

Stacking Height Guide for Parallel Board-to-Board Applications

Stacking Height Guide for Parallel Board-to-Board Applications (Continued)

Stacking Height mm inch		Connector Description	Pitch	Connector Sizes (No. of Positions)																Connector Sizes (No. of Positions) <i>Continued</i>																						
				10	12	14	16	20	22	24	30	34	38	40	46	50	54	56	60	64	70	76	80	84	100	114	120	140	152	160	180	190	200	220	228	240	266	280	320	440		
1.00	0.039	.4mm Fine Stack	.4mm																																							
1.50	0.059	.4mm Fine Stack	.4mm																																							
1.50	0.059	.5mm Fine Stack	.5mm																																							
3.00	0.118	.8mm Fine Stack	.8mm																																							
3.90	0.154	.8mm Fine Stack	.8mm																																							
4.00	0.157	.5mm Fine Mate	.5mm																																							
4.00	0.157	.6mm Free Height	.6mm																																							
4.00	0.157	.8mm Fine Mate	.8mm																																							
4.20	0.165	.8mm Fine Stack	.8mm																																							
4.50	0.177	.5mm Fine Mate	.5mm																																							
4.50	0.177	.8mm Fine Mate	.8mm																																							
4.70	0.185	.8mm Fine Stack	.8mm																																							
5.00	0.197	.5mm Free Height	.5mm																																							
5.00	0.197	.6mm Free Height	.6mm																																							
5.00	0.197	.8mm Fine Stack	.8mm																																							
5.00	0.197	.8mm Free Height	.8mm																																							
5.50	0.217	.5mm Fine Mate	.5mm																																							
5.90	0.232	.8mm Fine Stack	.8mm																																							
6.00	0.236	.5mm Fine Mate	.5mm																																							
6.00	0.236	.5mm Free Height	.5mm																																							
6.00	0.236	.6mm Free Height	.6mm																																							
6.00	0.236	.8mm Free Height	.8mm																																							
6.35	0.250	AMPMODU 50/50	.050"																																							
6.60	0.260	MICTOR	.025"																																							
7.00	0.276	.5mm Free Height	.5mm																																							
7.00	0.276	.6mm Free Height	.6mm																																							
7.00	0.276	.8mm Fine Stack	.8mm																																							
7.00	0.276	.8mm Free Height	.8mm																																							
8.00	0.315	.5mm Free Height	.5mm																																							
8.00	0.315	.6mm Free Height	.6mm																																							
8.00	0.315	.8mm Free Height	.8mm																																							
8.00	0.315	1mm Free Height	1mm																																							
8.13	0.320	AMPMODU 50/50	.050"																																							
9.00	0.354	.5mm Free Height	.5mm																																							
9.00	0.354	.8mm Fine Stack	.8mm																																							
9.00	0.354	.8mm Free Height	.8mm																																							
9.00	0.354	1mm Free Height	1mm																																							
9.00	0.354	MICTOR	.025"																																							
9.1	0.390	AMPMODU 50/50	.050"																																							
10.00	0.394	.6mm Free Height	.6mm																																							
10.00	0.394	.8mm Free Height	.8mm																																							
10.00	0.394	1mm Free Height	1mm																																							
10.92	0.430	MICTOR	.025"																																							
11.00	0.433	.5mm Free Height	.5mm																																							
11.00	0.433	.6mm Free Height	.6mm																																							
11.00	0.433	.8mm Free Height	.8mm																																							
11.00	0.433	1mm Free Height	1mm																																							
12.00	0.472	.5mm Free Height	.5mm																																							
12.00	0.472	.6mm Free Height	.6mm																																							
12.00	0.472	.8mm Free Height	.8mm																																							
12.00	0.472	1mm Free Height	1mm																																							
12.57	0.495	MICTOR	.025"																																							

