



AMPMODU Interconnection System

RoHS
Ready 



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1
PC/104 and PC/104-Plus Connectors

2
.050 x .050 [1.27 x 1.27] Centerline

3
.050 x .100 [1.27 x 2.54] Centerline

4
AMPMODU 2mm Connectors

5
.100 x .100 [2.54 x 2.54] Centerline

6
.125 x .125 [3.18 x 3.18] Centerline

7
.156 [3.96] Centerline

8
Shunts

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Restriction on the use of Hazardous Substances (RoHS)

At TE Connectivity (TE), we're ready to support your RoHS requirements. We've assessed more than 1.5 million end items/components for RoHS compliance, and issued new part numbers where any change was required to eliminate the restricted materials. Part numbers in this catalog are identified as:

RoHS Compliant — Part numbers in this catalog are RoHS Compliant, unless marked otherwise. These products comply with European Union Directive 2002/95/EC as amended 1 January 2006 that restricts the use of lead, mercury, cadmium, hexavalent chromium, PBB, and PBDE in certain electrical and electronic products sold into the EU as of 1 July 2006.

NOTE: For purposes of this catalog, included within the definition of RoHS Compliant are products that are clearly "Out of Scope" of the RoHS Directive such as hand tools and other non-electrical accessories.

NOTE: Information regarding RoHS compliance is provided based on reasonable inquiry of our suppliers and represents our current actual knowledge based on the information provided by our suppliers. This information is subject to change. For latest compliance status, refer to our website referenced at right.

Getting the Information You Need

Our comprehensive on-line RoHS Customer Support Center provides a forum to answer your questions and support your RoHS needs. A RoHS FAQ (Frequently Asked Questions) is available with links to more detailed information. You can also submit RoHS questions and receive a response within 24 hours during a normal work week. The Support Center also provides:

- Cross-Reference from Non-compliant to Compliant Products
- Ability to browse RoHS Compliant Products in our on-line catalog
- Downloadable Technical Data Customer Information Presentation
- More detailed information regarding the definitions used above
- So whatever your questions when it comes to RoHS, we have the answers at www.te.com/leadfree

RoHS
Customer
Support
Center

PC/104 and PC/104-Plus Connectors

Product Facts

- Press fit design — eliminates hand soldering
- Unitized PC/104 connector assembly — eliminates two piece (64 pin & 40 pin) configuration
- Integral board spacers with captive hardware — eases & improves assembly efficiency while minimizing stocked hardware
- “Flat-rock” insertable — no need for complex insertion tooling
- Recognized by Underwriters' Laboratories to US and Canadian standards  file No. E28476
- Fully compliant with PC104 & PC104-Plus standards
- Solutions available for lead free processes (ie. ENIG and silver immersion plated PCB's)



The PC/104 and PC/104-Plus connectors are industry standard product offerings which comply with the interconnection requirements defined by the PC/104 organization (<http://www.pc104.org>)

Both products are designed specifically for “flat-rock” press-fit installation for ease of application. Solder version is also available.

Optional integral standoffs minimize the customer's system assembly time.

The TE offering of the standard PC/104 product is a unitized connector rather than the two piece, 40 and 64 position connectors currently on the market. Customer needs to stock and apply only one part number rather than two.

Performance Specifications

Electrical Characteristics

Meets requirements of PC/104 and PC/104-Plus standards

Nominal Resistance — 10 milliohms maximum, ΔR

Insulation Resistance — 1000 megohms minimum

Dielectric Withstanding Voltage — 500 VAC for 1 min. at sea level

Mechanical Characteristics

Meets requirements of PC/104 and PC/104-Plus standards

Current — Signal application only

Temperature — -55° to 105°C

Material and Finish

Housing — Black Thermoplastic, UL 94V-0

Contact — Phosphor Bronze, Full Gold all over Nickel (stackthrough), Gold on mating end, Tin or Tin-lead on PCB tail all over Nickel (non-stackthrough)

Need more information?

Call Technical Support 1-800-522-6752:

Technical Support is staffed with specialists well versed in all TE products. The Center can provide you with:

- Technical Support
- Catalogs
- Technical Documents
- TE Authorized Distributor Locations

Technical Documents

Product Specifications

108-1956

Application Specifications

114-13021

Connector	Centerline	Position
PC/104	.100 2.54	104*
PC/104-Plus	.079 2.0	120**

*Two circuits plugged per PC/104 specification. Other options available.

**One circuit plugged per PC/104-Plus specification. Other options available.

PC/104, Press-Fit (Continued)

Stackthrough, 2 Standoffs

Gold plated contacts*

Part No. 1375793-1 (keyed), Part No. 1375793-2 (unkeyed)

Gold plated contacts with Tin plated compliant pin section**

Part No. 1375793-3 (keyed), Part No. 1375793-4 (unkeyed)



Non-Stackthrough, 2 Standoffs

Tin-lead plated tails*

Part No. 1375794-1 (keyed), Part No. 1375794-2 (unkeyed)

Matte tin plated tails**

Part No. 1375794-3 (keyed), Part No. 1375794-4 (unkeyed)



Stackthrough, 4 Standoffs

Gold plated contacts*

Part No. 1375791-1 (keyed), Part No. 1375791-2 (unkeyed)

Gold plated contacts with Tin plated compliant pin section**

Part No. 1375791-3 (keyed), Part No. 1375791-4 (unkeyed)



Keyed



Unkeyed

Recommended PC Board Layout
See Customer Drawing for
Hole Geometry and Recommended Plating.

Note: All part numbers are RoHS compliant.

* For RoHS exempt Tin-lead processes (including ENIG Plated PCB's)

** for Silver Immersion processes or where a total lead free solution is desired

PC/104-Plus, Press-Fit

Material and Finish

Housing — Glass filled thermoplastic, Black, 94V-0 rated

Contacts

Stackthrough — Phosphor Bronze; plated .000015 [0.00038] min. Gold on mating receptacle end, .000005 [0.000130] min. Gold on remainder, all over .000050 [0.00127] Nickel
or
Phosphor Bronze; plated .000015 [0.00038] min. Gold on mating receptacle end, .000100-.000200 [0.000254-.00508] matte tin on compliant section, .000005 [0.000130] min. Gold on remainder of post, all over .000050 [0.00127] Nickel

Non-Stackthrough — Phosphor Bronze; plated .000015 [0.00038] min. Gold on mating receptacle end, .000100 [0.00254] matte tin or tin-lead on remainder, all over .000050 [0.00127] Nickel

Screwlocks — Steel, Clear Chromate over Zinc



Stackthrough, No Standoffs

Gold plated contacts*

Part No. 1375799-1 (unkeyed)

Part No. 1375799-2 (keyed-A1) per PC/104-Plus specification

Part No. 1375799-3 (keyed-D30) per PC/104-Plus specification

Gold plated contacts with Tin plated compliant pin section**

Part No. 1375799-4 (unkeyed)

Part No. 1375799-5 (keyed-A1) per PC/104-Plus specification

Part No. 1375799-6 (keyed-D30) per PC/104-Plus specification

Non-Stackthrough, No Standoffs

Tin-lead plated tails*

Part No. 1375800-1 (unkeyed)

Part No. 1375800-2 (keyed-A1) per PC/104-Plus specification

Part No. 1375800-3 (keyed-D30) per PC/104-Plus specification

Matte tin plated tails**

Part No. 1375800-4 (unkeyed)

Part No. 1375800-5 (keyed-A1) per PC/104-Plus specification

Part No. 1375800-6 (keyed-D30) per PC/104-Plus specification



Recommended PC Board Layout
for 1375799-1, 1375799-4,
1375800-1, 1375800-4

Recommended PC Board Layout
for 1375799-2, 1375799-5,
1375800-2, 1375800-5

Recommended PC Board Layout
for 1375799-3, 1375799-6,
1375800-3, 1375800-6

See Customer Drawing for Hole Geometry and Recommended Plating.
(Including ENIG plated PCB's)

Note: All part numbers are RoHS compliant.

