



**1.0mm Free Height (FH) (IEEE 1386) Connectors**

**Product Facts**

- For board stacking applications
- High density packaging on 1.0 [.039] centerline spacing
- Available in standard 64-position and optional 84-position sizes
- "Tape-and-reel" packaged per EIA standards
- Board stacking heights available from 8 [.315] to 15 [.591] (see page 84)
- Increased plastic clearance eliminates stress to solder joints during mating (see page 84)
- Improved locating posts ensure accurate hand or robotic placement (see page 84)
- Meets EIA-700 AAAB specifications for IEEE 1386 applications
- All 1.0mm Free Height products within this section are RoHS Compliant

**Technical Documents** (page 113)  
**Product Specification**  
108-2246



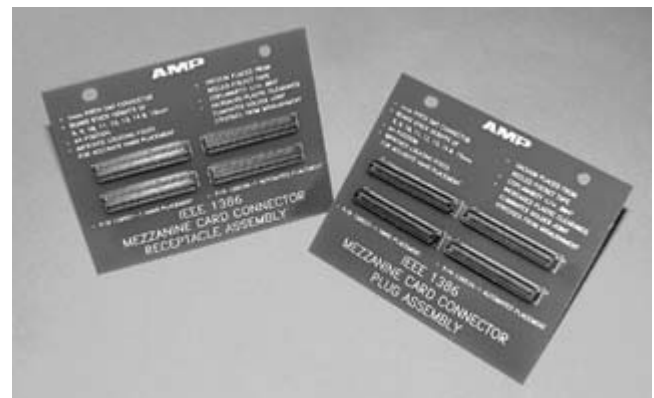
As a standard for adding local PCI or Sbus performance to Futurebus+ and VMEbus applications, IEEE 1386 offers new levels of performance and packaging convenience through the mezzanine architecture. Tyco Electronics makes it easier and more productive to add an IEEE 1386 mezzanine connector to your system. The surface-mount parallel stacking connector features contacts on a 1.0 [.039] pitch and is available in eight stacking heights

from 8 [.315] to 15 [.591]. Sizes include the IEEE 1386 standard 64-position version and an optional 84-position version. Not only is the connector compatible with EIA-700 AAAB — the connector standard for IEEE 1386 mezzanine connectors — it offers several enhancements that make it easier to use and more reliable. Increased plastic clearance between mating connectors makes it easier to align multiple connectors for mating,

thus eliminating stress to the solder joints during engagement. Improved locating posts allow fast, highly accurate hand placement of connectors. The connectors are available with vacuum covers for automated placement.

**Performance Characteristics**  
**Current Rating** — 1.0 ampere per contact  
**Contact Resistance** — 30 milliohms max. (initial)  
**Durability** — tested to 100 mating cycles min.

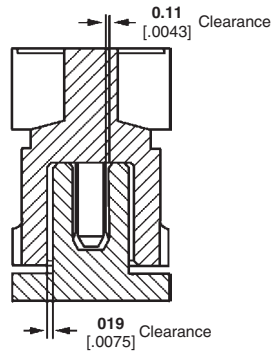
1.0mm FH (IEEE 1386) Connectors



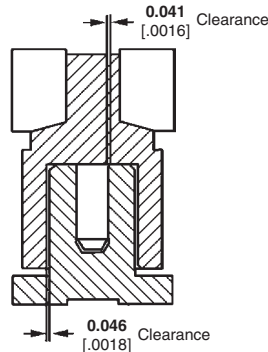
**1.0mm Free Height (FH) (IEEE 1386) Connectors (Continued)**

Additional clearance during mating increases reliability by allowing registration misalignment and eliminating stresses on the solder joints.

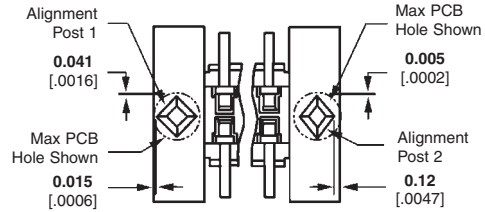
Improved locating posts allow fast, accurate hand placement on the board by ensuring proper location at both the minimum and maximum dimensions of connector material tolerances and PC board hole tolerances.



