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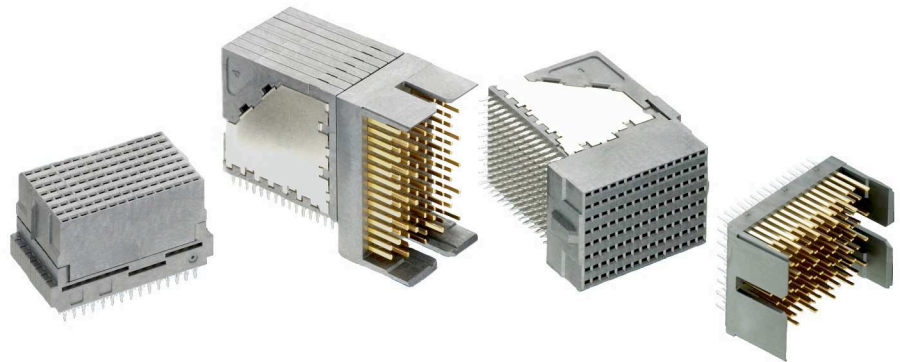
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## Z-PACK TinMan 85 ohm Connector Overview

### Product Facts

- 10+ Gbps performance
- 85 ohm impedance for differential pair configuration
- 5 pair version offers 26 pairs/10mm [66 differential pairs/inch] fitting within a 25.40 [1.00] card slot pitch
- 3 pair version offers 16 pairs/10mm [40 differential pairs/inch] fitting within a 16.25 [.625] card slot pitch
- Right angle pin headers (coplanar) in 3 pair and 5 pair versions
- Vertical receptacles (mezzanine) in 5 pair version
- High speed cable assemblies and hardware
- Reliable, redundant contact design on every signal contact
- Modular system offered in various column versions
- Meets industry reliability requirements of Bellcore/Telcordia
- Sequencing for ground and signal contacts
- RoHS compliant



Increasing system performance is a continuous challenge within the interconnection channel. One design approach gaining momentum in the industry is the reduction of the system characteristic impedance from 100 ohm to 85 ohm. Such a reduction of impedance from 100 ohm to 85 ohm can improve overall system performance by incorporating thinner PC boards, increasing density with same board thickness and making it easier to match the system impedance to the connector footprint impedance.

Tyco Electronics is leading the way in providing a complete interconnect solution for this emerging market. The suite of Z-PACK TinMan 85 ohm connectors provides the same industry leading performance and features and benefits designed into the standard 100 ohm Z-PACK TinMan connector system but in an 85 ohm impedance package. This connector was designed to provide 85 ohm nominal characteristic impedance through the entire connector, from PCB footprint to PCB footprint.

As part of the complete Z-PACK TinMan connector product family, the 85 ohm version offers protected right-angle and vertical receptacles for use on daughtercards and mezzanine boards where handling damage can be a concern when plugging to a mating header. Ground contacts strategically positioned within each column of the connector, combined with unique contact lead frame arrangements, enable the Z-PACK TinMan 85 ohm connector to achieve low crosstalk and high throughput performance levels. A dual point of contact mating interface and compliant pin interface to printed circuit board help provide reliability.

### Industry Applications

The Z-PACK TinMan 85 ohm connector family is designed for the cost pressured, high performance, high signal density, blade and rack mount server applications implementing an 85 ohm system impedance.

### Technical Documents

**Product Specification** 108-2303-1

**Application Specification** 114-13243

**Routing Guide Report** #27GC001-1

### Material and Finish

**Signal Contact** — High Strength Copper Alloy

**Ground Contact** — High Strength Copper Alloy

**Housing** — Liquid Crystal Polymer, UL 94V-0 Rated

**Platings** — Telcordia compliant interface, Nickel underplate

**Compliant Pin Plating** — RoHS Compliant

### Ratings

**Temperature Range** — -65°C to +90°C

**Current Rating** — 0.5 A/contact @ < 30°C T-Rise

**Durability** — 200 cycles

**Dielectric Withstanding Voltage** — 560 VAC

**Operating Voltage** — 250 VAC max.

### Signal Integrity

**Characteristic Impedance** — Differential @ 85 ohms ±10%

**Crosstalk** — Multi-pair differential crosstalk: 2.1% @ 50ps

**Insertion Loss** — -2 dB @ 10 GHz

TELCORDIA is a trademark of Telcordia Technologies, Inc.

**For additional information visit:**

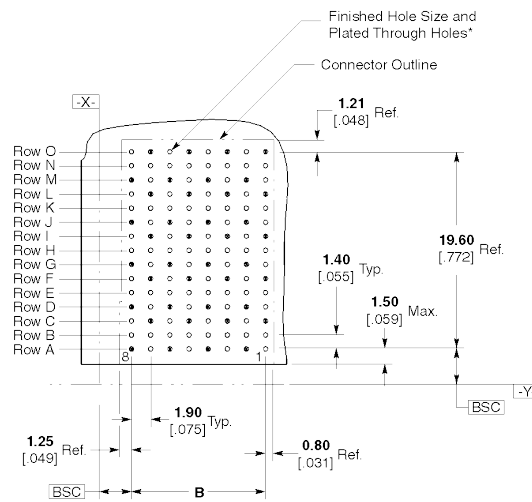
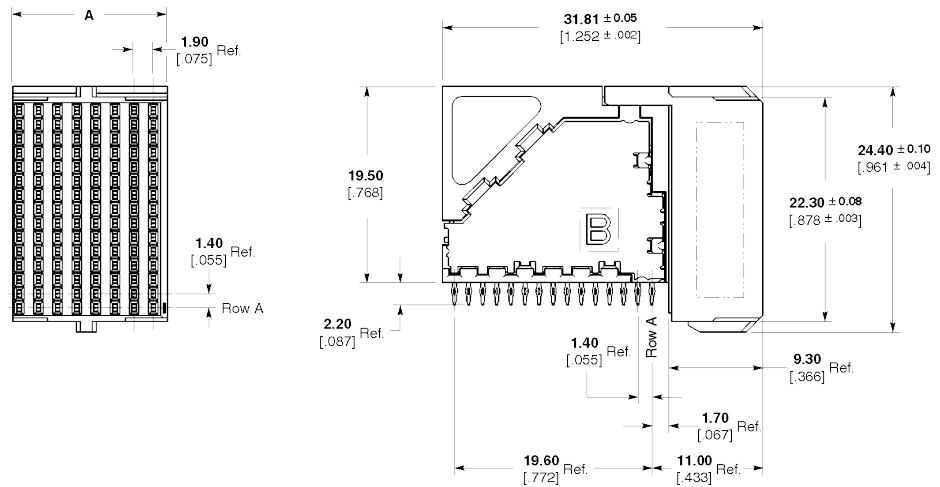
<http://www.tycoelectronics.com/products/tinman85ohm>

**Note:** All part numbers are RoHS compliant.

### 5 Pair Right Angle Receptacle Assemblies (85 ohm)

Column	Part Number	Dimension		Application Tooling	Mates With
		A	B		
8	1934954-1	15.35 .604	13.30 .524	*	1934947-1, 2065053-1, 2065305-1, 2065307-1, 1934948-1, 1934985-1, 2065739-1, 2065738-1
10	1934932-1	19.15 .754	17.10 .673	*	1934822-1, 2065027-1, 2065309-1, 2065311-1, 1934937-1, 2065025-1, 2065740-1, 2065741-1
16	2065042-1	30.55 1.203	28.50 1.122	*	2065054-1, 2065055-1, 2065329-1, 2065331-1, 1934986-1, 1934987-1, 2065748-1, 2065749-1

\* Custom tooling not required. Utilizes flat-rock insertion tooling. Reference Application Specification 114-13243.



