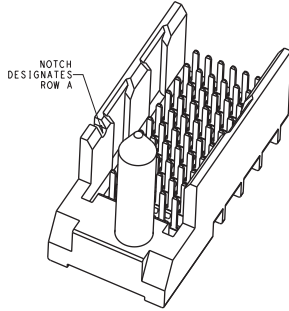
All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.



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### Backplane Header Assemblies (Continued)

#### 2 Pair Backplane Header Assemblies



Column	Guide	Wall End	Part Number	Dimension			Application Tooling	Mates With
				A	B	C		
10	Left	Right	2057421-1	26.9	12.7	17.1	2018536-1	2057403-1
		Open	2057419-1	25.5	12.7	17.1	2018536-1	2057403-1
	Right	Left	2057425-1	25.5	12.7	17.1	2018536-1	2057404-1
		Open	2057423-1	26.9	12.7	17.1	2018536-1	2057404-1
	Unguided	Left	2057431-1	20.3	12.7	17.1	2018536-1	2057405-1
		Right	2057433-1	20.3	12.7	17.1	2018536-1	2057405-1
		Dual	2057432-1	21.7	12.7	17.1	2018536-1	2057405-1
		Open	2057430-1	18.9	12.7	17.1	2018536-1	2057405-1
		Left	2057739-1	38.3	12.7	28.5	2018537-1	2057409-1
		Open	2057737-1	36.9	12.7	28.5	2018537-1	2057409-1
16	Right	Left	2057743-1	38.3	12.7	28.5	2018537-1	2057410-1
		Open	2057741-1	36.9	12.7	28.5	2018537-1	2057410-1
	Unguided	Left	2057749-1	31.7	12.7	28.5	2018537-1	2057411-1
		Right	2057751-1	31.7	12.7	28.5	2018537-1	2057411-1
	Dual	Left	2057750-1	33.1	12.7	28.5	2018537-1	2057411-1
		Open	2057748-1	30.3	12.7	28.5	2018537-1	2057411-1

**Note:** 10 column part number 2057419-1 is pictured below.

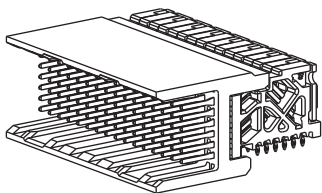
All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.



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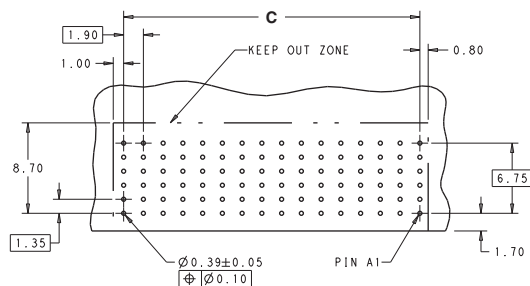
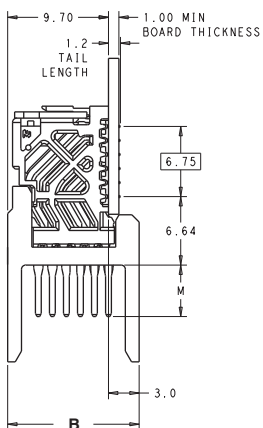
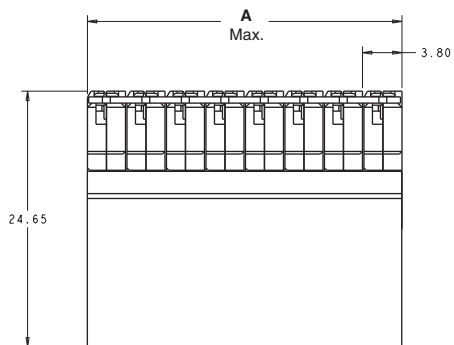
### Coplanar Header (RAM) Assemblies (Continued)

#### 2 Pair Coplanar Header (RAM) Assemblies

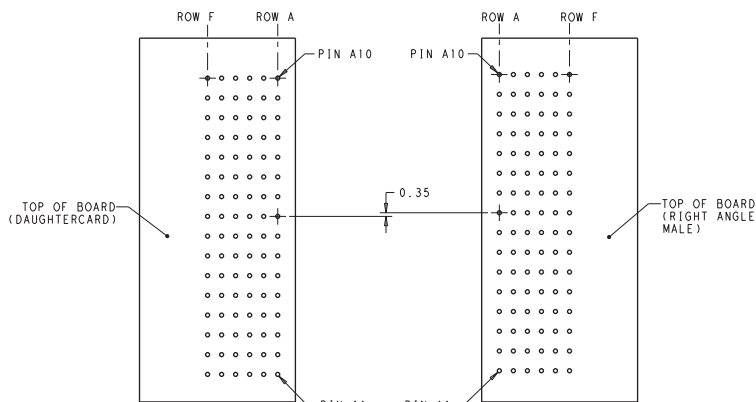
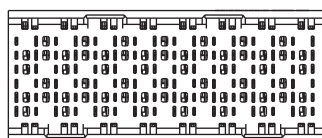