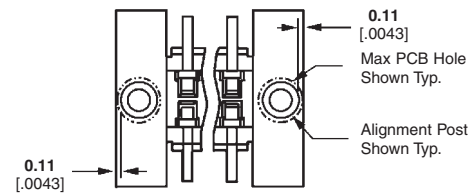
Tyco Electronics Product



Competitive Product



Tyco Electronics Product



Competitive Product

**1.0mm Free Height (FH) (IEEE 1386) Connector Assemblies**

| No. of Positions | Plating      | Stack Height | With Locating Posts Without Pickup Cap |             | Without Locating Posts With Pickup Cap |             | With Locating Posts With Pickup Cap |             |
|------------------|--------------|--------------|--|-------------|--|-------------|-------------------------------------|-------------|
|                  |              |              | Receptacle                             | Plug        | Receptacle                             | Plug        | Receptacle                          | Plug        |
| 64               | 30µ" Au      | 8.00 [.315]  | 5120521-1                              | 5120525-1   | 5120528-1                              | 5120532-1   | 5146893-1                           | 5146897-1   |
|                  |              | 9.00 [.354]  | 5120521-1                              | 5120526-1   | 5120528-1                              | 5120533-1   | 5146893-1                           | 5146898-1   |
|                  |              | 10.00 [.394] | 5120521-1                              | 5120527-1   | 5120528-1                              | 5120534-1   | 5146893-1                           | 5146888-1   |
|                  |              | 11.00 [.433] | 5120603-1                              | 5120526-1   | 5120529-1                              | 5120533-1   | 5146894-1                           | 5146898-1   |
|                  |              | 12.00 [.472] | 5120603-1                              | 5120527-1   | 5120529-1                              | 5120534-1   | 5146894-1                           | 5146888-1   |
|                  |              | 13.00 [.512] | 5120523-1                              | 5120527-1   | 5120530-1                              | 5120534-1   | 5146895-1                           | 5146888-1   |
|                  |              | 14.00 [.551] | 5120524-1                              | 5120526-1   | 5120531-1                              | 5120533-1   | 5146896-1                           | 5146898-1   |
|                  | 15.00 [.591] | 5120524-1    | 5120527-1                              | 5120531-1   | 5120534-1                              | 5146896-1   | 5146888-1                           |             |
|                  | 50µ" Au      | 8.00 [.315]  | 1-5120521-1                            | 1-5120525-1 | 1-5120528-1                            | 1-5120532-1 | 1-5146893-1                         | 1-5146897-1 |
|                  |              | 9.00 [.354]  | 1-5120521-1                            | 1-5120526-1 | 1-5120528-1                            | 1-5120533-1 | 1-5146893-1                         | 1-5146898-1 |
|                  |              | 10.00 [.394] | 1-5120521-1                            | 1-5120527-1 | 1-5120528-1                            | 1-5120534-1 | 1-5146893-1                         | 1-5146888-1 |
|                  |              | 11.00 [.433] | 1-5120603-1                            | 1-5120526-1 | 1-5120529-1                            | 1-5120533-1 | 1-5146894-1                         | 1-5146898-1 |
|                  |              | 12.00 [.472] | 1-5120603-1                            | 1-5120527-1 | 1-5120529-1                            | 1-5120534-1 | 1-5146894-1                         | 1-5146888-1 |
|                  |              | 13.00 [.512] | 1-5120523-1                            | 1-5120527-1 | 1-5120530-1                            | 1-5120534-1 | 1-5146895-1                         | 1-5146888-1 |