Recommended PC Board Layout  
Daughterboard  
Component Side Shown

**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

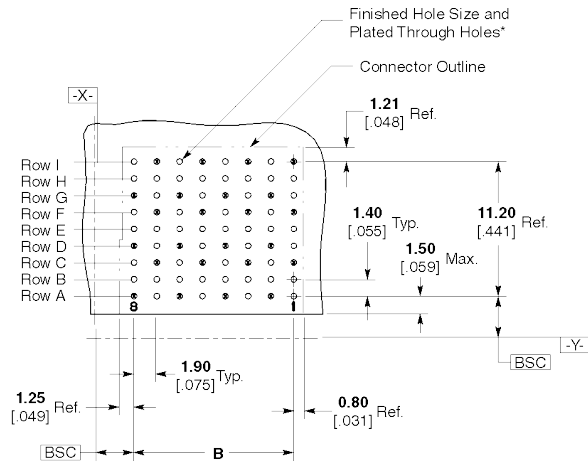
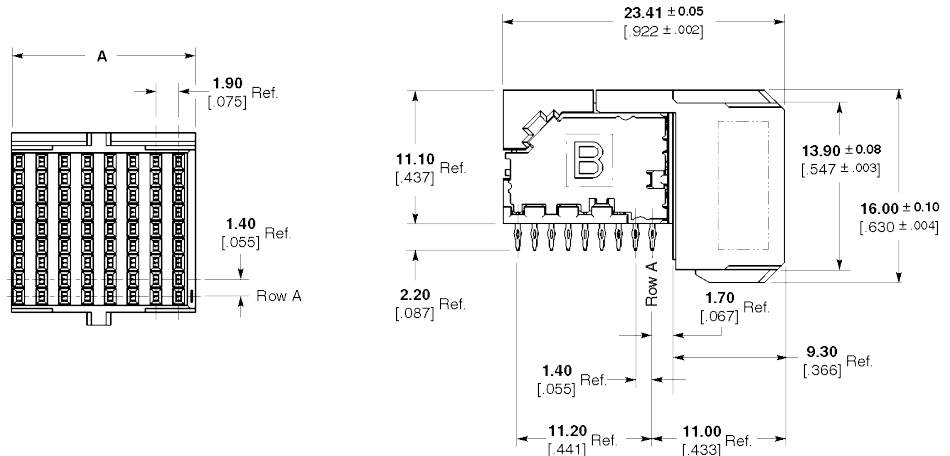
\* Finished Hole Diameter =  $0.46 \pm 0.05$  [018 ± 0.002]  
 Drilled Hole Diameter =  $0.55 \pm 0.02$  [022 ± 0.001]  
 Copper Thickness =  $0.038 \pm 0.013$  [0015 ± 0.0005]  
 Tin-Lead Thickness =  $0.008 \pm 0.004$  [0003 ± 0.0002]  
 Finishes other than Tin-Lead, See Appl. Spec. 114-13243

**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

### 3 Pair Right Angle Receptacle Assemblies (85 ohm)

Column	Part Number	Dimension		Application Tooling	Mates With
		A	B		
8	1934811-1	15.35 .604	13.30 .524	*	1934806-1, 2065043-1, 2065237-1, 2065239-1, 1934974-1, 1934975-1 2065704-1, 2065705-1
10	1934951-1	19.15 .754	17.10 .673	*	1934950-1, 2065044-1, 2065790-1, 2065791-1, 1934976-1, 1934977-1 2065706-1, 2065707-1
16	2065038-1	30.55 1.203	28.50 1.122	*	2065045-1, 2065046-1, 2065257-1, 2065259-1, 1934978-1, 1934979-1, 2065716-1, 2065717-1

\* Custom tooling not required. Utilizes flat-rock insertion tooling. Reference Application Specification 114-13243.



**Recommended PC Board Layout  
Daughterboard  
Component Side Shown**

**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

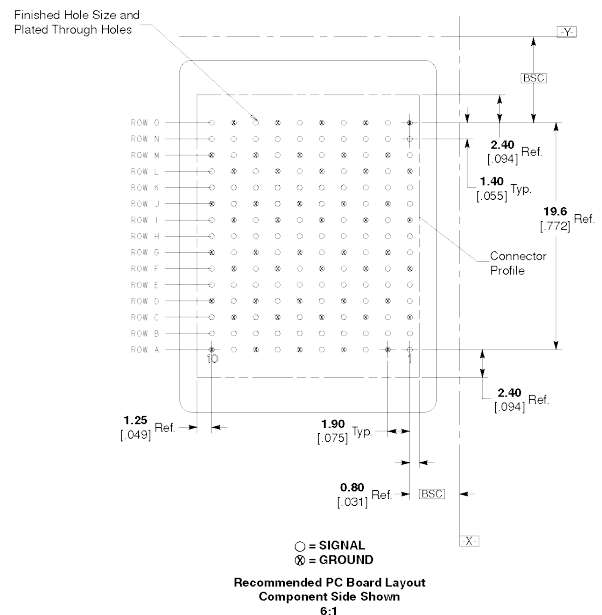
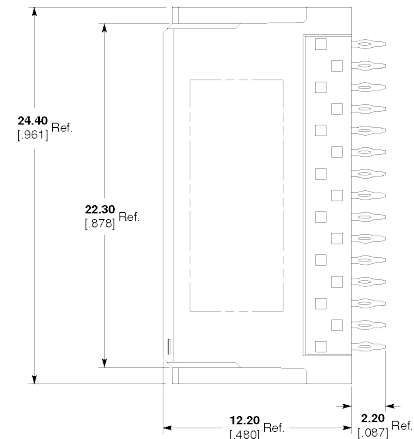
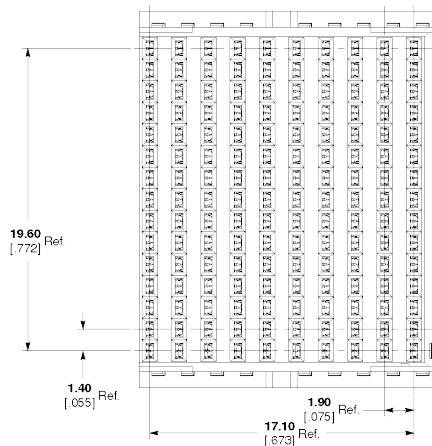
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 Copper Thickness =  $0.038 \pm 0.013$  [0015 ± .0005]  
 Tin-Lead Thickness =  $0.008 \pm 0.004$  [0003 ± .0002]  
 Finishes other than Tin-Lead, See Appl. Spec. 114-13243

**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

### 5 Pair Vertical Receptacle Assemblies - 15 mm Stack Height Version (85 ohm)

Column	Part Number	Dimension		Application Tooling	Mates With
		A	B		
8	1934949-1	15.35 .605	13.30 .524	*	1934947-1, 2065053-1, 2065305-1, 2065307-1, 1934948-1, 1934985-1, 2065738-1, 2065739-1
10	2065024-1	19.15 .754	17.10 .673	*	1934822-1, 2065309-1, 2065311-1, 2065027-1, 1934937-1, 2065025-1, 2065740-1, 2065741-1
16	1934973-1	30.70 1.210	28.50 1.122	*	2065054-1, 2065055-1, 2065329-1, 2065331-1, 1934986-1, 1934987-1, 2065748-1, 2065749-1

\* Custom tooling not required. Utilizes flat-rock insertion tooling. Reference Application Specification 114-13243.