Column	Guide	Wall End	Part Number	Dimension			Application Tooling	Mates With
				A	B	C		
10	Left	Right	2143017-2	28	12.7	17.1	2018779-1	2057404-1
		Open	2143016-2	26.6	12.7	17.1	2018779-1	2057404-1
	Right	Left	2143019-2	28	12.7	17.1	2018779-1	2057403-1
		Open	2143018-2	26.6	12.7	17.1	2018779-1	2057403-1
	Unguided	Left	2143013-2	20.4	12.7	17.1	2018779-1	2057405-1
		Right	2143015-2	20.4	12.7	17.1	2018779-1	2057405-1
		Dual	2143014-2	21.8	12.7	17.1	2018779-1	2057405-1
		Open	2143012-2	19	12.7	17.1	2018779-1	2057405-1
16	Left	Right	2143314-2	39.4	12.7	28.5	2018779-2	2057410-1
		Open	2143313-2	38	12.7	28.5	2018779-2	2057410-1
	Right	Left	2143316-2	39.4	12.7	28.5	2018779-2	2057409-1
		Open	2143315-2	38	12.7	28.5	2018779-2	2057409-1
	Unguided	Left	2143310-2	31.8	12.7	28.5	2018779-2	2057411-1
		Right	2143312-2	31.8	12.7	28.5	2018779-2	2057411-1
		Dual	2143311-2	33.2	12.7	28.5	2018779-2	2057411-1
		Open	2143309-2	30.4	12.7	28.5	2018779-2	2057411-1

Note: 16 column part number 2143309-1 is pictured below.



Recommended PCB Layout



Coplanar Mated Signal Paths



Left Guided Right Angle Male Mates To Right Guided Right Angle Receptacle

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## Orthogonal Receptacle Assemblies

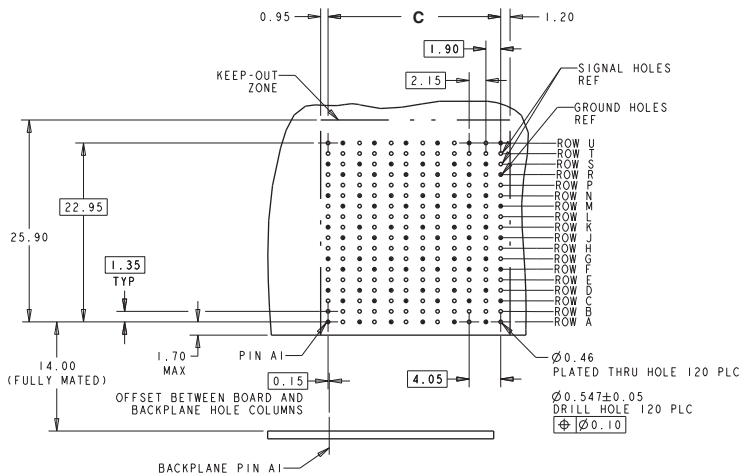
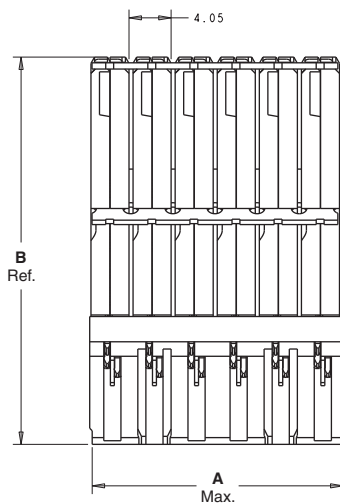
### 6 Pair Orthogonal Receptacle Assemblies



Column	Guide	Part Number	Dimension			Application Tooling	Mates With
			A	B	C		
10	Left	2132718-1	28.35	37.3	18.1	2018773-1	2143249-1
	Right	2132719-1	28.35	37.3	18.1	2018773-1	2143251-1
	Unguided	2132720-1	20.25	37.3	18.1	2018773-1	2143255-1
12	Left	2132721-1	32.4	37.3	22.15	2018773-2	2143265-1
	Right	2132722-1	32.4	37.3	22.15	2018773-2	2143267-1
	Unguided	2132723-1	24.3	37.3	22.15	2018773-2	2143271-1

**Note:** 12 column part number 2132723-1 is pictured below.

All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.

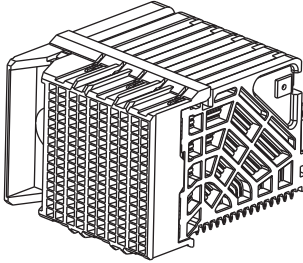


**Recommended PCB Layout  
Min. Board Thickness 1.0**

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**Orthogonal Receptacle Assemblies** (Continued)