|                  |              | 14.00 [.551] | 1-5120524-1                            | 1-5120526-1 | 1-5120531-1                            | 1-5120533-1 | 1-5146896-1                         | 1-5146898-1 |
| 15.00 [.591]     |              | 1-5120524-1  | 1-5120527-1                            | 1-5120531-1 | 1-5120534-1                            | 1-5146896-1 | 1-5146888-1                         |             |
| 84               | 30µ" Au      | 8.00 [.315]  | 5120521-2                              | 5120525-2   | 5120528-2                              | 5120532-2   | 5146893-2                           | 5146897-2   |
|                  |              | 9.00 [.354]  | 5120521-2                              | 5120526-2   | 5120528-2                              | 5120533-2   | 5146893-2                           | 5146898-2   |
|                  |              | 10.00 [.394] | 5120521-2                              | 5120527-2   | 5120528-2                              | 5120534-2   | 5146893-2                           | 5146888-2   |
|                  |              | 11.00 [.433] | 5120603-2                              | 5120526-2   | 5120529-2                              | 5120533-2   | 5146894-2                           | 5146898-2   |
|                  |              | 12.00 [.472] | 5120603-2                              | 5120527-2   | 5120529-2                              | 5120534-2   | 5146894-2                           | 5146888-2   |
|                  |              | 13.00 [.512] | 5120523-2                              | 5120527-2   | 5120530-2                              | 5120534-2   | 5146895-2                           | 5146888-2   |
|                  |              | 14.00 [.551] | 5120524-2                              | 5120526-2   | 5120531-2                              | 5120533-2   | 5146896-2                           | 5146898-2   |
|                  | 15.00 [.591] | 5120524-2    | 5120527-2                              | 5120531-2   | 5120534-2                              | 5146896-2   | 5146888-2                           |             |
|                  | 50µ" Au      | 8.00 [.315]  | 1-5120521-2                            | 1-5120525-2 | 1-5120528-2                            | 1-5120532-2 | 1-5146893-2                         | 1-5146897-2 |
|                  |              | 9.00 [.354]  | 1-5120521-2                            | 1-5120526-2 | 1-5120528-2                            | 1-5120533-2 | 1-5146893-2                         | 1-5146898-2 |
|                  |              | 10.00 [.394] | 1-5120521-2                            | 1-5120527-2 | 1-5120528-2                            | 1-5120534-2 | 1-5146893-2                         | 1-5146888-2 |
|                  |              | 11.00 [.433] | 1-5120603-2                            | 1-5120526-2 | 1-5120529-2                            | 1-5120533-2 | 1-5146894-2                         | 1-5146898-2 |
|                  |              | 12.00 [.472] | 1-5120603-2                            | 1-5120527-2 | 1-5120529-2                            | 1-5120534-2 | 1-5146894-2                         | 1-5146888-2 |
|                  |              | 13.00 [.512] | 1-5120523-2                            | 1-5120527-2 | 1-5120530-2                            | 1-5120534-2 | 1-5146895-2                         | 1-5146888-2 |
|                  |              | 14.00 [.551] | 1-5120524-2                            | 1-5120526-2 | 1-5120531-2                            | 1-5120533-2 | 1-5146896-2                         | 1-5146898-2 |
| 15.00 [.591]     |              | 1-5120524-2  | 1-5120527-2                            | 1-5120531-2 | 1-5120534-2                            | 1-5146896-2 | 1-5146888-2                         |             |

