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# 4

## Z-PACK HS3 Connector

## Z-PACK HS3 Connector (Continued)

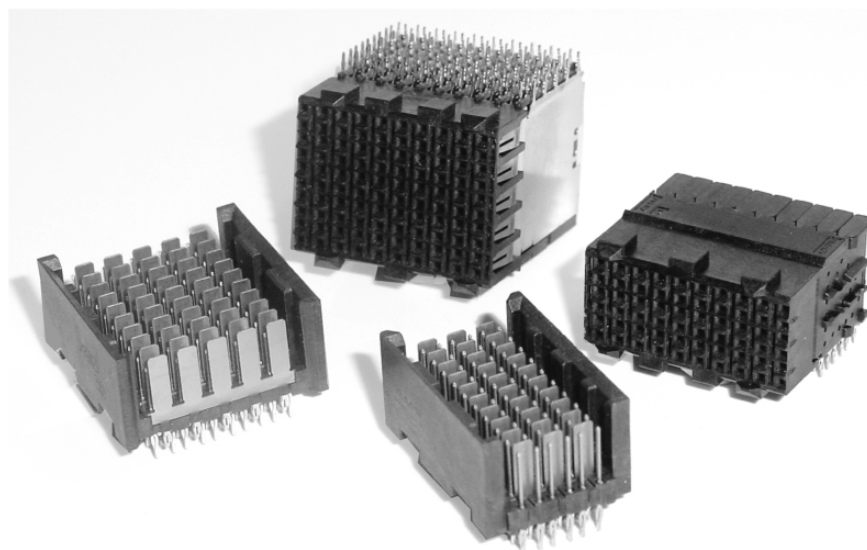
### Product Line Overview

#### Product Facts

- High speed, high density two piece board-to-board backplane connector
- Dual beam provides redundant contact for improved reliability
- For data rates of 6.2+ Gb/s
- 10 row, 100 high speed lines per 25.00 [.984]
- 6 row, 60 high speed lines per 25.00 [.984]
- Controlled impedance: 50 ohm Single Ended 100 ohm Differential
- Feedthrough versions for midplane applications
- 250 mating cycles
- End stackable on 2.50 [.098] centerline, signal pin to signal pin
- Advanced ESD/Power (10 Amps) using optional guide pins and power contacts

#### Applications

- High Speed Telecommunications Equipment
- Mid-range and high-end services
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476



The emergence of high speed serial backplanes has forced interconnections to be able to transfer data at gigabit speeds.

The Z-PACK HS3 connector system has been specifically designed to support this generation of high speed serial data transfer. Tyco Electronics has incorporated a controlled impedance microstrip path through the connector to minimize signal degradation and

crosstalk. Compliant pins are used on both daughter-card and backplane.

This connector family is press fit and is compatible with other Z-PACK HM family connectors on the same board edge. Z-PACK HS3 connectors support data rates of 6.2+ Gb/s per differential pair. The 6 row version is optimized for 20.32mm or 0.8 inch card centerline applications, while the 10 row version is

optimized for high density for 25.4mm or 1.0 inch card centerline applications.

The Tyco Electronics Universal Power Module (UPM) is designed to be compatible with the Z-PACK HS3 connector.

Static Discharge Guide/Power Pins, Guide Pin/Power Receptacles, Universal Guide Pin and Receptacles, and Coding Keys (10 row only) are also available.

#### Availability

**Fully validated SPICE models:** E-mail requests to [modeling@tycoelectronics.com](mailto:modeling@tycoelectronics.com)

**Samples:** go to <http://tycoelectronics.custhelp.com>

**Pro/E models and IGES models:** E-mail requests to [TycCAD@tycoelectronics.com](mailto:TycCAD@tycoelectronics.com)

**White Papers:** available on product website at <http://hs3.tycoelectronics.com>

**Electrical Performance Report:** <http://hs3.tycoelectronics.com>  
6 row EPR #138505; 10 row EPR #138506

**Routing Guide:** <http://hs3.tycoelectronics.com>  
Routing Guide #20GC017

<http://hs3.tycoelectronics.com>

#### Technical Documents

##### Product Specification

108-1957

##### Application Specification

114-13020

##### Qualification Test Report

501-501

#### Material and Finish

**Contact Area Finish** — 0.80µm Au min. over 1.3µm Ni min.

**Compliant Pin Finish** — 0.8µm SnPb min. over 1.3µm Ni min.

**Contact** — Copper Alloy

**Housing** — Glass filled polyester, 94V-0 rated

#### Ratings

**Current** — 1.15A per fully energized

**Operating Voltage** — 250 VAC max.

**Temperature** — -65°C to 105°C

**Mating Force** — 0.75N max. per contact (signal = 1 contact, ground = 1 contact)

**Durability** — 250 cycles

\* Reference Product Spec. 108-1957 for complete list of performance data.

IGES is a trademark of IAMBA Networks, Inc.

PRO/E is a trademark of Parametric Technology Corp.

## Z-PACK HS3 Connector (Continued)

### Performance Specifications

#### Electrical Characteristics

**Characteristic Impedance** —  
100 ± 10% Ohms

**Nominal Resistance** — 21 mOhm

**Crosstalk** — See table at right

**Insertion Loss** — See chart below

#### Asynchronous Diff. NEXT (%)

| Edge rate 20-80%   | HS3 10-Row Measured Noise Totals |        |        |        |
|--------------------|----------------------------------|--------|--------|--------|
|                    | 50 ps                            | 100 ps | 150 ps | 250 ps |
| BC Pair Total NEXT | 2.3%                             | 1.9%   | 1.7%   | 1.3%   |
| DE Pair Total NEXT | 4.0%                             | 3.3%   | 3.0%   | 2.4%   |
| FG Pair Total NEXT | 4.0%                             | 3.4%   | 3.1%   | 2.7%   |
| HJ Pair Total NEXT | 2.3%                             | 1.9%   | 1.7%   | 1.5%   |

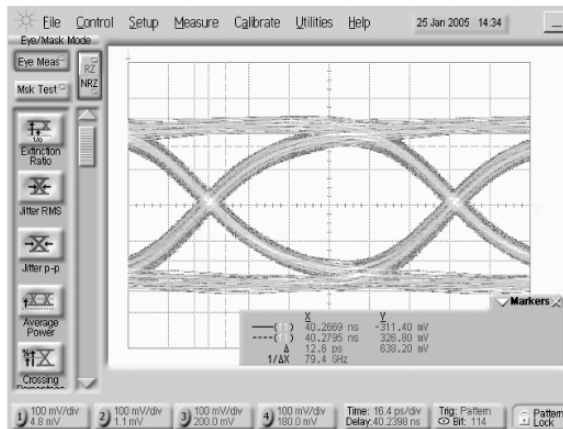
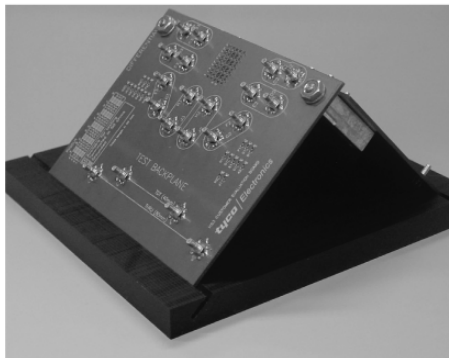
#### Synchronous Diff. NEXT (%)

| Edge rate 20-80%   | HS3 10-Row Measured Noise Totals |        |        |        |
|--------------------|----------------------------------|--------|--------|--------|
|                    | 50 ps                            | 100 ps | 150 ps | 250 ps |
| BC Pair Total FEXT | 0.5%                             | 0.3%   | 0.3%   | 0.2%   |
| DE Pair Total FEXT | 1.5%                             | 0.8%   | 0.5%   | 0.5%   |
| FG Pair Total FEXT | 1.4%                             | 0.8%   | 0.7%   | 0.5%   |
| HJ Pair Total FEXT | 1.0%                             | 0.6%   | 0.4%   | 0.3%   |

Edge rates specified are at the connector.

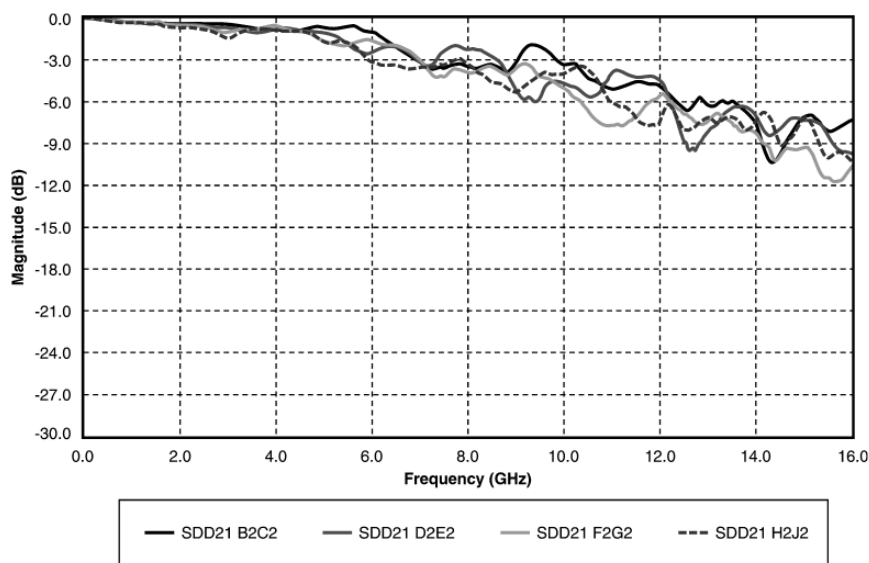
Noise includes 1.60 [.063] footprints on both sides of the connector.

Totals include contributions from 8 adjacent aggressor pairs.



**PRBS 2<sup>1</sup>-1 data pattern**  
**10 Gb/s data rate**  
**BC Pair**  
**64% Eye Opening**  
**12.6ps Jitter**

**4**  
Z-PACK HS3 Connector



Calibrated to include only the connector and the 1.60 [.063] footprints on both sides of the connector.

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

## Z-PACK HS3 Connector (Continued)

### Z-PACK HS3 Connector: Printed Circuit Design Rules for Backplane Routing

#### Using Standard Commercial Design Rules

This table lists routing specifications which meet design rules practiced by most printed circuit board vendors. This table should be used to route the Z-PACK HS3 connector for most applications and especially under one or more of these considerations:

1. Edge rates require the widest conductors possible.
2. Backplanes having layer counts above 16.
3. Backplanes which exceed 508mm (20") in length or width.
4. Cost is a major factor.

| Finished Hole Dia. | Drilled Hole Dia. | Pad Dia.          | Annular Ring         | Pad-Pad Spacing<br>63 mils (1.58mm) C/C | Conductor Routing Options |                    |
|--------------------|-------------------|-------------------|----------------------|-----------------------------------------|---------------------------|--------------------|
|                    |                   |                   |                      |                                         | 5 mil spacing             | 6 mil spacing      |
| 24 mils<br>0.6mm   | 28 mils<br>0.7mm  | 44 mils<br>1.1mm  | 2 mils<br>0.05mm     | 19 mils<br>0.475mm                      | 9 mils<br>0.225mm         | 7 mils<br>0.175mm  |
| 24 mils<br>0.6mm   | 28 mils<br>0.7mm  | 42 mils<br>1.05mm | 1 mil<br>0.025mm     | 21 mils<br>0.525mm                      | 11 mils<br>0.275mm        | 9 mils<br>0.225mm  |
| 24 mils<br>0.6mm   | 28 mils<br>0.7mm  | 40 mils<br>1.0mm  | tangency<br>tangency | 23 mils<br>0.575mm                      | 13 mils<br>0.325mm        | 11 mils<br>0.275mm |

#### Commercial Design Rules:

Minimum pad diameter for tangency: Drill Diameter (D)+12 mils (0.3mm)

Hole location tolerance: +/- 3 mils (0.075mm)

Pad/Pad artwork tolerance: +/- 2 mils (0.05mm)

Feature tolerance (1 oz foil): +/- 0.075 mils (0.0175mm)

#### Using Advanced Design Rules

This table lists routing specifications which can be built by a limited number of leading edge printed circuit vendors using advanced design rules. This table can be used as a reference for Z-PACK HS3 connector in backplane applications where very high density is a major factor. The PCB vendor should be consulted regarding applicability of these rules to a specific design. Consideration should be given to the following:

1. Signal layer count reduction is possible with these design rules.
2. Backplanes which exceed 508mm (20") in length or width generally cannot be built with these rules.
3. Cost factors can potentially be higher.

| Finished Hole Dia.           | Drilled Hole Dia. | Pad Dia.          | Annular Ring         | Pad-Pad Spacing<br>63 mil (1.58mm) C/C | Conductor Routing Options                                  |                  |
|------------------------------|-------------------|-------------------|----------------------|----------------------------------------|------------------------------------------------------------|------------------|
|                              |                   |                   |                      |                                        | 5 mil spacing                                              | 6 mil spacing    |
| 24 mils<br>0.6mm             | 28 mils<br>0.7mm  | 38 mils<br>0.95mm | tangency<br>tangency | 25 mils<br>0.625mm                     | 15 mils<br>0.35mm                                          | 13 mils<br>0.3mm |
| <b>Two Conductor Routing</b> |                   |                   |                      |                                        |                                                            |                  |
| 24 mils<br>0.6mm             | 28 mils<br>0.7mm  | 42 mils<br>1.05mm | 2 mils<br>0.05mm     | 21 mils<br>0.525mm                     | 4.5 mil lines/4 mil spacing<br>0.11mm lines/0.09mm spacing |                  |
| 24 mils<br>0.6mm             | 28 mils<br>0.7mm  | 40 mils<br>1.0mm  | 1 mil<br>0.025mm     | 23 mils<br>0.575mm                     | 5.5 mil lines/4 mil spacing<br>0.125mm lines/0.1mm spacing |                  |

#### Advanced Design Rules:

Minimum pad diameter for tangency: Drill Diameter (D)+10 mils (0.25mm)

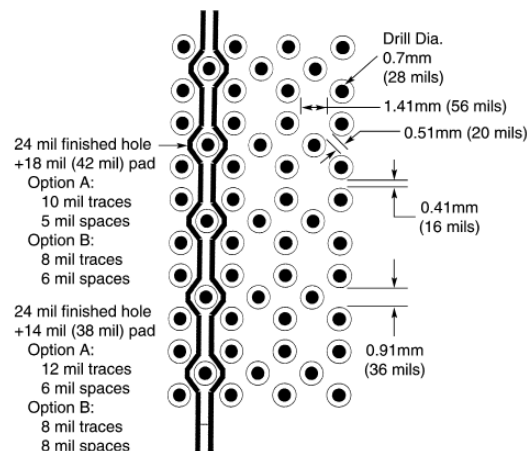
Hole location tolerance: +/- 2 mils (0.05mm)

Pad/Pad artwork tolerance: +/- 2 mils (0.05mm)

Feature tolerance (1 oz foil): +/- 0.075 mils (0.0175mm)

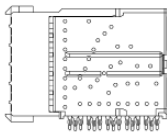
### Z-PACK HS3 Connector Routing Pattern

For more details request  
Report #20GC004-1  
or visit  
[http://www.tycoelectronics.com/  
products/simulation/files/  
papers/20GC004\\_1.pdf](http://www.tycoelectronics.com/products/simulation/files/papers/20GC004_1.pdf)

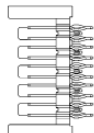


## Z-PACK HS3 Connector (Continued)

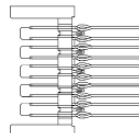
### Part Number Selection Chart 10 Row Z-PACK HS3 Connector



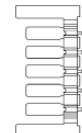
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**Right Receptacle**  
**Univ Pwr Guide Pin**



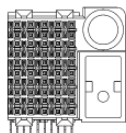
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**50 Position**  
**Right Header**  
**Univ Pwr Guide Pin**



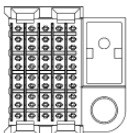
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**50 Position**  
**Right Feed-Through**  
**ESD/HDI Guide Pin**



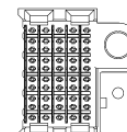
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**Right Shroud**  
**ESD/HDI Guide Pin**



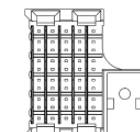
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**Right Receptacle**  
**ESD/HDI Guide Pin**



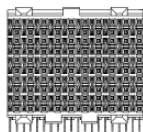
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**Right Header**  
**ESD/HDI Guide Pin**



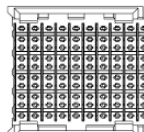
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**100 Position**  
**Center Feed-Through**



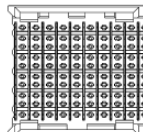
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**100 Position**  
**Center Shroud**



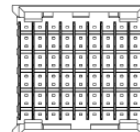
**Part Number 5120790**  
**100 Position**  
**Center Receptacle**



**Part Number 5120658**  
**100 Position**  
**Center Header**



**Part Number 5120748**  
**50 Position**  
**Center Feed-Through**



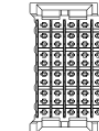
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**Center Shroud**



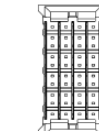
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**50 Position**  
**Center Receptacle**



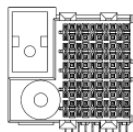
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**Center Header**



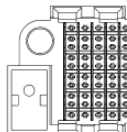
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**50 Position**  
**Left Feed-Through**  
**ESD/HDI Guide Pin**



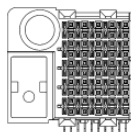
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**Left Shroud**  
**ESD/HDI Guide Pin**



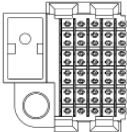
**Part Number 5120793**  
**50 Position**  
**Left Receptacle**  
**ESD/HDI Guide Pin**



**Part Number 5120662**  
**50 Position**  
**Left Header**  
**ESD/HDI Guide Pin**



**Part Number 5120875**  
**50 Position**  
**Left Receptacle**  
**Univ Pwr Guide Pin**

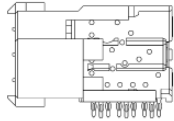


**Part Number 5120672**  
**50 Position**  
**Left Header**  
**Univ Pwr Guide Pin**

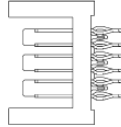
**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

## Z-PACK HS3 Connector (Continued)

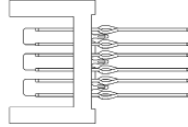
### Part Number Selection Chart 6 Row Z-PACK HS3 Connector



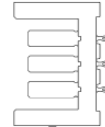
**Part Number 5120788**  
30 Position  
Right Receptacle



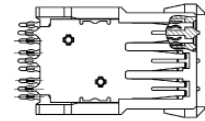
**Part Number 5120677**  
30 Position  
Right Header



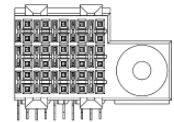
**Part Number 5120680**  
30 Position  
Right Header  
Feed-Through



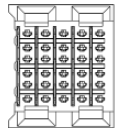
**Part Number 5120683**  
30 Position  
Right Shroud



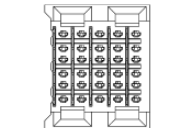
**Part Number 120949-1**  
60 Position  
Receptacle  
with Guide Module



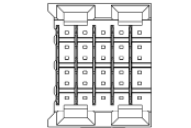
**Part Number 5120786**  
60 Position  
Center Receptacle



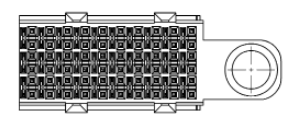
**Part Number 5120674**  
60 Position  
Center Header



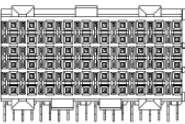
**Part Number 5120679**  
60 Position  
Center Header  
Feed-Through



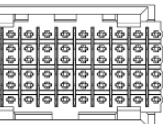
**Part Number 5120682**  
60 Position  
Center Shroud



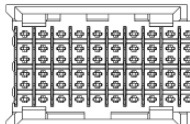
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90 Position  
Receptacle



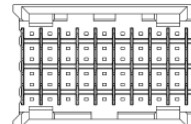
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30 Position  
Center Receptacle



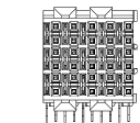
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30 Position  
Center Header



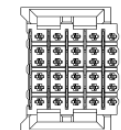
**Part Number 5120742**  
30 Position  
Center Header  
Feed-Through



**Part Number 5120743**  
30 Position  
Center Shroud



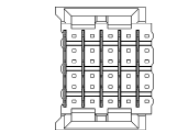
**Part Number 5120789**  
30 Position  
Left Receptacle



**Part Number 5120678**  
30 Position  
Left Header



**Part Number 5120681**  
30 Position  
Left Header  
Feed-Through

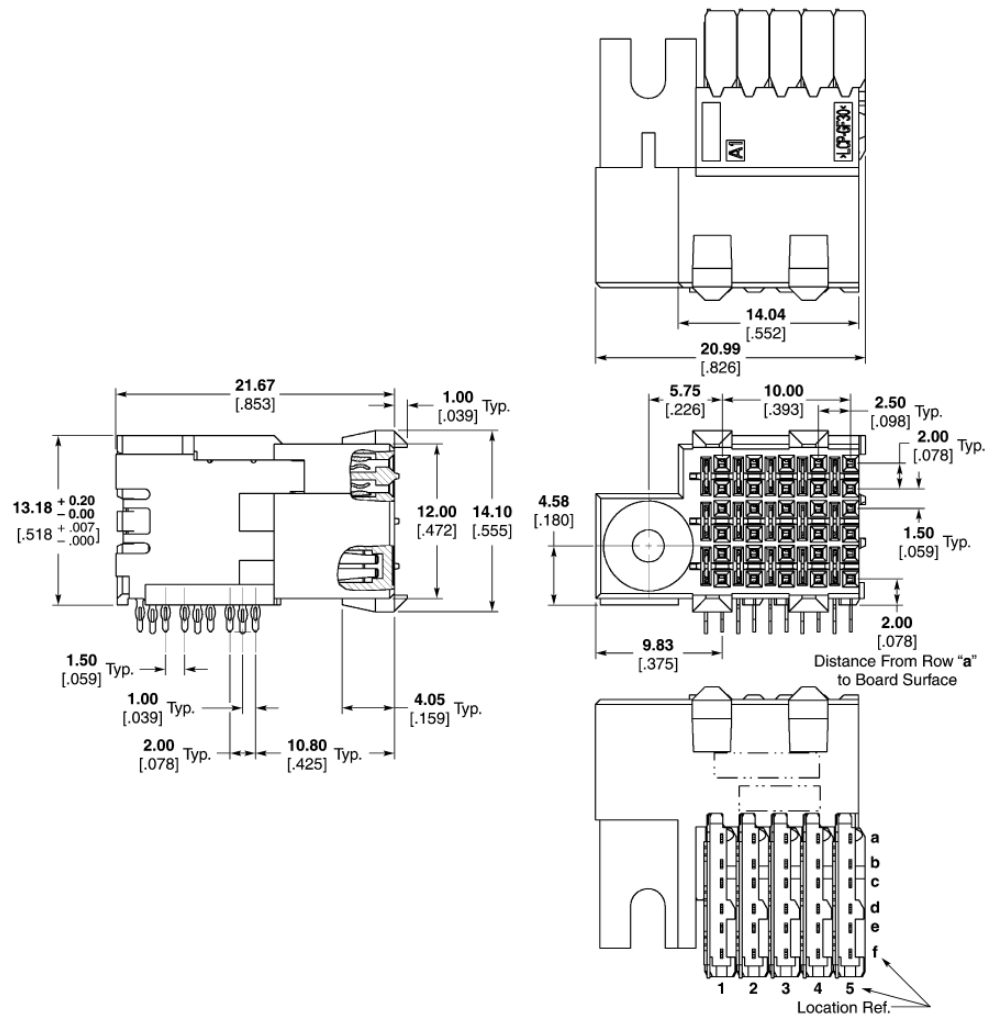


**Part Number 5120684**  
30 Position  
Left Shroud

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

## Z-PACK HS3 Connector (Continued)

### Right Angle Receptacle 6 Row, Left Module (ac- cepts ESD Guide Pin)



### Pin Header Assemblies

| Number of Positions | Part Number | Application Tooling |          |             |          |                 |          |
|---------------------|-------------|---------------------|----------|-------------|----------|-----------------|----------|
|                     |             | Insertion           | IS Sheet | Hsg Removal | IS Sheet | Chiclet Removal | IS Sheet |
| 30                  | 5120789-1   | 1338742-1           | 408-8394 | 1338744-1   | 408-8393 | 1338745-1       | 408-8410 |