* For RoHS exempt Tin-lead processes (including ENIG Plated PCB's)

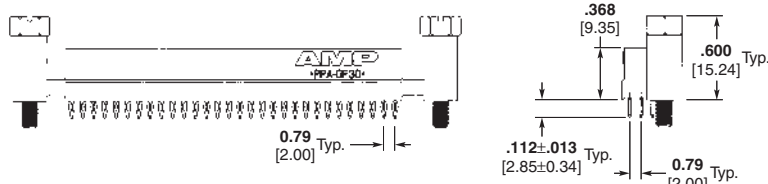
** for Silver Immersion processes or where a total lead free solution is desired

PC/104-Plus, Press-Fit (Continued)

Non-Stackthrough, 2 Standoffs

Tin-lead plated tails*

- Part No. 1375798-1** (unkeyed)
Part No. 1375798-2 (keyed-A1)
 per PC/104-Plus specification
Part No. 1375798-3 (keyed-D30)
 per PC/104-Plus specification



Matte tin plated tails**

- Part No. 1375798-4** (unkeyed),
Part No. 1375798-5 (keyed-A1)
 per PC/104-Plus specification
Part No. 1375798-6 (keyed-D30)
 per PC/104-Plus specification



Stackthrough, 2 Standoffs

Gold plated contacts*

- Part No. 1375797-1** (unkeyed)
Part No. 1375797-2 (keyed-A1)
 per PC/104-Plus specification
Part No. 1375797-3 (keyed-D30)
 per PC/104-Plus specification



Gold plated contacts with Tin plated compliant pin section**

- Part No. 1375797-4** (unkeyed)
Part No. 1375797-5 (keyed-A1)
 per PC/104-Plus specification
Part No. 1375797-6 (keyed-D30)
 per PC/104-Plus specification



Recommended PC Board Layout
for 1375797-1, 1375797-4,
1375798-1, 1375798-4



Recommended PC Board Layout
for 1375797-2, 1375797-5,
1375798-2, 1375798-5



Recommended PC Board Layout
for 1375797-3, 1375797-6,
1375798-3, 1375798-6

See Customer Drawing for
Hole Geometry and Recommended Plating.

Note: All part numbers are RoHS compliant.

* For RoHS exempt Tin-lead processes (including ENIG Plated PCB's)

** for Silver Immersion processes or where a total lead free solution is desired

PC/104, Solder

Material and Finish

Housing — Glass filled thermoplastic, Black, 94V-0 rated

Contacts

Non-Stackthrough — Phosphor Bronze; plated .000015 [0.00038] min. Gold on mating receptacle end, .000100 [0.00254] matte tin on remainder, all over .000050 [0.00127] Nickel

Screwlocks — Steel, Clear Chromate over Zinc

Non-Stackthrough, No Standoffs

Part No. 1375963-3 (keyed)

Part No. 1375963-4 (unkeyed)



Keyed

Unkeyed

Recommended PC Board Layout

Non-Stackthrough, 2 Standoffs

Part No. 1375961-3 (keyed)

Part No. 1375961-4 (unkeyed)



Keyed

Unkeyed

Recommended PC Board Layout

Non-Stackthrough, 4 Standoffs

Part No. 1375959-3 (keyed)

Part No. 1375959-4 (unkeyed)



Note: All part numbers are RoHS compliant.

PC/104-Plus, Solder

Material and Finish

Housing — Glass filled thermoplastic, Black, 94V-0 rated

Contacts

Non-Stackthrough — Phosphor Bronze; plated .000015 [0.00038] min. Gold on mating receptacle end, .000100 [0.00254] matte tin on remainder, all over .000050 [0.00127] Nickel

Screwlocks — Steel, Clear Chromate over Zinc

Non-Stackthrough, No Standoffs

Part No. 1375967-4 (unkeyed)

Part No. 1375967-5 (keyed-A1)

per PC/104-Plus specification

Part No. 1375967-6 (keyed-D30)

per PC/104-Plus specification



Non-Stackthrough, 2 Standoffs

Part No. 1375965-4 (unkeyed)

Part No. 1375965-5 (keyed-A1)

per PC/104-Plus specification

Part No. 1375965-6 (keyed-D30)

per PC/104-Plus specification



Note: All part numbers are RoHS compliant.

Accessories

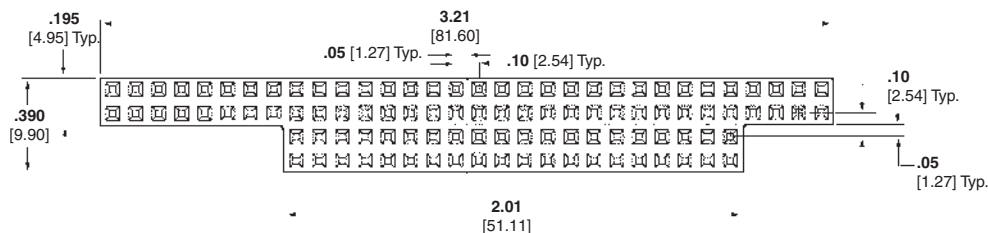
Shroud, PC/104-Plus Part No. 1375801-1

Material — PBT, Black



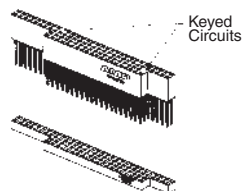
Organizer, PC/104 Part Number 1445251-1

Material — Polyester, PBT, Black



Kit Packaging Part Numbers

Part Number	Component Part Number		Style
	Connector Assembly	Organizer	
1445441-3	1375795-3	1445251-1	Keyed
1445441-4	1375795-4	1445251-1	Unkeyed
1445440-3	1375793-3	1445251-1	Keyed
1445440-4	1375793-4	1445251-1	Unkeyed
1445439-3	1375791-3	1445251-1	Keyed
1445439-4	1375791-4	1445251-1	Unkeyed



Part No. 1445441-3



Part No. 1445440-3



Part No. 1445439-3

Note: All part numbers are RoHS compliant.

AMPMODU 50/50 Grid Connector System



Produced under a Quality Management System certified to ISO 9001

A copy of the certificate is available upon request.



Board-to-Board Vertical Receptacles and Headers

Product Facts

- Surface-mount products for parallel board-to-board applications, as well as right-angle board-to-board and cable-to-board applications
- High density .050 x .050 [1.27x1.27] centerline grid
- Three board-to-board stack heights: .250 [6.35], .320 [8.13] and .390 [9.91]
- Non-protrusive metallic holddowns
- Reliable dual beam receptacle contacts for redundant contact
- Duplex plated receptacle and post contacts; gold plated on mating areas, tin plated on tails
- Compatible with standard surface-mount processing (VPR and IR)
- Receptacle and header allow for drainage of processing fluids
- Tape and reel packaging available. Contact TE for details
- Polarized header and receptacle assemblies
- Sizes of 10, 20, 30, 40, 50, 60, 70, 80 and 100 positions
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association File No. LR7189 



AMPMODU 50/50 Grid Vertical Headers and Receptacles are designed for parallel board-to-board stacking in high density applications.

Right-angle board-to-board and cable-to-board applications are also possible, since the vertical receptacles also mate with non-latching right-angle headers (page 19) and the vertical headers also mate with non-latching cable connectors.

Available are double row, vertical shrouded headers and receptacles in sizes ranging from 10 through 100 positions (in 10 position increments).

Parallel board-to-board stack heights of .250 [6.35], .320 [8.13] and .390 [9.91] are achievable by selection of the appropriate header. The receptacle is the same for all three stack height headers.

Non-protrusive metallic holddowns are designed for use in .062 [1.57] or thicker

PC boards and allow surface mounting to both sides of the board. In addition to providing retention during processing, the holddowns are soldered during reflow and therefore provide long-term strain relief for the solder joints.

AMPMODU 50/50 Grid Vertical Headers and Receptacles are designed to be compatible with standard surface-mount processes; IR (infrared) and VPR (vapor phase reflow). The surface-mount connectors have been designed so that dimensioning, tolerances, referenced datums, holddown characteristics

and packaging methods result in a system that is compatible with robotic assembly.

The headers and receptacles feature polarization to prevent misalignment.