**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

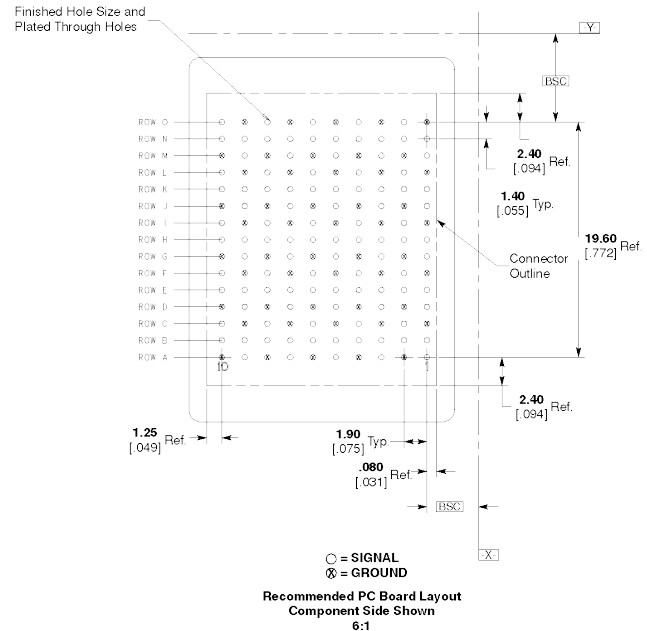
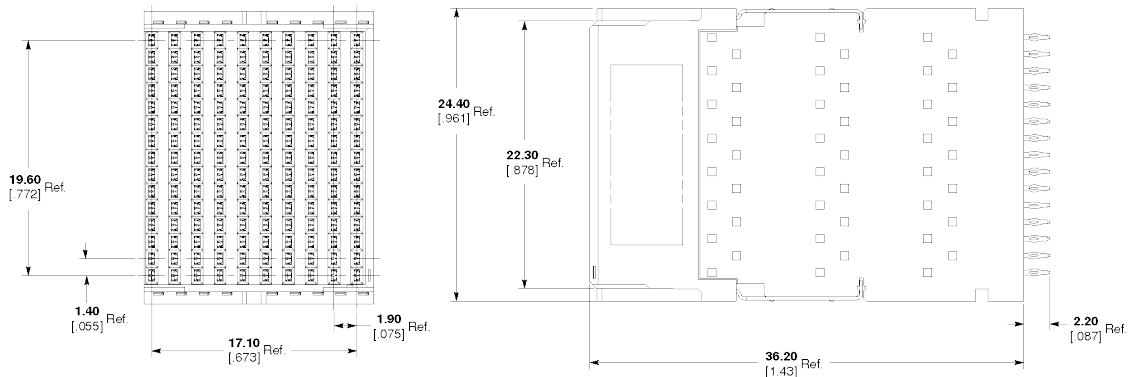
\* Finished Hole Diameter =  $0.46 \pm 0.05$  [018 ± 002]  
 Drilled Hole Diameter =  $0.55 \pm 0.02$  [022 ± 001]  
 Copper Thickness =  $0.038 \pm 0.013$  [0015 ± 0005]  
 Tin-Lead Thickness =  $0.008 \pm 0.004$  [0003 ± 0002]  
 Finishes other than Tin-Lead, See Appl. Spec. 114-13243

**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

### 5 Pair Vertical Receptacle Assemblies - 39 mm Stack Height Version (85 ohm)

Column	Part Number	Dimension		Application Tooling	Mates With
		A	B		
8	2065490-1	15.35 .605	13.30 .524	*	1934947-1, 2065053-1, 2065305-1, 2065307-1, 1934948-1, 1934985-1, 2065738-1, 2065739-1
10	2065599-1	19.15 .754	17.10 .673	*	1934822-1, 2065309-1, 2065311-1, 2065027-1, 1934937-1, 2065025-1, 2065740-1, 2065741-1
16	2065493-1	30.70 1.210	28.50 1.122	*	2065054-1, 2065055-1, 2065329-1, 2065331-1, 1934986-1, 1934987-1, 2065748-1, 2065749-1

\* Custom tooling not required. Utilizes flat-rock insertion tooling. Reference Application Specification 114-13243.



**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

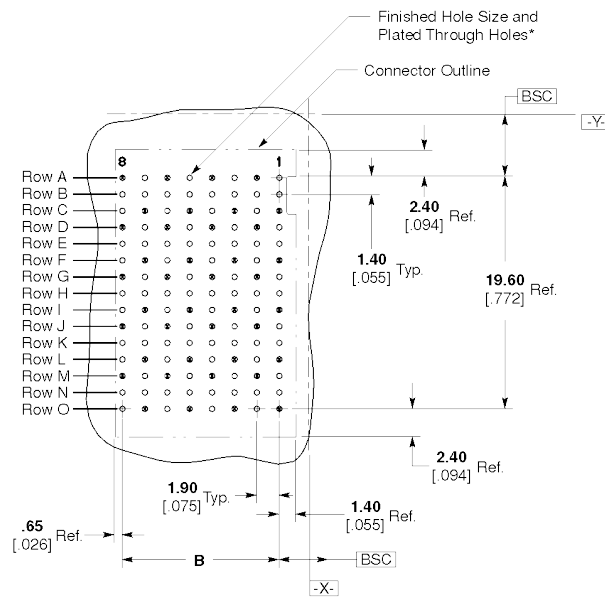
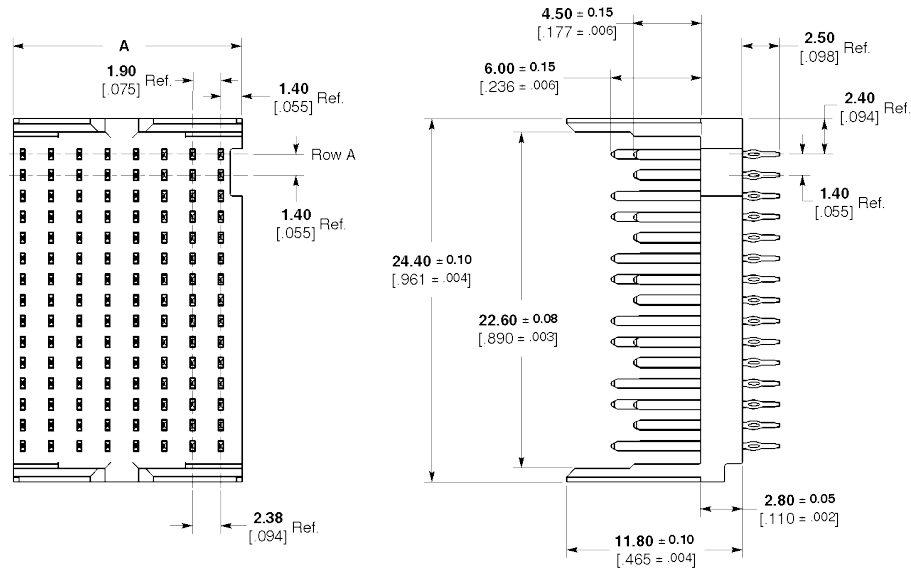
\* Finished Hole Diameter =  $0.46 \pm 0.05$  [0.018 ± 0.002]  
 Drilled Hole Diameter =  $0.55 \pm 0.02$  [0.022 ± 0.001]  
 Copper Thickness =  $0.038 \pm 0.013$  [0.0015 ± 0.0005]  
 Tin-Lead Thickness =  $0.008 \pm 0.004$  [0.0003 ± 0.0002]  
 Finishes other than Tin-Lead, See Appl. Spec. 114-13243