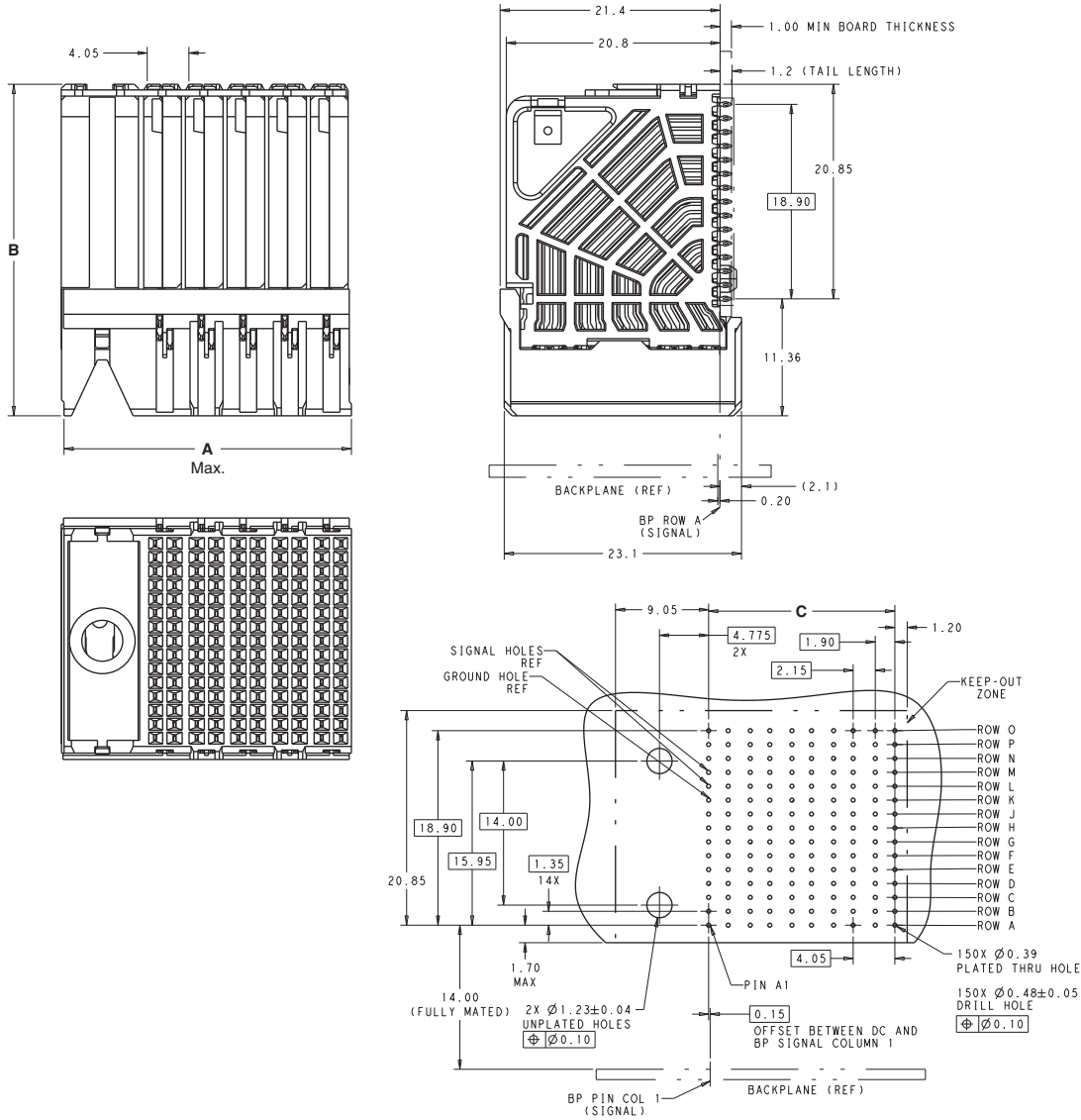
**5 Pair Orthogonal Receptacle Assemblies**



Column	Guide	Part Number	Dimension			Application Tooling	Mates With
			A	B	C		
8	Left	2132690-1	24.3	32.3	14.05	2018772-1	2143545-1
	Right	2132691-1	24.3	32.3	14.05	2018772-1	2143547-1
	Unguided	2132692-1	16.2	32.3	14.05	2018772-1	2143550-1
10	Left	2132693-1	28.35	32.3	18.1	2018772-2	2143557-1
	Right	2132694-1	28.35	32.3	18.1	2018772-2	2143559-1
	Unguided	2132695-1	20.25	32.3	18.1	2018772-2	2143562-1
12	Left	2132696-1	32.4	32.3	22.15	2018772-3	2143569-1
	Right	2132697-1	32.4	32.3	22.15	2018772-3	2143571-1
	Unguided	2132698-1	24.3	32.3	22.15	2018772-3	2143574-1

**Note:** 10 column part number 2132693-1 is pictured below.

All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.

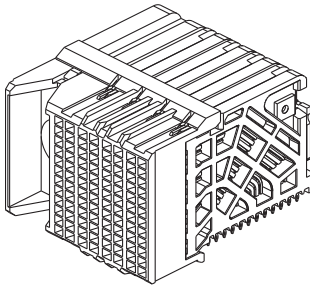


**Recommended PCB Layout**

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## Orthogonal Receptacle Assemblies (Continued)