Three Board Stack Heights



Non-Protrusive Metallic Holddowns



Board-to-Board Vertical Receptacles, Double Row, .050 x .050 [1.27 x 1.27] Centerline

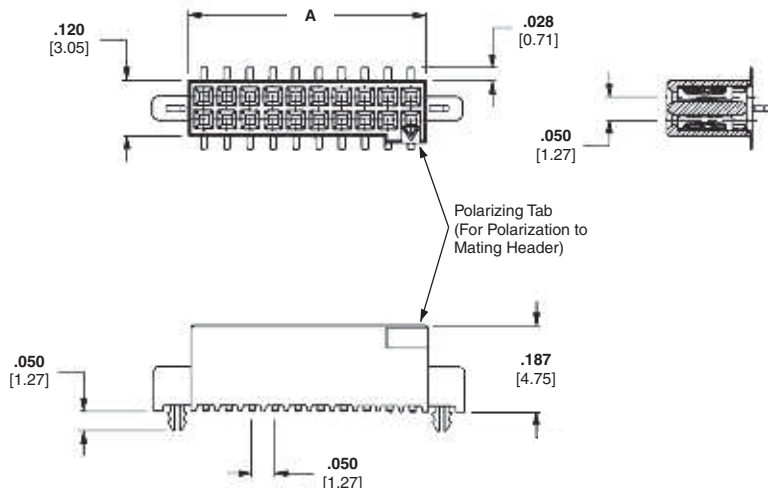


Material and Finish

Housing—Glass-filled thermoplastic, black, 94V-0 rated

Contacts—Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder tail, with entire contact underplated .000050 [0.00127] nickel

Holddown—Copper alloy; plated .000150 [0.00381] tin over .000050 [0.00127] nickel



Related Product Data

Mating Headers — pages 16, 19

PC Board Layouts — page 17

Performance Specifications — page 24

Technical Documents — page 24

Product Specification 108-1332

Application Specification 114-7010

Packaging: Tube or Tape and Reel

No. of Pos.	Dimension A	Receptacle Part Numbers		
		Tube	Tape and Reel*	No Hold Down w/Vacuum Cover
10	.266 [6.75]	5-104652-1	5-147384-1	5-147413-1
20	.516 [13.11]	5-104652-2	5-147384-2	5-147413-3
30	.766 [19.46]	5-104652-3	5-147384-3	5-147413-4
40	1.016 [25.81]	5-104652-4	5-147384-4	—
50	1.266 [32.16]	5-104652-5	5-147384-5	5-147413-2
60	1.516 [38.51]	5-104652-6	5-147384-6	—
70	1.766 [44.86]	5-104652-7	5-147384-7	—
80	2.016 [51.21]	5-104652-8	5-147384-8	—
100	2.516 [63.91]	6-104652-0	5-147384-9	—

* Parts packaged in tape and reel have vacuum pick and place cover.
See PC Board Layout on page 17.

Note: All part numbers are RoHS compliant.

Board-to-Board Vertical Headers, Double Row, .050 x .050 [1.27 x 1.27] Centerline



For .250 [6.35] Mated Height



For .320 [8.13] Mated Height



For .390 [9.91] Mated Height



Material and Finish

Housing—Glass-filled thermoplastic, black, 94V-0 rated

Contacts—Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder tail, with entire contact underplated .000050 [0.00127] nickel

Holddown—Copper alloy; plated .000150 [0.00381] tin over .000050 [0.00127] nickel

Related Product Data

Mating Receptacles — page 15, 21 (without latch only)

PC Board Layouts — page 17

Performance Specifications — page 24

Technical Documents — page 24

Product Specification 108-1332

Application Specification 114-7010

Packaging: Tube or Tape and Reel

No. of Pos.	Dimension A	Header Part Numbers								
		.250 [6.35] Mated Height			.320 [8.13] Mated Height		.390 [9.91] Mated Height			
		Tubes	Tape & Reel*		Tubes	Tape & Reel*	Tubes		Tape & Reel*	
			Hold Down	No Hold Down			Hold Down	No Hold Down		
10	.372 [9.44]	5-104655-1	5-147381-1	5-147121-1	5-104656-1	5-147382-1	5-104693-1	—	5-147383-1	
20	.622 [15.79]	5-104655-3	5-147381-2	5-147121-2	5-104656-2	5-147382-2	5-104693-2	—	5-147383-2	
30	.872 [22.14]	5-104655-4	5-147381-3	—	5-104656-3	5-147382-3	5-104693-3	—	5-147383-3	
40	1.122 [28.49]	5-104655-5	5-147381-4	—	5-104656-4	5-147382-4	5-104693-4	—	5-147383-4	
50	1.372 [34.84]	5-104655-6	5-147381-5	—	5-104656-5	5-147382-5	5-104693-5	—	5-147383-5	
60	1.622 [41.19]	5-104655-7	5-147381-6	—	5-104656-6	5-147382-6	5-104693-6	—	5-147383-6	
70	1.872 [47.54]	5-104655-8	5-147381-7	—	5-104656-7	5-147382-7	5-104693-7	—	5-147383-7	
80	2.122 [53.89]	5-104655-9	5-147381-8	—	5-104656-8	5-147382-8	5-104693-8	—	5-147383-8	
90	2.372 [60.24]	—	—	—	5-104656-9	—	5-104693-9	—	—	
100	2.622 [66.59]	6-104655-1	5-147381-9	—	6-104656-0	5-147382-9	6-104693-0	5-147503-1	5-147383-9	

*Parts packaged in tape and reel have vacuum pick and place cover. See PC Board Layout on page 17.

Note: All part numbers are RoHS compliant.

Recommended PC Board Layouts for Vertical Connectors

Headers



Receptacles



No. of Pos.	Receptacle Dimensions			Header Dimensions		
	B	C	D	B	C	D
10	4	.200 [5.08]	.320 [8.12]	4	.200 [5.08]	.322 [8.17]
20	9	.450 [11.43]	.570 [14.48]	9	.450 [11.43]	.572 [14.52]
30	14	.700 [17.78]	.820 [20.83]	14	.700 [17.78]	.822 [20.87]
40	19	.950 [24.13]	1.070 [27.19]	19	.950 [24.13]	1.072 [27.22]
50	24	1.200 [30.48]	1.320 [33.53]	24	1.200 [30.48]	1.322 [33.57]
60	29	1.450 [36.83]	1.570 [39.88]	29	1.450 [36.83]	1.572 [39.92]
70	34	1.700 [43.18]	1.820 [46.23]	34	1.700 [43.18]	1.822 [46.27]
80	39	1.950 [49.53]	2.070 [52.58]	39	1.950 [49.53]	2.072 [52.62]
90	44	2.200 [55.88]	2.320 [58.93]	44	2.200 [55.88]	2.322 [58.97]
100	49	2.450 [62.23]	2.570 [65.28]	49	2.450 [62.23]	2.572 [65.32]

Note: Refer to TE Customer Drawings for additional PC board layout information and dimensional tolerances.

Note: All part numbers are RoHS compliant.

Product Facts

- Surface-mount products for right-angle board-to-board and cable-to-board applications
- Double-row, right-angle shrouded headers
- High density .050 x .050 [1.27 x 1.27] centerline grid
- Latching and non-latching versions available
- Non-protrusive metallic holddowns
- Metallic tabs, when soldered to PC board pad, provide added mechanical support
- Duplex plated post contacts; gold plated on mating area, tin plated on tails
- Compatible with standard surface-mount processing (VPR and IR)
- Standoffs on header housings allow for drainage of processing fluids
- All headers are polarized
- Sizes of 10, 20, 30, 40, 50, 60, 70, 80 and 100 positions
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association File No. LR7189 



AMPMODU 50/50 Grid Right-Angle Headers will accommodate a variety of high density packaging applications; right-angle board-to-board applications when mated with vertical receptacles (page 15) and right-angle cable-to-board applications when mated with cable connectors (page 21). The small .050 x .050 [1.27 x 1.27] centerline contact spacing allows efficient use of the PC board area.

Mechanical support of the headers to the PC board is provided by non-protrusive metallic holddowns designed for .062 [1.57] or thicker PC boards. These holddowns are of the same

design as those used in the vertical headers (page 16) and receptacles (page 15). There are also metallic tabs that are soldered to the surfaces of the PC board pads for added support.

AMPMODU 50/50 Grid Right-Angle Headers are available in double-row, in either latching or non-latching versions, and in sizes ranging from 10 through 100 positions (in 10 position increments). The latching version provides positive retention when mated with the latching cable connector (page 21). All headers feature polarization to help prevent misalignment during mating.