**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

### 5 Pair Vertical Header Assemblies (85 ohm)

Column	Part Number	Dimension		Application Tooling*	Mates With
		A	B		
8	1934985-1	15.35 .604	13.30 .524	1934957-1	1934954-1, 1934949-1, 2065490-1
10	1934937-1	19.15 .754	17.10 .673	1934957-2	1934932-1, 2065024-1, 2065599-1
16	1934987-1	30.55 1.203	28.50 1.122	1934957-4	2065042-1, 1934973-1, 2065493-1

\* Reference Application Specification 114-13243.



Recommended PC Board Layout Backplane Component Side Shown

**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

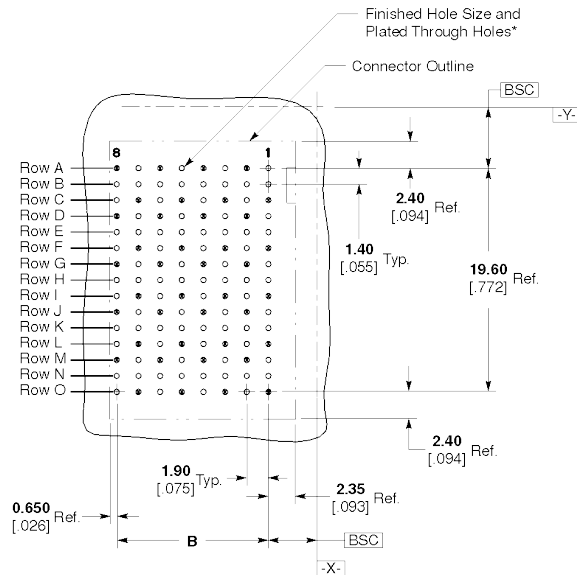
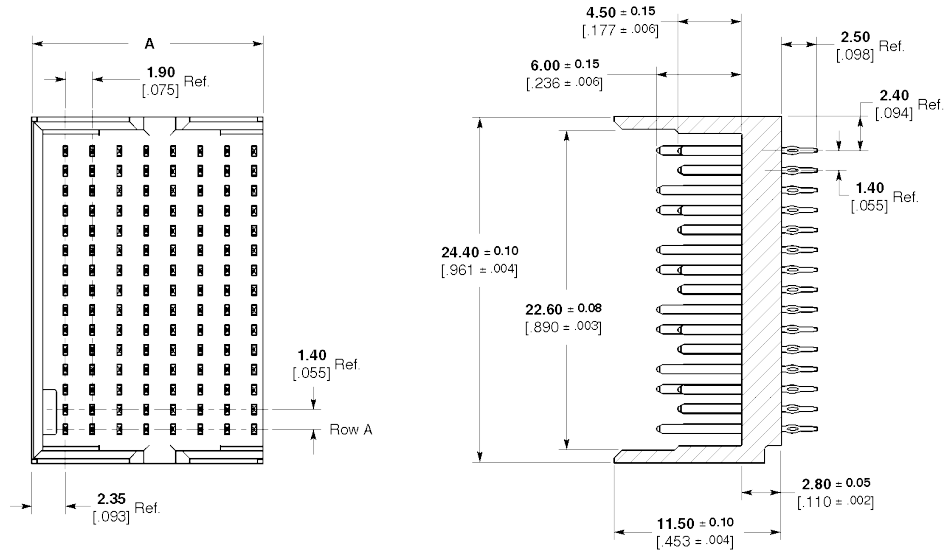
**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

\* Finished Hole Diameter =  $0.46 \pm 0.05$  [0.018 ± 0.002]  
 Drilled Hole Diameter =  $0.55 \pm 0.02$  [0.022 ± 0.001]  
 Copper Thickness =  $0.038 \pm 0.013$  [0.0015 ± 0.0005]  
 Tin-Lead Thickness =  $0.008 \pm 0.004$  [0.0003 ± 0.0002]  
 Finishes other than Tin-Lead, See Appl. Spec. 114-13243

### 5 Pair Vertical Header Assemblies - Left End Wall (85 ohm)

Column	Part Number	Dimension		Application Tooling*	Mates With
		A	B		
8	2065738-1	16.30 .642	13.30 .524	1934957-1	1934954-1, 1934949-1, 2065490-1
10	2065740-1	*	*	1934957-2	1934932-1, 2065024-1, 2065599-1
16	2065748-1	31.50 1.240	28.50 1.122	1934957-4	2065042-1, 1934973-1, 2065493-1

\* Reference Application Specification 114-13243.



Recommended PC Board Layout Backplane Component Side Shown

**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

\* Finished Hole Diameter =  $0.46 \pm 0.05$  [0.18 ± 0.002]  
 Drilled Hole Diameter =  $0.55 \pm 0.02$  [0.22 ± 0.001]  
 Copper Thickness =  $0.038 \pm 0.013$  [0.015 ± 0.0005]  
 Tin-Lead Thickness =  $0.008 \pm 0.004$  [0.003 ± 0.0002]  
 Finishes other than Tin-Lead, See Appl. Spec. 114-13243