Notes: Receptacle specifications are shown on pages 85 and 86; plug specifications are shown on pages 87 and 88. Part Numbers are RoHS compliant.

1.0mm FH (IEEE 1386) Connectors

**1.0mm FH (IEEE 1386) Receptacles with Locating Posts, 1.0 [.039] Pitch**

**8 [.315] thru 15 [.591]  
Stacking Heights**

**Material and Finish**

**Housing** — Liquid crystal polymer, black

**Contacts** — Phosphor bronze; duplex plated 0.00076 [.000030] or .00127 [.00050] min. gold on contact area, 0.00381 [.000150] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

**Related Product Data**

**Performance Characteristics** — page 83

**Stacking Height Combinations** — page 84

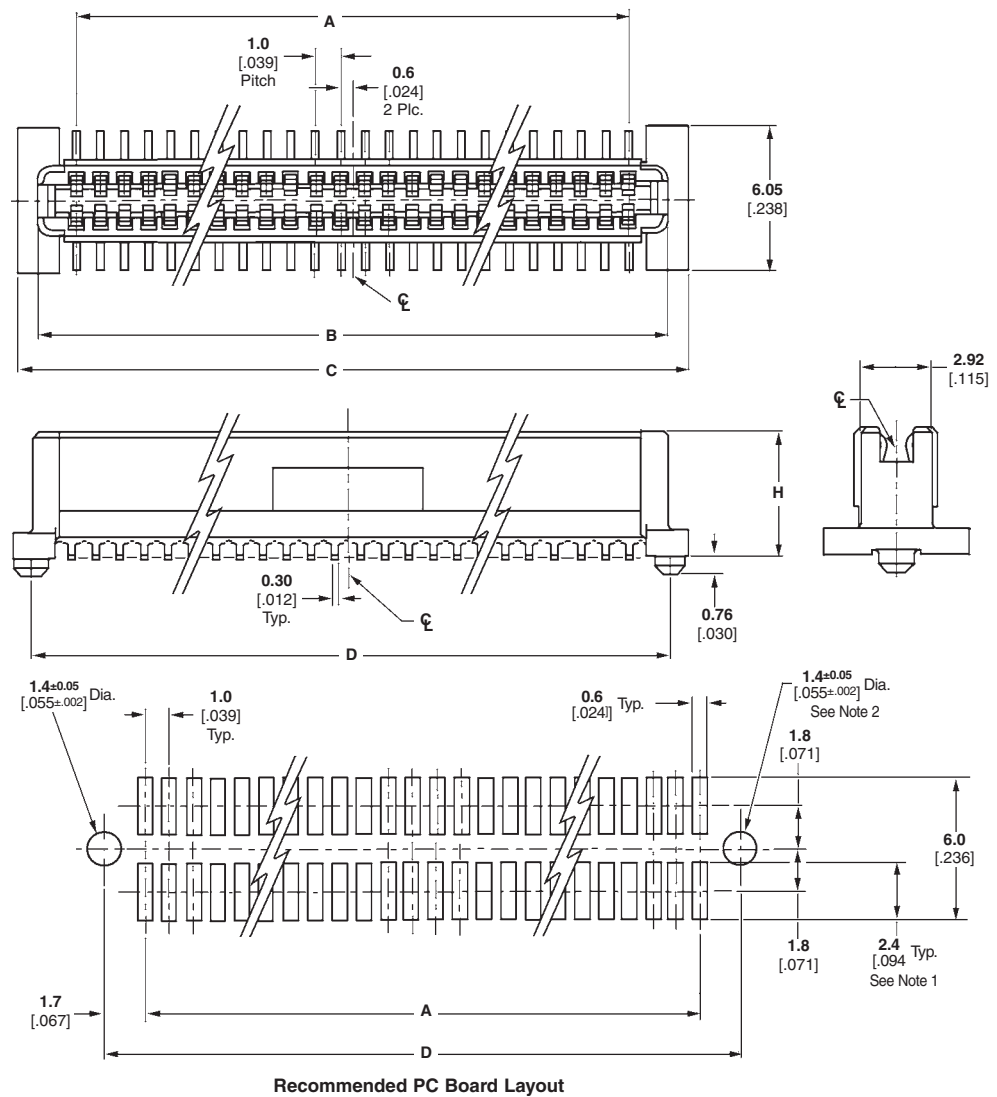
**Mating Plugs** — pages 87 & 88

**Technical Documents**

**EIA-700 AAAB Specification**

**Application Specification**

114-25045



Recommended PC Board Layout

| No. of Positions | Dimensions    |                |               |               |               | Receptacle Part Number |               |                 |               |
|------------------|---------------|----------------|---------------|---------------|---------------|------------------------|---------------|-----------------|---------------|
|                  | A             | B              | C             | D             | H             | 30µ" Au Plating        |               | 50µ" Au Plating |               |
|                  |               |                |               |               |               | w/o pickup cap         | w/ pickup cap | w/o pickup cap  | w/ pickup cap |
| 64               | 31.0<br>1.220 | 34.22<br>1.347 | 35.9<br>1.413 | 34.4<br>1.354 | 5.37<br>.211  | 5120521-1              | 5146893-1     | 1-5120521-1     | 1-5146893-1   |
|                  |               |                |               |               | 7.37<br>.290  | 5120603-1              | 5146894-1     | 1-5120603-1     | 1-5146894-1   |
|                  |               |                |               |               | 8.37<br>.330  | 5120523-1              | 5146895-1     | 1-5120523-1     | 1-5146895-1   |
|                  |               |                |               |               | 10.37<br>.408 | 5120524-1              | 5146896-1     | 1-5120524-1     | 1-5146896-1   |
| 84               | 41.0<br>1.614 | 44.22<br>1.741 | 45.9<br>1.807 | 44.4<br>1.748 | 5.37<br>.211  | 5120521-2              | 5146893-2     | 1-5120521-2     | 1-5146893-2   |
|                  |               |                |               |               | 7.37<br>.290  | 5120603-2              | 5146894-2     | 1-5120603-2     | 1-5146894-2   |
|                  |               |                |               |               | 8.37<br>.330  | 5120523-2              | 5146895-2     | 1-5120523-2     | 1-5146895-2   |
|                  |               |                |               |               | 10.37<br>.408 | 5120524-2              | 5146896-2     | 1-5120524-2     | 1-5146896-2   |

- Notes:** 1. Shorter solder lands may be used per EIA-700 AAAB. However, the 2.4 [.094] length assures optimum solder fillet regardless of connector manufacturer.  
2. 1.5 ±0.05 [.059 ±.002] diameter hole should be used if placed on PC board with vacuum placement equipment.  
3. Part Numbers are RoHS compliant.