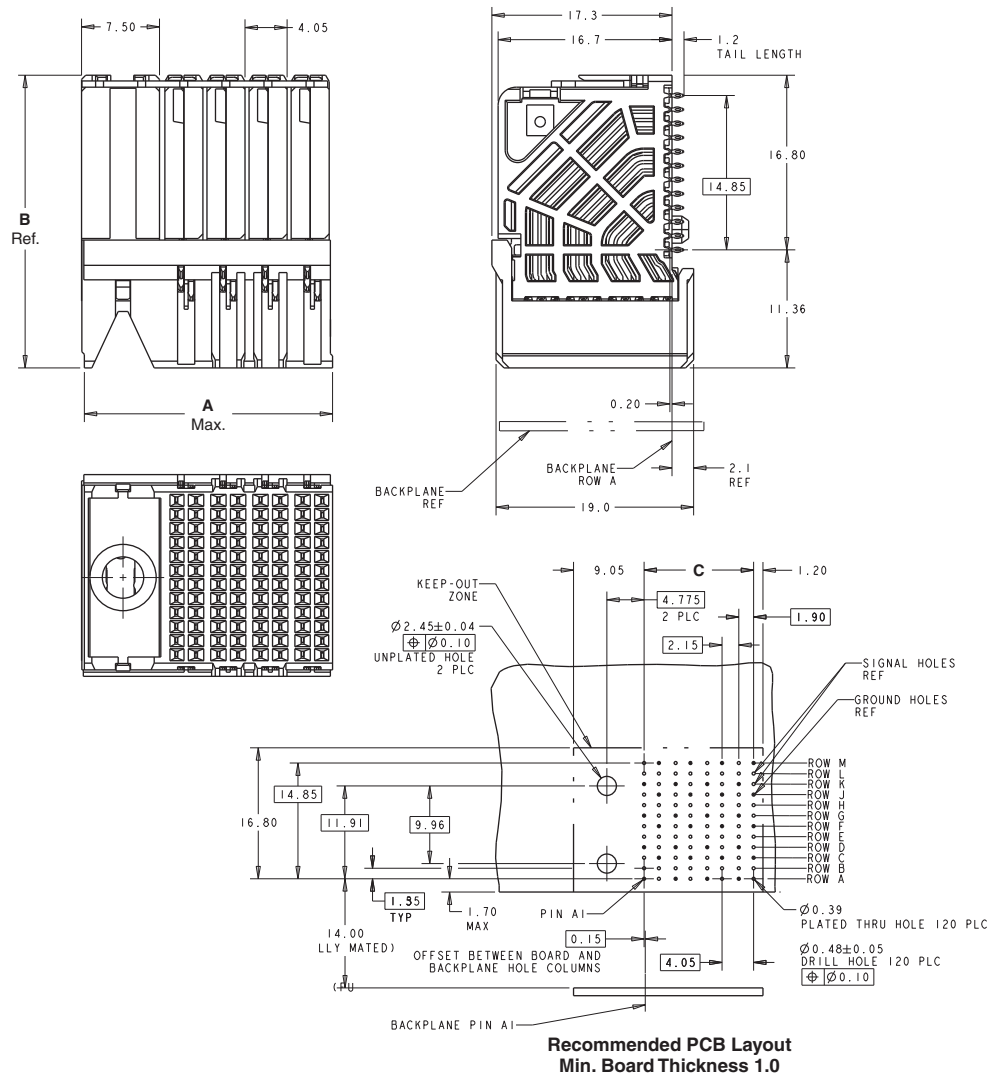
### 4 Pair Orthogonal Receptacle Assemblies



Column	Guide	Part Number	Dimension			Application Tooling	Mates With
			A	B	C		
6	Left	2132461-1	20.25	28.2	10	2018771-1	2132593-1
	Right	2132462-1	20.25	28.2	10	2018771-1	2132595-1
	Unguided	2132463-1	12.15	28.2	10	2018771-1	2132599-1
8	Left	2132464-1	24.3	28.2	14.05	2018771-2	2132609-1
	Right	2132465-1	24.3	28.2	14.05	2018771-2	2132611-1
	Unguided	2132466-1	16.2	28.2	14.05	2018771-2	2132615-1
10	Left	2132467-1	28.35	28.2	18.1	2018771-3	2132597-1
	Right	2132468-1	28.35	28.2	18.1	2018771-3	2132599-1
	Unguided	2132469-1	20.25	28.2	18.1	2018771-3	2132631-1

**Note:** 8 column part number 2132464-1 is pictured below.

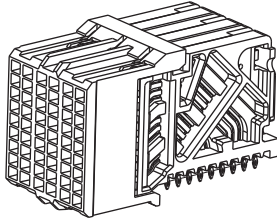
All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.



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### Orthogonal Receptacle Assemblies (Continued)

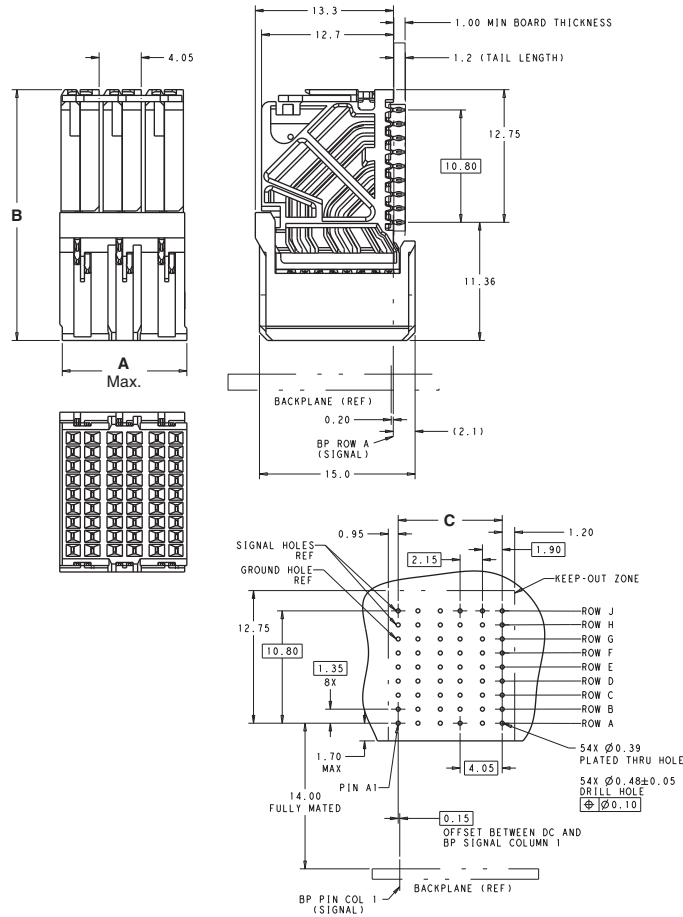
#### 3 Pair Orthogonal Receptacle Assemblies