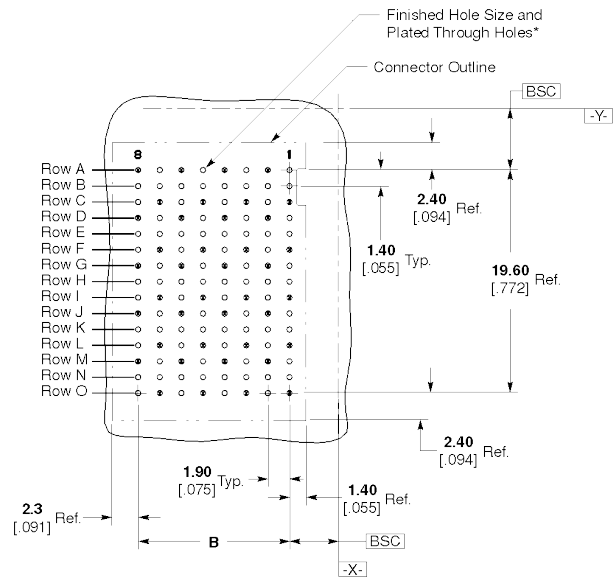
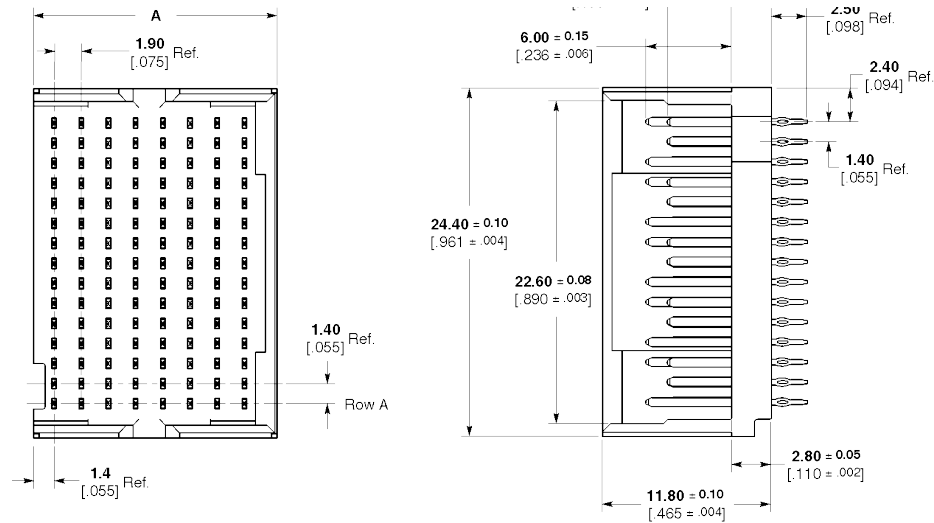
**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.



### 5 Pair Vertical Header Assemblies - Right Wall End (85 ohm)

Column	Part Number	Dimension		Application Tooling*	Mates With
		A	B		
8	2065739-1	17.00 .669	13.30 .524	1934957-1	1934954-1, 1934949-1, 2065490-1
10	2065741-1	*	*	1934957-2	1934932-1, 2065024-1, 2065599-1
16	2065749-1	32.20 1.268	28.50 1.122	1934957-4	2065042-1, 1934973-1, 2065493-1

\* Reference Application Specification 114-13243.



Recommended PC Board Layout  
Backplane  
Component Side Shown

**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

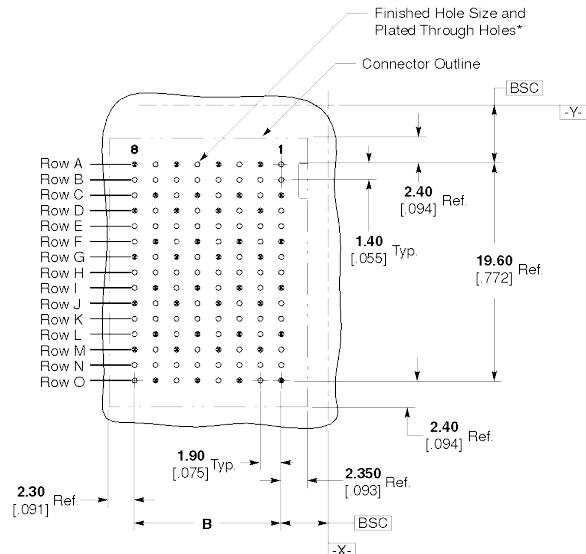
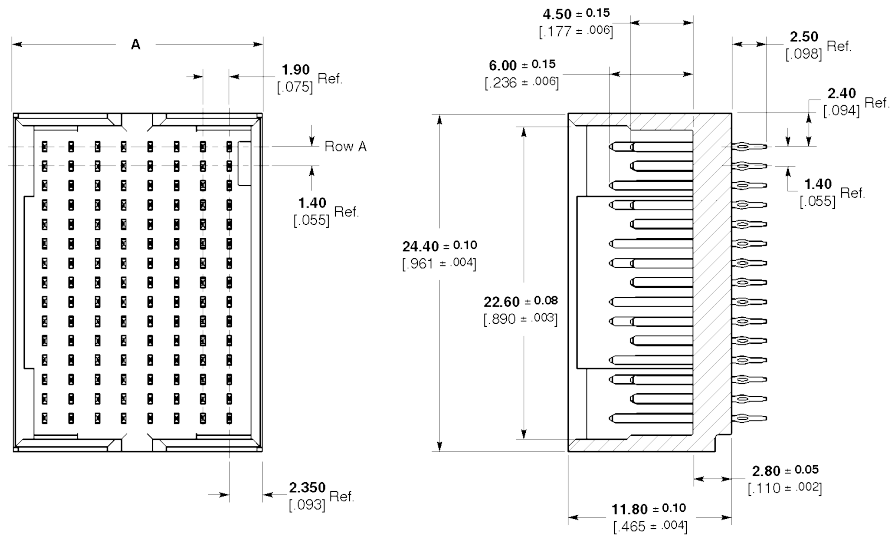
\* Finished Hole Diameter =  $0.46 \pm 0.05$  [0.18 ± 0.002]  
 Drilled Hole Diameter =  $0.55 \pm 0.02$  [0.22 ± 0.001]  
 Copper Thickness =  $0.038 \pm 0.013$  [0.015 ± 0.0005]  
 Tin-Lead Thickness =  $0.008 \pm 0.004$  [0.0003 ± 0.0002]  
 Finishes other than Tin-Lead, See Appl. Spec. 114-13243

**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

### 5 Pair Vertical Header Assemblies - Double Wall Ends (85 ohm)

Column	Part Number	Dimension		Application Tooling*	Mates With
		A	B		
8	1934948-1	17.95 .707	13.30 .524	1934957-1	1934954-1, 1934949-1, 2065490-1
10	2065025-1	21.75 .856	17.10 .673	1934957-2	1934932-1, 2065024-1, 2065599-1
16	1934986-1	33.15 1.305	28.50 1.122	1934957-4	2065042-1, 1934973-1, 2065493-1

\* Reference Application Specification 114-13243.



**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

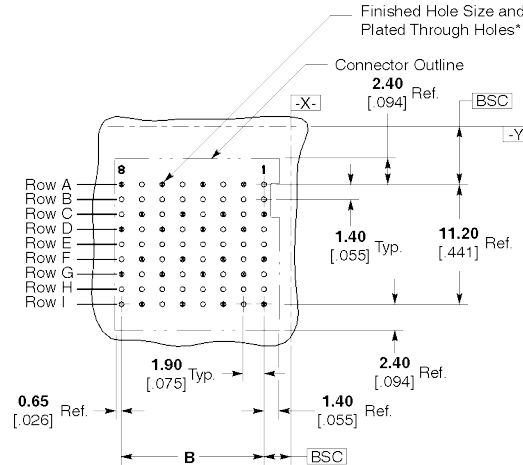
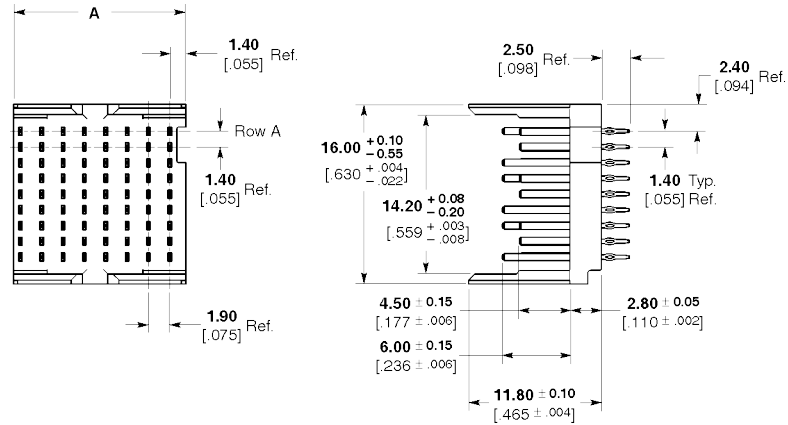
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 Finishes other than Tin-Lead, See Appl. Spec. 114-13243