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

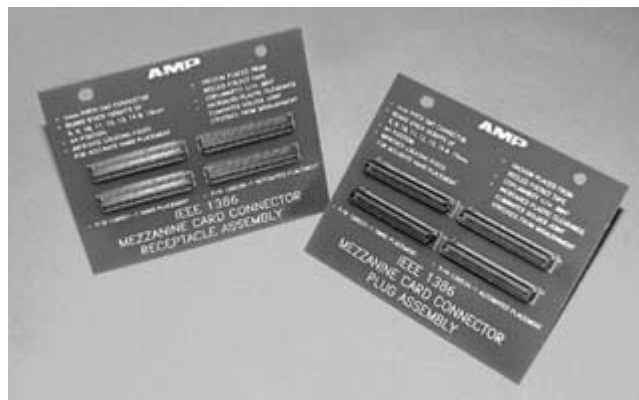
Current Rating —

1.0 ampere per contact

Contact Resistance —

30 milliohms max. (initial)

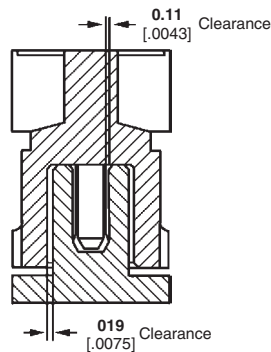
Durability — tested to 100 mating cycles min.



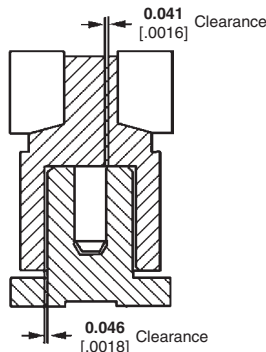
1.0mm Free Height (FH) (IEEE 1386) Connectors (Continued)

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

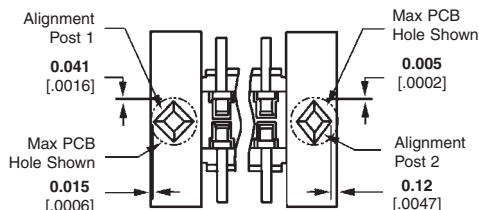
Improved locating posts allow fast, accurate hand placement on the board by ensuring proper location at both the minimum and maximum dimensions of connector material tolerances and PC board hole tolerances.



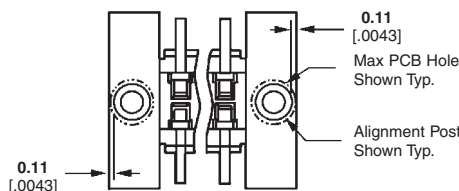
Tyco Electronics Product



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
	50µ" Au	15.00 [.591]	5120524-1	5120527-1	5120531-1	5120534-1	5146896-1	5146888-1
		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
	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
84	30µ" Au	15.00 [.591]	5120524-2	5120527-2	5120531-2	5120534-2	5146896-2	5146888-2
		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
	50µ" Au	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) 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