### P.C.B. Hole Dimensions

**Drilled Hole** — 0.7±0.025mm

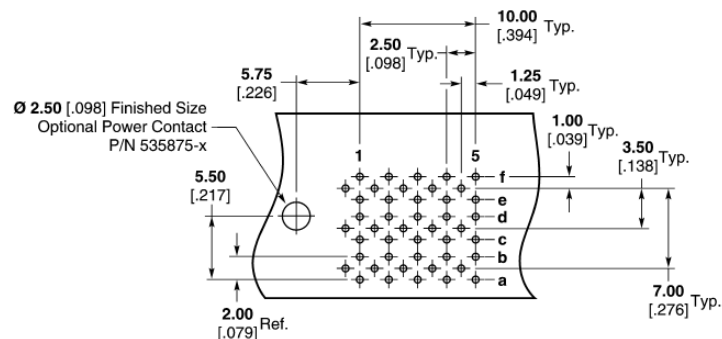
**Fin. Hole** — 0.55 to 0.65mm

**Cu-thickness** — 0.025 to 0.050mm

**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.

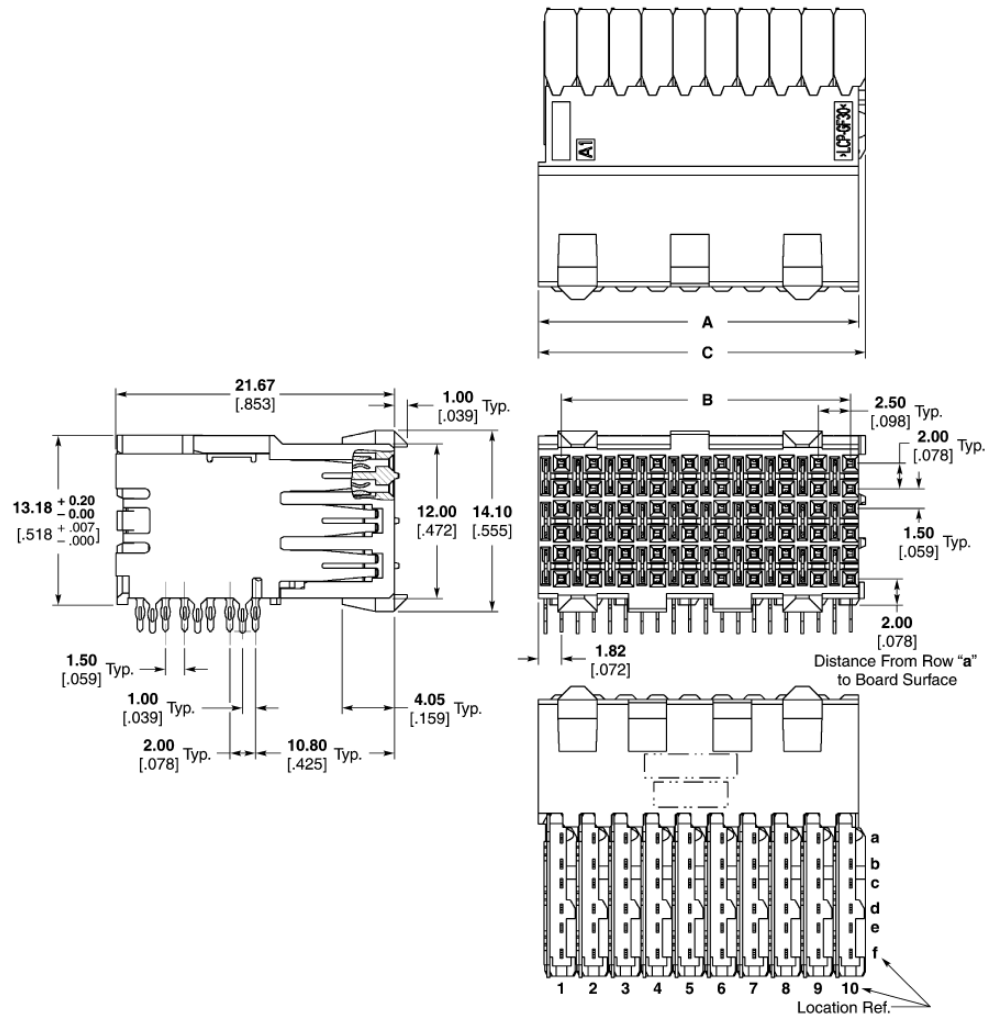
**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.



**Recommended PC Board Layout  
(Component Side Shown)**

## Z-PACK HS3 Connector (Continued)

### Right Angle Receptacle (Continued) 6 Row, Center Module



### Pin Header Assemblies

| Number of Positions | Dimensions    |               |               | Part Number | Application Tooling |          |             |          |                 |          |
|---------------------|---------------|---------------|---------------|-------------|---------------------|----------|-------------|----------|-----------------|----------|
|                     | A             | B             | C             |             | Insertion           | IS Sheet | Hsg Removal | IS Sheet | Chiclet Removal | IS Sheet |
| 60                  | 24.88<br>.980 | 22.50<br>.886 | 25.40<br>1.00 | 5120786-1   | 1338742-2           | 408-8394 | 1338744-1   | 408-8393 | 1338745-1       | 408-8410 |
| 30                  | 12.38<br>.487 | 10.00<br>.394 | 12.90<br>.508 | 5120787-1   | 1338742-1           | 408-8394 | 1338744-1   | 408-8393 | 1338745-1       | 408-8410 |

### P.C.B. Hole Dimensions

**Drilled Hole** — 0.7±0.025mm

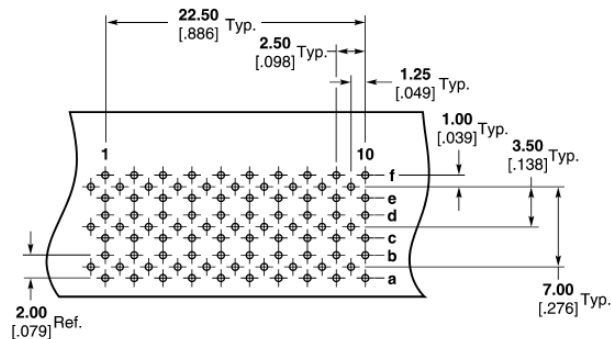
**Fin. Hole** — 0.55 to 0.65mm

**Cu-thickness** — 0.025 to 0.050mm

**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.

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



**Recommended PC Board Layout  
(Component Side Shown)**

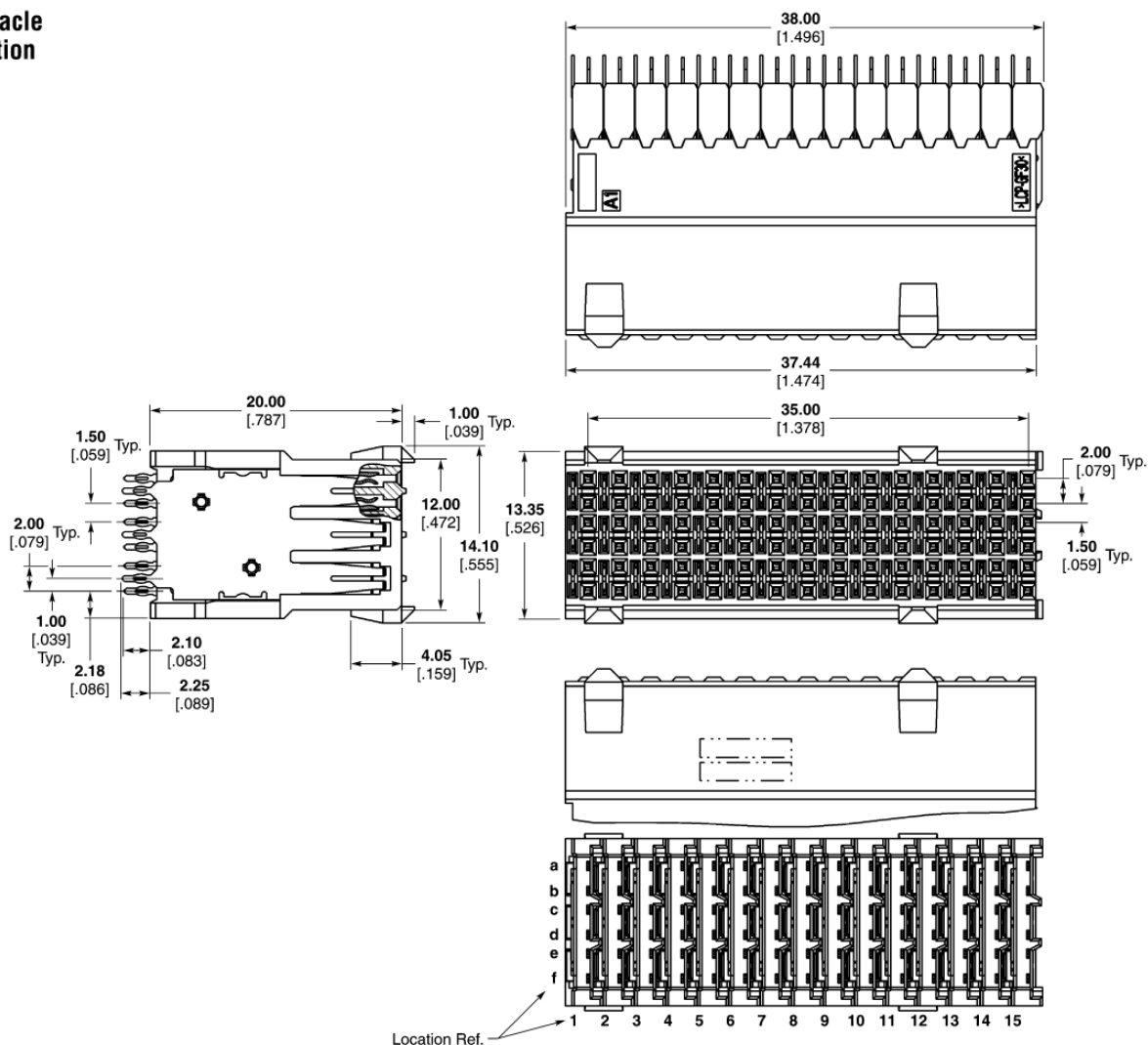
**6 Row, Right Module  
(accepts ESD Guide Pin)**



| Number of Positions | Part Number | Application Tooling |          |             |          |                 |          |
|---------------------|-------------|---------------------|----------|-------------|----------|-----------------|----------|
|                     |             | Insertion           | IS Sheet | Hsg Removal | IS Sheet | Chiclet Removal | IS Sheet |
| 30                  | 5120788-1   | 1338742-1           | 408-8394 | 1338744-1   | 408-8393 | 1338745-1       | 408-8410 |

## Z-PACK HS3 Connector (Continued)

### Vertical Receptacle 6 Row, 90 Position



| Number of Positions | Part Number | Application Tooling |          |             |          |                 |          |
|---------------------|-------------|---------------------|----------|-------------|----------|-----------------|----------|
|                     |             | Insertion           | IS Sheet | Hsg Removal | IS Sheet | Chiclet Removal | IS Sheet |
| 90                  | 120948-1    | 1725624-1           | 408-8870 | —           | —        | —               | —        |

### P.C.B. Hole Dimensions

**Drilled Hole** — 0.7±0.025mm

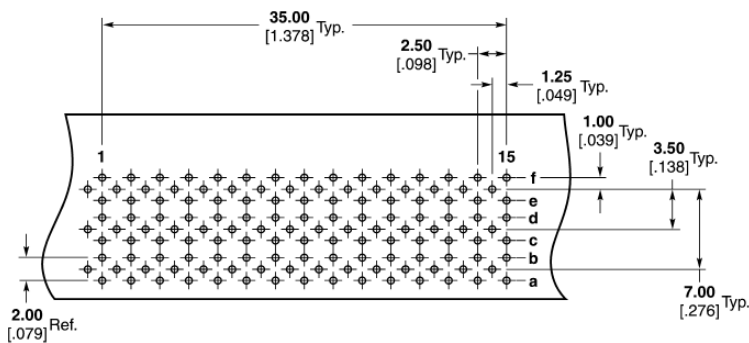
**Fin. Hole** — 0.55 to 0.65mm

**Cu-thickness** — 0.025 to 0.050mm

**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.

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



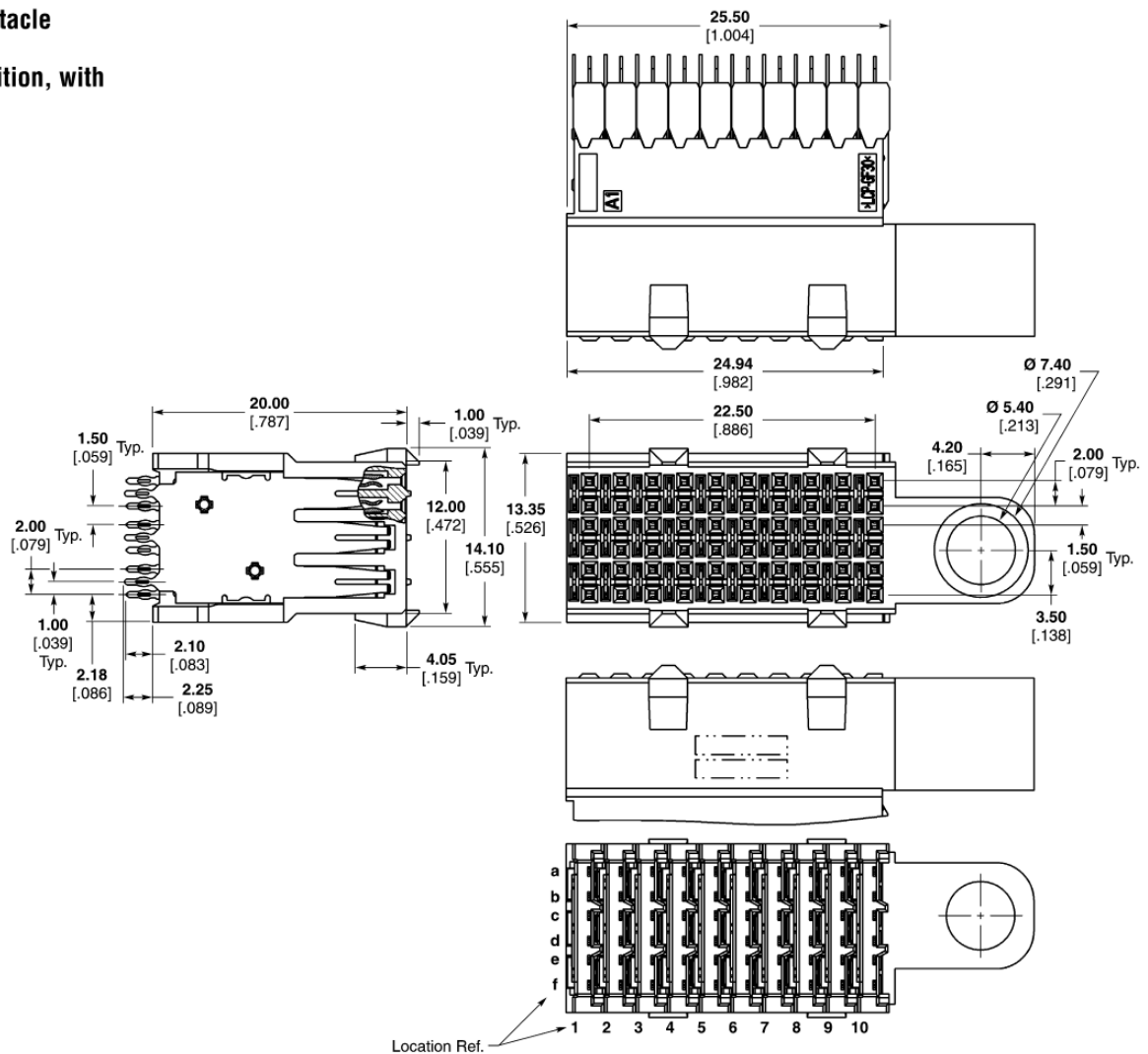
**Recommended PC Board Layout  
(Component Side Shown)**

## Z-PACK HS3 Connector (Continued)

### Vertical Receptacle

(Continued)

#### 6 Row, 60 Position, with Guide Module



4  
Z-PACK HS3 Connector

| Number of Positions | Part Number | Application Tooling |          |             |          |                 |          |
|---------------------|-------------|---------------------|----------|-------------|----------|-----------------|----------|
|                     |             | Insertion           | IS Sheet | Hsg Removal | IS Sheet | Chiclet Removal | IS Sheet |
| 60                  | 120949-1    | 1725623-1           | 408-8870 | —           | —        | —               | —        |

### P.C.B. Hole Dimensions

**Drilled Hole** — 0.7±0.025mm

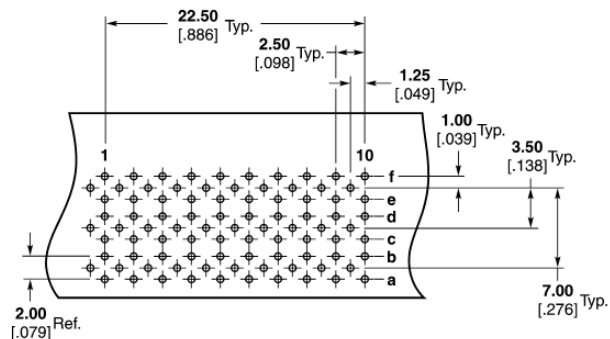
**Fin. Hole** — 0.55 to 0.65mm

**Cu-thickness** — 0.025 to 0.050mm

**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.

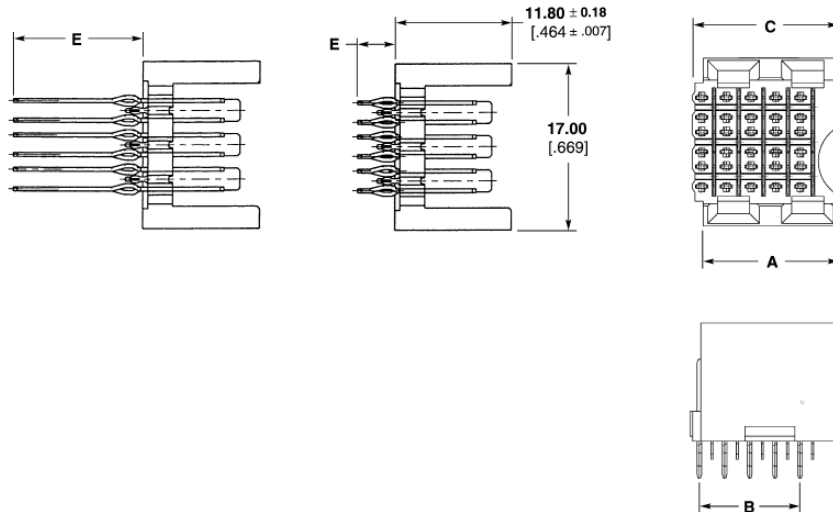
**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.



**Recommended PC Board Layout  
(Component Side Shown)**

## Z-PACK HS3 Connector (Continued)

### Vertical Pin Header Assemblies 6 Row, Left Module (accepts ESD Guide Pin)



### P.C.B. Hole Dimensions

**Drilled Hole** — 0.7±0.025mm

**Fin. Hole** — 0.55 to 0.65mm

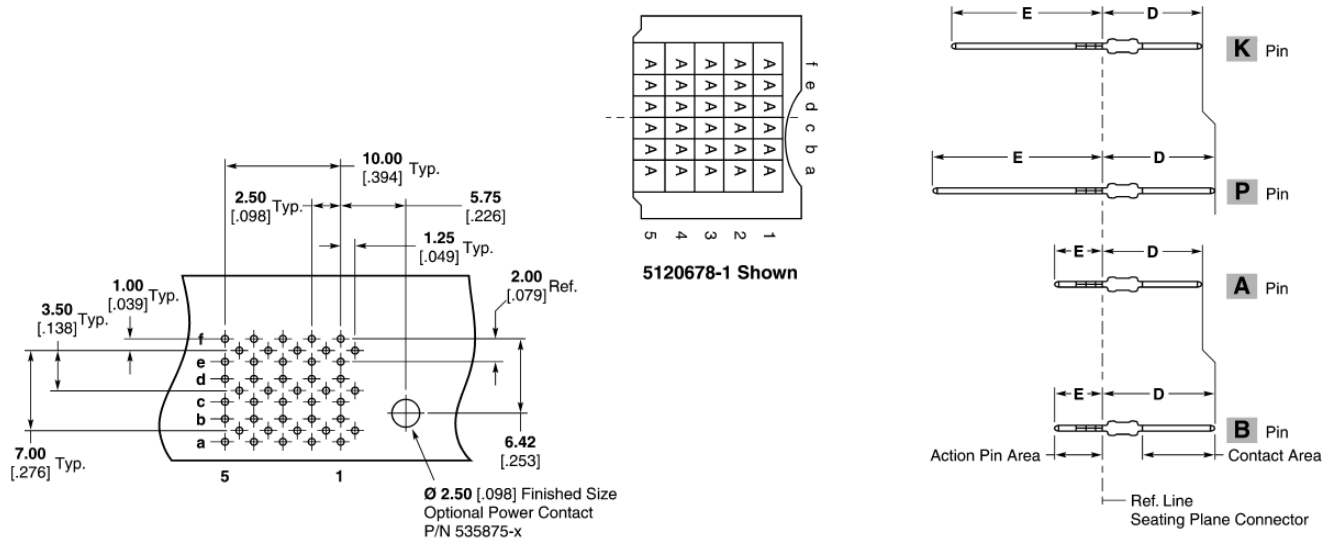
**Cu-thickness** — 0.025 to 0.050mm

**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.

### Pin Header Assemblies

| Number of Positions | Dimensions    |               |               |              |               | Pin Ref. | Part Numbers | Application Tooling |          |            |          |              |          |
|---------------------|---------------|---------------|---------------|--------------|---------------|----------|--------------|---------------------|----------|------------|----------|--------------|----------|
|                     | A             | B             | C             | D            | E             |          |              | Seating             | IS Sheet | Signal Pin |          | Ground Blade |          |
|                     |               |               |               |              |               |          |              |                     |          | Repair Kit | IS Sheet | Repair Kit   | IS Sheet |
| 30                  | 13.70<br>.539 | 10.00<br>.393 | 14.80<br>.583 | 8.20<br>.322 | 3.70<br>.145  | A        | 5120678-1    | 91313-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |
|                     | 13.70<br>.539 | 10.00<br>.393 | 14.80<br>.583 | 9.70<br>.381 | 3.70<br>.145  | B        | 5120678-2    | 91313-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |
|                     | 13.70<br>.539 | 10.00<br>.393 | 14.80<br>.583 | 8.20<br>.322 | 13.00<br>.511 | K        | 5120681-1    | 91313-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |
|                     | 13.70<br>.539 | 10.00<br>.393 | 14.80<br>.583 | 9.70<br>.381 | 14.50<br>.570 | P        | 5120681-2    | 91313-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |



**Recommended PC Board Layout  
(Component Side Shown)  
For Non-Midplane Applications  
For Midplane Applications Reference Page 112**

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

## Z-PACK HS3 Connector (Continued)

### Vertical Pin Header Assemblies (Continued) 6 Row, Center Module

#### P.C.B. Hole Dimensions

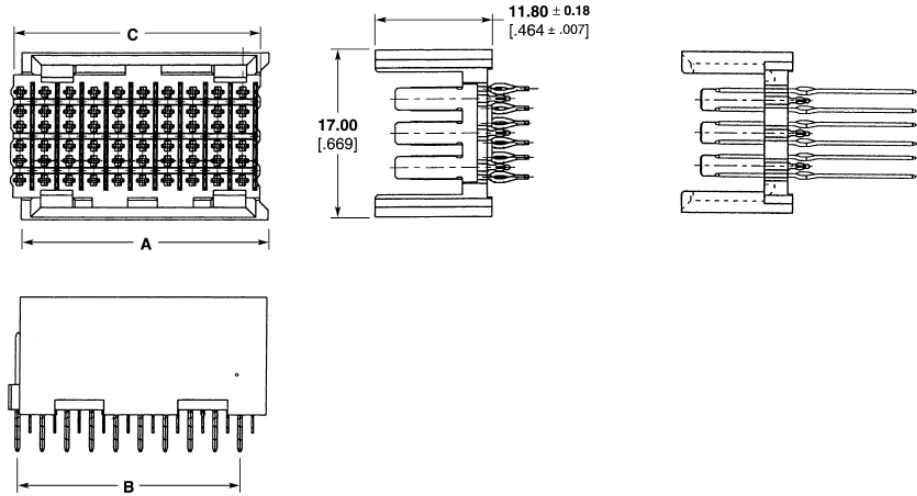
Drilled Hole — 0.7±0.025mm

Fin. Hole — 0.55 to 0.65mm

Cu-thickness — 0.025 to 0.050mm

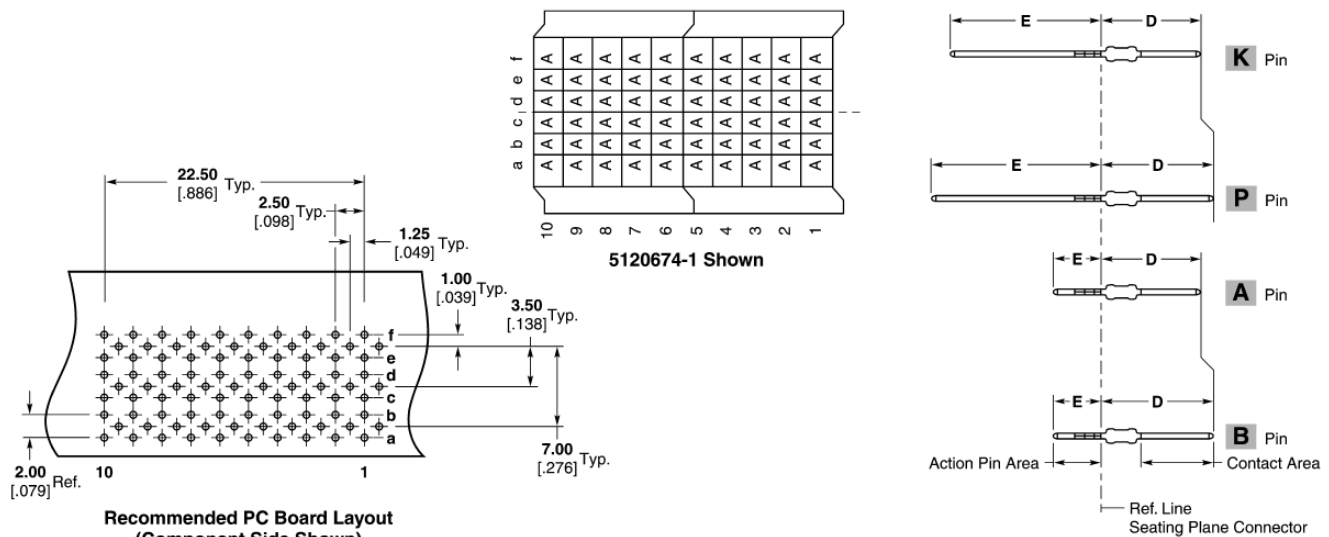
SnPb-thickness — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.