**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

### 3 Pair Vertical Header Assemblies (85 ohm)

Column	Part Number	Dimension		Application Tooling*	Mates With
		A	B		
8	1934975-1	15.35 .604	13.30 .524	2018398-1	1934811-1, 1934968-1, 2065474-1
10	1934977-1	19.15 .754	17.10 .673	2018398-1	1934951-1, 1934969-1, 2065475-1
16	1934979-1	30.55 1.203	28.50 1.122	2018398-2	2065038-1, 1934970-1, 2065478-1

\* Reference Application Specification 114-13243.



Recommended PC Board Layout  
Component Side Shown

**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

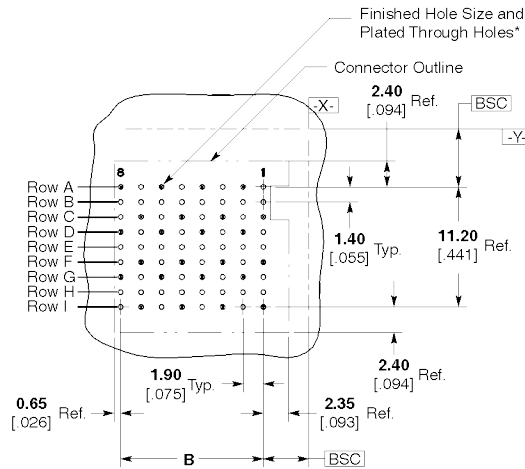
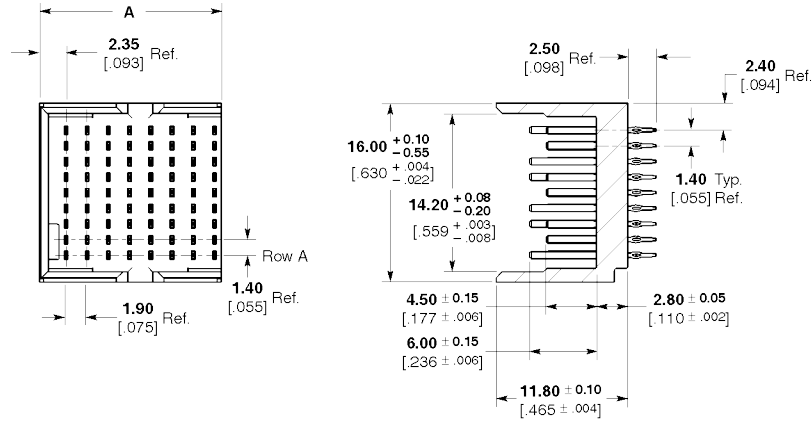
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 Finishes other than Tin-Lead, See Appl. Spec. 114-13243

**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

### 3 Pair Vertical Header Assemblies - Left End Wall (85 ohm)

Column	Part Number	Dimension		Application Tooling*	Mates With
		A	B		
8	2065704-1	16.30 .642	13.30 .524	2018398-1	1934811-1, 1934968-1, 2065474-1
10	2065706-1	20.10 .791	17.10 .673	2018398-2	1934951-1, 1934969-1, 2065475-1
16	2065716-1	31.50 1.240	28.50 1.122	2018398-3	2065038-1, 1934970-1, 2065478-1

\* Reference Application Specification 114-13243.



Recommended PC Board Layout  
Component Side Shown

**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

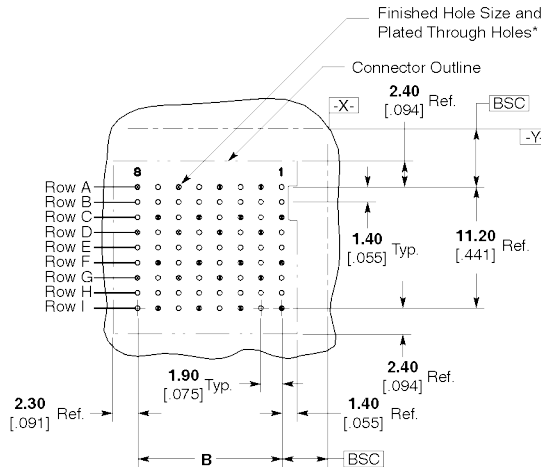
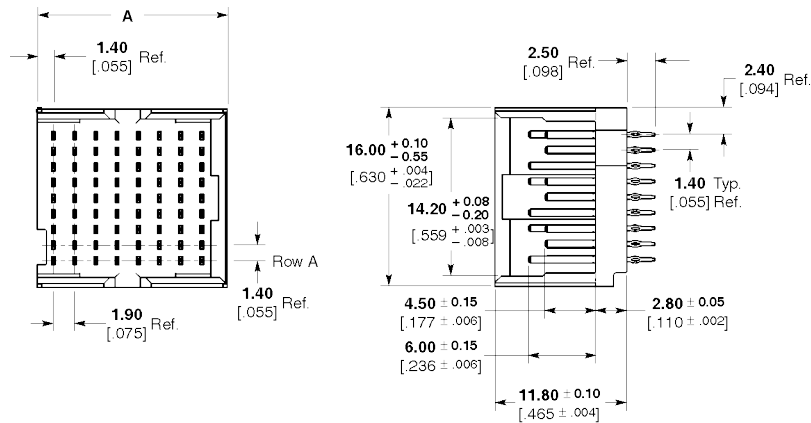
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 Drilled Hole Diameter =  $0.55 \pm 0.02$  [0.022 ± 0.001]  
 Copper Thickness =  $0.038 \pm 0.013$  [0.0015 ± 0.0005]  
 Tin-Lead Thickness =  $0.008 \pm 0.004$  [0.0003 ± 0.0002]  
 Finishes other than Tin-Lead, See Appl. Spec. 114-13243

**Note:** All part numbers are RoHS compliant.

### 3 Pair Verical Header Assemblies - Right End Wall (85 ohm)

Column	Part Number	Dimension		Application Tooling*	Mates With
		A	B		
8	2065705-1	17.00 .669	13.30 .524	2018398-1	1934811-1, 1934968-1, 2065474-1
10	2065707-1	20.08 .791	17.10 .673	2018398-2	1934951-1, 1934969-1, 2065475-1
16	2065717-1	32.20 1.268	28.50 1.122	2018398-3	2065038-1, 1934970-1, 2065478-1

\* Reference Application Specification 114-13243.