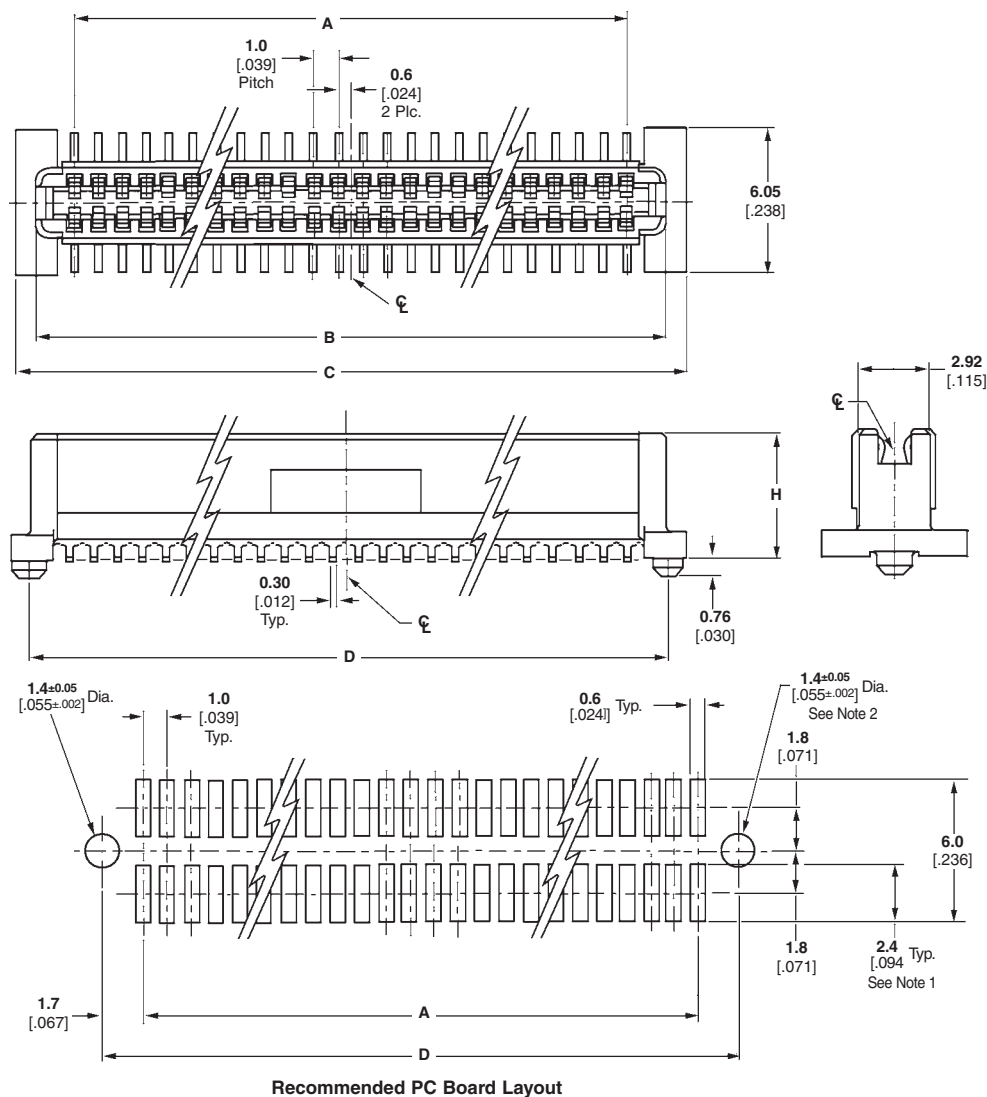
Mating Plugs — pages 87 & 88

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 1.220	34.22 1.347	35.9 1.413	34.4 1.354	5.37 .211	5120521-1	5146893-1	1-5120521-1	1-5146893-1
					7.37 .290	5120603-1	5146894-1	1-5120603-1	1-5146894-1
					8.37 .330	5120523-1	5146895-1	1-5120523-1	1-5146895-1
					10.37 .408	5120524-1	5146896-1	1-5120524-1	1-5146896-1
84	41.0 1.614	44.22 1.741	45.9 1.807	44.4 1.748	5.37 .211	5120521-2	5146893-2	1-5120521-2	1-5146893-2
					7.37 .290	5120603-2	5146894-2	1-5120603-2	1-5146894-2
					8.37 .330	5120523-2	5146895-2	1-5120523-2	1-5146895-2
					10.37 .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