Board-to-Board Right-Angle Headers, Double Row, .050 x .050 [1.27 x 1.27] Centerline

Non-Latching Header



Latching Header



Material and Finish

Housing — Liquid crystal polymer, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder tail, with entire contact under-plated .000050 [0.00127] nickel

Holddown — Copper alloy; plated .0000150 [0.00381] tin over .000050 [0.00127] nickel

Related Product Data

Mating Receptacles — page 15, 21

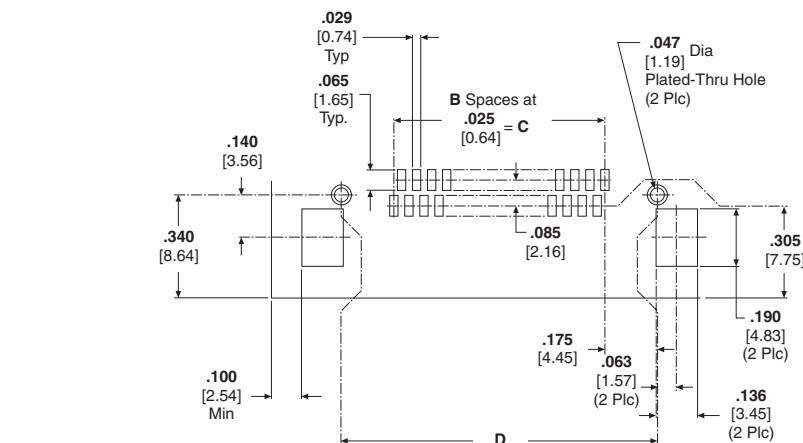
Performance Specifications — page 24

Technical Documents — page 24

Product Specification 108-1443

Application Specification 114-7010

Packaging: Tube



Recommended PC Board Layout

Note: Refer to TE Customer Drawings for additional PC board layout information and dimensional tolerances.

No. of Pos.	Dimensions				Header Part Numbers	
	A	B	C	D	Latching	Non-Latching
10	.630 [16.00]	9	.225 [5.72]	.550 [13.97]	5-104895-1	5-104894-1
20	.880 [22.35]	19	.475 [12.07]	.800 [20.32]	5-104895-2	5-104894-2
30	1.130 [28.70]	29	.725 [18.42]	1.050 [26.67]	5-104895-3	5-104894-3
40	1.380 [35.05]	39	.975 [24.77]	1.300 [33.02]	5-104895-4	5-104894-4
50	1.630 [41.40]	49	1.225 [31.12]	1.550 [39.37]	5-104895-5	5-104894-5
60	1.880 [47.75]	59	1.475 [37.47]	1.800 [45.72]	5-104895-6	5-104894-6
70	2.130 [54.10]	69	1.725 [43.82]	2.050 [52.07]	5-104895-7	5-104894-7
80	2.380 [60.45]	79	1.975 [50.17]	2.300 [58.42]	5-104895-8	5-104894-8
100	2.880 [73.15]	99	2.475 [62.87]	2.800 [71.12]	6-104895-0	6-104894-0

Note: All part numbers are RoHS compliant.

Product Facts

- Double-row receptacle connectors provide cable-to-board connection capabilities for vertical headers (non-latching) and right-angle headers (latching and non-latching)
- IDC (Insulation Displacement Crimp) mass termination of solid or stranded round conductor .050 [1.27] centerline ribbon cable with PVC or polyethylene insulation
- Accommodates ribbon cable conductor sizes of 28 AWG [0.08-0.09 mm²] and 30 AWG [0.05 mm²] and insulation diameters up to .036 [0.91] maximum
- Reliable single beam receptacle contact design
- Duplex plated receptacle contacts; gold plated in mating area, tin in termination area
- Terminating covers (sold separately) provide both strain relief and protection to the termination area
- Sizes of 10, 20, 30, 40, 50, 60, 70, 80 and 100 positions
- Connectors available with or without metal latch
- Connectors without latches are polarized to help prevent mismatching
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Certified by Canadian Standards Association  File No. LR7189



These double-row cable connectors, with a .050 x .050 [1.27 x 1.27] centerline contact spacing, provide cable-to-board connection capabilities for the AMPMODU 50/50 Grid Connector System. Cable connectors without a latch will mate with the vertical headers (page 16), while cable connectors with or without a latch can be used to mate with the right-angle headers (page 19).

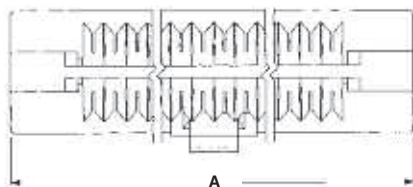
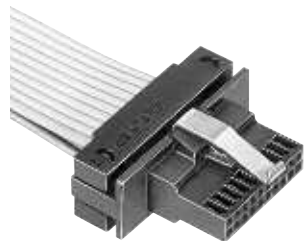
The cable connectors feature reliable single-beam IDC (insulation displacement crimp) contacts which are duplex plated with .000030 [0.00076] gold. These contacts can be mass terminated to either solid or

stranded round conductor ribbon cable with conductor sizes of 28 AWG [0.08-0.09 mm²] and 30 AWG [0.05 mm²] and a maximum insulation diameter of .036 [0.91]. During termination, the terminating covers, which must be purchased separately, assist in guiding the wire into the IDC contacts, then provide strain relief when fully seated. Actual termination is accomplished with the TE manual tooling shown on page 23.

The latching version of the cable connector is equipped with a metal latch which provides positive retention of the receptacle cable connector when mated with a surface-

mounted right-angle header. The cable connector without a metal latch features polarization to help prevent mismatching. All connectors are available in sizes ranging from 10 through 100 positions (in 10 position increments).

Cable-to-Board Receptacle Connectors, Double Row, .050 x .050 [1.27 x 1.27] Centerline



Material and Finish

Housing — Thermoplastic, black, 94V-0 rated

Latch — Stainless steel

Contacts — Phosphor bronze; duplex plated .000030 [0.00076] minimum gold in mating area, .000150 [0.00381] minimum tin on solder tail, with entire contact underplated .000050 [0.00127] minimum nickel

Related Product Data

Mating Headers — page 16, 19 (latching)

Terminating Covers (Must be Purchased Separately, 2 Required per Connector) — page 22

Termination Tooling — page 23

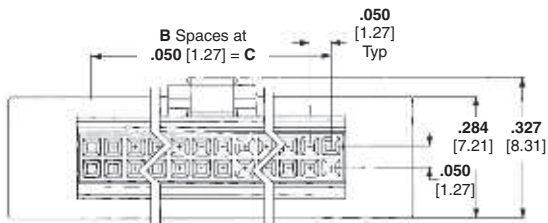
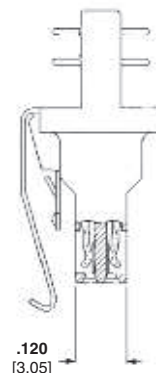
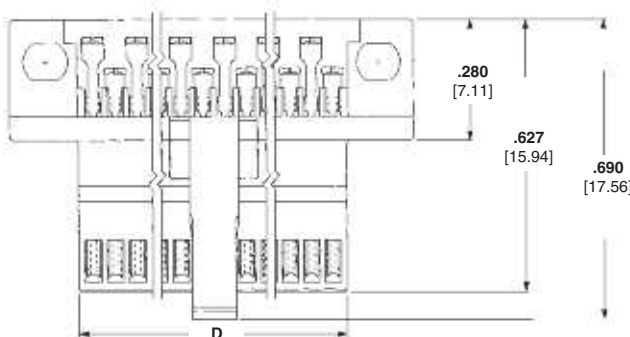
Performance Specifications — page 24

Technical Documents — page 24

Product Specification 108-1443

Application Specification
408-9817, 408-9909

Packaging: Tube



No. of Pos.	Dimensions				Receptacle Part Numbers	
	A	B	C	D	With Latch	Without Latch
10	.578 [14.68]	4	.200 [5.08]	.266 [6.76]	5-104892-1	5-104893-1
20	.828 [21.03]	9	.450 [11.43]	.516 [13.11]	5-104892-2	5-104893-2
30	1.078 [27.38]	14	.700 [17.78]	.766 [19.46]	5-104892-3	5-104893-3
40	1.328 [33.73]	19	.950 [24.13]	1.016 [25.81]	5-104892-4	5-104893-4
50	1.578 [40.08]	24	1.200 [30.48]	1.266 [32.16]	5-104892-5	5-104893-5
60	1.828 [46.43]	29	1.450 [36.83]	1.516 [38.51]	5-104892-6	5-104893-6
70	2.078 [52.78]	34	1.700 [43.18]	1.766 [44.86]	5-104892-7	5-104893-7
80	2.328 [59.13]	39	1.950 [49.53]	2.016 [51.21]	5-104892-8	5-104893-8
100	2.828 [71.83]	49	2.450 [62.23]	2.516 [63.91]	6-104892-0	6-104893-0

Note: All part numbers are RoHS compliant.