**1.0mm FH (IEEE 1386) Receptacles without Locating Posts, 1.0 [.039] Pitch**

**8 [.315] thru 15 [.591]  
Stacking Heights**

**Material and Finish**

**Housing** — Liquid crystal polymer, black

**Contacts** — Phosphor bronze; duplex plated 0.00076 [.000030] or .00127 [.00050] min. gold on contact area, 0.00381 [.000150] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

**Vacuum Cover** — Aluminum Alloy

**Related Product Data**

**Performance Characteristics** — page 83

**Stacking Height Combinations** — page 84

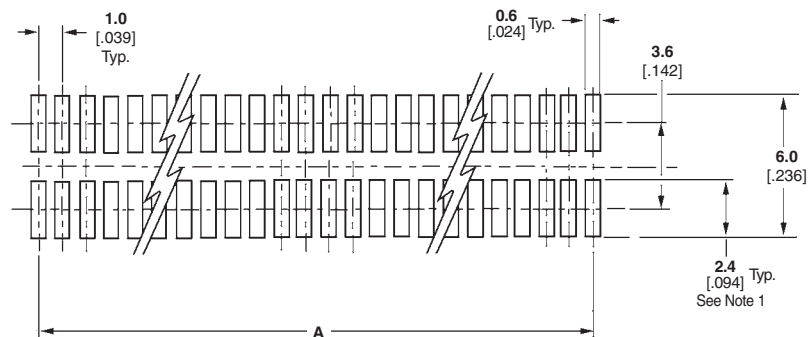
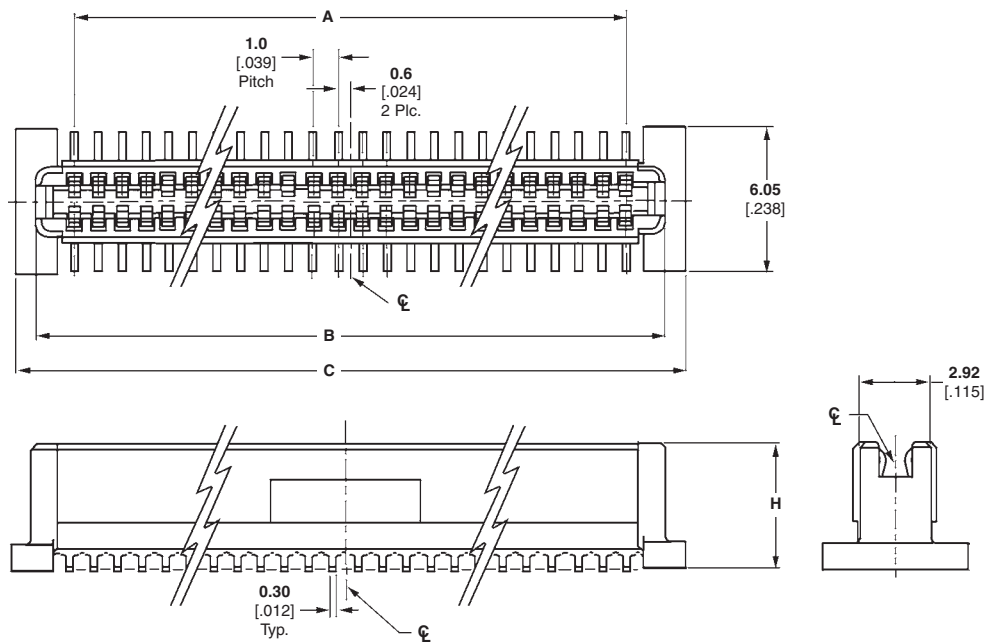
**Mating Plugs** — pages 87 & 88