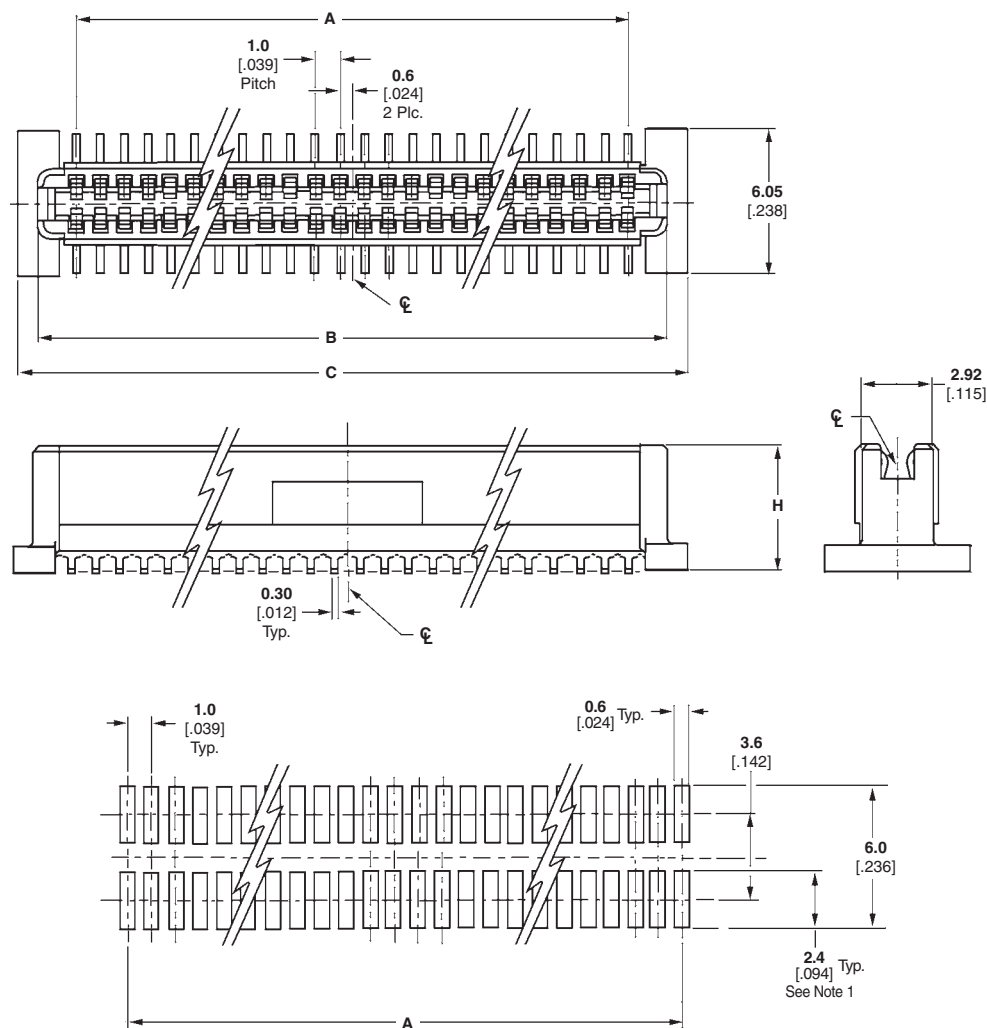
Mating Plugs — pages 87 & 88

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 1.220	34.22 1.347	35.9 1.413	5.37 .211	5120528-1	1-5120528-1
				7.37 .290	5120529-1	1-5120529-1
				8.37 .330	5120530-1	1-5120530-1
				10.37 .408	5120531-1	1-5120531-1
84	41.0 1.614	44.22 1.741	45.9 1.807	5.37 .211	5120528-2	1-5120528-2
				7.37 .290	5120529-2	1-5120529-2
				8.37 .330	5120530-2	1-5120530-2
				10.37 .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