### Pin Header Assemblies

| Number of Positions | Dimensions    |               |               |              |               | Pin Ref. | Part Numbers | Application Tooling |          |            |          |              |          |
|---------------------|---------------|---------------|---------------|--------------|---------------|----------|--------------|---------------------|----------|------------|----------|--------------|----------|
|                     | A             | B             | C             | D            | E             |          |              | Seating             | IS Sheet | Signal Pin |          | Ground Blade |          |
|                     |               |               |               |              |               |          |              |                     |          | Repair Kit | IS Sheet | Repair Kit   | IS Sheet |
| 60                  | 24.90<br>.980 | 22.50<br>.885 | 24.90<br>.980 | 8.20<br>.322 | 3.70<br>.145  | <b>A</b> | 5120674-1    | 91313-2             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |
|                     | 24.90<br>.980 | 22.50<br>.885 | 24.90<br>.980 | 9.70<br>.381 | 3.70<br>.145  | <b>B</b> | 5120674-2    | 91313-2             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |
|                     | 24.90<br>.980 | 22.50<br>.885 | 24.90<br>.980 | 8.20<br>.322 | 13.00<br>.511 | <b>K</b> | 5120679-1    | 91313-2             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |
|                     | 24.90<br>.980 | 22.50<br>.885 | 24.90<br>.980 | 9.70<br>.381 | 14.50<br>.570 | <b>P</b> | 5120679-2    | 91313-2             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |
| 30                  | 12.41<br>.488 | 10.00<br>.393 | 12.40<br>.488 | 8.20<br>.322 | 3.70<br>.145  | <b>A</b> | 5120732-1    | 91313-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |
|                     | 12.41<br>.488 | 10.00<br>.393 | 12.40<br>.488 | 9.70<br>.381 | 3.70<br>.145  | <b>B</b> | 5120732-2    | 91313-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |
|                     | 12.41<br>.488 | 10.00<br>.393 | 12.40<br>.488 | 8.20<br>.322 | 13.00<br>.511 | <b>K</b> | 5120742-1    | 91313-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |
|                     | 12.41<br>.488 | 10.00<br>.393 | 12.40<br>.488 | 9.70<br>.381 | 14.50<br>.570 | <b>P</b> | 5120742-2    | 91313-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |

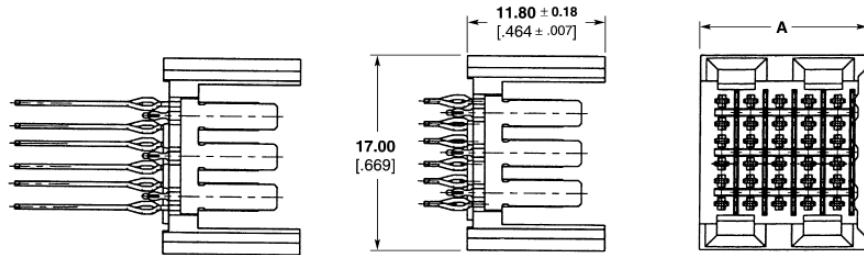


**Recommended PC Board Layout  
(Component Side Shown)  
For Non-Midplane Applications  
For Midplane Applications Reference Page 112**

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

## Z-PACK HS3 Connector (Continued)

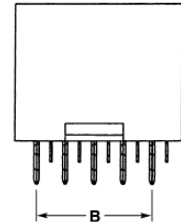
### Vertical Pin Header Assemblies (Continued) 6 Row, Right Module (accepts ESD Guide Pin)



### P.C.B. Hole Dimensions

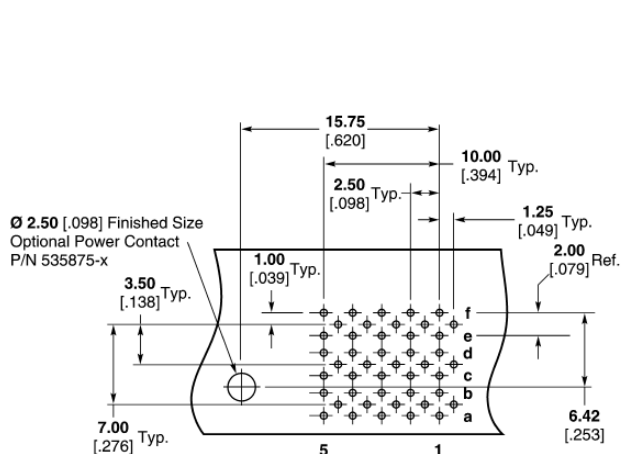
**Drilled Hole** — 0.7±0.025mm  
**Fin. Hole** — 0.55 to 0.65mm  
**Cu-thickness** — 0.025 to 0.050mm  
**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.

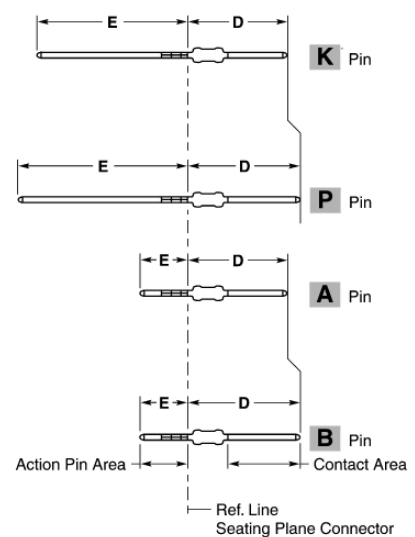
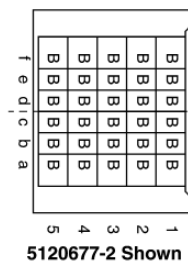


### Pin Header Assemblies

| Number of Positions | Dimensions    |               |              |               | Pin Ref. | Part Numbers | Application Tooling |          |            |          |              |          |
|---------------------|---------------|---------------|--------------|---------------|----------|--------------|---------------------|----------|------------|----------|--------------|----------|
|                     | A             | B             | D            | E             |          |              | Seating             | IS Sheet | Signal Pin |          | Ground Blade |          |
|                     |               |               |              |               |          |              |                     |          | Repair Kit | IS Sheet | Repair Kit   | IS Sheet |
| 30                  | 14.45<br>.568 | 10.00<br>.393 | 8.20<br>.322 | 3.70<br>.145  | <b>A</b> | 5120677-1    | 91313-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |
|                     | 14.45<br>.568 | 10.00<br>.393 | 9.70<br>.381 | 3.70<br>.145  | <b>B</b> | 5120677-2    | 91313-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |
|                     | 14.45<br>.568 | 10.00<br>.393 | 8.20<br>.322 | 13.00<br>.511 | <b>K</b> | 5120680-1    | 91313-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |
|                     | 14.45<br>.568 | 10.00<br>.393 | 9.70<br>.381 | 14.50<br>.570 | <b>P</b> | 5120680-2    | 91313-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-1    | 408-4573 |



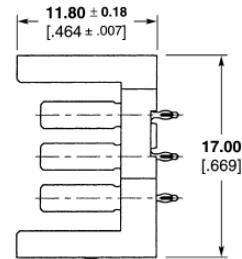
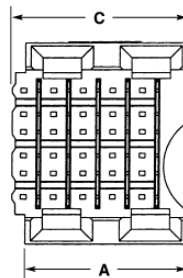
**Recommended PC Board Layout  
(Component Side Shown)  
For Non-Midplane Applications  
For Midplane Applications Reference Page 112**



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

## Z-PACK HS3 Connector (Continued)

### Vertical Pin Header Shrouds 6 Row, Left Module



### P.C.B. Hole Dimensions

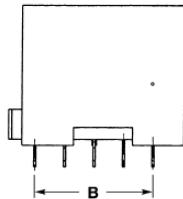
**Drilled Hole** — 0.7±0.025mm

**Fin. Hole** — 0.55 to 0.65mm

**Cu-thickness** — 0.025 to 0.050mm

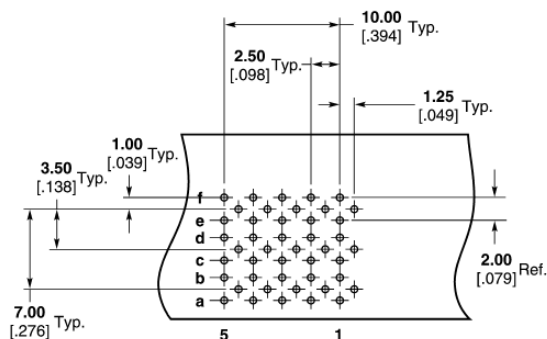
**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.

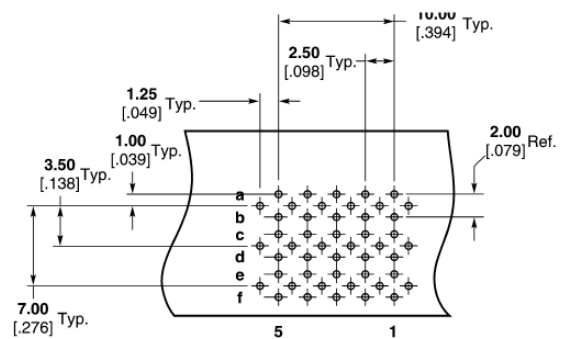


### Pin Header Assemblies

| Number of Positions | Dimensions      |                 |                 | Part Number | Application Tooling |          |                         |          |
|---------------------|-----------------|-----------------|-----------------|-------------|---------------------|----------|-------------------------|----------|
|                     | A               | B               | C               |             | Insertion           | IS Sheet | Ground Blade Repair Kit | IS Sheet |
| 30                  | 13.70<br>[.537] | 10.00<br>[.393] | 14.80<br>[.582] | 5120684-1   | 91313-1             | 408-4546 | 1320534-1               | 408-4573 |



**Non-Coplanar Daughtercards**  
(Pin 1a Header = Pin 1f Shroud Side)  
Recommended PC Board Layout — Reference Page 112  
(Shroud Side Shown)

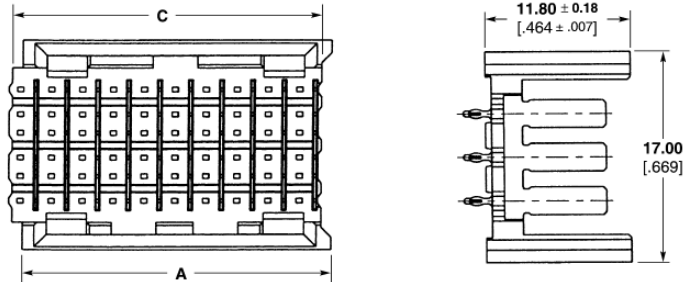


**Coplanar Daughtercards**  
(Pin 1a Header = Pin 5a Shroud Side)  
Recommended PC Board Layout — Reference Page 112  
(Shroud Side Shown)

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

## Z-PACK HS3 Connector (Continued)

### Vertical Pin Header Shrouds (Continued) 6 Row, Center Module



### P.C.B. Hole Dimensions

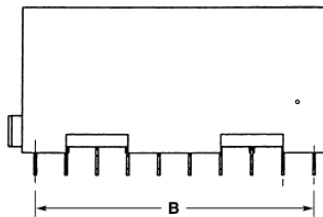
**Drilled Hole** — 0.7±0.025mm

**Fin. Hole** — 0.55 to 0.65mm

**Cu-thickness** — 0.025 to 0.050mm

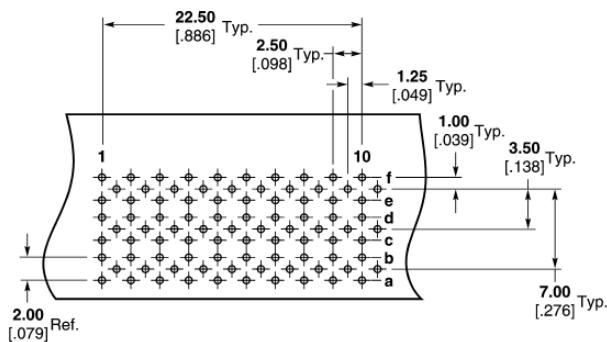
**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.

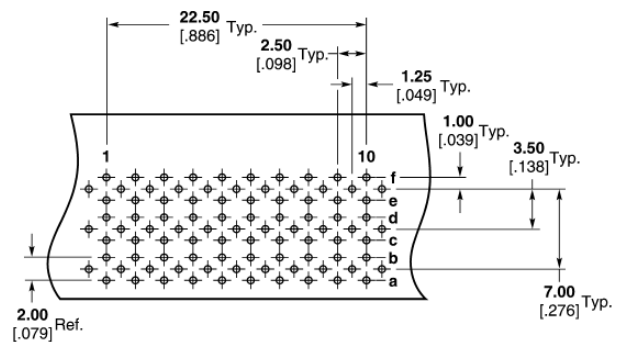


### Pin Header Assemblies

| Number of Positions | Dimensions    |               |               | Part Number | Application Tooling |          |                         |          |
|---------------------|---------------|---------------|---------------|-------------|---------------------|----------|-------------------------|----------|
|                     | A             | B             | C             |             | Insertion           | IS Sheet | Ground Blade Repair Kit | IS Sheet |
| 60                  | 24.90<br>.980 | 22.50<br>.885 | 24.90<br>.980 | 5120682-1   | 91313-2             | 408-4546 | 1320534-1               | 408-4573 |
| 30                  | 12.57<br>.494 | 10.00<br>.393 | 12.40<br>.488 | 5120743-1   | 91313-1             | 408-4546 | 1320534-1               | 408-4573 |



**Non-Coplanar Daughtercards**  
(Pin 1a Header = Pin 1f Shroud Side)  
Recommended PC Board Layout — Reference Page 112  
(Shroud Side Shown)



**Coplanar Daughtercards**  
(Pin 1a Header = Pin 5a Shroud Side)  
Recommended PC Board Layout — Reference Page 112  
(Shroud Side Shown)

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

## Z-PACK HS3 Connector (Continued)

### Vertical Pin Header Shrouds (Continued) 6 Row, Right Module

#### P.C.B. Hole Dimensions

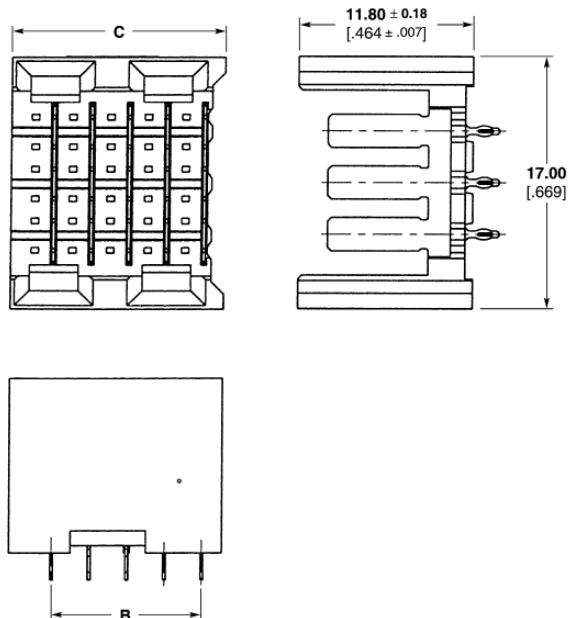
**Drilled Hole** — 0.7±0.025mm

**Fin. Hole** — 0.55 to 0.65mm

**Cu-thickness** — 0.025 to 0.050mm

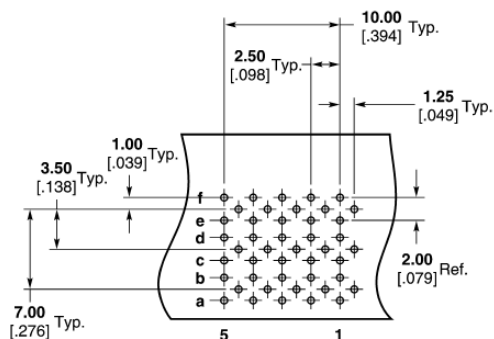
**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than  
Tin-Lead, reference Applica-  
tion Specification  
114-13020.

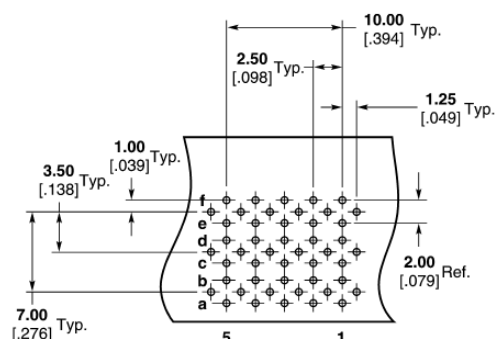


### Pin Header Assemblies

| Number of Positions | Dimensions |                 |                 | Part Number | Application Tooling |          |              |          |
|---------------------|------------|-----------------|-----------------|-------------|---------------------|----------|--------------|----------|
|                     | A          | B               | C               |             | Insertion           | IS Sheet | Ground Blade |          |
|                     |            |                 |                 |             |                     |          | Repair Kit   | IS Sheet |
| 30                  | —          | 10.00<br>[.393] | 14.20<br>[.559] | 5120683-1   | 91313-1             | 408-4546 | 1320534-1    | 408-4573 |



**Non-Coplanar Daughtercards**  
(Pin 1a Header = Pin 1f Shroud Side)  
Recommended PC Board Layout — Reference Page 112  
(Shroud Side Shown)



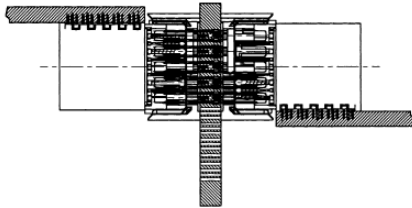
**Coplanar Daughtercards**  
(Pin 1a Header = Pin 5a Shroud Side)  
Recommended PC Board Layout — Reference Page 112  
(Shroud Side Shown)

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

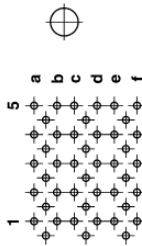
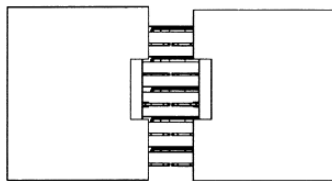
## Z-PACK HS3 Connector (Continued)

### Layout Guide for Midplane Applications 6 Row Connectors

#### Non-Coplanar Applications

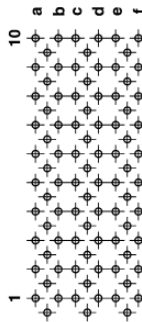


#### Right Module



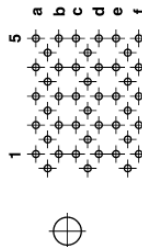
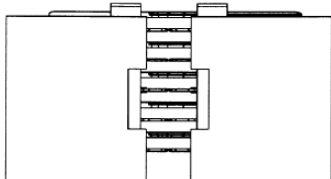
| Vertical Pin Header,<br>Feed-Through<br>Part No. | Shroud<br>Part No. |
|--------------------------------------------------|--------------------|
| 5120680                                          | 5120683-1          |

#### Center Module



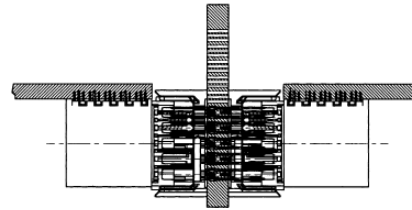
| Vertical Pin Header,<br>Feed-Through<br>Part No. | Shroud<br>Part No. |
|--------------------------------------------------|--------------------|
| 5120679                                          | 5120682-1          |

#### Left Module

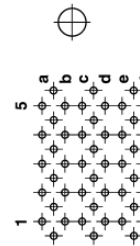
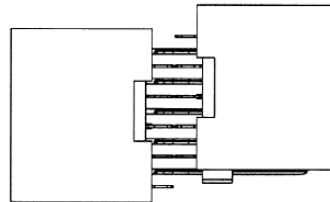


| Vertical Pin Header,<br>Feed-Through<br>Part No. | Shroud<br>Part No. |
|--------------------------------------------------|--------------------|
| 5120681                                          | 5120684-1          |

#### Coplanar Applications

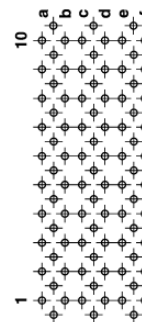


#### Right Module



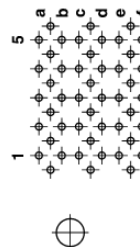
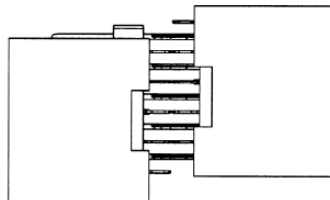
| Vertical Pin Header,<br>Feed-Through<br>Part No. | Shroud<br>Part No. |
|--------------------------------------------------|--------------------|
| 5120680                                          | 5120684-1          |

#### Center Module



| Vertical Pin Header,<br>Feed-Through<br>Part No. | Shroud<br>Part No. |
|--------------------------------------------------|--------------------|
| 5120679                                          | 5120682-1          |