**Technical Documents**

**EIA-700 AAAB Specification**

**Application Specification**

114-25045



Recommended PC Board Layout

| No. of Positions | Dimensions    |                |               |               | Receptacle Part Number        |                               |
|------------------|---------------|----------------|---------------|---------------|-------------------------------|-------------------------------|
|                  | A             | B              | C             | H             | 30µ" Au Plating w/ pickup cap | 50µ" Au Plating w/ pickup cap |
| 64               | 31.0<br>1.220 | 34.22<br>1.347 | 35.9<br>1.413 | 5.37<br>.211  | 5120528-1                     | 1-5120528-1                   |
|                  |               |                |               | 7.37<br>.290  | 5120529-1                     | 1-5120529-1                   |
|                  |               |                |               | 8.37<br>.330  | 5120530-1                     | 1-5120530-1                   |
|                  |               |                |               | 10.37<br>.408 | 5120531-1                     | 1-5120531-1                   |
| 84               | 41.0<br>1.614 | 44.22<br>1.741 | 45.9<br>1.807 | 5.37<br>.211  | 5120528-2                     | 1-5120528-2                   |
|                  |               |                |               | 7.37<br>.290  | 5120529-2                     | 1-5120529-2                   |
|                  |               |                |               | 8.37<br>.330  | 5120530-2                     | 1-5120530-2                   |
|                  |               |                |               | 10.37<br>.408 | 5120531-2                     | 1-5120531-2                   |

- Notes:** 1. Shorter solder lands may be used per EIA-700 AAAB. However, the 2.4 [.094] length assures optimum solder fillet regardless of connector manufacturer.  
2. Vacuum cover omitted from illustrations above for dimensional clarity.  
3. Part Numbers are RoHS compliant.

**1.0mm FH (IEEE 1386) Plugs with Locating Posts, 1.0 [.039] Pitch**

8 [.315] thru 15 [.591]  
Stacking Heights

**Material and Finish**

**Housing** — Liquid crystal polymer, black

**Contacts** — Phosphor bronze; duplex plated 0.00076 [.000030] or .00127 [.00050] min. gold on contact area, 0.00381 [.000150] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

**Related Product Data**

**Performance Characteristics** — page 83

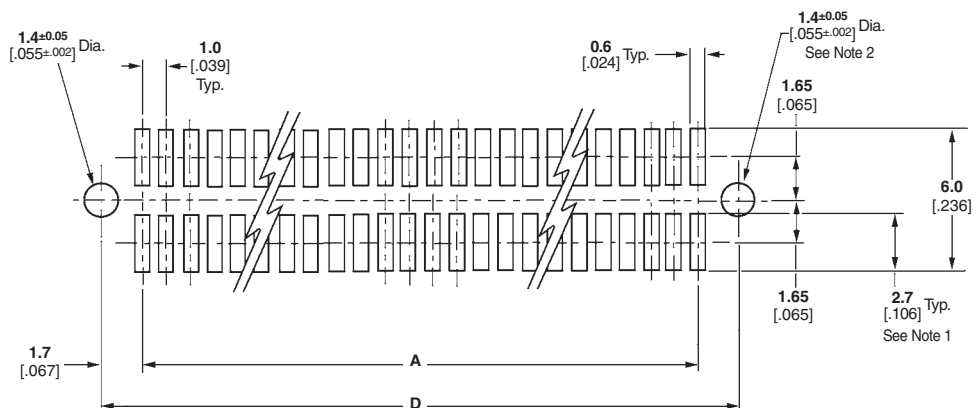
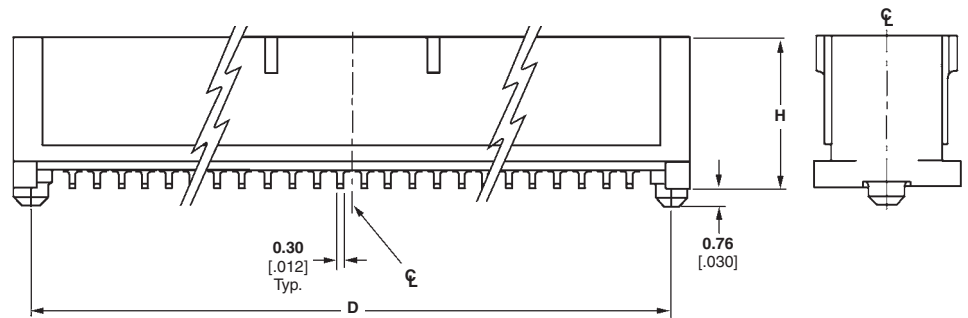
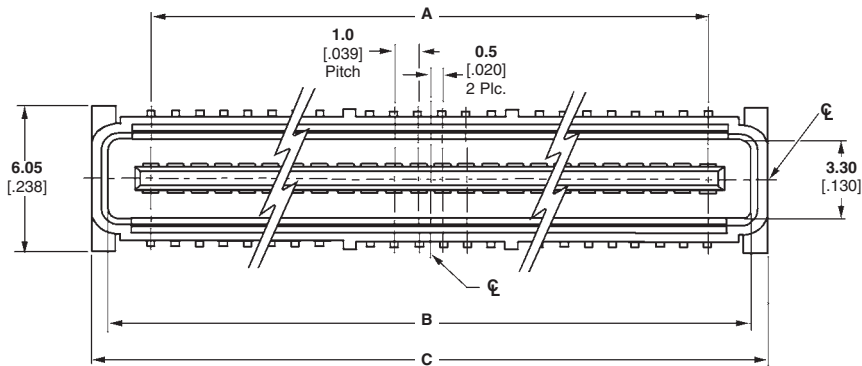
**Stacking Height Combinations** — page 84