Recommended PC Board Layout  
Component Side Shown

**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

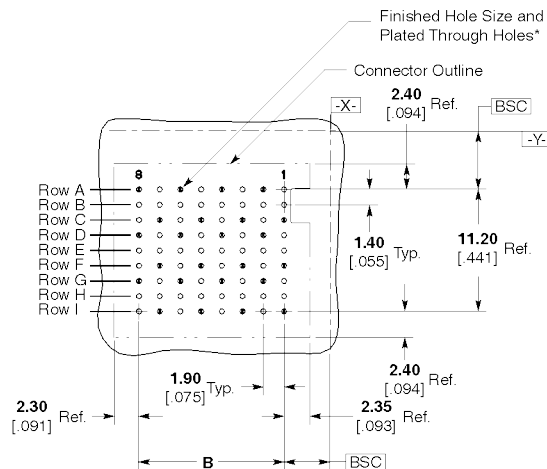
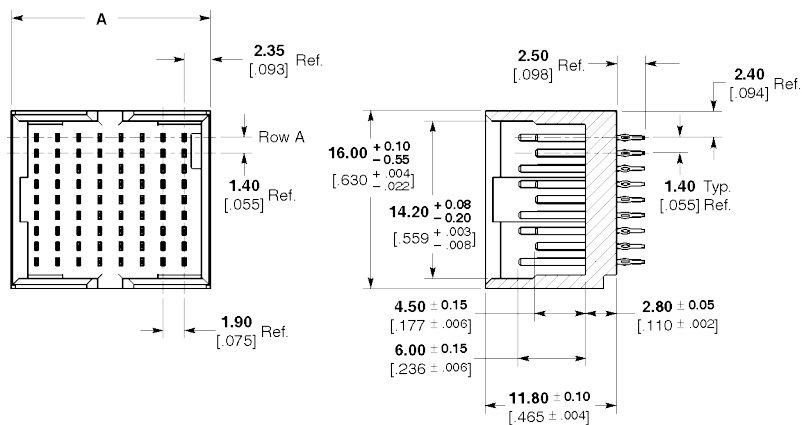
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 Tin-Lead Thickness =  $0.008 \pm 0.004$  [0.0003 ± 0.0002]  
 Finishes other than Tin-Lead, See Appl. Spec. 114-13243

**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

### 3 Pair Verical Header Assemblies - Double End Walls (85 ohm)

Column	Part Number	Dimension		Application Tooling*	Mates With
		A	B		
8	1934974-1	17.95 .707	13.30 .524	2018398-1	1934811-1, 1934968-1, 2065474-1
10	1934976-1	21.75 .856	17.10 .673	2018398-2	1934951-1, 1934969-1, 2065475-1
16	1934978-1	33.15 1.305	28.50 1.122	2018398-3	2065038-1, 1934970-1, 2065478-1

\* Reference Application Specification 114-13243.



Recommended PC Board Layout  
Component Side Shown

**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

\* Finished Hole Diameter =  $0.46 \pm 0.05$  [.018 ± .002]  
 Drilled Hole Diameter =  $0.55 \pm 0.02$  [.022 ± .001]  
 Copper Thickness =  $0.038 \pm 0.013$  [.0015 ± .0005]  
 Tin-Lead Thickness =  $0.008 \pm 0.004$  [.0003 ± .0002]  
 Finishes other than Tin-Lead, See Appl. Spec. 114-13243

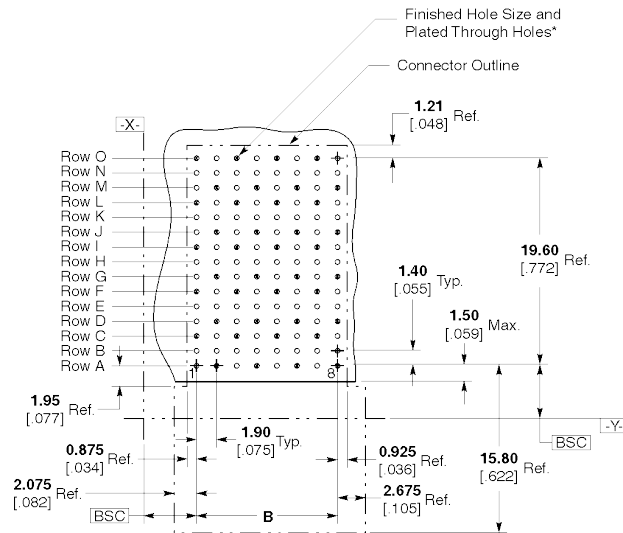
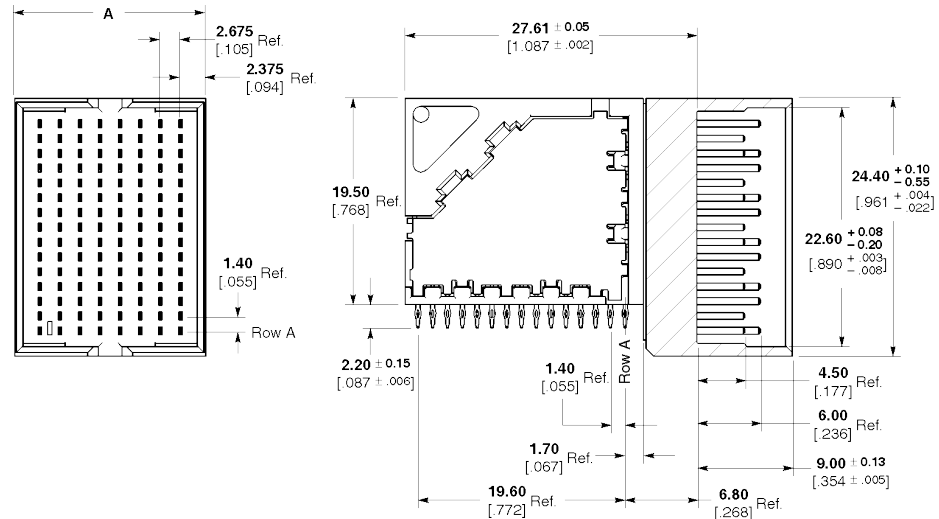
**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.



### 5 Pair Right Angle Pin Header Assemblies - Double End Walls (85 ohm)

Column	Part Number	Dimension		Application Tooling	Mates With
		A	B		
8	1934947-1	18.05 [.711]	13.30 [.524]	*	1934954-1, 1934949-1, 2065490-1
10	1934822-1	*	*	*	1934932-1, 2065024-1, 2065599-1
16	2065054-1	33.25 [1.309]	28.50 [1.122]	*	2065042-1, 1934973-1, 2065493-1

\* Custom tooling not required. Utilizes flat-rock insertion tooling.  
Reference Application Specification 114-13243.