#### Left Module



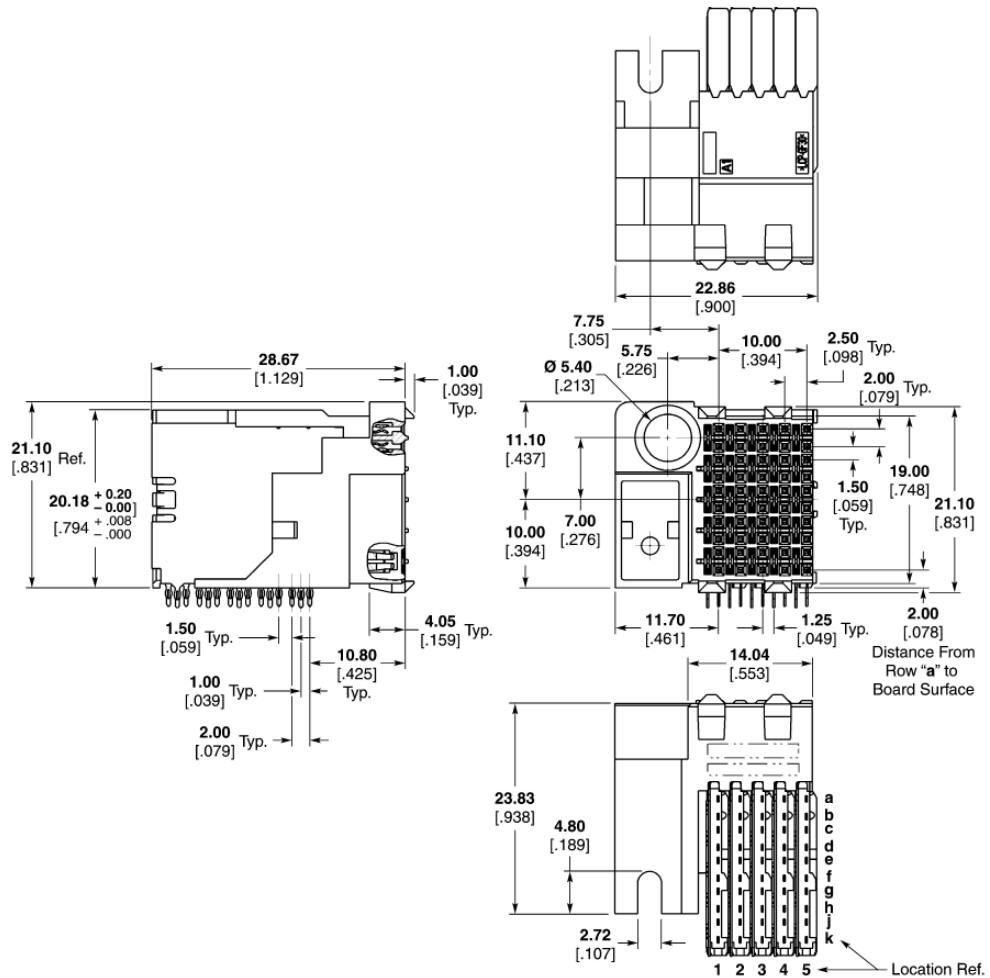
| Vertical Pin Header,<br>Feed-Through<br>Part No. | Shroud<br>Part No. |
|--------------------------------------------------|--------------------|
| 5120681                                          | 5120683-1          |

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

### Z-PACK HS3 Connector (Continued)

### Right Angle Receptacle

**10 Row, Left Module  
(accepts Universal Guide  
Pin)**



## Receptacle Assemblies

| Number of Positions | Part Number | Application Tooling |          |             |          |                 |          |
|---------------------|-------------|---------------------|----------|-------------|----------|-----------------|----------|
|                     |             | Insertion           | IS Sheet | Hsg Removal | IS Sheet | Chiclet Removal | IS Sheet |
| 50                  | 5120875-1   | 1338743-1           | 408-8394 | 1338744-1   | 408-8393 | 1338746-1       | 408-8410 |

### P.C.B. Hole Dimensions

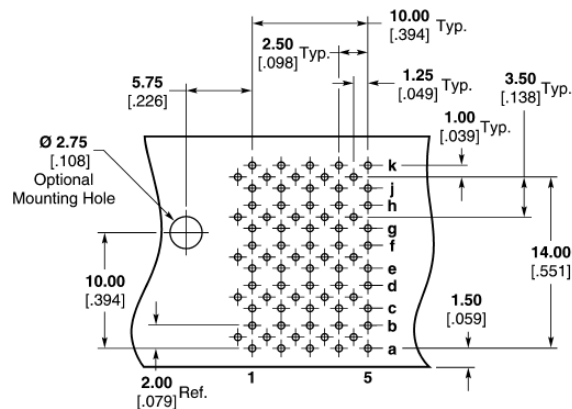
**Drilled Hole** —  $0.7 \pm 0.025 \text{ mm}$

**Fin. Hole** — 0.55 to 0.65mm

**Cu-thickness** — 0.025 to 0.050mm

**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.



### Recommended PC Board Layout (Component Side Shown)

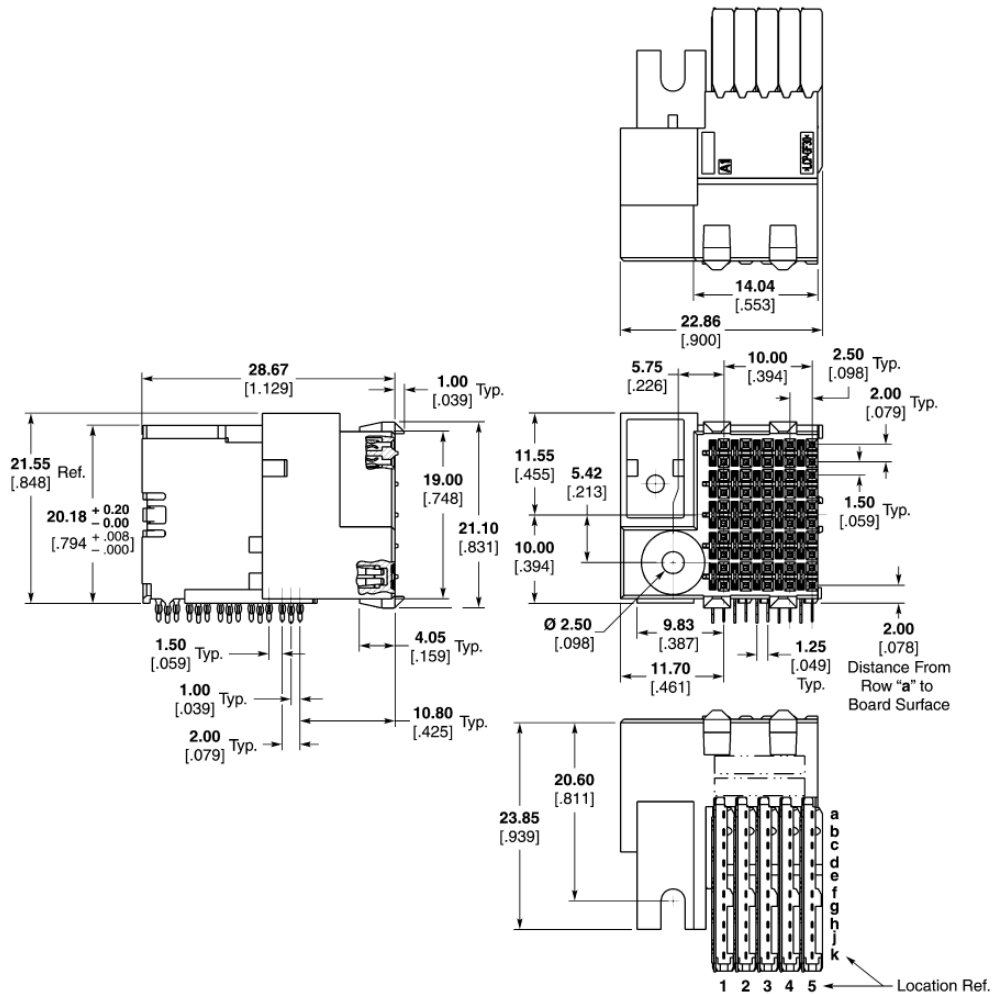
**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

## Z-PACK HS3 Connector (Continued)

### Right Angle Receptacle

(Continued)

### 10 Row, Left Module (accepts ESD Guide Pin)



### Receptacle Assemblies

| Number of Positions | Part Number | Application Tooling |          |             |          |                 |          |
|---------------------|-------------|---------------------|----------|-------------|----------|-----------------|----------|
|                     |             | Insertion           | IS Sheet | Hsg Removal | IS Sheet | Chiclet Removal | IS Sheet |
| 50                  | 5120793-1   | 1338743-1           | 408-8394 | 1338744-1   | 408-8393 | 1338746-1       | 408-8410 |

### P.C.B. Hole Dimensions

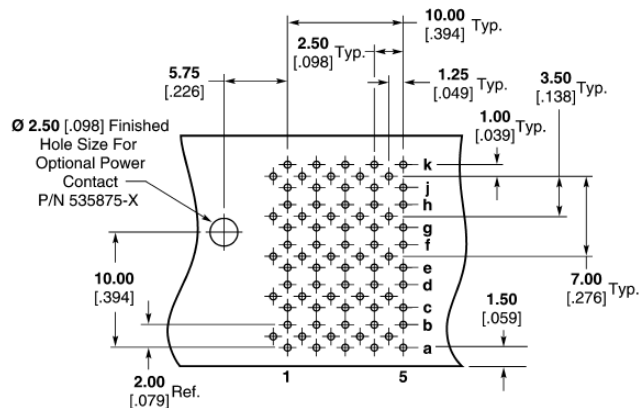
**Drilled Hole** — 0.7±0.025mm

**Fin. Hole** — 0.55 to 0.65mm

**Cu-thickness** — 0.025 to 0.050mm

**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.



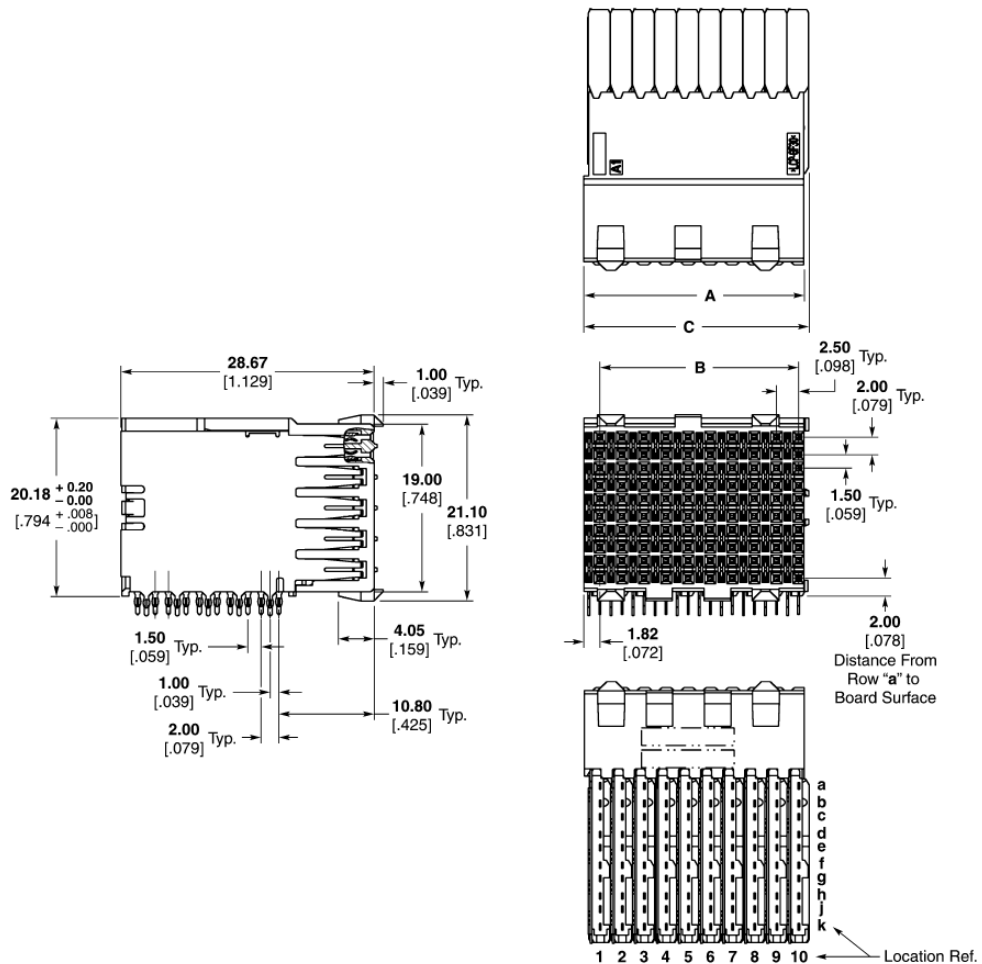
**Recommended PC Board Layout  
(Component Side Shown)**

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

## Z-PACK HS3 Connector (Continued)

### Right Angle Receptacle (Continued)

#### 10 Row, Center Module



### Receptacle Assemblies

| Number of Positions | Dimensions    |               |               | Part Number | Application Tooling |          |             |          |                 |          |
|---------------------|---------------|---------------|---------------|-------------|---------------------|----------|-------------|----------|-----------------|----------|
|                     | A             | B             | C             |             | Insertion           | IS Sheet | Hsg Removal | IS Sheet | Chiclet Removal | IS Sheet |
| 100                 | 24.94<br>.982 | 22.50<br>.886 | 25.48<br>1.03 | 5120790-1   | 1338743-2           | 408-8394 | 1338744-1   | 408-8393 | 1338746-1       | 408-8410 |
| 50                  | 12.44<br>.490 | 10.00<br>.394 | 12.90<br>.508 | 5120791-1   | 1338743-1           | 408-8394 | 1338744-1   | 408-8393 | 1338746-1       | 408-8410 |

### P.C.B. Hole Dimensions

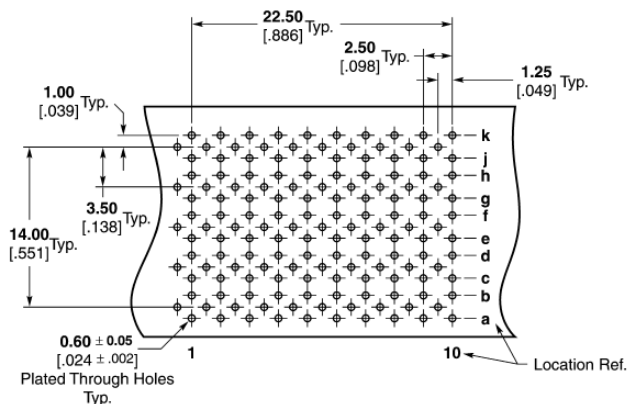
**Drilled Hole** — 0.7±0.025mm

**Fin. Hole** — 0.55 to 0.65mm

**Cu-thickness** — 0.025 to 0.050mm

**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.



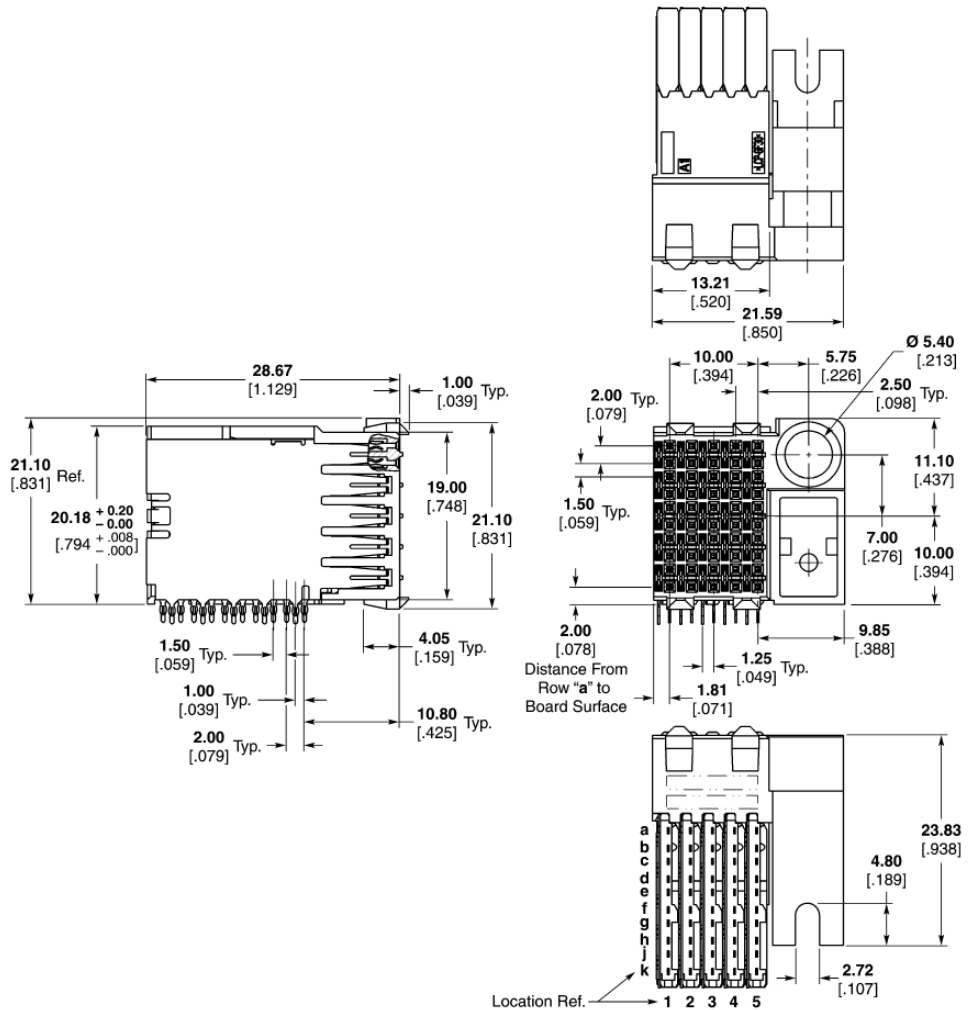
**Recommended PC Board Layout  
(Component Side Shown)**

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

## Z-PACK HS3 Connector (Continued)

### Right Angle Receptacle (Continued)

### 10 Row, Right Module (accepts Universal Guide Pin)



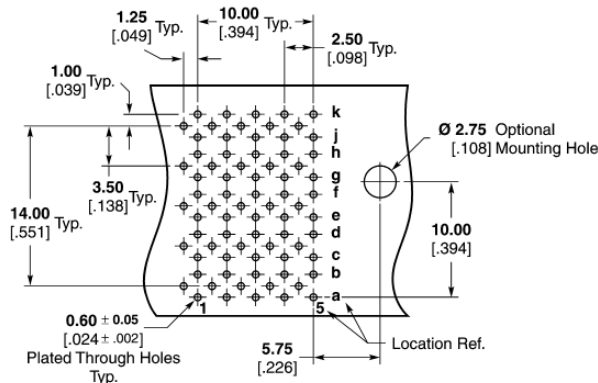
### Receptacle Assemblies

| Number of Positions | Part Number | Application Tooling |          |             |          |                 |          |
|---------------------|-------------|---------------------|----------|-------------|----------|-----------------|----------|
|                     |             | Insertion           | IS Sheet | Hsg Removal | IS Sheet | Chiclet Removal | IS Sheet |
| 50                  | 5120874-1   | 1338743-1           | 408-8394 | 1338744-1   | 408-8393 | 1338746-1       | 408-8410 |

### P.C.B. Hole Dimensions

**Drilled Hole** — 0.7±0.025mm  
**Fin. Hole** — 0.55 to 0.65mm  
**Cu-thickness** — 0.025 to 0.050mm  
**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.



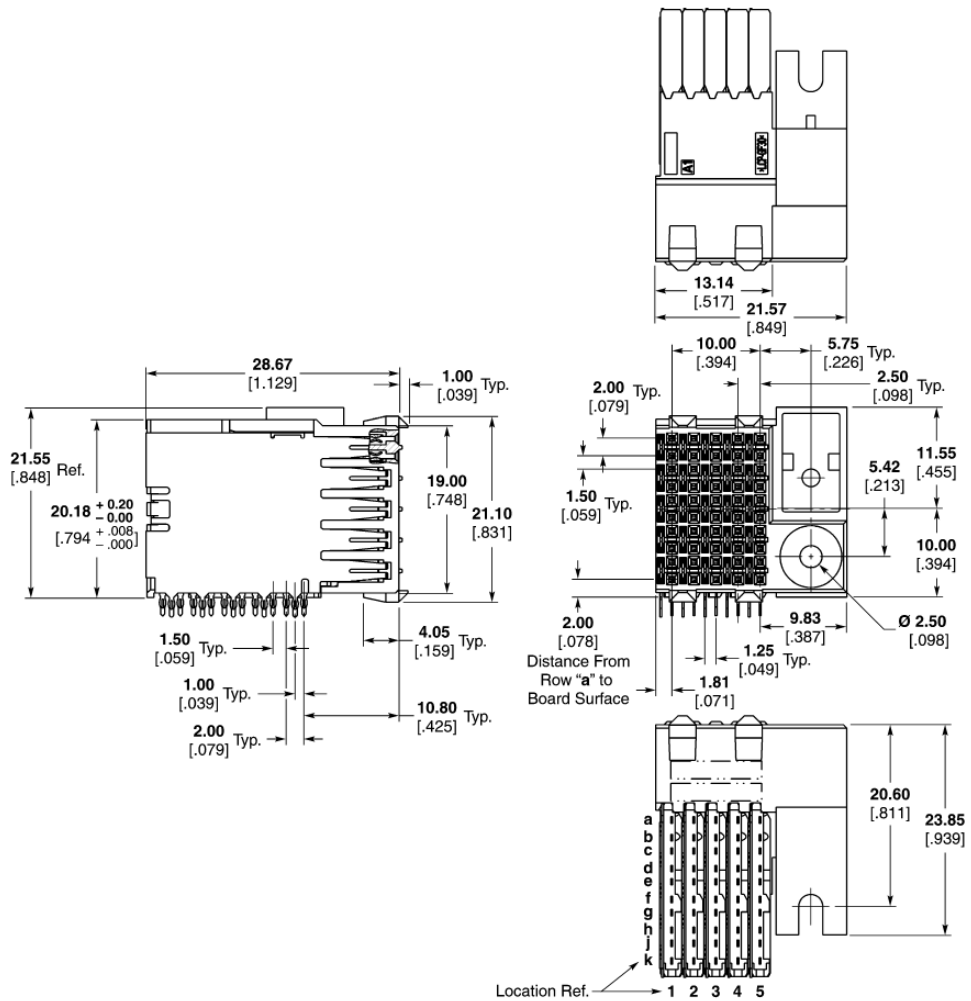
### Recommended PC Board Layout (Component Side Shown)

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

## Z-PACK HS3 Connector (Continued)

### Right Angle Receptacle (Continued)

### 10 Row, Right Module (accepts ESD Guide Pin)



### Receptacle Assemblies

| Number of Positions | Part Number | Application Tooling |          |             |          |                 |          |
|---------------------|-------------|---------------------|----------|-------------|----------|-----------------|----------|
|                     |             | Insertion           | IS Sheet | Hsg Removal | IS Sheet | Chiclet Removal | IS Sheet |
| 50                  | 5120792-1   | 1338743-1           | 408-8394 | 1338744-1   | 408-8393 | 1338746-1       | 408-8410 |