**Mating Receptacles** — pages 85 & 86

**Technical Documents**

**EIA-700 AAAB Specification**

**Application Specification**  
114-25045



Recommended PC Board Layout

| No. of Positions | Dimensions    |                |               |               |              | Plug Part Number |               |                 |               |
|------------------|---------------|----------------|---------------|---------------|--------------|------------------|---------------|-----------------|---------------|
|                  | A             | B              | C             | D             | H            | 30µ" Au Plating  |               | 50µ" Au Plating |               |
|                  |               |                |               |               |              | w/o pickup cap   | w/ pickup cap | w/o pickup cap  | w/ pickup cap |
| 64               | 31.0<br>1.220 | 34.58<br>1.361 | 35.9<br>1.413 | 34.4<br>1.354 | 6.35<br>.250 | 5120525-1        | 5146897-1     | 1-5120525-1     | 1-5146897-1   |
|                  |               |                |               |               | 7.35<br>.289 | 5120526-1        | 5146898-1     | 1-5120526-1     | 1-5146898-1   |
|                  |               |                |               |               | 8.35<br>.329 | 5120527-1        | 5146888-1     | 1-5120527-1     | 1-5146888-1   |
| 84               | 41.0<br>1.614 | 44.58<br>1.755 | 45.9<br>1.807 | 44.4<br>1.748 | 6.35<br>.250 | 5120525-2        | 5146897-2     | 1-5120525-2     | 1-5146897-2   |
|                  |               |                |               |               | 7.35<br>.289 | 5120526-2        | 5146898-2     | 1-5120526-2     | 1-5146898-2   |
|                  |               |                |               |               | 8.35<br>.329 | 5120527-2        | 5146888-2     | 1-5120527-2     | 1-5146888-2   |

- Notes:** 1. Shorter solder lands may be used per EIA-700 AAAB. However, the 2.7 [.106] length assures optimum solder fillet regardless of connector manufacturer.  
2. 1.5 ±0.05 [.059 ±.002] diameter hole should be used if placed on PC board with vacuum placement equipment.  
3. Part Numbers are RoHS compliant.

**1.0mm FH (IEEE 1386) Plugs without Locating Posts, 1.0 [.039] Pitch**

**8 [.315] thru 15 [.591] Stacking Heights**

**Material and Finish**

**Housing** — Liquid crystal polymer, black

**Contacts** — Phosphor bronze; duplex plated 0.00076 [.000030] or .00127 [.00050] min. gold on contact area, 0.00381 [.000150] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