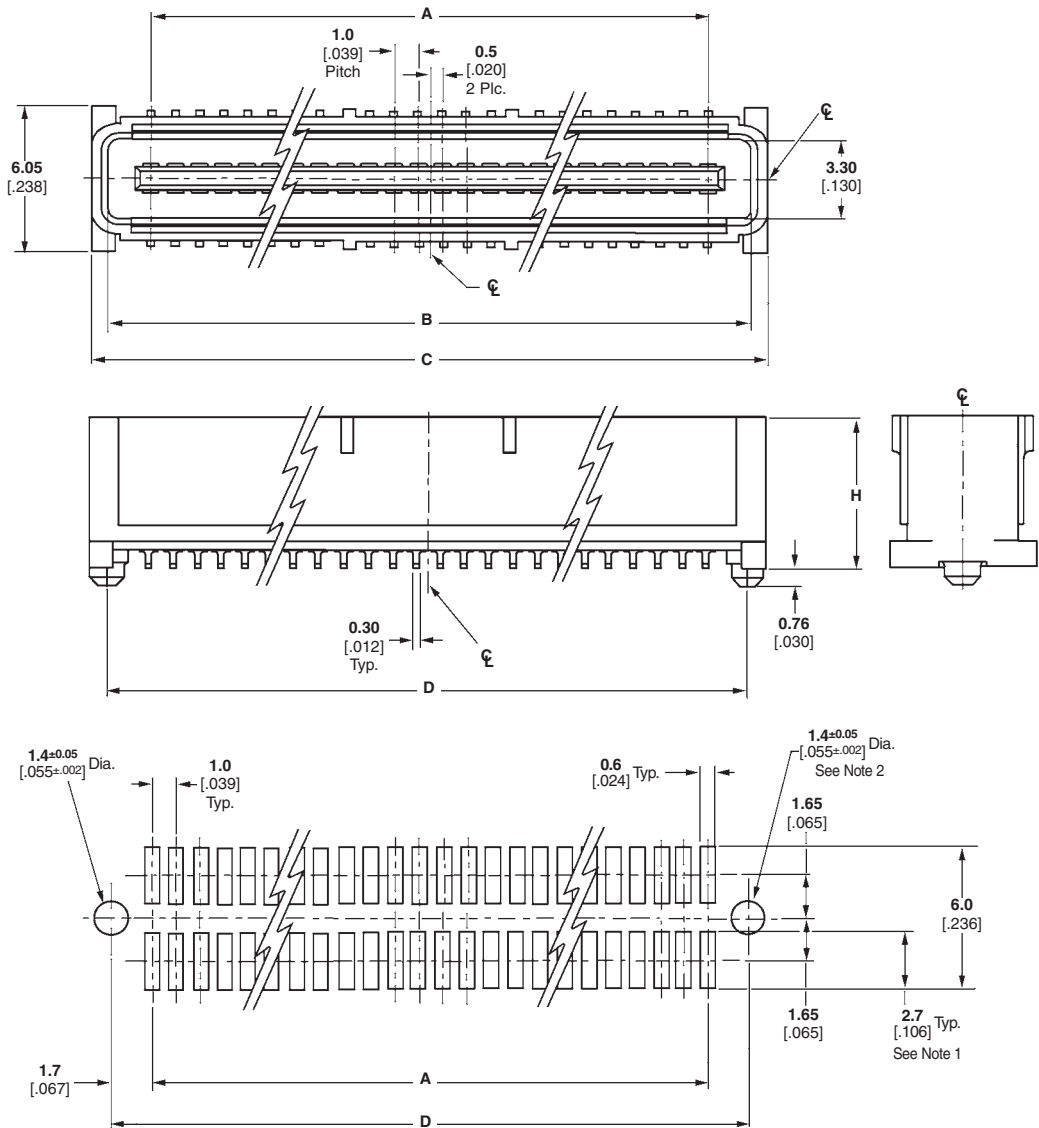
Stacking Height Combinations — page 84

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 1.220	34.58 1.361	35.9 1.413	34.4 1.354	6.35 .250	5120525-1	5146897-1	1-5120525-1	1-5146897-1
					7.35 .289	5120526-1	5146898-1	1-5120526-1	1-5146898-1
					8.35 .329	5120527-1	5146888-1	1-5120527-1	1-5146888-1
84	41.0 1.614	44.58 1.755	45.9 1.807	44.4 1.748	6.35 .250	5120525-2	5146897-2	1-5120525-2	1-5146897-2
					7.35 .289	5120526-2	5146898-2	1-5120526-2	1-5146898-2
					8.35 .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