### P.C.B. Hole Dimensions

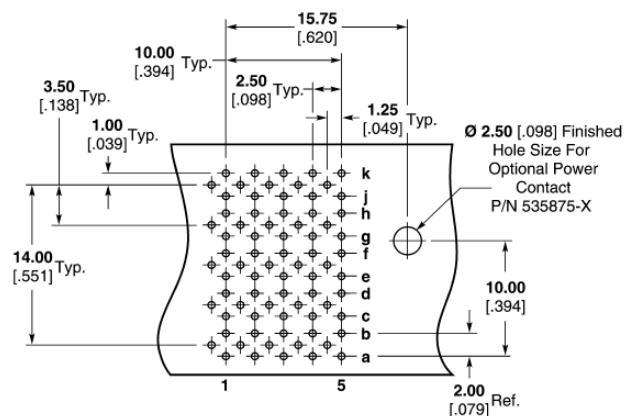
**Drilled Hole** — 0.7±0.025mm

**Fin. Hole** — 0.55 to 0.65mm

**Cu-thickness** — 0.025 to 0.050mm

**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.



### Recommended PC Board Layout (Component Side Shown)

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

## Z-PACK HS3 Connector (Continued)

### Vertical Pin Header Assemblies

#### 10 Row, Left Module (accepts Universal Guide Pin)

#### P.C.B. Hole Dimensions

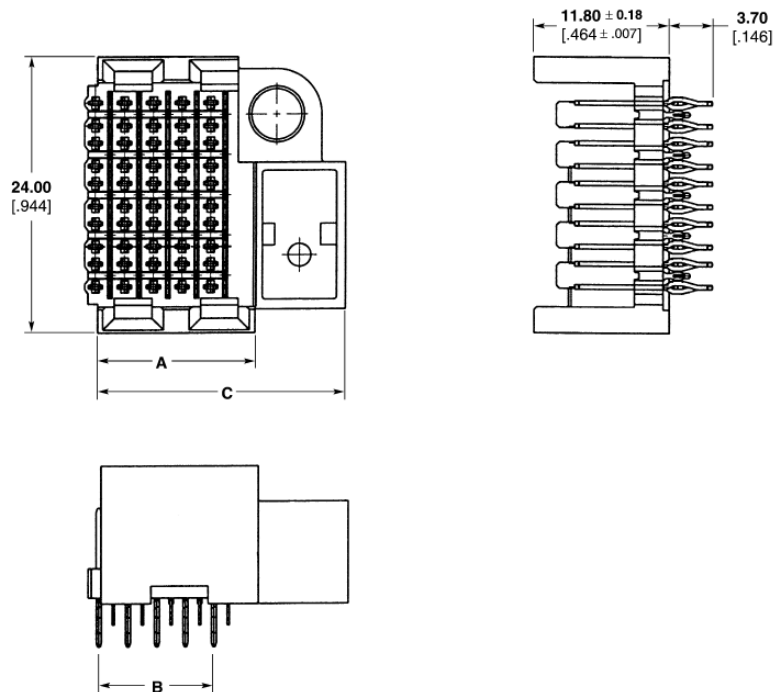
**Drilled Hole** — 0.7±0.025mm

**Fin. Hole** — 0.55 to 0.65mm

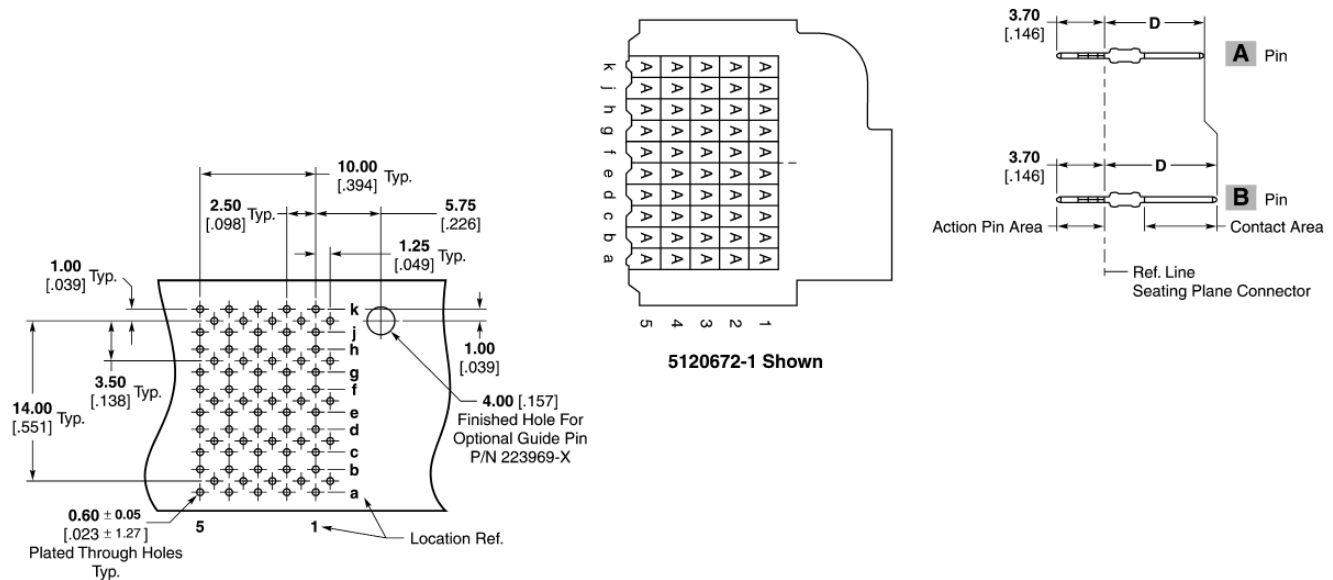
**Cu-thickness** — 0.025 to 0.050mm

**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.



| Number of Positions | Dimensions    |               |               |              | Pin Ref. | Part Numbers | Application Tooling |          |            |          |              |          |
|---------------------|---------------|---------------|---------------|--------------|----------|--------------|---------------------|----------|------------|----------|--------------|----------|
|                     | A             | B             | C             | D            |          |              | Seating             | IS Sheet | Signal Pin |          | Ground Blade |          |
|                     |               |               |               |              |          |              |                     |          | Repair Kit | IS Sheet | Repair Kit   | IS Sheet |
| 50                  | 13.70<br>.539 | 10.00<br>.394 | 21.61<br>.851 | 8.20<br>.323 | A        | 5120672-1    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
|                     | 13.70<br>.539 | 10.00<br>.394 | 21.61<br>.851 | 9.70<br>.383 | B        | 5120672-2    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |



**Recommended PC Board Layout  
(Component Side Shown)  
For Non-Midplane Applications  
For Midplane Applications Reference Page 126**

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

## Z-PACK HS3 Connector (Continued)

### Vertical Pin Header Assemblies (Continued)

#### 10 Row, Left Module (accepts ESD Guide Pin)

#### P.C.B. Hole Dimensions

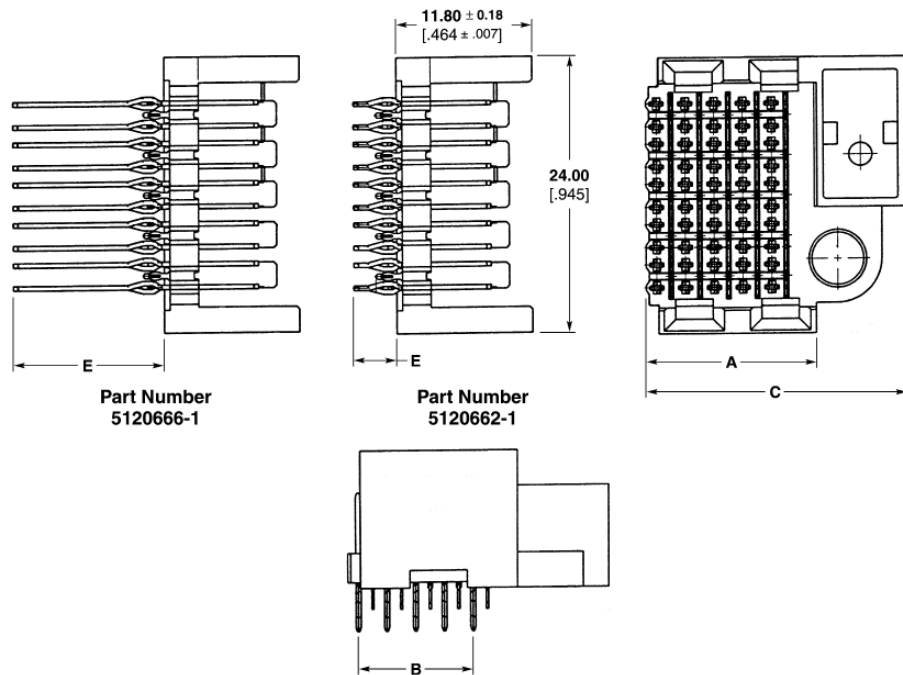
Drilled Hole —  $0.7 \pm 0.025\text{mm}$

Fin. Hole —  $0.55$  to  $0.65\text{mm}$

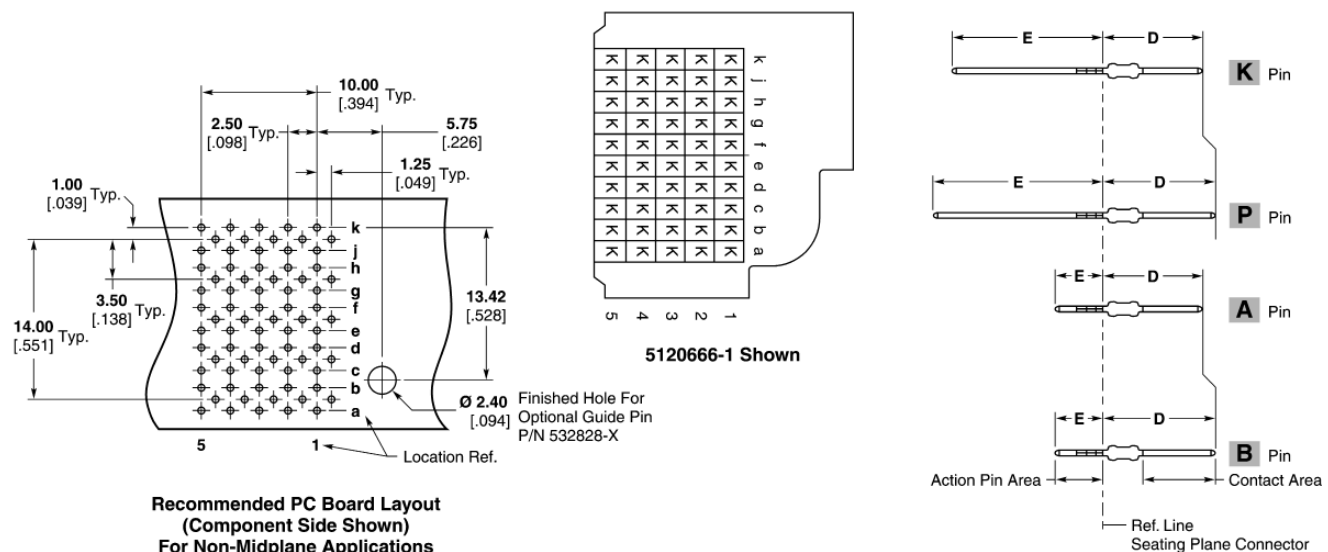
Cu-thickness —  $0.025$  to  $0.050\text{mm}$

SnPb-thickness —  $0.004$  to  $0.010\text{mm}$

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.



| Number of Positions | Dimensions    |               |               |              |               | Pin Ref. | Part Numbers | Application Tooling |          |            |          |              |          |
|---------------------|---------------|---------------|---------------|--------------|---------------|----------|--------------|---------------------|----------|------------|----------|--------------|----------|
|                     | A             | B             | C             | D            | E             |          |              | Seating             | IS Sheet | Signal Pin |          | Ground Blade |          |
|                     |               |               |               |              |               |          |              |                     |          | Repair Kit | IS Sheet | Repair Kit   | IS Sheet |
| 50                  | 14.80<br>.583 | 10.00<br>.394 | 22.71<br>.894 | 8.20<br>.323 | 3.70<br>.146  | <b>A</b> | 5120662-1    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
|                     | 14.80<br>.583 | 10.00<br>.394 | 22.71<br>.894 | 9.70<br>.382 | 3.70<br>.146  | <b>B</b> | 5120662-2    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
|                     | 14.80<br>.583 | 10.00<br>.394 | 22.71<br>.894 | 8.20<br>.323 | 13.00<br>.512 | <b>K</b> | 5120666-1    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
|                     | 14.80<br>.583 | 10.00<br>.394 | 22.71<br>.894 | 9.70<br>.382 | 14.50<br>.571 | <b>P</b> | 5120666-2    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |



**Recommended PC Board Layout  
(Component Side Shown)  
For Non-Midplane Applications  
For Midplane Applications Reference Page 126**

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

## Z-PACK HS3 Connector (Continued)

### Vertical Pin Header Assemblies (Continued)

#### 10 Row, Center Module

#### P.C.B. Hole Dimensions

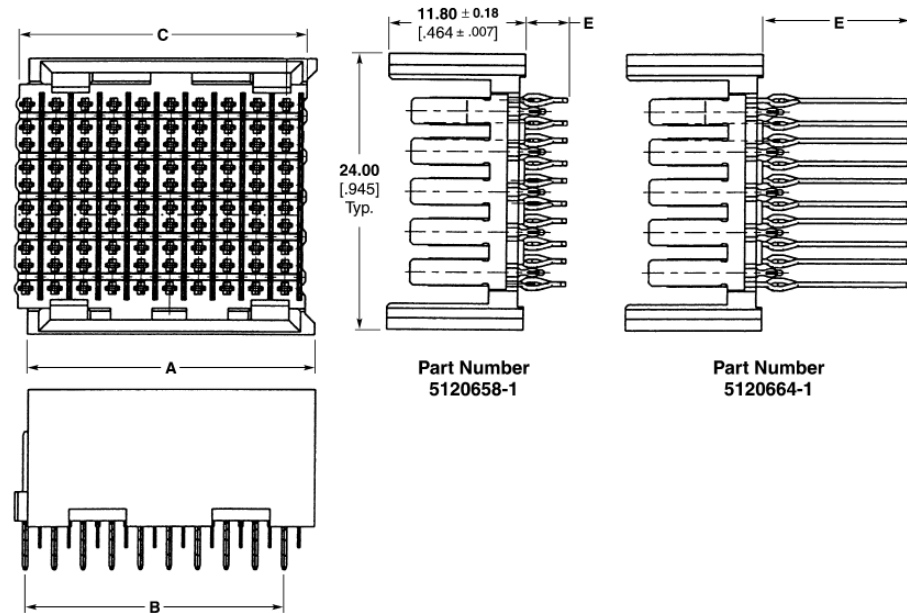
Drilled Hole —  $0.7 \pm 0.025\text{mm}$

Fin. Hole —  $0.55$  to  $0.65\text{mm}$

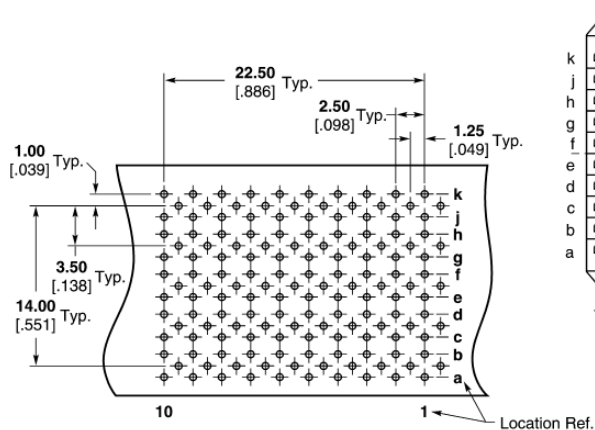
Cu-thickness —  $0.025$  to  $0.050\text{mm}$

SnPb-thickness —  $0.004$  to  $0.010\text{mm}$

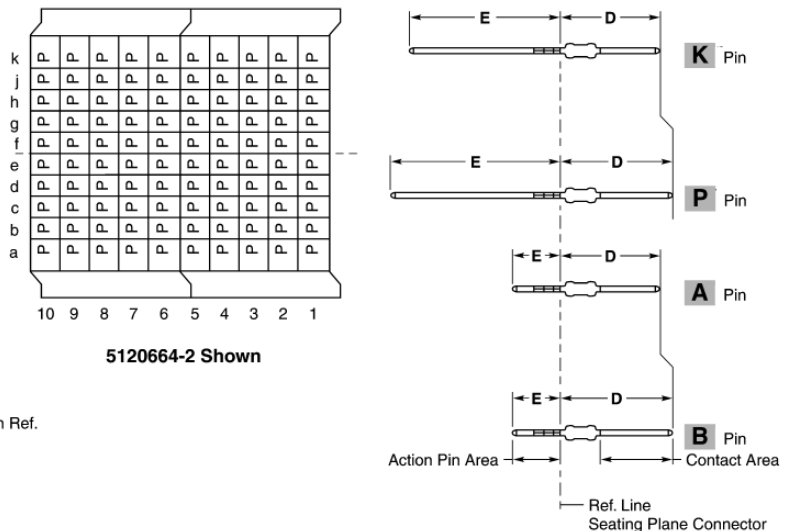
**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.



| Number of Positions | Dimensions    |               |               |              |               | Pin Ref. | Part Numbers | Application Tooling |          |            |          |              |          |
|---------------------|---------------|---------------|---------------|--------------|---------------|----------|--------------|---------------------|----------|------------|----------|--------------|----------|
|                     | A             | B             | C             | D            | E             |          |              | Seating             | IS Sheet | Signal Pin |          | Ground Blade |          |
|                     |               |               |               |              |               |          |              |                     |          | Repair Kit | IS Sheet | Repair Kit   | IS Sheet |
| 100                 | 24.90<br>.980 | 22.50<br>.885 | 24.90<br>.980 | 8.20<br>.322 | 3.70<br>.145  | A        | 5120658-1    | 91312-2             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
|                     | 24.90<br>.980 | 22.50<br>.885 | 24.90<br>.980 | 9.70<br>.381 | 3.70<br>.145  | B        | 5120658-2    | 91312-2             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
|                     | 24.90<br>.980 | 22.50<br>.885 | 24.90<br>.980 | 8.20<br>.322 | 13.00<br>.511 | K        | 5120664-1    | 91312-2             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
|                     | 24.90<br>.980 | 22.50<br>.885 | 24.90<br>.980 | 9.70<br>.381 | 14.50<br>.570 | P        | 5120664-2    | 91312-2             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
| 50                  | 12.41<br>.488 | 10.00<br>.393 | 12.40<br>.488 | 8.20<br>.322 | 3.70<br>.145  | A        | 5120747-1    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
|                     | 12.41<br>.488 | 10.00<br>.393 | 12.40<br>.488 | 9.70<br>.381 | 3.70<br>.145  | B        | 5120747-2    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
|                     | 12.41<br>.488 | 10.00<br>.393 | 12.40<br>.488 | 8.20<br>.322 | 13.00<br>.511 | K        | 5120748-1    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
|                     | 12.41<br>.488 | 10.00<br>.393 | 12.40<br>.488 | 9.70<br>.381 | 14.50<br>.570 | P        | 5120748-2    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |



**Recommended PC Board Layout**  
(Component Side Shown)  
For Non-Midplane Applications  
For Midplane Applications Reference Page 126



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

## Z-PACK HS3 Connector (Continued)

### Vertical Pin Header Assemblies (Continued)

#### 10 Row, Right Module (accepts Universal Guide Pin)

#### P.C.B. Hole Dimensions

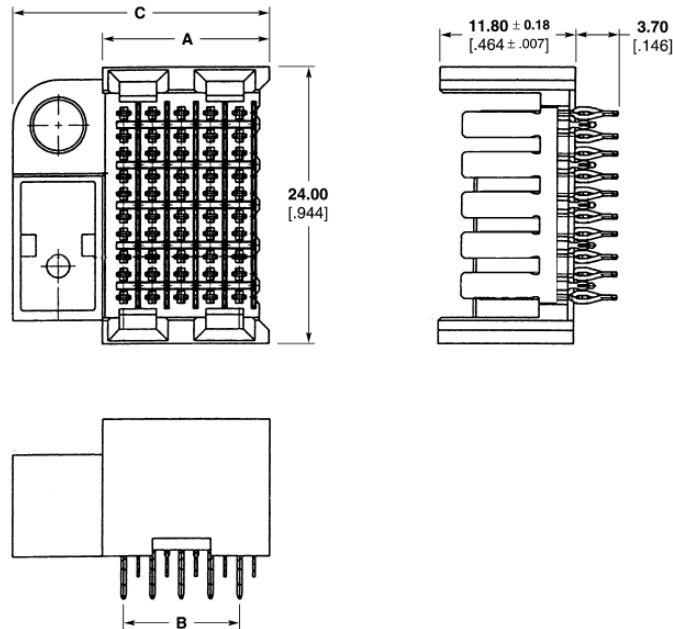
**Drilled Hole** —  $0.7 \pm 0.025\text{mm}$

**Fin. Hole** — 0.55 to 0.65mm

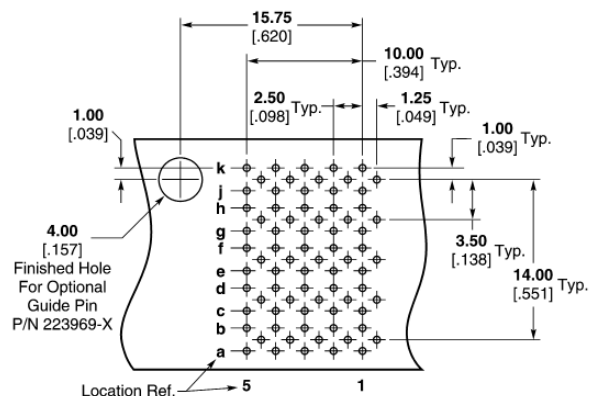
**Cu-thickness** — 0.025 to 0.050mm

**SnPb-thickness** — 0.004 to 0.010mm

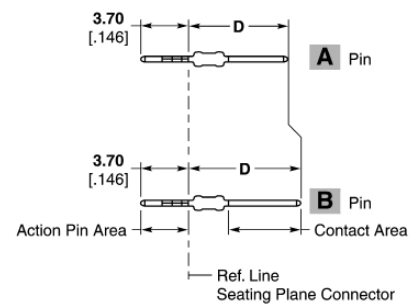
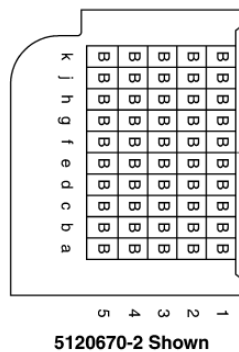
**Note:** For finishes other than  
Tin-Lead, reference  
Application Specification  
114-13020.



| Number of Positions | Dimensions    |               |               |              | Pin Ref. | Part Numbers | Application Tooling |          |            |          |              |          |
|---------------------|---------------|---------------|---------------|--------------|----------|--------------|---------------------|----------|------------|----------|--------------|----------|
|                     | A             | B             | C             | D            |          |              | Seating             | IS Sheet | Signal Pin |          | Ground Blade |          |
|                     |               |               |               |              |          |              |                     |          | Repair Kit | IS Sheet | Repair Kit   | IS Sheet |
| 50                  | 14.45<br>.568 | 10.00<br>.393 | 22.28<br>.877 | 8.20<br>.322 | A        | 5120670-1    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
|                     | 14.45<br>.568 | 10.00<br>.393 | 22.28<br>.877 | 9.70<br>.381 | B        | 5120670-2    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |



**Recommended PC Board Layout  
(Component Side Shown)  
For Non-Midplane Applications  
For Midplane Applications Reference Page 126**

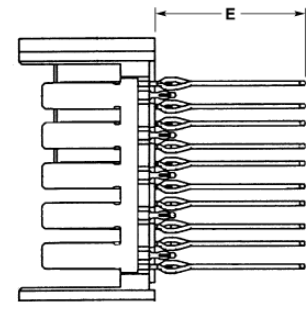
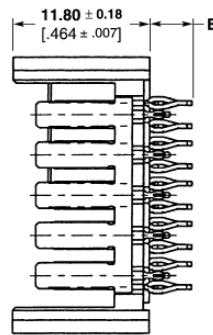
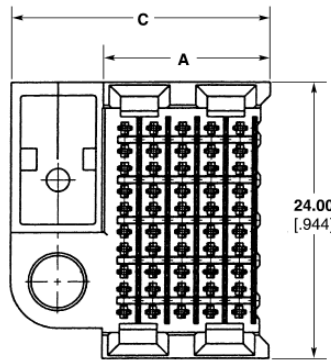