Column	Guide	Part Number	Dimension			Application Tooling	Mates With
			A	B	C		
6	Left	2132422-1	20.25	24.1	10	2018770-1	2132561-1
	Right	2132423-1	20.25	24.1	10	2018770-1	2132563-1
	Unguided	2132424-1	12.15	24.1	10	2018770-1	2132567-1
8	Left	2132425-1	24.3	24.1	14.05	2018770-2	2132577-1
	Right	2132426-1	24.3	24.1	14.05	2018770-2	2132579-1
	Unguided	2132427-1	16.2	24.1	14.05	2018770-2	2132583-1

**Note:** 6 column part number 2132424-1 is pictured below.

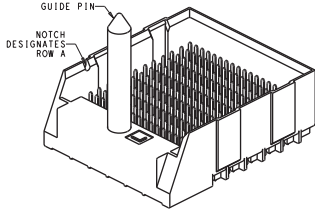
All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.



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### Orthogonal Header Assemblies

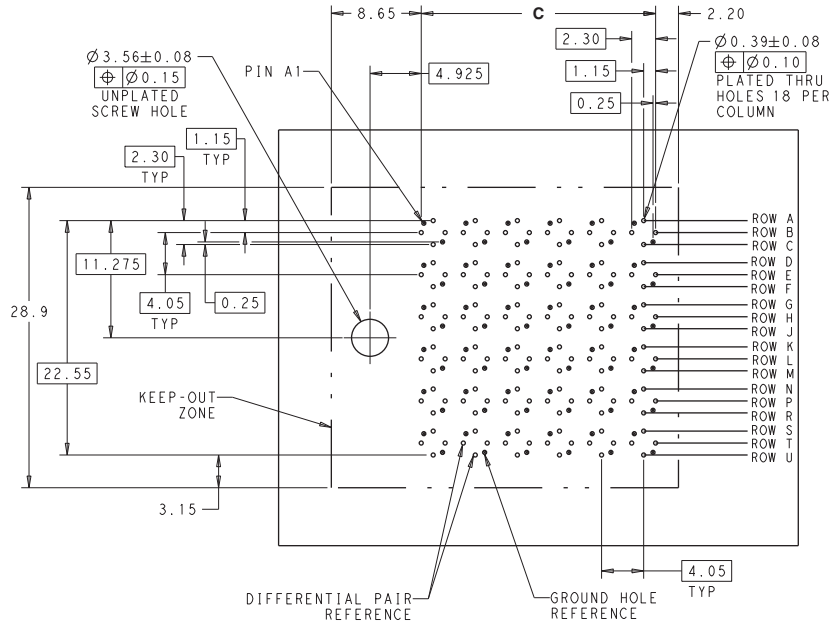
#### 6 Pair Orthogonal Header Assemblies



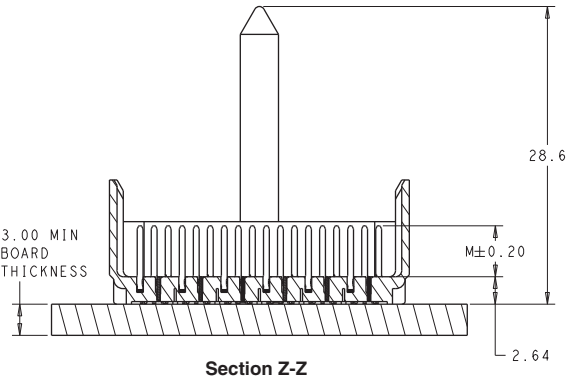
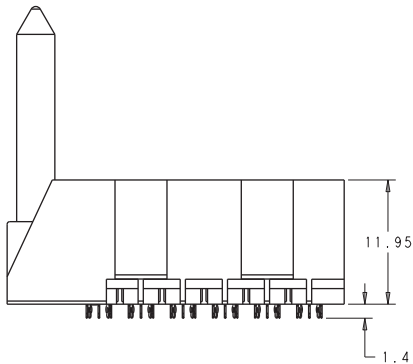
All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.

Column	Guide	Wall End	Part Number	Dimension			Application Tooling	Mates With
				A	B	C		
10	Left	Right	2143250-1	28.4	28.9	18.5	2018773-1	2132718-1
		Open	2143249-1	27	28.9	18.5	2018773-1	2132718-1
	Right	Left	2143252-1	28.4	28.9	18.5	2018773-1	2132719-1
		Open	2143251-1	27	28.9	18.5	2018773-1	2132719-1
	Unguided	Left	2143254-1	21.5	28.9	18.5	2018773-1	2132720-1
		Right	2143256-1	21.5	28.9	18.5	2018773-1	2132720-1
Dual		2143255-1	22.9	28.9	18.5	2018773-1	2132720-1	
Open		2143253-1	20.1	28.9	18.5	2018773-1	2132720-1	
12	Left	Right	2143266-1	32.4	28.9	22.55	2018773-2	2132721-1
		Open	2143265-1	31	28.9	22.55	2018773-2	2132721-1
	Right	Left	2143268-1	32.4	28.9	22.55	2018773-2	2132722-1
		Open	2143267-1	31	28.9	22.55	2018773-2	2132722-1
	Unguided	Left	2143270-1	25.55	28.9	22.55	2018773-2	2132723-1
		Right	2143272-1	25.55	28.9	22.55	2018773-2	2132723-1
		Dual	2143271-1	26.95	28.9	22.55	2018773-2	2132723-1
		Open	2143269-1	24.15	28.9	22.55	2018773-2	2132723-1