**Vacuum Cover** — Aluminum Alloy

**Related Product Data**

**Performance Characteristics** — page 83

**Stacking Height Combinations** — page 84

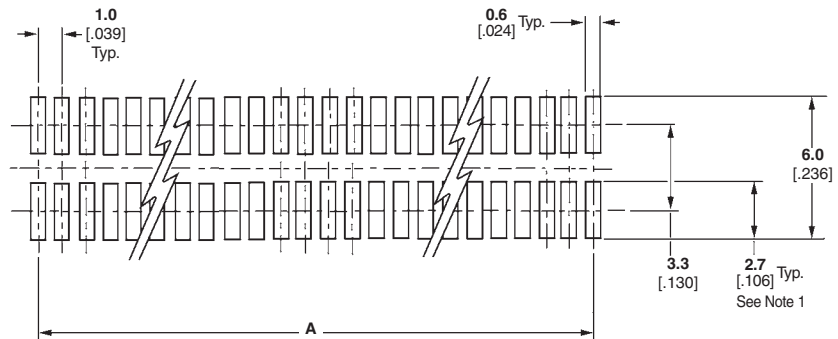
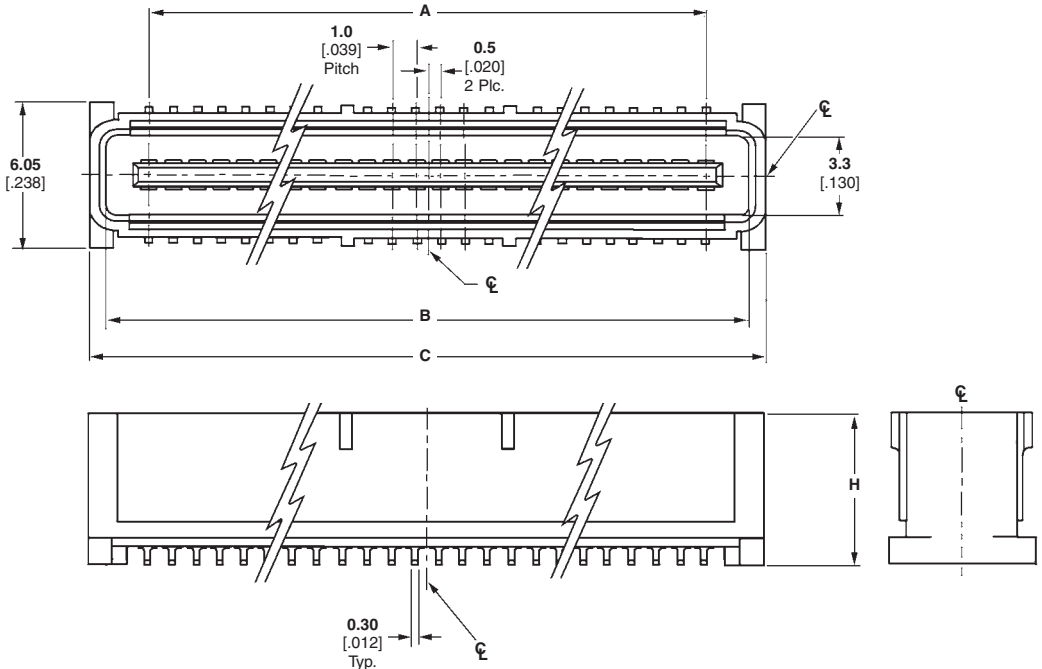
**Mating Receptacles** — pages 85 & 86

**Technical Documents**

**EIA-700 AAAB Specification**

**Application Specification**

114-25045



Recommended PC Board Layout

| No. of Positions | Dimensions    |                |               |              | Plug Part Number              |                               |
|------------------|---------------|----------------|---------------|--------------|-------------------------------|-------------------------------|
|                  | A             | B              | C             | H            | 30μ" Au Plating w/ pickup cap | 50μ" Au Plating w/ pickup cap |
| 64               | 31.0<br>1.220 | 34.58<br>1.361 | 35.9<br>1.413 | 6.35<br>.250 | 5120532-1                     | 1-5120532-1                   |
|                  |               |                |               | 7.35<br>.289 | 5120533-1                     | 1-5120533-1                   |
|                  |               |                |               | 8.35<br>.329 | 5120534-1                     | 1-5120534-1                   |
| 84               | 41.0<br>1.614 | 44.58<br>1.755 | 45.9<br>1.807 | 6.35<br>.250 | 5120532-2                     | 1-5120532-2                   |
|                  |               |                |               | 7.35<br>.289 | 5120533-2                     | 1-5120533-2                   |
|                  |               |                |               | 8.35<br>.329 | 5120534-2                     | 1-5120534-2                   |

**Notes:** 1. Shorter solder lands may be used per EIA-700 AAAB. However, the 2.7 [.106] length assures optimum solder fillet regardless of connector manufacturer.  
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1.0mm FH (IEEE 1386) Connectors