**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

## Z-PACK HS3 Connector (Continued)

### Vertical Pin Header Assemblies (Continued)

#### 10 Row, Right Module (accepts ESD Guide Pin)



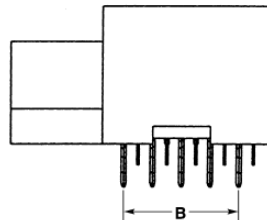
#### P.C.B. Hole Dimensions

Drilled Hole — 0.7±0.025mm

Fin. Hole — 0.55 to 0.65mm

Cu-thickness — 0.025 to 0.050mm

SnPb-thickness — 0.004 to 0.010mm

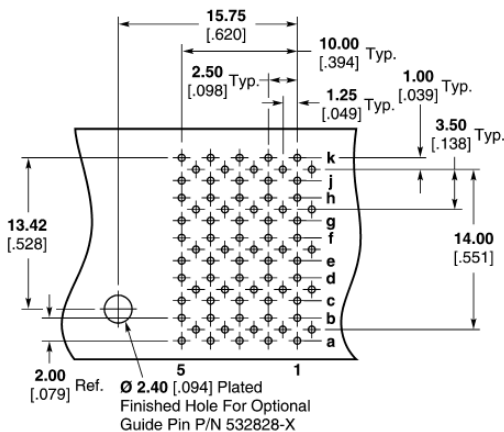


**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.

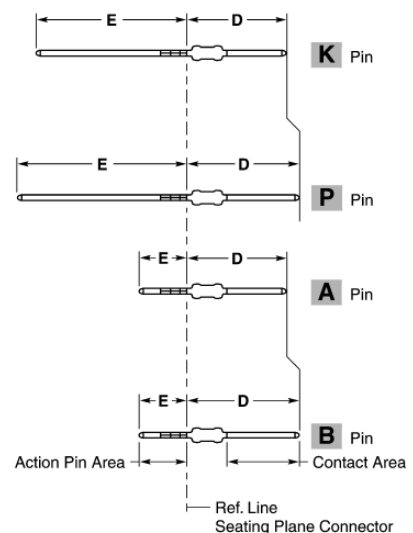
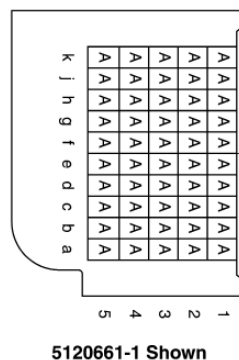
Part Number  
5120661-1

Part Number  
5120665-1

| Number of Positions | Dimensions    |               |               |              |               | Pin Ref. | Part Numbers | Application Tooling |          |            |          |              |          |
|---------------------|---------------|---------------|---------------|--------------|---------------|----------|--------------|---------------------|----------|------------|----------|--------------|----------|
|                     | A             | B             | C             | D            | E             |          |              | Seating             | IS Sheet | Signal Pin |          | Ground Blade |          |
|                     |               |               |               |              |               |          |              |                     |          | Repair Kit | IS Sheet | Repair Kit   | IS Sheet |
| 50                  | 14.46<br>.569 | 10.00<br>.393 | 22.28<br>.877 | 8.20<br>.322 | 3.70<br>.145  | <b>A</b> | 5120661-1    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
|                     | 14.46<br>.569 | 10.00<br>.393 | 22.28<br>.877 | 9.70<br>.381 | 3.70<br>.145  | <b>B</b> | 5120661-2    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
|                     | 14.46<br>.569 | 10.00<br>.393 | 22.28<br>.877 | 8.20<br>.322 | 13.00<br>.511 | <b>K</b> | 5120665-1    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |
|                     | 14.46<br>.569 | 10.00<br>.393 | 22.28<br>.877 | 9.70<br>.381 | 14.50<br>.570 | <b>P</b> | 5120665-2    | 91312-1             | 408-4546 | 354687-2   | 408-9979 | 1320534-2    | 408-4573 |



**Recommended PC Board Layout (Component Side Shown)**  
**For Non-Midplane Applications**  
**For Midplane Applications Reference Page 126**

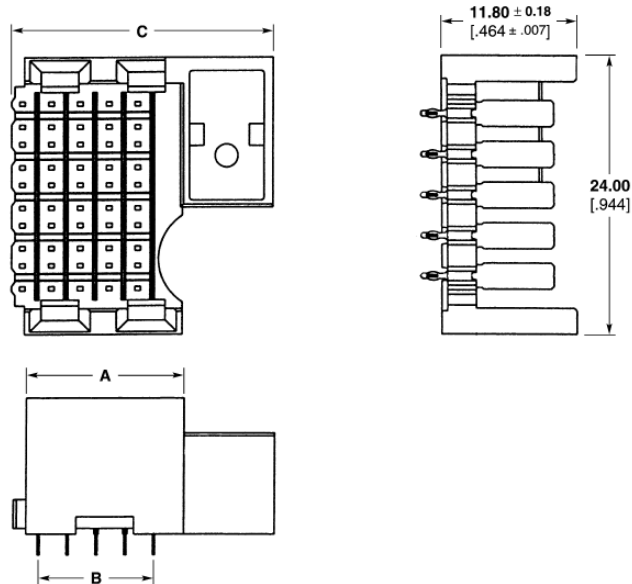


**Note:** All part numbers are RoHS compliant. Tin-Lead parts are RoHS compliant through exemption for lead in press-fit connectors.

## Z-PACK HS3 Connector (Continued)

### Vertical Pin Header Shrouds

#### 10 Row, Left Module



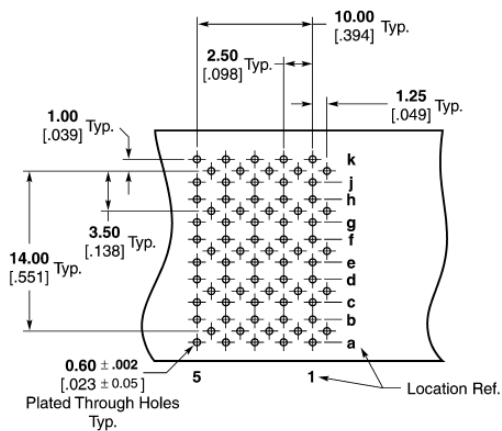
### P.C.B. Hole Dimensions

**Drilled Hole** — 0.7±0.025mm  
**Fin. Hole** — 0.55 to 0.65mm  
**Cu-thickness** — 0.025 to 0.050mm  
**SnPb-thickness** — 0.004 to 0.010mm

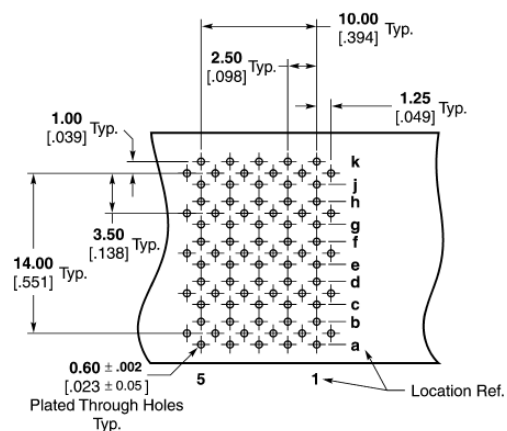
**Note:** For finishes other than Tin-Lead, reference Application Specification 114-13020.

### Receptacle Assemblies

| Number of Positions | Dimensions    |               |               | Part Number | Application Tooling |          |              |          |
|---------------------|---------------|---------------|---------------|-------------|---------------------|----------|--------------|----------|
|                     | A             | B             | C             |             | Seating             | IS Sheet | Ground Blade |          |
|                     |               |               |               |             |                     |          | Repair Kit   | IS Sheet |
| 50                  | 13.70<br>.539 | 10.00<br>.877 | 22.80<br>.322 | 5120668-1   | 91312-1             | 408-4546 | 1320534-2    | 408-4573 |



**Non-Coplanar Daughtercards**  
(Pin 1a Header = Pin 1k Shroud Side)  
**Recommended PC Board Layout — Reference Page 126**  
(Shroud Side Shown)



**Coplanar Daughtercards**  
(Pin 1a Header = Pin 5a Shroud Side)  
**Recommended PC Board Layout — Reference Page 126**  
(Shroud Side Shown)

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

## Z-PACK HS3 Connector (Continued)

### Vertical Pin Header Shrouds (Continued)

#### 10 Row, Center Module

#### P.C.B. Hole Dimensions

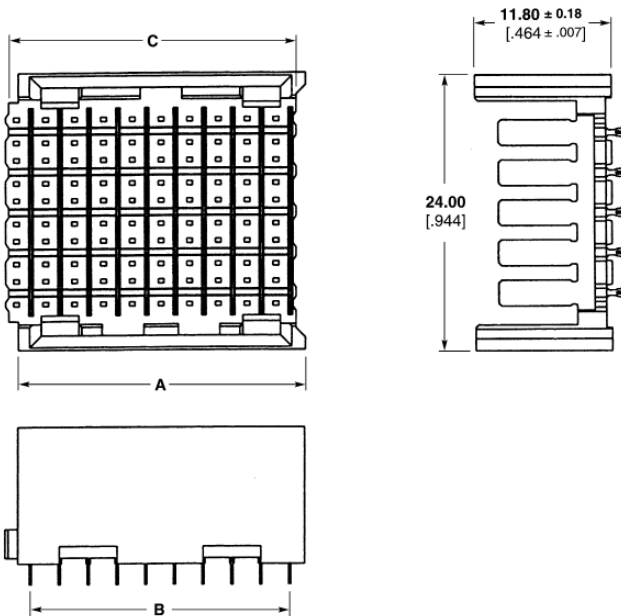
**Drilled Hole** — 0.7±0.025mm

**Fin. Hole** — 0.55 to 0.65mm

**Cu-thickness** — 0.025 to 0.050mm

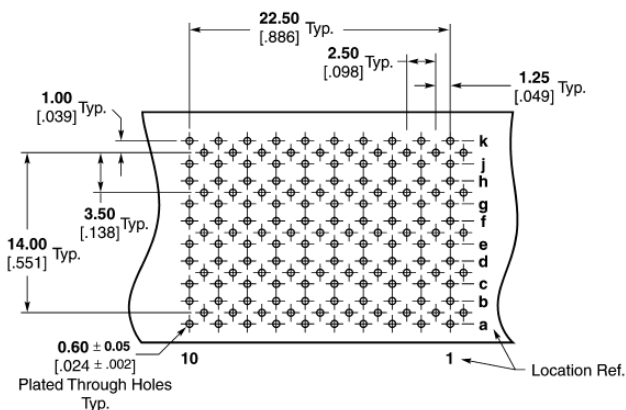
**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than  
Tin-Lead, reference  
Application Specification  
114-13020.

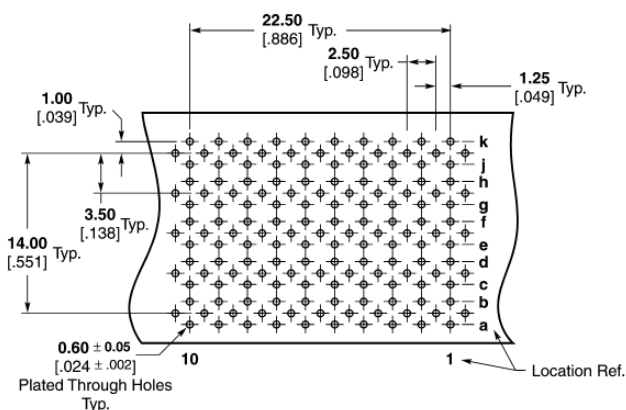


### Receptacle Assemblies

| Number of Positions | Dimensions    |               |               | Part Number | Application Tooling |          |              |          |
|---------------------|---------------|---------------|---------------|-------------|---------------------|----------|--------------|----------|
|                     | A             | B             | C             |             | Seating             | IS Sheet | Ground Blade |          |
|                     |               |               |               |             |                     |          | Repair Kit   | IS Sheet |
| 100                 | 24.90<br>.980 | 22.50<br>.886 | 24.90<br>.980 | 5120663-1   | 91312-2             | 408-4546 | 1320534-2    | 408-4573 |
| 50                  | 12.41<br>.488 | 10.00<br>.394 | 12.40<br>.488 | 5120750-1   | 91312-1             | 408-4546 | 1320534-2    | 408-4573 |



**Non-Coplanar Daughtercards**  
(Pin 1a Header = Pin 1k Shroud Side)  
Recommended PC Board Layout — Reference Page 126  
(Shroud Side Shown)



**Coplanar Daughtercards**  
(Pin 1a Header = Pin 10a Shroud Side)  
Recommended PC Board Layout — Reference Page 126  
(Shroud Side Shown)

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

## Z-PACK HS3 Connector (Continued)

### Vertical Pin Header Shrouds (Continued)

#### 10 Row, Right Module

#### P.C.B. Hole Dimensions

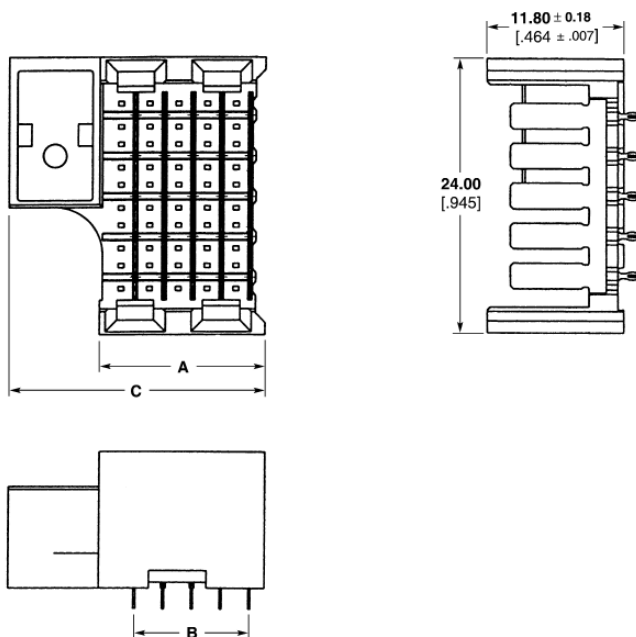
**Drilled Hole** — 0.7±0.025mm

**Fin. Hole** — 0.55 to 0.65mm

**Cu-thickness** — 0.025 to 0.050mm

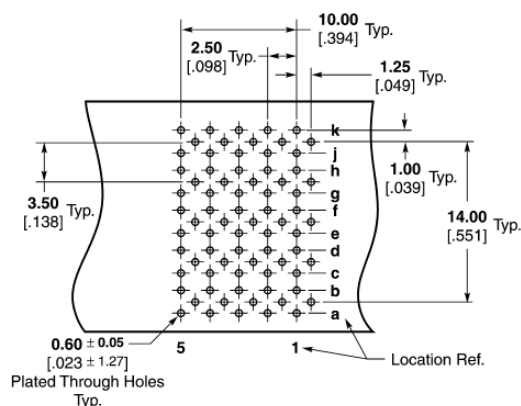
**SnPb-thickness** — 0.004 to 0.010mm

**Note:** For finishes other than  
Tin-Lead, reference  
Application Specification  
114-13020.

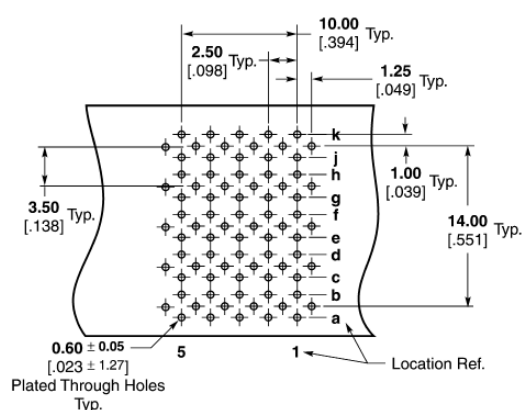


### Receptacle Assemblies

| Number of Positions | Dimensions    |               |               | Part Number | Application Tooling |          |              |          |
|---------------------|---------------|---------------|---------------|-------------|---------------------|----------|--------------|----------|
|                     | A             | B             | C             |             | Seating             | IS Sheet | Ground Blade |          |
|                     |               |               |               |             |                     |          | Repair Kit   | IS Sheet |
| 50                  | 14.46<br>.569 | 10.00<br>.394 | 22.28<br>.877 | 5120667-1   | 91312-1             | 408-4546 | 1320534-2    | 408-4573 |



**Non-Coplanar Daughtercards**  
(Pin 1a Header = Pin 1k Shroud Side)  
Recommended PC Board Layout — Reference Page 126  
(Shroud Side Shown)



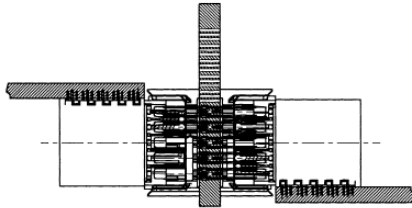
**Coplanar Daughtercards**  
(Pin 1a Header = Pin 5a Shroud Side)  
Recommended PC Board Layout — Reference Page 126  
(Shroud Side Shown)

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

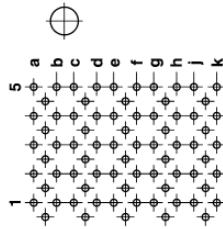
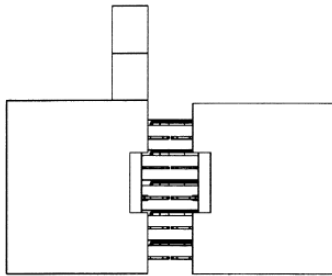
## Z-PACK HS3 Connector (Continued)

### Layout Guide for Midplane Applications 10 Row Connectors

#### Non-Coplanar Applications

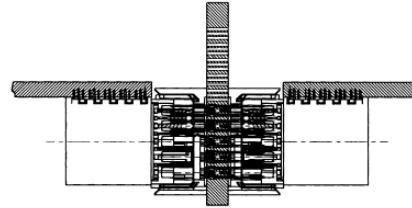


#### Right Module

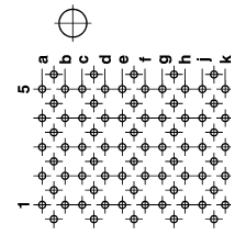
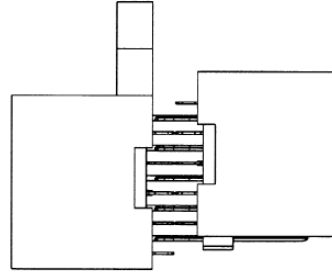


| Vertical Pin Header,<br>Feed-Through<br>Part No. | Shroud<br>Part No. |
|--------------------------------------------------|--------------------|
| 5120665                                          | 5120667-1          |

#### Coplanar Applications

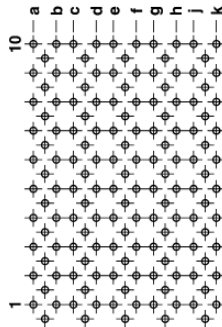
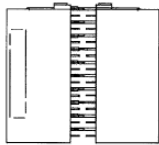


#### Right Module



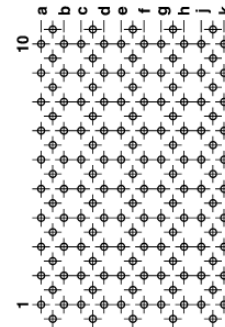
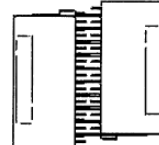
| Vertical Pin Header,<br>Feed-Through<br>Part No. | Shroud<br>Part No. |
|--------------------------------------------------|--------------------|
| 5120665                                          | 5120668-1          |

#### Center Module



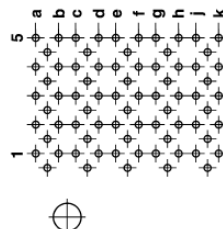
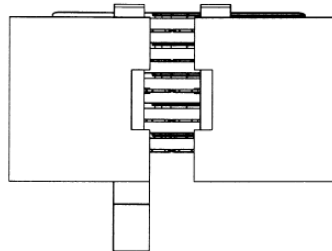
| No. of<br>Pos. | Vertical Pin Header,<br>Feed-Through<br>Part No. | Shroud<br>Part No. |
|----------------|--------------------------------------------------|--------------------|
| 100            | 5120664                                          | 5120663-1          |
| 50             | —                                                | 5120750-1          |

#### Center Module



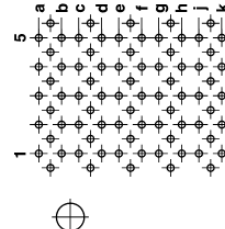
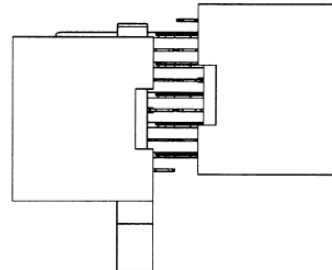
| No. of<br>Pos. | Vertical Pin Header,<br>Feed-Through<br>Part No. | Shroud<br>Part No. |
|----------------|--------------------------------------------------|--------------------|
| 100            | 5120664                                          | 5120663-1          |
| 50             | —                                                | 5120750-1          |

#### Left Module



| Vertical Pin Header,<br>Feed-Through<br>Part No. | Shroud<br>Part No. |
|--------------------------------------------------|--------------------|
| 5120666                                          | 5120667-1          |

#### Left Module



| Vertical Pin Header,<br>Feed-Through<br>Part No. | Shroud<br>Part No. |
|--------------------------------------------------|--------------------|
| 5120666                                          | 5120668-1          |

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

## Z-PACK HS3 Connector (Continued)

### Coding Keys (10 Row Only)

**Compatibility** — Z-PACK HS3,  
Z-PACK 12 row connectors  
Part Number 120639-3 (white)  
Part Number 120639-6 (red)

**Material & Finish** — Valox

### Power and Guide Hardware

#### Universal Power Module Vertical Receptacle (3 Pos.)

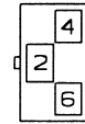
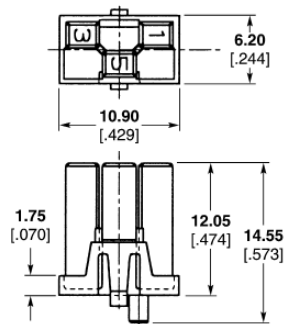
The Tyco Electronics Universal Power Module is a multi-position, modular, hard metric board-to-board power connector designed to be compatible with Z-PACK 2mm HM connectors. The design is in an "inverse-sex" orientation and the vertical receptacle module meets the IEC 950 safety requirements for finger probe protection.

Both the headers and receptacle utilize Tyco Electronics ACTION PIN press-fit leads for ease of assembly onto printed circuit boards. Additionally, the vertical receptacle leads are polarized to allow only one orientation onto the printed circuit board, eliminating the possibility of reverse placement.

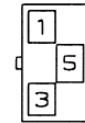
The Universal Power Module is compatible with a wide variety of other Tyco Electronics board-to-board connectors including Z-PACK HS3, Z-PACK HM-Zd and Z-PACK TinMan connectors.

The right angle header contacts are available with sequenced lengths for "make-first/break-last" applications.

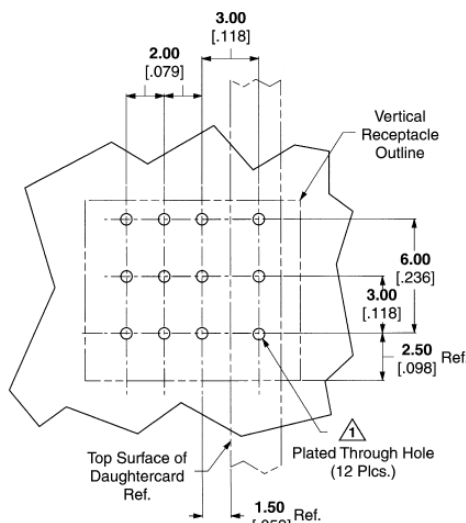
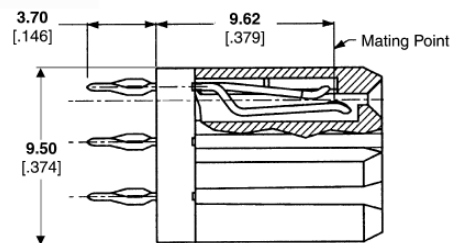
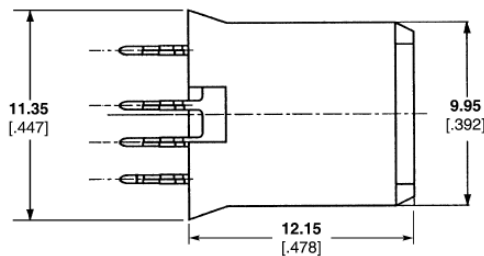
Generous alignment features designed into the housings and optional guide pins and receptacles make the Tyco Electronics Universal Power Module ideal for "blind mating" applications.