Terminating Covers for Cable Connectors



Material

Glass-filled thermoplastic,
black, 94V-0 rated

Related Product Data

Connectors used with Covers —
page 21

Termination Tooling — page 23

Technical Documents — page 24

Product Specification 108-1443

Application Specification
408-9817, 408-9909

Packaging: Plastic bag



No. of Pos.	Dimension A	Terminator Cover Part Numbers
10	.565 [14.35]	104891-1
20	.815 [20.70]	104891-2
30	1.065 [27.05]	104891-3
40	1.315 [33.82]	104891-4
50	1.565 [39.75]	104891-5
60	1.815 [46.10]	104891-6
70	2.065 [52.45]	104891-7
80	2.315 [58.80]	104891-8
100	2.815 [71.50]	1-104891-0

Note: Terminating covers must be purchased separately, two are required for each cable connector.

Note: All part numbers are RoHS compliant.

Application Tooling for Cable Connectors

The Manual Miniature Application Frame Assembly 91295-1, equipped with a Cover Closing Kit 543518-1, is used for the IDC termination of ribbon cable to the cable connectors shown on page 21.

Prior to termination, the covers must be partially assembled onto a connector housing, the cable inserted between the covers and contacts and the covers preclosed by hand, clamping the cable in place.

In the Manual Miniature Application Frame Assembly, the covers are fully seated to complete the mass termination and provide strain relief for the completed connection.

For tooling information, call Technical Support Center **1-800-522-6752**.



Manual Miniature Application Frame Assembly 91295-1
with Cover Closing Kit 543518-1



Note: Refer to Tyco Electronics Instruction Sheets 408-9817 (Frame Assembly 91295-1) and 408-9909 (Cover Closing Kit 543518-1) for complete termination/tooling information.

Note: All part numbers are RoHS compliant.

Performance Specifications

Board-to-Board Connectors, Vertical and Right-Angle

Mating Force: 6.4 oz (1.78 N) max. per contact

Unmating Force: 1.0 oz [0.28 N] min. per contact

Durability: Tested to 200 cycles min.

Current Rating: (30°C T rise): .5 ampere per contact

Operating Temperature Range: -65°C to +105°C

Termination Resistance: 16 milliohms max. (initial)

Insulation Resistance: 5000 megohms min. (initial)

Dielectric Withstanding Voltage: 300 VAC

Cable-to-Board Connectors

Mating Force: 6.4 oz (1.78 N) max. per contact

Unmating Force Without Latch: .5 oz [0.14 N] min. per contact

Durability: Tested to 200 cycles min.

Current Rating: (10°C T rise): .5 ampere per contact

Operating Temperature Range: -65°C to +105°C

Termination Resistance: 25 milliohms max. (initial and final)

Insulation Resistance: 5000 megohms min. (initial)

Dielectric Withstanding Voltage: 300 VAC

Technical Documents

Various technical documents are available for your use:

Product Specifications describe technical performance characteristics and verification tests. They are intended for the Design, Component and Quality Engineer.

108-1332 AMPMODU 50/50 Grid Vertical Board-to-Board Connectors

108-1443 AMPMODU 50/50 Grid Right-Angle Board-to-Board and Cable Connectors

Application Specifications describe requirements for using the product in its intended application and/or crimping information. They are intended for the Packaging and Design Engineer and the Machine Setup Person.

114-7010 AMPMODU 50/50 Grid Connector System

Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

408-9817 Manual Miniature Application Frame Assembly 91295-1

408-9909 Cover Closing Kit 543518-1

Note: All part numbers are RoHS compliant.

AMPMODU System 50 Connectors



The AMPMODU System 50 connector family includes a wide variety of high density board-to-board (thru-hole and surface-mount) and cable-to-board connectors. AMPMODU System 50 is composed of one- and two-row receptacles and post headers on .050 x .100 [1.27 x 2.54] spacing between contacts for extreme density and efficient use of printed circuit board area.

AMPMODU System 50 receptacles and header assemblies can be categorized in three groups: board-mount headers, board-mount receptacles and cable-to-board receptacles. Receptacle contacts and mating .015 [0.38] square posts are formed from high conductivity copper alloy and are selectively plated with gold to promote higher performance and reliability.

Board-mounted thru-hole post headers and receptacle connectors are available for right-angle and vertical mating configurations. Surface-mounted connectors are available in vertical, double row styles for parallel stacking applications. Shrouded post headers provide polarization to mating cable receptacles and aid alignment of mating connectors. Unshrouded headers allow close stacking of daughter cards. Vertical stacking connectors space parallel mated boards as shown in the illustration on page 63. Housings on all board-mount assemblies are made of high temperature tolerant materials and incorporate stand-offs for free drainage of flux cleaning solutions.

Cable-to-board connectors have integral latches for positive locking to shrouded

mating headers (thru-hole or surface-mount). Ribbon cable connectors mass terminate 30 AWG [0.05 mm²] solid and 32 AWG [0.03 mm²] stranded, .025 [0.64] centerline ribbon cable with PVC insulation.

Connectors for mass termination to FFC cable or flexible etched circuitry have dual beam contacts; options include shielded cable and solder tabs. Both types of cable connectors are available as component parts and as completed assemblies.

The variety of components and application possibilities, combined with small size and outstanding quality, make AMPMODU System 50 suitable for high density systems.

■ **Recognized under the Component Program of Underwriters Laboratories Inc.**
File No. E28476



■ **Certified by Canadian Standards Association*,**
File No. LR 7189

*CSA certification pending on certain products, as noted.



Dimensioning:

Dimensions are in inches and millimeters. Values in brackets are metric equivalents. Metric symbols used are:

mm (millimeter)
cm (centimeter)
m (meter)
mm² (square millimeter)
C (Celsius)
N (newton)
kg (kilogram)

■ **Produced under a Quality Management System certified to ISO 9001**

A copy of the certificate is available upon request.



Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Product Facts

- High density; contacts spaced on .050 x .100 [1.27 x 2.54] centers
- Single row; select sizes 4 thru 50 positions
- Double row; select sizes 10 thru 100 positions
- Stand-offs for ease of cleaning
- High temperature tolerant thermoplastic housings
- Shrouded and unshrouded headers available in single and double row, vertical and right-angle configurations



The AMPMODU System 50 interconnection system is designed to better meet industry's need for a high density interconnect system. The Board Mounted Thru-Hole Headers are available in shrouded and unshrouded versions. They are composed of single and double row post headers with .050 x .100 [1.27 x 2.54] spacing between contacts for extreme density and

efficient use of printed circuit board area. The headers are available in 4 through 50 positions, in a single row configuration, and 10 through 100 positions, in a double row design.

Board mounted post headers are available in right-angle and vertical configurations. Shrouded post headers provide polarization and alignment features for mating printed

circuit boards and cable connectors, while unshrouded headers allow close stacking of daughter cards. Housings for the headers are made of black thermoplastic material with a 94V-0 rating. The housings have stand-offs for free drainage of flux cleaning solutions.