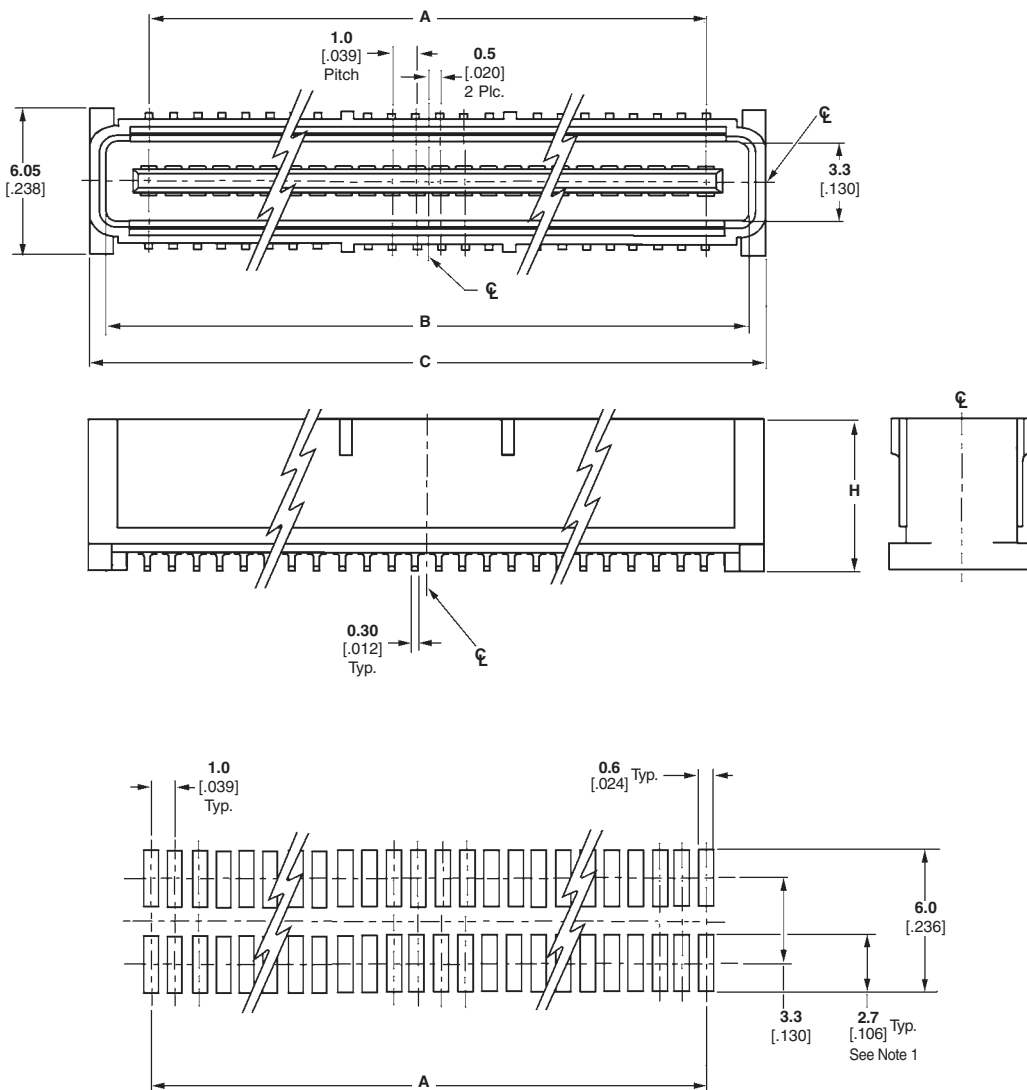
Mating Receptacles — pages 85 & 86

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 1.220	34.58 1.361	35.9 1.413	6.35 .250	5120532-1	1-5120532-1
				7.35 .289	5120533-1	1-5120533-1
				8.35 .329	5120534-1	1-5120534-1
84	41.0 1.614	44.58 1.755	45.9 1.807	6.35 .250	5120532-2	1-5120532-2
				7.35 .289	5120533-2	1-5120533-2
				8.35 .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.
2. Vacuum cover omitted from illustrations above for dimensional clarity.
3. Part Numbers are RoHS compliant.

Mouser Electronics

Authorized Distributor

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[5120523-1](#)