Part Number 120639-6



Part Number 120639-3



Recommended PC Board Hole Layout

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

|                     | Position Loaded | Part Numbers |
|---------------------|-----------------|--------------|
| Vertical Receptacle | ABC             | 5223955-2    |
|                     | AC              | 5223984-1    |
| High Current        | ABC             | 5-5223955-2  |

**PCB Hole Dim.**  
Drilled Hole =  $0.7000 \pm 0.025$  [0.02756 ± 0.0010]  
Finished Hole =  $0.60 \pm 0.05$  [0.024 ± 0.002]  
Cu Thickness =  $0.375 \pm 0.0125$  [0.0148 ± 0.00049]  
SnPb Thickness =  $0.007 \pm 0.003$  [0.0003 ± 0.0001]

**Note:** For finishes other than Tin-Lead, reference Application Specification 114-1103.

## Z-PACK HS3 Connector (Continued)

### Power and Guide Hardware (Continued)

### Expanded Universal Power Module Vertical Receptacles

### Material and Finish

**Housing** — Polyester, gray

**Contact** — Copper alloy, plated  
0.00127 [.000050] min. gold in mating  
area, 0.00050 [.000020] min. Tin-Lead  
on ACTION PIN product area, with entire  
contact underplated 0.00127 [.000050]  
min. nickel

### Related Product Data

**Guiding Hardware** (Optional) —  
pages 132 and 133

### Application Tooling

#### Header

Seating Tool, 224441-1

Board Support Fixture, 224442-1

#### Receptacle

Seating Tool, 224421-1

Board Support Fixture, 217602-1

### Technical Documents

#### Product Specification

108-1651

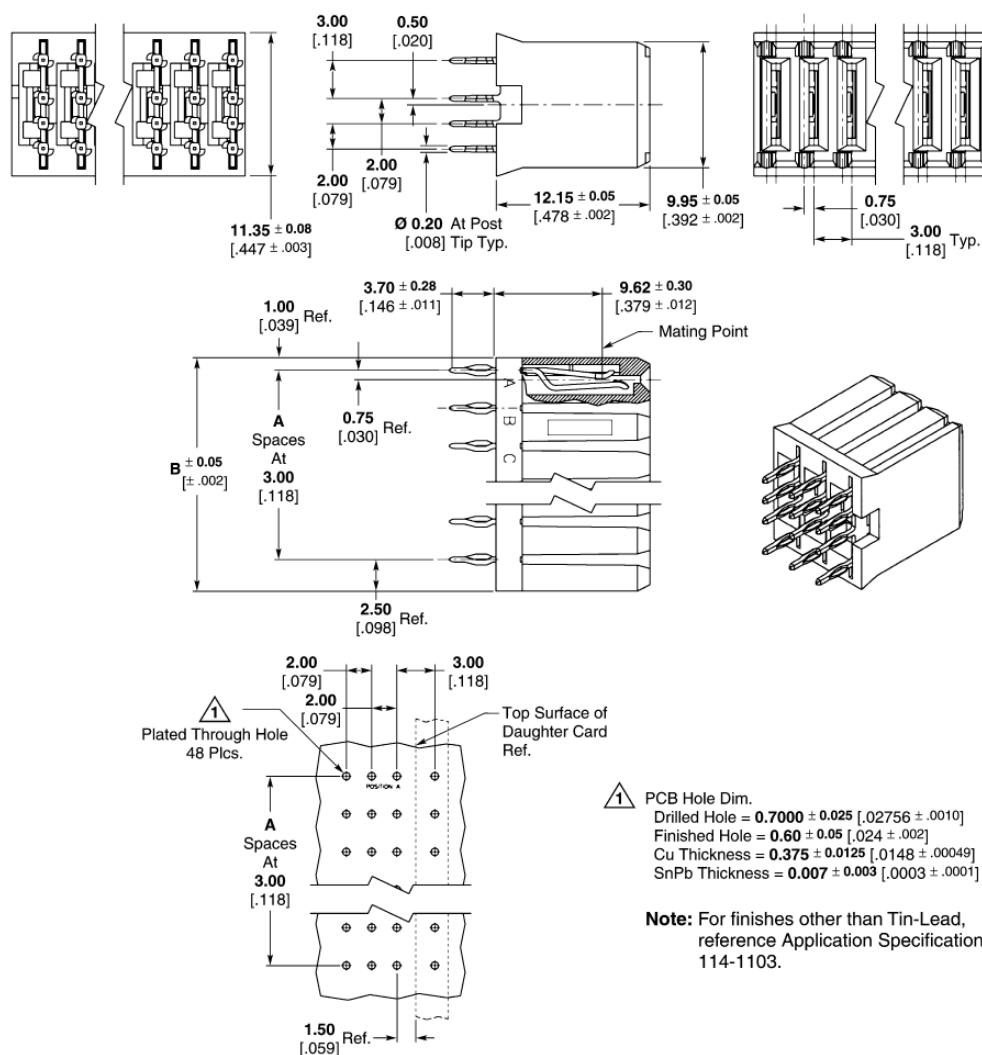
#### Application Specification

114-1103

#### Tyco Electronics Instruction Sheet

408-4169 (Receptacle)

Seating Tool 224421-1)



Recommended PCB Hole Layout

**PCB Hole Dim.**  
Drilled Hole =  $0.7000 \pm 0.025$  [.02756 ± .0010]  
Finished Hole =  $0.60 \pm 0.05$  [.024 ± .002]  
Cu Thickness =  $0.375 \pm 0.0125$  [.0148 ± .00049]  
SnPb Thickness =  $0.007 \pm 0.003$  [.0003 ± .0001]

**Note:** For finishes other than Tin-Lead,  
reference Application Specification  
114-1103.

| Position | A | B<br>Ref.     | Standard<br>*10A<br>Part Number | High Current<br>*15A<br>Part Number |
|----------|---|---------------|---------------------------------|-------------------------------------|
| 4        | 3 | 12.50<br>.492 | 5223995-1                       | 120953-1                            |
| 5        | 4 | 15.50<br>.610 | 5223995-2                       | 120953-2                            |
| 6        | 5 | 18.50<br>.728 | 5223995-3                       | 120953-3                            |
| 7        | 6 | 21.50<br>.846 | 5223995-4                       | 120953-4                            |
| 8        | 7 | 24.50<br>.965 | 5223995-5                       | 120953-5                            |

\*Reference Product Specification 108-1651.

**Note:** For additional Power Module  
options reference Catalog  
1773096, "Power Connectors  
and Interconnection  
Systems," or contact your  
Tyco Electronics Sales  
Representative.

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

## Z-PACK HS3 Connector (Continued)

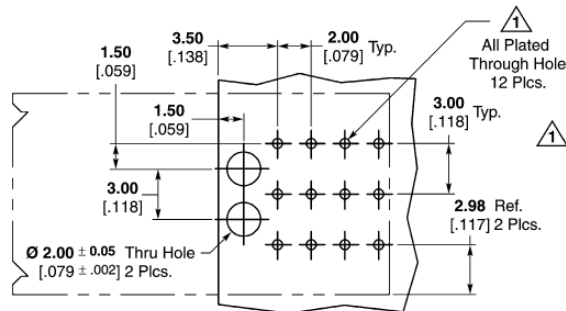
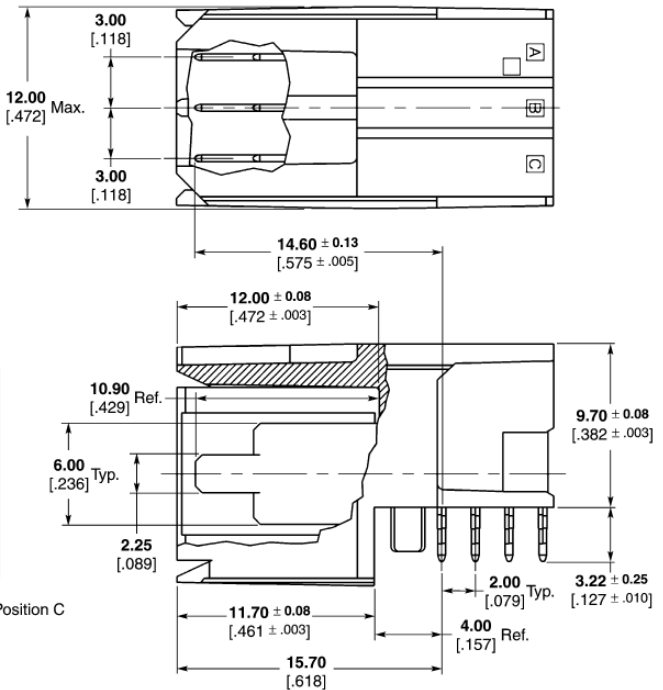
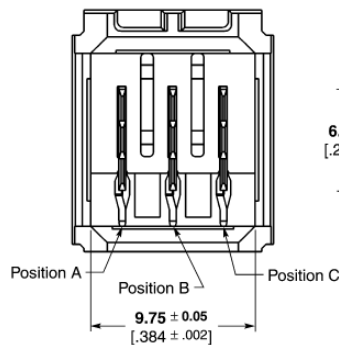
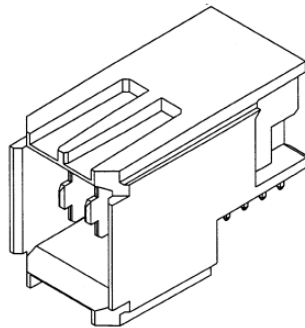
### Power and Guide Hardware (Continued)

#### Universal Power Module Right Angle Headers (3 Pos.)

#### Material and Finish

**Housing** — polyester, natural color

**Contacts** — Copper alloy, plated  
0.00127 [.000050] min. gold in mating  
area, 0.00050 [.000020] min. Tin-Lead  
on ACTION PIN post area, with entire  
contact underplated 0.00127 [.000050]  
min. nickel



PCB Hole Dim.  
Drilled Hole = 0.7000 ± 0.025 [.02756 ± .0010]  
Finished Hole = 0.60 ± 0.05 [.024 ± .002]  
Cu Thickness = 0.375 ± 0.0125 [.0148 ± .00049]  
SnPb Thickness = 0.007 ± 0.003 [.0003 ± .0001]

**Note:** For finishes other than Tin-Lead,  
reference Application Specification  
114-1103.

Recommended PC Board Hole Layout

**Note:** For additional Power Module  
options reference Catalog  
1773096, "Power Connectors  
and Interconnection  
Systems," or contact your  
Tyco Electronics Sales  
Representative.

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

| Blade Length Dimensions |              |              | Standard<br>*10A<br>Right Angle Header<br>Part Numbers | High Current<br>*15A<br>Right Angle Header<br>Part Numbers |
|-------------------------|--------------|--------------|--------------------------------------------------------|------------------------------------------------------------|
| Position A              | Position B   | Position C   |                                                        |                                                            |
| 10.90 [.429]            | 10.90 [.429] | 10.90 [.429] | 5223961-1                                              | 5-5223961-1                                                |
| 10.90 [.429]            | 9.30 [.366]  | 10.90 [.429] | 5223962-1                                              | —                                                          |
| 10.90 [.429]            | 9.30 [.366]  | 9.30 [.366]  | 5223968-1                                              | —                                                          |
| 10.90 [.429]            | 7.68 [.302]  | 10.90 [.429] | 5223972-1                                              | —                                                          |
| 10.90 [.429]            | 7.68 [.302]  | 9.30 [.366]  | 5223971-1                                              | —                                                          |
| 10.90 [.429]            | 7.68 [.302]  | 7.68 [.302]  | 5223970-1                                              | —                                                          |
| 9.30 [.429]             | 10.90 [.429] | 9.30 [.366]  | 5223963-1                                              | —                                                          |
| 9.30 [.366]             | 10.90 [.429] | 7.68 [.302]  | 5223964-1                                              | —                                                          |
| 9.30 [.366]             | 9.30 [.366]  | 9.30 [.366]  | 5223967-1                                              | —                                                          |
| 9.30 [.366]             | —            | 9.30 [.366]  | 5223975-1                                              | —                                                          |
| 9.30 [.366]             | 9.30 [.366]  | 7.68 [.302]  | 5223981-1                                              | —                                                          |
| 9.30 [.366]             | 7.68 [.302]  | 9.30 [.366]  | 5223965-1                                              | —                                                          |
| 7.68 [.302]             | 9.30 [.366]  | 7.68 [.302]  | 5223983-1                                              | —                                                          |
| 7.68 [.302]             | 7.68 [.302]  | 9.30 [.366]  | 5223980-1                                              | —                                                          |
| 7.68 [.302]             | 7.68 [.302]  | 7.68 [.302]  | 5223974-1                                              | 5-5223974-1                                                |

\*Reference Product Specification 108-1651.

## Z-PACK HS3 Connector (Continued)

### Power and Guide Hardware

(Continued)

### Expanded Universal Power Module Right Angle Headers

#### Material and Finish

**Housing** — Polyester, gray

**Contacts** — Phosphor bronze, plated 0.00127 [.000050] min. gold in mating area, 0.00054 [.000021] min. Tin-Lead on ACTION PIN product area, with entire contact underplated 0.00127 [.000050] min. nickel

#### Related Product Data

**Guiding Hardware** (Optional) — pages 132 and 133

#### Application Tooling

##### Header

Seating Tool, 224441-1  
Board Support Fixture, 224442-1

##### Receptacle

Seating Tool, 224421-1  
Board Support Fixture, 217602-1

#### Technical Documents

##### Product Specification

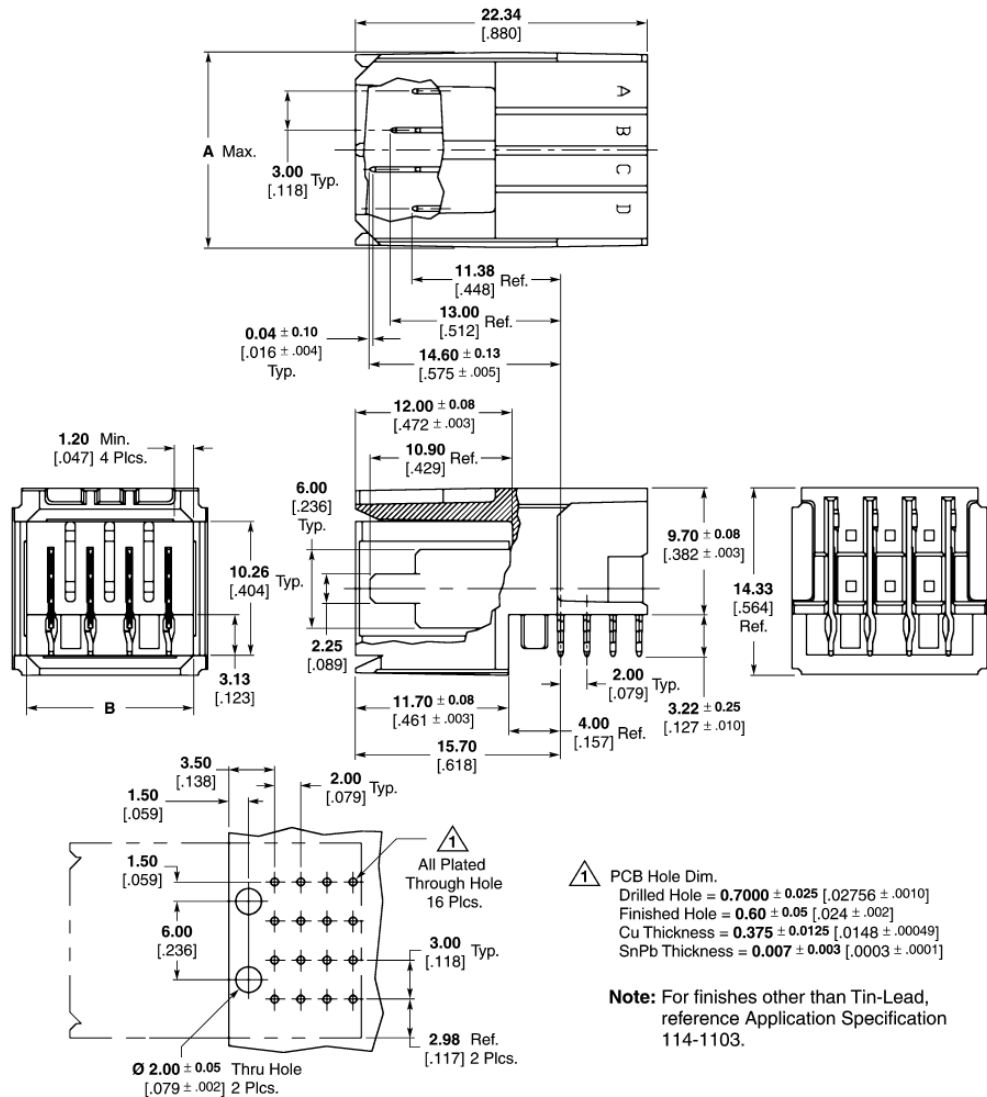
108-1651

##### Application Specification

114-1103

##### Tyco Electronics Instruction Sheet

408-4169 (Receptacle  
Seating Tool 224421-1)



Recommended PC Board Hole Layout

| Positions | Dimensions     |               | Standard<br>*10A<br>Base Part Number <sup>1</sup> | High Current<br>*15A<br>Base Part Number <sup>1</sup> |
|-----------|----------------|---------------|---------------------------------------------------|-------------------------------------------------------|
|           | A              | B             |                                                   |                                                       |
| 4         | 15.00<br>.591  | 12.75<br>.502 | 5646954                                           | 120954                                                |
| 5         | 18.00<br>.709  | 15.75<br>.620 | 5646955                                           | 120955                                                |
| 6         | 21.00<br>.827  | 18.75<br>.738 | 5646956                                           | 120956                                                |
| 7         | 24.00<br>.945  | 21.75<br>.856 | 5646957                                           | 120957                                                |
| 8         | 27.00<br>1.063 | 24.75<br>.974 | 5646958                                           | 120958                                                |

**Note:** For additional Power Module options reference Catalog 1773096, "Power Connectors and Interconnection Systems," or contact your Tyco Electronics Sales Representative.

<sup>1</sup> Dash number indicates sequence pattern. See customer drawing for specific dash numbers.

\*Reference Product Specification 108-1651.

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

## Z-PACK HS3 Connector (Continued)

### Power and Guide Hardware

(Continued)

#### AMP-HDI Static Discharge Guide/Power Pins

**Compatibility** — Z-PACK HS3,  
Z-PACK 2mm HM connectors

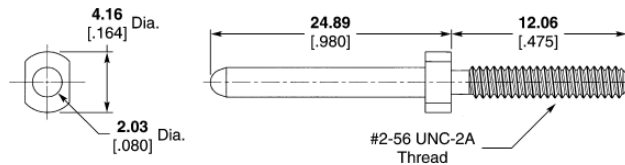
**Part Number** — 532828-5\*

**Nut** — 21124-4

**Washer** — 986794-1

**Max. Current Rating** — 10 Amperes

\*Additional sequence lengths are  
available, contact Tyco Electronics



#### Material and Finish

Brass, plated 0.00076 [.000030] gold  
over 0.00127-0.00254 [.000050-  
.000100] nickel

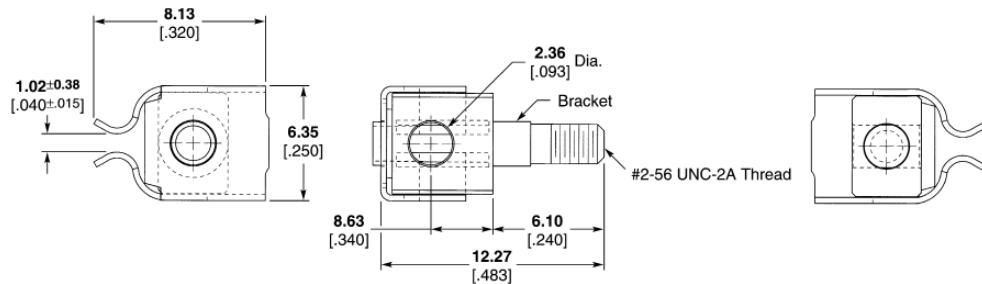
#### AMP-HDI Guide Pin/Power Receptacles

**Compatibility** — Z-PACK HS3  
connector

**Part Number** — 535875-1\*

**Max. Current Rating** — 10 Amperes

\*Additional lengths are available, see  
customer drawing.



#### Material and Finish

**Contact Finish** — 0.00076 [.000030]  
gold in contact area, over 0.00127  
[.000050] min. nickel underplate. Gold  
flash on remainder of the contact.