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Single Row, Right-Angle with Solder Clips



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Characteristics — page 63

Mateable Connectors — pages 38, 49 & 50

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25031



No. of Pos.	Dimension A	Part Numbers
4	.330 [8.38]	5-104074-7
5	.380 [9.65]	5-104074-2
6	.430 [10.92]	5-104074-8
8	.530 [13.46]	6-104074-0
10	.630 [16.00]	5-104074-1
12	.730 [18.54]	6-104074-1
15	.880 [22.35]	5-104074-3
20	1.130 [28.70]	5-104074-4
22	1.230 [31.24]	6-104074-4
25	1.380 [35.05]	5-104074-5
28	1.530 [38.86]	7-104074-0
30	1.630 [41.40]	5-104074-6
36	1.930 [49.02]	6-104074-6
40	2.130 [54.10]	6-104074-7
45	2.380 [60.45]	6-104074-8
50	2.630 [66.80]	6-104074-9

*Circuit identification feature omitted on 4, 5 and 6 position headers.

Notes:

1. Solder Clips located as shown for 10 through 30 position headers.

2. Solder Clips located as shown for 4 through 8 and 36 through 50 position headers.

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Single Row, Vertical



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .00050 [0.00127] nickel



Related Product Data

Performance Characteristics — page 63

Mateable Connectors — pages 38, 49 & 50

Board-to-Board Spacing — page 63

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25031

No. of Pos.	Dimension A	Part Numbers	
		Post Length	
		.100 [2.54]	.145 [3.68]
4	.330 [8.38]	5-104071-7	—
5	.380 [9.65]	5-104071-2	—
6	.430 [10.92]	5-104071-8	—
8	.530 [13.46]	6-104071-0	—
10	.630 [16.00]	5-104071-1	—
12	.730 [18.54]	6-104071-1	5-104804-3
13	.780 [19.81]	6-104071-2	—
15	.880 [22.35]	5-104071-3	5-104804-2
17	.980 [24.89]	6-104071-3	—
20	1.130 [28.70]	5-104071-4	—
22	1.230 [31.24]	6-104071-4	—
25	1.380 [35.05]	5-104071-5	—
30	1.630 [41.40]	5-104071-6	—
36	1.930 [49.02]	6-104071-6	—
40	2.130 [54.10]	6-104071-7	—
50	2.630 [66.80]	6-104071-9	—

*Circuit identification feature omitted on 4, 5, and 6 position headers.

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Double Row, Right-Angle with Solder Clips



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Characteristics — page 63

Mateable Connectors — pages 40, 45, 51, 52, & 56

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25031



No. of Pos.	Dimension A	Part Numbers	
		Post Length	
		.100 [2.54]	.145 [3.68]
8	.330 [8.32]	5-104069-8	—
10	.380 [9.65]	5-104069-4	6-104477-2
12	.430 [10.92]	—	5-104477-8
14	.480 [12.19]	6-104069-0	—
16	.530 [13.46]	6-104069-1	—
20	.630 [16.00]	5-104069-1	5-104477-2
24	.730 [18.54]	6-104069-2	6-104477-0
26	.780 [19.81]	6-104069-3	—
30	.880 [22.35]	5-104069-5	5-104477-3
34	.980 [24.89]	6-104069-4	—
40	1.130 [28.70]	5-104069-6	5-104477-4
50	1.380 [35.05]	5-104069-2	5-104477-5
60	1.630 [41.40]	5-104069-7	5-104477-9
68	1.830 [46.48]	6-104069-8	—
72	1.930 [49.02]	6-104069-6	5-104477-1
80	2.130 [54.10]	5-104069-3	5-104477-6
100	2.630 [66.80]	6-104069-7	5-104477-7

*Circuit identification feature omitted on 8, 10 and 12 position headers.

Notes:

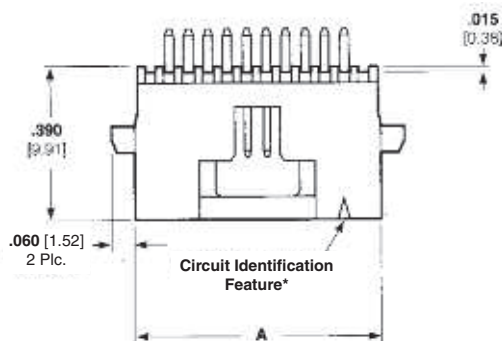
1. Solder Clips located as shown for 16 through 100 position headers.

2. Solder Clips located as shown for 8 through 12 and 60 through 100 position headers.

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Double Row, Vertical



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contact — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Specifications — page 63

Mateable Connectors — pages 40, 45, 51, 52, & 56

Board-to-Board Spacing — page 63

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification
114-25031



No. of Pos.	Dimension A	Part Numbers	
		Post Length	
		.100 [2.54]	.145 [3.68]
10	.380 [9.65]	5-104068-2	—
12	.430 [10.92]	5-104068-8	—
14	.480 [12.19]	5-104068-9	—
16	.530 [13.46]	6-104068-0	5-104666-9
20	.630 [16.00]	5-104068-1	5-104666-1
24	.730 [18.54]	6-104068-1	6-104666-0
26	.780 [19.81]	6-104068-2	—
30	.880 [22.35]	5-104068-3	5-104666-2
34	.980 [24.89]	6-104068-3	—
40	1.130 [28.70]	5-104068-4	5-104666-3
44	1.230 [31.24]	6-104068-4	—
50	1.380 [35.05]	5-104068-5	5-104666-4
60	1.630 [41.40]	5-104068-6	5-104666-7
68	1.830 [46.48]	6-104068-8	5-104666-8
72	1.930 [49.02]	6-104068-5	—
80	2.130 [54.10]	6-104068-6	5-104666-5
100	2.630 [66.80]	6-104068-7	5-104666-6

*Circuit identification feature omitted on 10 and 12 position headers.

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Double Row, Vertical With Card Slots



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Specifications — page 63

Mateable Connectors — page 39

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification
114-25031



No. of Pos.	Dimension A	Part Numbers
10	.394 [10.01]	5-104076-5
20	.644 [16.36]	5-104076-1
30	.894 [22.71]	5-104076-6
40	1.144 [29.06]	5-104076-3
50	1.394 [35.41]	5-104076-7
60	1.644 [41.76]	5-104076-2
80	2.144 [54.46]	5-104076-4
100	2.644 [67.16]	5-104076-8

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Unshrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Single Row, Right-Angle



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Characteristics — page 63

Mateable Connectors — pages 37, 38, 49, & 50

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

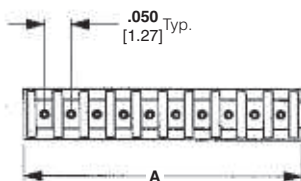
Application Specification 114-25031

No. of Pos.	Dimension A	Part Numbers
4	.215 [5.46]	5-104186-1
8	.415 [10.54]	5-104186-5
12	.615 [15.62]	5-104186-7
15	.765 [19.43]	5-104186-9
17	.865 [21.97]	6-104186-0
20	1.015 [25.78]	6-104186-1
25	1.265 [32.13]	6-104186-3
30	1.515 [38.48]	6-104186-5
31	1.565 [39.75]	7-104186-0
40	2.015 [51.18]	6-104186-7

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Unshrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Single Row, Vertical



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Specifications — page 63

Mateable Connectors — pages 37, 38, 49, & 50

Board-to-Board Spacing — page 63

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25031

No. of Pos.	Dimension A	Part Numbers
4	.215 [5.46]	5-104178-1
6	.315 [8.00]	5-104178-3
8	.415 [10.54]	5-104178-5
10	.515 [13.08]	5-104178-6
20	1.015 [25.78]	6-104178-1
25	1.265 [32.13]	6-104178-3

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Unshrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Double Row, Right-Angle



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Specifications — page 63

Mateable Connectors — pages 39, 40, 45, 51 & 52

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25031

No. of Pos.	Dimension A	Part Numbers
10	.265 [6.73]	5-104118-3
20	.515 [13.08]	5-104118-7
30	.765 [19.43]	6-104118-0
40	1.015 [25.78]	6-104118-2
50	1.265 [32.13]	5-104118-1
60	1.515 [38.48]	6-104118-4
80	2.015 [51.18]	6-104118-6
100	2.515 [63.88]	6-104118-7

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Unshrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Double Row, Vertical



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Characteristics — page 63

Mateable Connectors — pages 39, 40, 45, 51, & 52

Board-to-Board Spacing — page 63

PC Board Hole Layout — page 42

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25031

No. of Pos.	Dimension A	Part Numbers
8	.215 [5.46]	5-103916-3
20	.515 [13.08]	5-103916-2
30	.765 [19.43]	5-103916-9
36	.915 [23.24]	6-103916-8
40	1.015 [25.78]	6-103916-1
50	1.265 [32.13]	6-103916-3
60	1.515 [38.48]	6-103916-4
80	2.015 [51.18]	6-103916-6
100	2.515 [63.88]	6-103916-7

Note: All part numbers are RoHS compliant.