**Note:** 12 column part number 2143266-1 is pictured below.



**Left Guided Backplane Hole Pattern (Connector Side)**

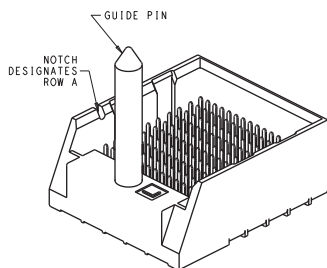


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### Orthogonal Header Assemblies (Continued)

#### 5 Pair Orthogonal Header Assemblies

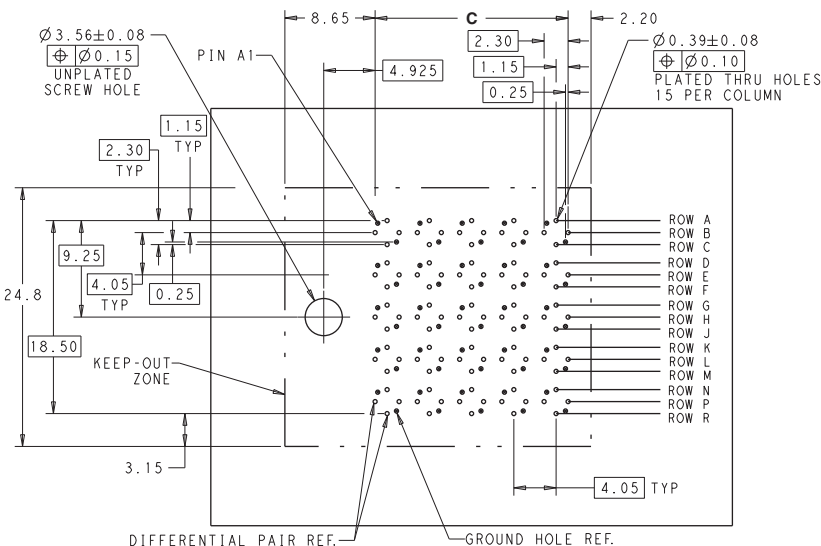
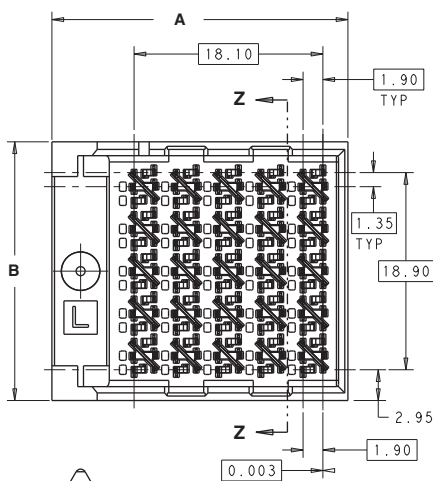


**Note:** 10 column part number 2143558-1 is pictured below.

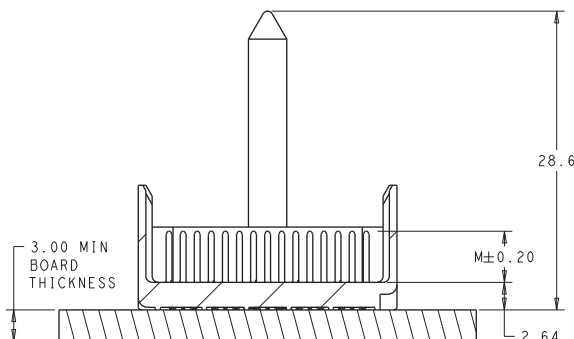
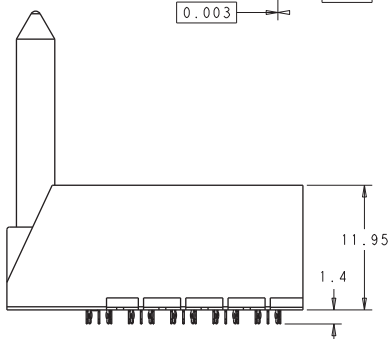
All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.

Column	Guide	Wall End	Part Number	Dimension			Application Tooling	Mates With
				A	B	C		
8	Left	Right	2143546-1	24.3	24.8	14.45	2018772-1	2132690-1
		Open	2143545-1	22.9	24.8	14.45	2018772-1	2132690-1
	Right	Left	2143548-1	24.3	24.8	14.45	2018772-1	2132691-1
		Open	2143547-1	22.9	24.8	14.45	2018772-1	2132691-1
	Unguided	Left	2143621-1	17.45	24.8	14.45	2018772-1	2132692-1
		Right	2143622-1	17.45	24.8	14.45	2018772-1	2132692-1
10	Left	Right	2143558-1	28.4	24.8	18.5	2018772-2	2132693-1
		Open	2143557-1	27	24.8	18.5	2018772-2	2132693-1
	Right	Left	2143560-1	28.4	24.8	18.5	2018772-2	2132694-1
		Open	2143559-1	27	24.8	18.5	2018772-2	2132694-1
	Unguided	Left	2143625-1	21.5	24.8	18.5	2018772-2	2132695-1
		Right	2143626-1	21.5	24.8	18.5	2018772-2	2132695-1
12	Left	Right	2143570-1	32.4	24.8	22.55	2018772-3	2132696-1
		Open	2143569-1	31	24.8	22.55	2018772-3	2132696-1
	Right	Left	2143572-1	32.4	24.8	22.55	2018772-3	2132697-1
		Open	2143571-1	31	24.8	22.55	2018772-3	2132697-1
	Unguided	Left	2143629-1	25.55	24.8	22.55	2018772-3	2132698-1
		Right	2143630-1	25.55	24.8	22.55	2018772-3	2132698-1
		Open	2143574-1	26.95	24.8	22.55	2018772-3	2132698-1
		Open	2143573-1	24.15	24.8	22.55	2018772-3	2132698-1