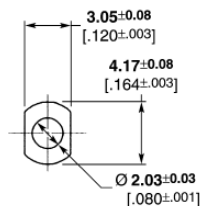
#### ESD-Guide Pin/Feed-through

**Compatibility** — Z-PACK HS3  
connector

**Part Number** — 120759-2\*

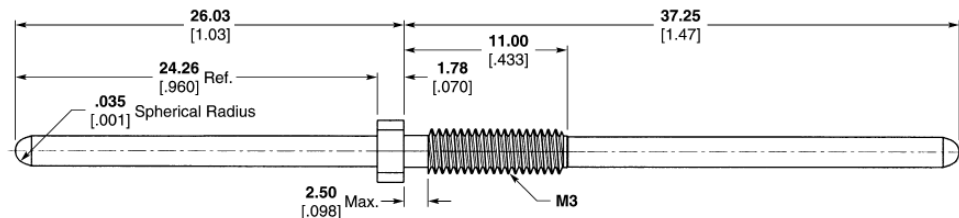
**Max. Current Rating** — 10 Amperes

\*Additional sequence lengths are  
available, contact Tyco Electronics



#### Material and Finish

Brass, plated 0.00076 [.000030] gold all  
over 0.001427-0.00254 [.000050-  
.000100] nickel underplate



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

## Z-PACK HS3 Connector (Continued)

### Power and Guide Hardware

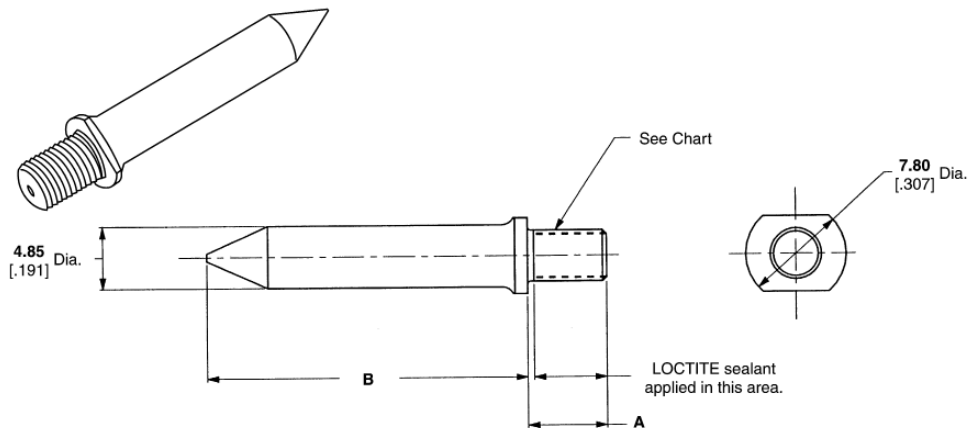
(Continued)

#### Guide Pin (Unkeyed)

##### Material and Finish

**Guide Pin** — Passivated stainless steel

**Part Number 223956-1**



| Dimension     |               | Thread      | Part Numbers |
|---------------|---------------|-------------|--------------|
| A             | B             |             |              |
| 7.50 [.295]   | 24.73 [.974]  | M4 x 7-6g   | 223982-1*    |
| 9.20 [.362]   | 25.16 [.991]  | M4 x 7-6g   | 223969-7     |
| 12.70 [.500]  | 25.16 [.991]  | 8-32 UNC-2A | 223969-4     |
| 12.70 [.500]  | 25.16 [.991]  | M4 x 7-6g   | 223969-1     |
| 6.20 [.244]   | 25.16 [.991]  | M4 x 7-6g   | 223956-1     |
| 12.70 [.500]  | 31.25 [1.230] | 8-32 UNC-2A | 1-223969-0   |
| 3.80** [.150] | 27.16 [1.069] | M4 x 7-6h   | 120646-1     |
| 2.00** [.079] | 27.16 [1.069] | M3 x 0.5    | 223988-1     |

\*6.35 Hex Base

\*\*Internal Thread

#### Female Guide Module (Unkeyed)

##### Material and Finish

**Guide Module** — Zinc alloy, chromate conversion coated

##### Related Product Data

###### Application Tooling —

Seating Tool, 224440-1

Board Support Fixture, 217603-1

##### Technical Documents

###### Product Specification

108-1651

###### Application Specification

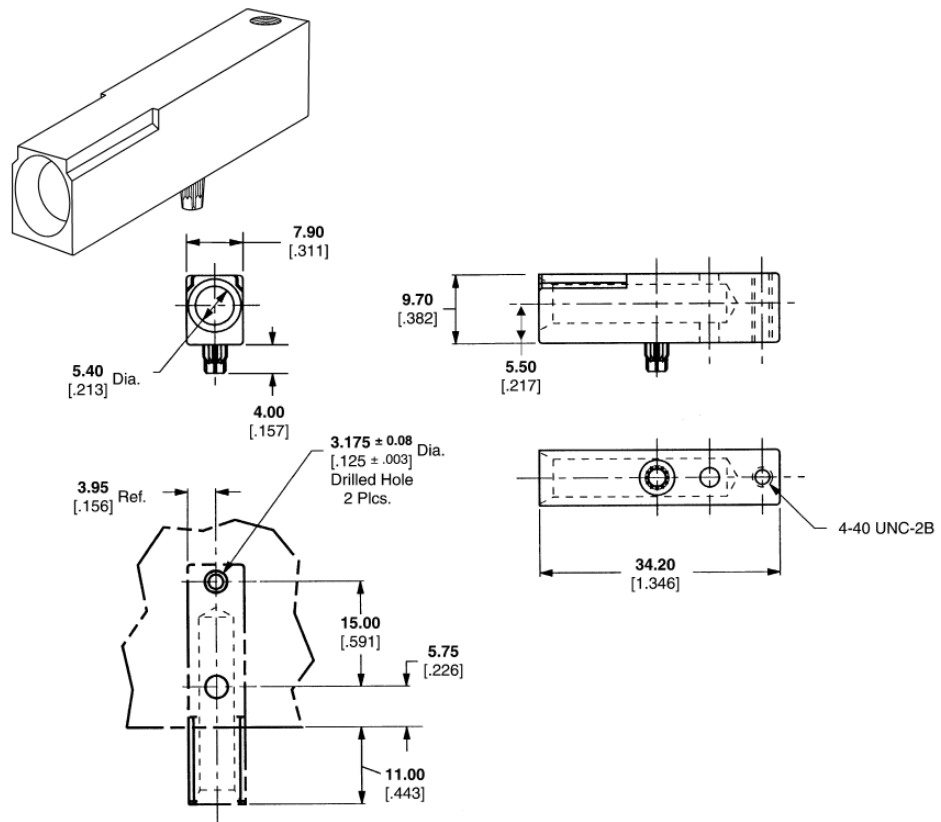
114-1103

**Part Number 223957-1**

(as shown)

**Part Number 223979-1**

(dual alignment posts)



LOCTITE is a trademark of Henkel Corp.

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

#### Recommended PC Board Hole Layout

## Z-PACK HS3 Connector (Continued)

### Power and Guide Hardware (Continued)

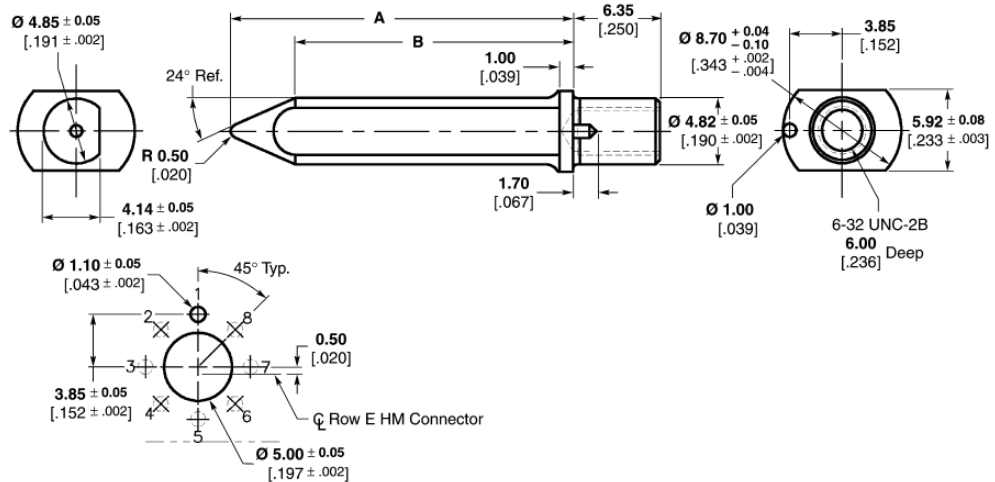
#### Guide Pin (Keyed)

#### Material and Finish

**Guide Pin** — Zinc alloy, chromate conversion coated

**Part Number 223985**

| Dimension      |               | Part Number |
|----------------|---------------|-------------|
| A              | B             |             |
| 25.16<br>.991  | 20.39<br>.803 | 223985-1    |
| 29.00<br>1.142 | 24.23<br>.954 | 223985-3    |



**Recommended PC Board Layout  
(Position Shown Used with  
Part Number 5223986-1)**

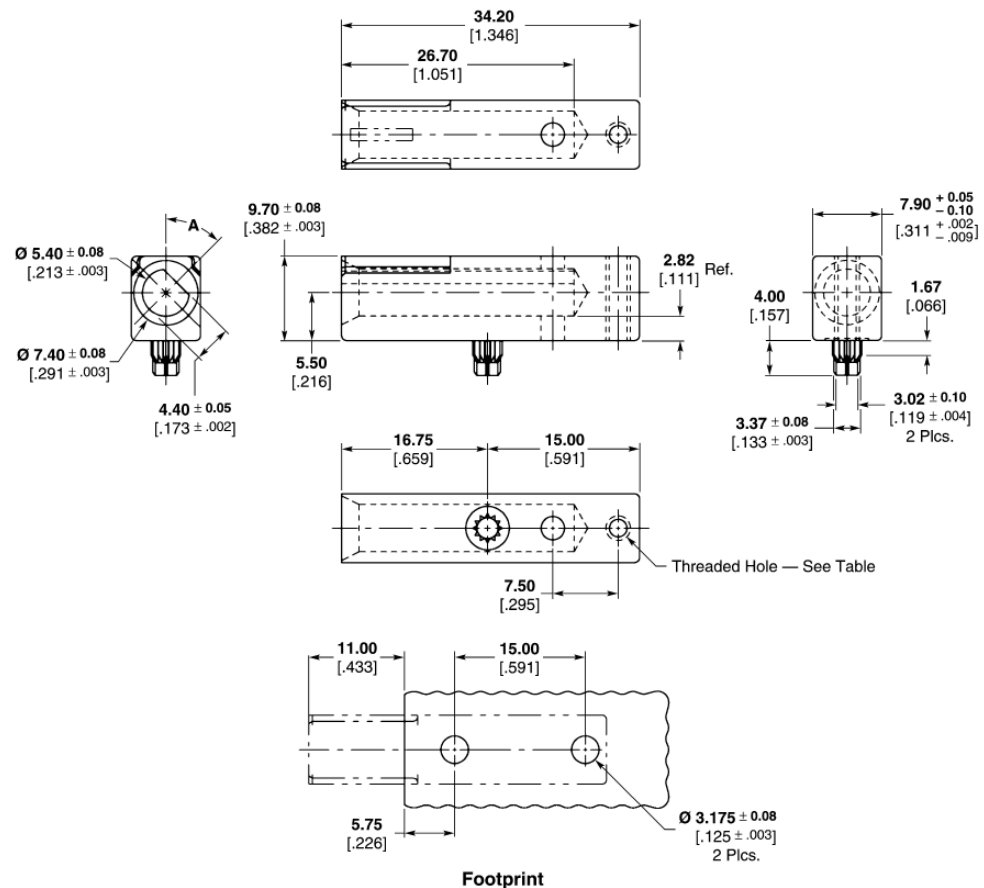
#### Female Guide Module (Keyed)

#### Material and Finish

**Guide Module** — Zinc alloy, chromate conversion coated

**Part Number 5223986**

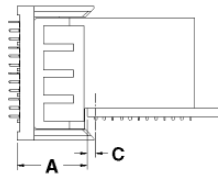
| Dim. A | Thread | Part Number |
|--------|--------|-------------|
| 0°     | 4-40   | 5223986-1   |
| 45°    | 4-40   | 5223986-2   |
| 90°    | 4-40   | 5223986-3   |
| 135°   | 4-40   | 5223986-4   |
| 180°   | 4-40   | 5223986-5   |
| 225°   | 4-40   | 5223986-6   |
| 270°   | 4-40   | 5223986-7   |
| 315°   | 4-40   | 5223986-8   |
| 0°     | M2.6   | 5120913-1   |
| 45°    | M2.6   | 5120913-2   |
| 90°    | M2.6   | 5120913-3   |
| 135°   | M2.6   | 5120913-4   |
| 180°   | M2.6   | 5120913-5   |
| 225°   | M2.6   | 5120913-6   |
| 270°   | M2.6   | 5120913-7   |
| 315°   | M2.6   | 5120913-8   |



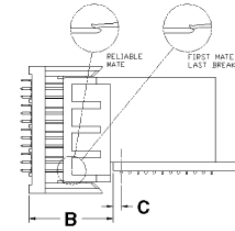
**Note:** All part numbers are RoHS compliant.

## Z-PACK HS3 Connector (Continued)

### Z-PACK HS-3 Connector Mating Sequence Chart



Fully Mated

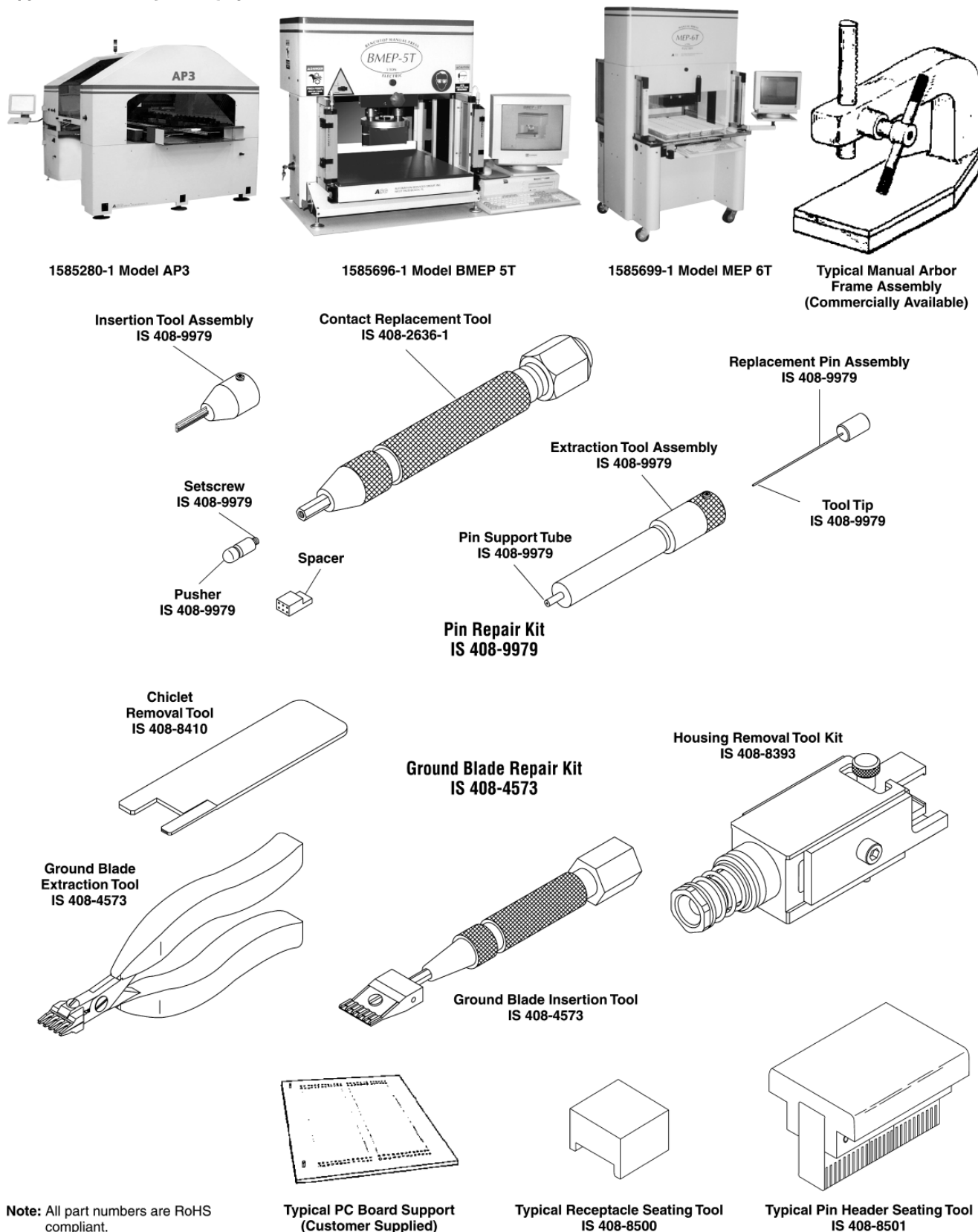


Reliable Mate

| Product Family                                          | Dim. C       | Dim. A Fully Mated | Contact                   | Dim B.        |                       | Fully Mated Wipe Length |
|---------------------------------------------------------|--------------|--------------------|---------------------------|---------------|-----------------------|-------------------------|
|                                                         |              |                    |                           | Reliable Mate | First Mate Last Break |                         |
| Z-PACK HM-Zd Product                                    | 1.50<br>.059 | 12.50<br>.492      | Ground Shield             | 16.78 [.661]  | 17.55 [.691]          | 4.28 [.169]             |
|                                                         |              |                    | Signal Level 2            | 15.41 [.607]  | 15.85 [.624]          | 2.91 [.115]             |
|                                                         |              |                    | Signal Level 1            | 13.91 [.548]  | 14.35 [.565]          | 1.41 [.056]             |
| Z-PACK HM-Zd Guide Hardware                             | 3.00<br>.118 | 12.50<br>.492      | 24.0 mm Pin               | 27.50 [1.083] | 33.40 [1.315]         | N/A                     |
|                                                         |              |                    | 22.2 mm Pin               | 25.70 [1.012] | 31.60 [1.244]         | N/A                     |
|                                                         |              |                    | Key Blocking Point        | N/A           | 22.03 [.867]          | N/A                     |
| Z-PACK TinMan Product                                   | 1.50<br>.059 | 12.50<br>.492      | Ground Pins               | 16.44 [.647]  | 17.13 [.674]          | 3.94 [.155]             |
|                                                         |              |                    | Signal Level 2            | 14.94 [.588]  | 15.63 [.615]          | 2.44 [.096]             |
|                                                         |              |                    | Signal Level 1            | N/A           | N/A                   | N/A                     |
| Z-PACK 2mm HM Product                                   | 1.50<br>.059 | 12.50<br>.492      | Signal Level 3            | 18.27 [.719]  | 18.84 [.742]          | 5.77 [.227]             |
|                                                         |              |                    | Signal Level 2            | 16.77 [.660]  | 17.34 [.683]          | 4.27 [.168]             |
|                                                         |              |                    | Signal Level 1            | 15.27 [.601]  | 15.84 [.624]          | 2.77 [.109]             |
| MULTIGIG RT T1 Product                                  | 2.50<br>.098 | 12.50<br>.492      | Ground                    | 18.00 [.709]  | —                     | 5.50 [.217]             |
|                                                         |              |                    | Signal Level 3            | 18.00 [.709]  | —                     | 5.50 [.217]             |
|                                                         |              |                    | Signal Level 2            | 16.50 [.650]  | —                     | 4.00 [.157]             |
| MULTIGIG RT T2 Product                                  | 2.25<br>.089 | 12.50<br>.492      | Signal Level 1            | 15.00 [.591]  | —                     | 2.50 [.098]             |
|                                                         |              |                    | Ground                    | 18.00 [.709]  | —                     | 5.50 [.217]             |
|                                                         |              |                    | Signal Level 3            | 18.00 [.709]  | —                     | 5.50 [.217]             |
| MULTIGIG RT Power Module                                | 5.50<br>.217 | 12.50<br>.492      | Signal Level 2            | 16.50 [.650]  | —                     | 4.00 [.157]             |
|                                                         |              |                    | Signal Level 1            | 15.00 [.591]  | —                     | 2.50 [.098]             |
|                                                         |              |                    | Power Level 3             | 23.75 [.935]  | —                     | 11.25 [.443]            |
| MULTIGIG RT Guide Hardware                              | N/A          | 12.50<br>.492      | Power Level 2             | 22.25 [.876]  | —                     | 9.75 [.384]             |
|                                                         |              |                    | Power Level 1             | 20.75 [.817]  | —                     | 8.25 [.325]             |
|                                                         |              |                    | Guide Pin Key             | 33.25 [1.309] | N/A                   | 20.75 [.817]            |
| Z-PACK HS3 Product                                      | 1.50<br>.059 | 12.50<br>.492      | Guide ESD Contact         | 30.75 [1.211] | —                     | 18.25 [.719]            |
|                                                         |              |                    | Ground                    | 17.08 [.672]  | 17.60 [.693]          | 4.78 [.188]             |
|                                                         |              |                    | Signal Level 2            | 16.05 [.632]  | 16.47 [.648]          | 3.75 [.148]             |
| UPM                                                     | 3.50<br>.138 | 12.50<br>.492      | Signal Level 1            | 14.55 [.573]  | 14.97 [.589]          | 2.25 [.089]             |
|                                                         |              |                    | Power Level 3             | 20.25 [.797]  | 20.95 [.825]          | 8.10 [.319]             |
|                                                         |              |                    | Power Level 2             | 18.65 [.734]  | 19.35 [.762]          | 6.50 [.256]             |
| UPM Guide Hardware                                      | 5.75<br>.226 | 12.50<br>.492      | Power Level 1             | 17.03 [.670]  | 17.73 [.698]          | 4.88 [.192]             |
|                                                         |              |                    | Guide Pin Key             | 31.39 [1.236] | 36.16 [1.424]         | N/A                     |
|                                                         |              |                    | Keyed Guide Pin           | 31.39 [1.236] | 36.16 [1.424]         | N/A                     |
| MULTI-BEAM XL Right Angle Header to Vertical Receptacle | 5.08<br>.200 | 14.73<br>.580      | Keyed Guide Pin           | 35.23 [1.387] | 40.00 [1.575]         | N/A                     |
|                                                         |              |                    | PreMate Power — Level 1   | —             | 16.84 [.663]          | 5.61 [.221] Min.        |
|                                                         |              |                    | PostMate Power — Level 2  | —             | 17.81 [.701]          | 4.34 [.171] Min.        |
| MULTI-BEAM XL Right Angle Receptacle to Vertical Header | 3.81<br>.150 | 13.21<br>.520      | PreMate Signal — Level 2  | —             | 18.26 [.719]          | 3.81 [.150] Min.        |
|                                                         |              |                    | PostMate Signal — Level 3 | —             | 19.53 [.769]          | 2.54 [.100] Min.        |
|                                                         |              |                    | PreMate Power — Level 1   | —             | 15.32 [.603]          | 5.61 [.221] Min.        |
|                                                         |              |                    | PostMate Power — Level 2  | —             | 16.28 [.641]          | 4.34 [.171] Min.        |
|                                                         |              |                    | PreMate Signal — Level 2  | —             | 16.74 [.659]          | 3.81 [.150] Min.        |
|                                                         |              |                    | PostMate Signal — Level 3 | —             | 18.01 [.709]          | 2.54 [.100] Min.        |

## Z-PACK HS3 Connector (Continued)

### Application Tooling and Equipment

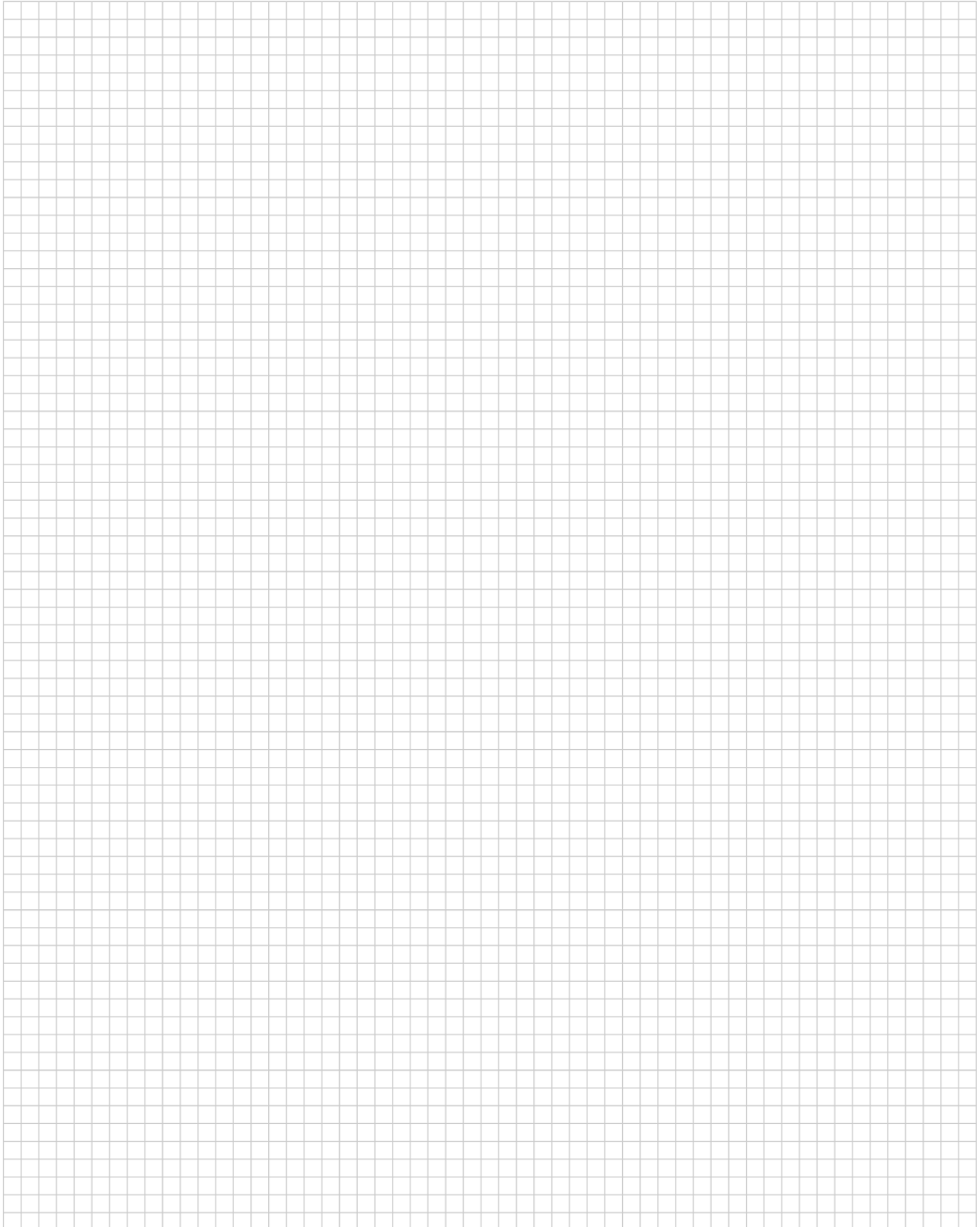


**Note:** All part numbers are RoHS compliant.

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**Engineering Notes**

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