Recommended PC Board Layout Component Side Shown

**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

\* Finished Hole Diameter =  $0.46 \pm 0.05$  [0.18 ± .002]  
 Drilled Hole Diameter =  $0.55 \pm 0.02$  [0.22 ± .001]  
 Copper Thickness =  $0.038 \pm 0.013$  [0.015 ± .0005]  
 Tin-Lead Thickness =  $0.008 \pm 0.004$  [0.0003 ± .0002]  
 Finishes other than Tin-Lead, See Appl. Spec. 114-13243

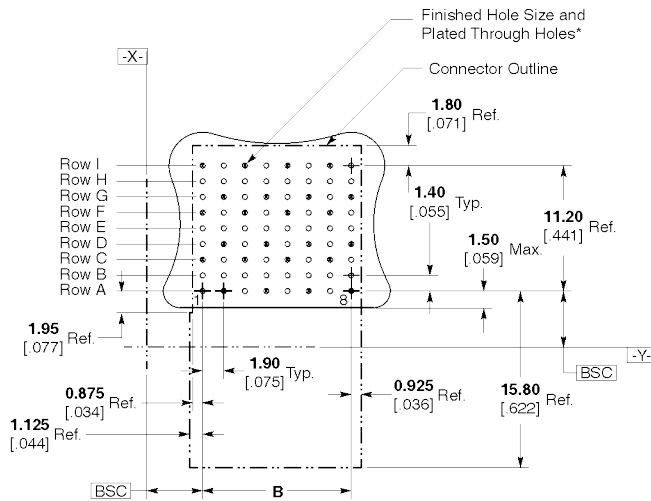
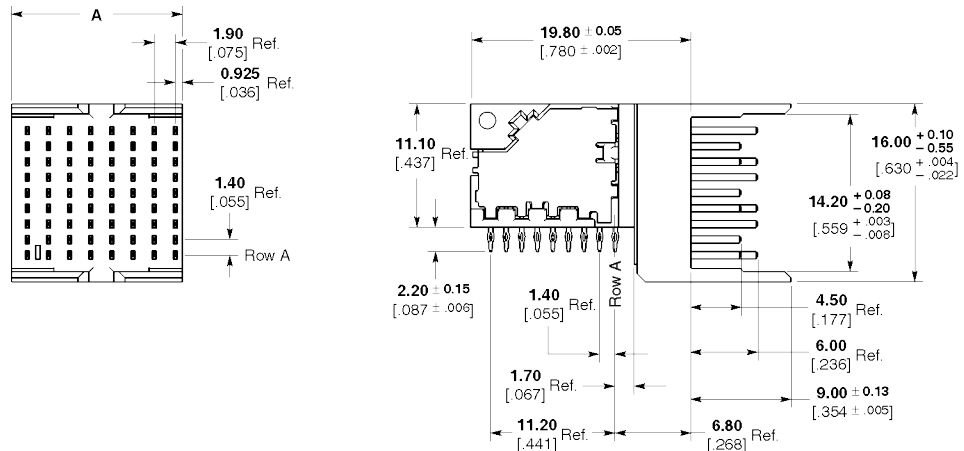
**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.



### 3 Pair Right Angle Pin Header Assemblies (85 ohm)

Column	Part Number	Dimension		Application Tooling	Mates With
		A	B		
8	2065043-1	15.35 .604	13.30 .524	*	1934811-1, 1934968-1, 2065474-1
10	2065044-1	19.15 .754	17.10 .673	*	1934951-1, 1934969-1, 2065475-1
16	2065046-1	30.55 1.203	28.50 1.122	*	2065038-1, 1934970-1, 2065478-1

\* Custom tooling not required. Utilizes flat-rock insertion tooling.  
Reference Application Specification 114-13243.



Recommended PC Board Layout  
Component Side Shown

**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

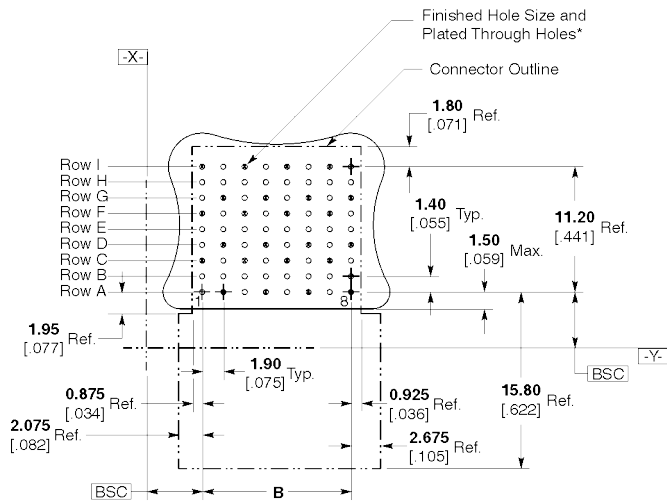
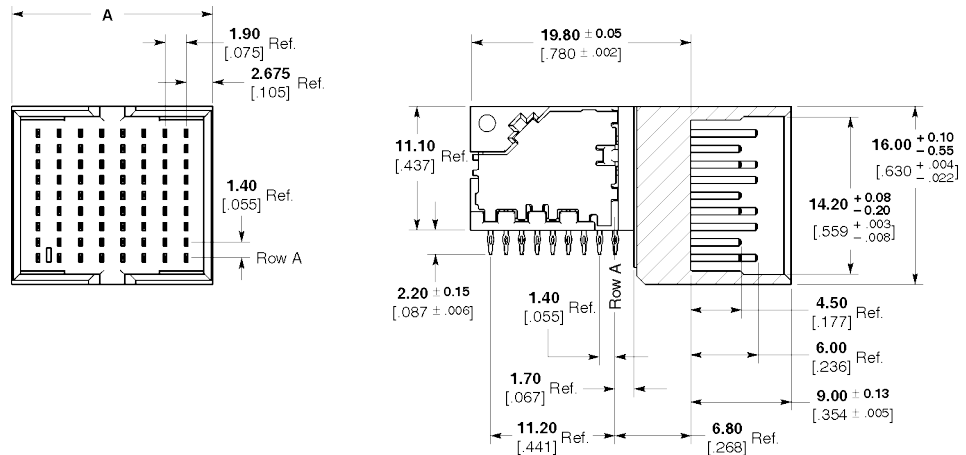
\* Finished Hole Diameter =  $0.46 \pm 0.05$  [.018 ± .002]  
 Drilled Hole Diameter =  $0.55 \pm 0.02$  [.022 ± .001]  
 Copper Thickness =  $0.038 \pm 0.013$  [.0015 ± .0005]  
 Tin-Lead Thickness =  $0.008 \pm 0.004$  [.0003 ± .0002]  
 Finishes other than Tin-Lead, See Appl. Spec. 114-13243

**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

### 3 Pair Right Angle Pin Header Assemblies - Double End Walls (85 ohm)

Column	Part Number	Dimension		Application Tooling	Mates With
		A	B		
8	1934806-1	18.05 .711	13.30 .524	*	1934811-1, 1934968-1, 2065474-1
10	1934950-1	21.85 .860	17.10 .673	*	1934951-1, 1934969-1, 2065475-1
16	2065045-1	33.25 1.309	28.50 1.122	*	2065038-1, 1934970-1, 2065478-1

\* Custom tooling not required. Utilizes flat-rock insertion tooling.  
Reference Application Specification 114-13243.



Recommended PC Board Layout  
Component Side Shown

**Note:** For additional information on pcb routing guidelines, reference the Z-PACK TinMan Connector Routing Guide Report #27GC001-1.

\* Finished Hole Diameter =  $0.46 \pm 0.05$  [.018 ± .002]  
Drilled Hole Diameter =  $0.55 \pm 0.02$  [.022 ± .001]  
Copper Thickness =  $0.038 \pm 0.013$  [.0015 ± .0005]  
Tin-Lead Thickness =  $0.008 \pm 0.004$  [.0003 ± .0002]  
Finishes other than Tin-Lead, See Appl. Spec. 114-13243

**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

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**Note:** All part numbers are RoHS compliant.

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