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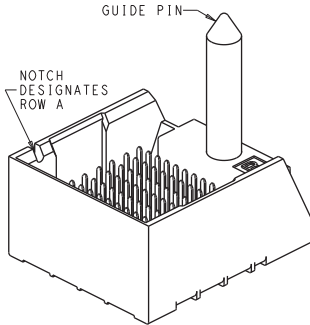
**Left Guided Backplane Hole Pattern (Connector Side)**



**Section Z-Z**

### Orthogonal Header Assemblies (Continued)

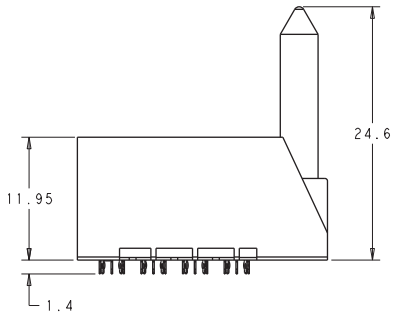
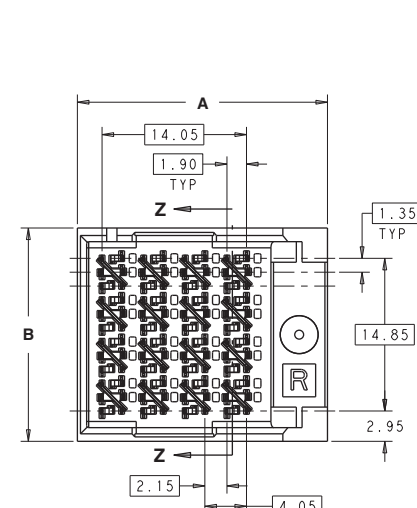
#### 4 Pair Orthogonal Header Assemblies



**Note:** 8 column part number 2132610-1 is pictured below.

All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.

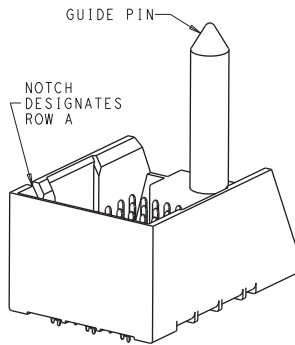
Column	Guide	Wall End	Part Number	Dimension			Application Tooling	Mates With
				A	B	C		
6	Left	Right	2132594-1	20.3	20.8	10.4	2018771-1	2132461-1
		Open	2132593-1	18.9	20.8	10.4	2018771-1	2132461-1
	Right	Left	2132596-1	20.3	20.8	10.4	2018771-1	2132462-1
		Open	2132595-1	18.9	20.8	10.4	2018771-1	2132462-1
	Unguided	Left	2132598-1	13.4	20.8	10.4	2018771-1	2132463-1
		Right	2132600-1	13.4	20.8	10.4	2018771-1	2132463-1
8	Left	Dual	2132599-1	14.8	20.8	10.4	2018771-1	2132463-1
		Open	2132597-1	12	20.8	10.4	2018771-1	2132463-1
	Right	Right	2132610-1	24.3	20.8	14.45	2018771-2	2132464-1
		Open	2132609-1	22.9	20.8	14.45	2018771-2	2132464-1
	Unguided	Left	2132612-1	24.3	20.8	14.45	2018771-2	2132465-1
		Open	2132611-1	22.9	20.8	14.45	2018771-2	2132465-1
10	Left	Left	2132614-1	17.45	20.8	14.45	2018771-2	2132466-1
		Right	2132616-1	17.45	20.8	14.45	2018771-2	2132466-1
	Unguided	Dual	2132615-1	18.85	20.8	14.45	2018771-2	2132466-1
		Open	2132613-1	16.05	20.8	14.45	2018771-2	2132466-1
	Right	Right	2132626-1	28.4	20.8	18.5	2018771-3	2132467-1
		Open	2132625-1	27	20.8	18.5	2018771-3	2132467-1
Unguided	Left	Left	2132628-1	28.4	20.8	18.5	2018771-3	2132468-1
		Open	2132627-1	27	20.8	18.5	2018771-3	2132468-1
	Right	Left	2132630-1	21.5	20.8	18.5	2018771-3	2132469-1
		Open	2132632-1	21.5	20.8	18.5	2018771-3	2132469-1
Unguided	Dual	2132631-1	22.9	20.8	18.5	2018771-3	2132469-1	
	Open	2132629-1	20.1	20.8	18.5	2018771-3	2132469-1	



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### Orthogonal Header Assemblies (Continued)