Thru-Hole Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Product Facts

- High density; contacts spaced on .050 x .100 [1.27 x 2.54] centers
- Right-angle and vertical styles
- Single row; select sizes 5 thru 50 positions
- Double row; select sizes 10 thru 100 positions
- Contacts are selectively plated with gold
- Stand-offs for removal of solder flux



The AMPMODU System 50 thru-hole receptacles offer a wide variety of high density board-to-board connectors. The .050 [1.27] spacing between each contact provides an extremely dense interconnect package and results in a more efficient use of the printed circuit board space.

AMPMODU System 50 thru-hole receptacles are available in right-angle and vertical configurations and are composed of single and double row versions. The single row versions are available in select sizes of 5 thru 50 positions and double row in positions from 10 thru 100.

Receptacle contacts and mating .015 [0.38] square posts are formed from high conductivity copper alloy and are selectively plated with gold for higher performance and reliability. The receptacle housings are made of black thermoplastic, with a 94V-0 rating to withstand high temperatures of reflow soldering and incorporate stand-offs for free drainage of flux cleaning solutions.

Thru-Hole Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Single Row, Right-Angle With Solder Clips



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Specifications —
page 63

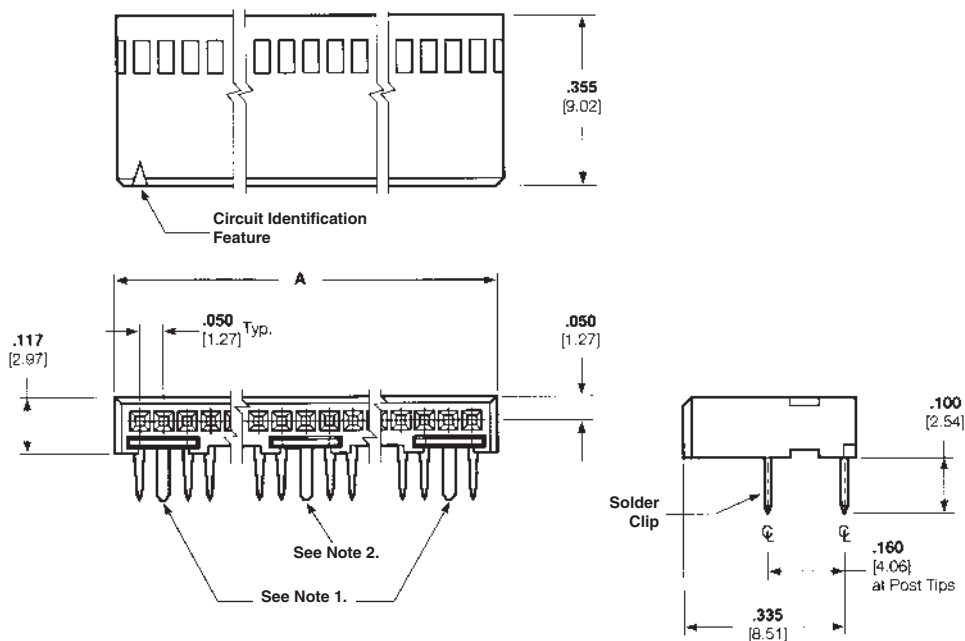
Mateable Connectors — pages 32
& 33

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification
114-25031



No. of Pos.	Dimension A	Part Numbers
10	.544 [13.82]	5-104196-2
15	.794 [20.17]	5-104196-4
20	1.044 [26.52]	5-104196-5

Notes:

- Solder Clips located as shown for 10 through 25 position receptacles.
- Solder Clips located as shown for 5 and 25 position receptacles.

Note: All part numbers are RoHS compliant.

Thru-Hole Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Single Row, Vertical



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel



Related Product Data

Performance Specifications — page 63

Mateable Connectors — pages 27, 28, 32, & 33

Board-to-Board Spacing — page 63

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification
114-25031

No. of Pos.	Dimension A	Part Numbers
10	.544 [13.82]	5-104192-2
12	.644 [16.35]	5-104192-3
15	.794 [20.17]	5-104192-4
20	1.044 [26.52]	5-104192-5
30	1.544 [39.22]	5-104192-7

Note: All part numbers are RoHS compliant.

Thru-Hole Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Double Row, Right-Angle



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Characteristics — page 63

Mateable Connectors — pages 31, 34 & 35

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification
114-25031



No. of Pos.	Dimension A	Part Numbers
10	.294 [7.47]	5-103911-1
20	.544 [13.82]	5-103911-2
30	.794 [20.17]	5-103911-7
40	1.044 [26.52]	5-103911-5
50	1.294 [32.87]	5-103911-4
60	1.544 [39.22]	5-103911-3
80	2.044 [51.92]	5-103911-6
100	2.544 [64.62]	5-103911-8

Notes:

- Solder Clips located as shown for 20 through 100 position receptacles.
- Solder Clips located as shown for 10, 60, 80 and 100 position receptacles.

Note: All part numbers are RoHS compliant.

Thru-Hole Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Double Row, Vertical



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel



Related Product Data

Performance Specifications — page 63

Mateable Connectors — pages 29, 30, 34, 35 & 44

Board-to-Board Spacing — page 63

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification
114-25031

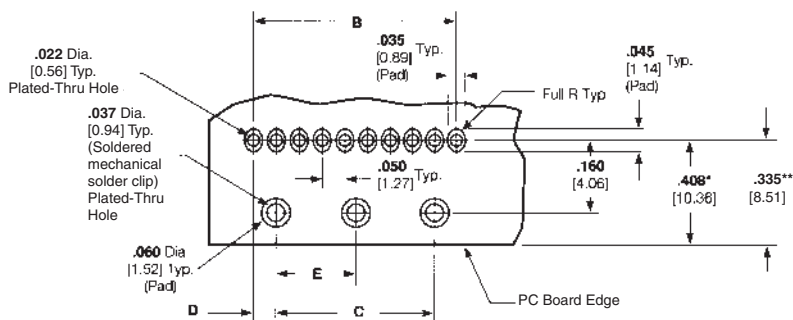
No. of Pos.	Dimension A	Part Numbers Post Length	
		.100 [2.54]	.145 [3.68]
10	.294 [7.47]	5-104078-3	—
20	.544 [13.82]	5-104078-1	—
24	.644 [16.36]	5-104078-9	—
30	.794 [20.17]	5-104078-4	—
34	.894 [22.71]	6-104078-0	—
40	1.044 [26.52]	5-104078-2	—
50	1.294 [32.87]	5-104078-5	5-104744-7
60	1.544 [39.22]	5-104078-6	—
68	1.744 [44.30]	6-104078-3	—
80	2.044 [51.92]	5-104078-7	5-104744-4
100	2.544 [64.62]	5-104078-8	5-104744-5

Note: All part numbers are RoHS compliant.

Recommended PC Board Hole Layouts, Thru-Hole Board-to-Board Connectors

Single Row, Right-Angle with Solder Clips

Note: Consult TE for customer drawings detailing tolerances.



Recommended PC Board Hole Layouts, Thru-Hole Board-to-Board Connectors (Continued)

Single Row Without Solder Clips

Note: Consult TE for customer drawings detailing tolerances.



No. of Pos.	Dimension B
4	.150 [3.81]
5	.200 [5.08]
6	.250 [6.35]
8	.350 [8.89]
10	.450 [11.43]
12	.550 [13.97]
13	.600 [15.24]
15	.700 [17.78]

No. of Pos.	Dimension B
17	.800 [20.32]
20	.950 [24.13]
22	1.050 [26.67]
25	1.200 [30.48]
30	1.450 [36.83]
31	1.500 [38.10]
36	1.750 [44.45]
40	1.950 [49.53]
50	2.450 [62.23]

Double Row Without Solder Clips

Note: Consult TE for customer drawings detailing tolerances.