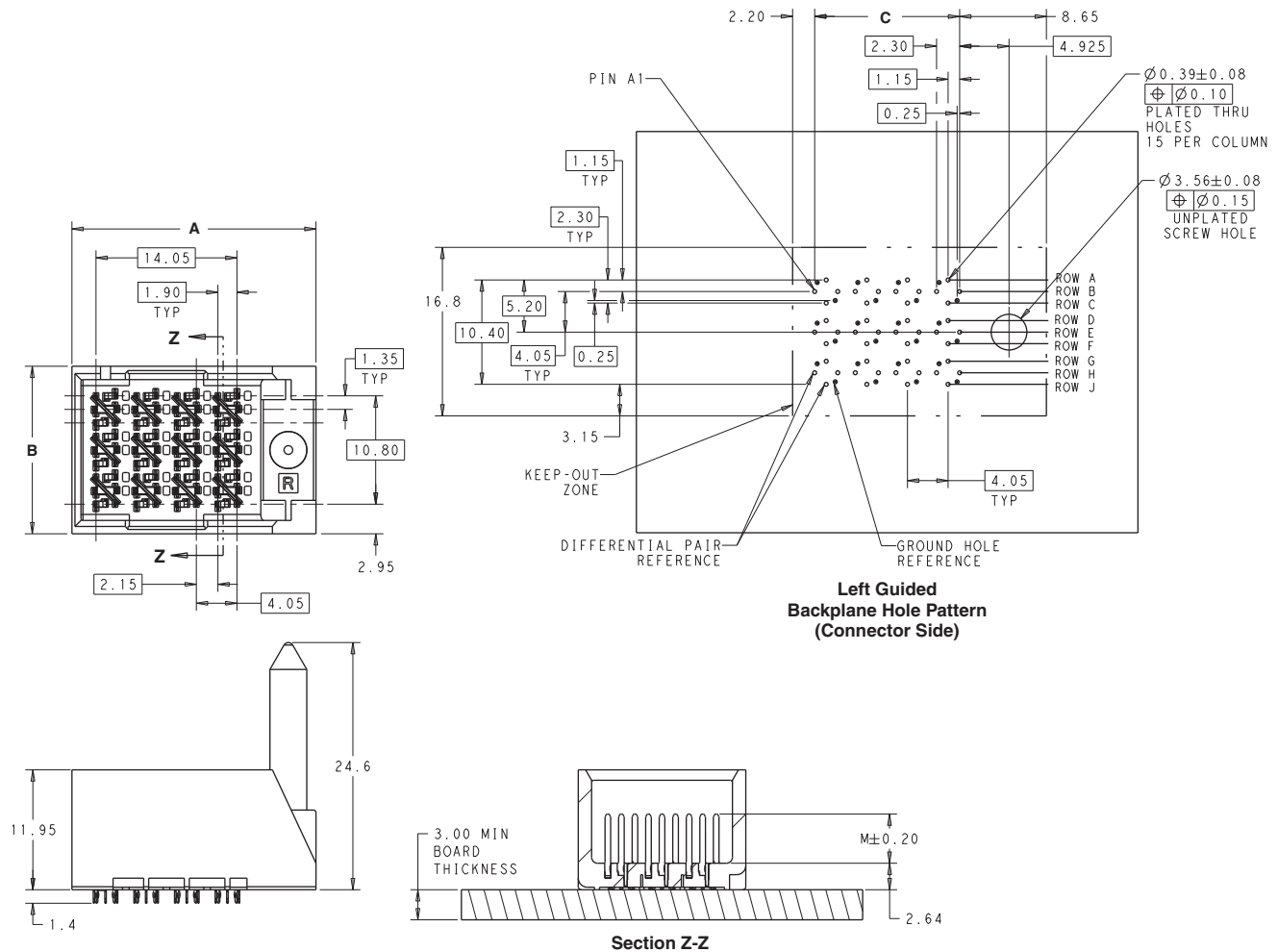
#### 3 Pair Orthogonal Header Assemblies



Column	Guide	Wall End	Part Number	Dimension			Application Tooling	Mates With
				A	B	C		
6	Left	Right	2132562-1	20.3	16.7	10.4	2018770-1	2132422-1
		Open	2132561-1	18.9	16.7	10.4	2018770-1	2132422-1
	Right	Left	2132564-1	20.3	16.7	10.4	2018770-1	2132423-1
		Open	2132563-1	18.9	16.7	10.4	2018770-1	2132423-1
	Unguided	Left	2132566-1	13.4	16.7	10.4	2018770-1	2132424-1
		Right	2132568-1	13.4	16.7	10.4	2018770-1	2132424-1
Dual		2132567-1	14.8	16.7	10.4	2018770-1	2132424-1	
8	Left	Right	2132578-1	24.3	16.7	14.45	2018770-2	2132425-1
		Open	2132577-1	22.9	16.7	14.45	2018770-2	2132425-1
	Right	Left	2132580-1	24.3	16.7	14.45	2018770-2	2132426-1
		Open	2132579-1	22.9	16.7	14.45	2018770-2	2132426-1
	Unguided	Left	2132582-1	17.45	16.7	14.45	2018770-2	2132427-1
		Right	2132584-1	17.45	16.7	14.45	2018770-2	2132427-1
		Dual	2132583-1	18.85	16.7	14.45	2018770-2	2132427-1
	Open	2132581-1	16.05	16.7	14.45	2018770-2	2132427-1	

**Note:** 8 column part number 2132580-1 is pictured below.

All the numbers provided are for 0.39mm PCB plated thru hole use. Part numbers are available for 0.46mm PCB plated thru holes by contacting the respective country product information center listed on the bottom of each page.



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**Note:** This index lists all cataloged parts by base no. only. Complete part nos. (with prefixes and/or suffixes) are shown on the page(s) indicated.

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