No. of Pos.	Dimension B
8	.150 [3.81]
10	.200 [5.08]
12	.250 [6.35]
14	.300 [7.62]
16	.350 [8.89]
20	.450 [11.43]
24	.550 [13.97]
26	.600 [15.24]
30	.700 [17.78]
34	.800 [20.32]

No. of Pos.	Dimension B
36	.850 [21.59]
40	.950 [24.13]
44	1.050 [26.67]
50	1.200 [30.48]
60	1.450 [36.83]
68	1.650 [41.91]
72	1.750 [44.45]
80	1.950 [49.53]
100	2.450 [62.23]

Surface-Mount Connectors, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Product Facts

- Surface-mount option for parallel board-to-board applications; completely intermateable with AMPMODU System 50 thru-hole board-to-board and cable-to-board systems
- Double row, vertical, shrouded header and receptacle assemblies
- Available in select sizes from 10 through 100 positions
- High Density; contacts spaced on .050 x .100 [1.27 x 2.54] centers; compact footprint
- Compatible with standard surface-mount processes
- Stand-offs for free drainage of flux cleaning solutions; visible solder joints for easy inspection
- Simple, low insertion-force holddown for process retention and long-term strain relief for solder joints
- Available in tape and reel packaging (with vacuum covers) for automatic placement.



The high-density surface-mount connector is another mounting option in the AMPMODU System 50 connector family.

This surface-mount system is fully intermateable with the AMPMODU System 50 thru-hole and cable-to-board connectors.

Additionally, the design of the mating interface has not been changed, maintaining the same high reliability as the thru-hole product.

The surface-mount system includes double row, vertical, shrouded header and receptacle assemblies in select sizes from 10 through 100 positions. It meets the tight dimensional requirements of surface-mount technology. The simple, low insertion-force holddown provides both processing retention and long-term strain relief for the solder joints in the headers and receptacles.

Surface-Mount Headers, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Double Row, Vertical



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder tail, with entire contact under-plated .000050 [0.00127] nickel

Holddown — Copper alloy, plated .000150 [0.00381] tin over .000050 [0.00127] nickel



Related Product Data

Performance Characteristics — page 63

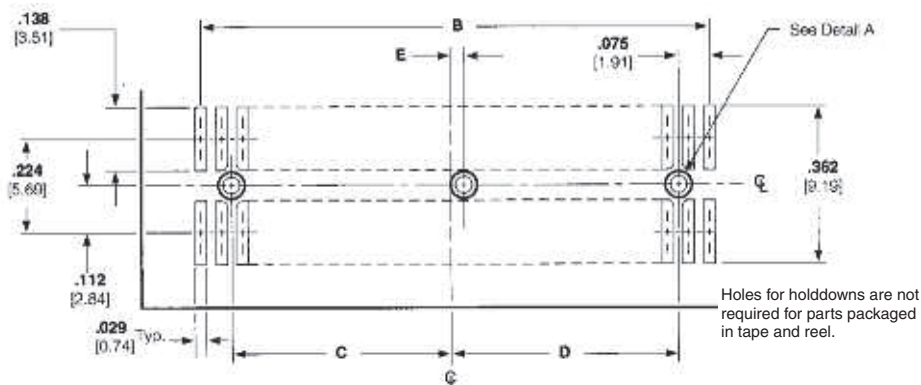
Mateable Connectors — pages 40, 45, 51, 52, & 56

Board-to-Board Spacing — page 63

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25035



Recommended PC Board Layout

No. of Pos.	Dimensions					Part Numbers	
	A	B	C	D	E	Pkg in Tube	Pkg in Tape & Reel*
10	.380 [9.65]	.200 [5.08]	—	.025 [0.64]	—	5-104549-1	5-147377-1
12	.430 [10.92]	.250 [6.35]	—	—	—	6-104549-1	—
20	.630 [16.00]	.450 [11.43]	.150 [3.81]	.150 [3.81]	—	5-104549-2	5-147377-2
24	.730 [18.54]	.550 [13.97]	.200 [5.08]	.200 [5.08]	—	5-104549-3	5-147377-9
30	.880 [22.35]	.700 [17.78]	.275 [6.99]	.275 [6.99]	—	5-104549-5	5-147377-3
40	1.130 [28.70]	.950 [24.13]	.400 [10.16]	.400 [10.16]	—	5-104549-6	5-147377-4
50	1.380 [35.05]	1.200 [30.48]	.525 [13.34]	.525 [13.34]	.025 [0.64]	5-104549-7	5-147377-5
60	1.630 [41.40]	1.450 [36.83]	.650 [16.51]	.650 [16.51]	.000	5-104549-8	5-147377-6
80	2.130 [54.10]	1.950 [49.53]	.900 [22.86]	.900 [22.86]	.000	5-104549-9	5-147377-7
100	2.630 [66.80]	2.450 [62.23]	1.150 [29.21]	1.150 [29.21]	.000	6-104549-0	5-147377-8

*Parts packaged in tape and reel are without hold downs and include a vacuum pick and place cover

Note: All part numbers are RoHS compliant.

Surface-Mount Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Double Row, Vertical



Recommended PC Board Layout

Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder tail, with entire contact underplated .000050 [0.00127] nickel

Holddown — Copper alloy; duplex plated .000150 [0.00381] tin over .000050 [0.00127] nickel

Related Product Data

Performance Characteristics — page 63

Mateable Connectors — pages 29, 30, 34, 35 & 44

Board-to-Board Spacing — page 63

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25035

No. of Pos.	Dimensions			Part Numbers	
	A	B	C	Pkg in Tube	Pkg in Tape & Reel*
10	.294 [7.47]	.200 [5.08]	.400 [10.16]	5-104550-1	5-147378-1
20	.544 [13.82]	.450 [11.43]	.650 [16.51]	5-104550-2	5-147378-2
24	.644 [16.36]	.550 [13.97]	.750 [19.05]	5-104550-3	5-147378-9
30	.794 [20.17]	.700 [17.78]	.900 [22.86]	5-104550-4	5-147378-3
40	1.044 [26.52]	.950 [24.13]	1.150 [29.21]	5-104550-5	5-147378-4
50	1.294 [32.87]	1.200 [30.48]	1.400 [35.56]	5-104550-6	5-147378-5
60	1.544 [39.22]	1.450 [36.83]	1.650 [41.91]	5-104550-7	5-147378-6
80	2.044 [51.92]	1.950 [49.53]	2.150 [54.61]	5-104550-8	5-147378-7
100	2.544 [64.62]	2.450 [62.23]	2.650 [67.31]	5-104550-9	5-147378-8

*Parts packaged in tape and reel are without hold downs and include a vacuum pick and place cover

Note: All part numbers are RoHS compliant.

Cable-to-Board Connectors, .050 x .100 [1.27 x 2.54] Centerline FFC Cable

Product Facts

- Signal application only, 1.5 amperes maximum single circuit
- Single or double row connectors
- Terminates flexible flat conductor cable and flexible etched circuitry
- Shielded cable provides for customizing
- Center latch housing providing positive latching



The cable-to-board .050 [1.27] center FFC receptacle connectors are part of the AMPMODU System 50 family for terminating flexible flat conductor cable and flexible etched circuitry.

The FFC receptacle uses a dual beam contact with 30 microinches of gold plating. The FFC receptacle connectors have an integral latch for positive locking to shrouded mating headers.

Flexible flat conductor cable is a planar parallel conductor cable. It can be used as a one-to-one connector or as a complex harness, allowing split-outs and special routing. The cable is comprised of .026 [0.66] wide x .003 [0.08] thick conductors made of copper per QQ-C-502 and insulated with a flame retardant polyester film.

The FFC contacts are available in receptacle and

solder tab. Receptacle contacts are made of phosphor bronze with a finish of plated gold duplex, while the solder tab contacts are finished in a bright tin-lead overall.

The complete product line provides solder tabs for board mounting at low cost and custom shielding of the cable.

Cable-to-Board Connectors, .050 x .100 [1.27 x 2.54] Centerline FFC Cable] (Continued)

Custom Designed Cable Assemblies

TE can supply customized flexible flat conductor cable assemblies using the components shown on pages 48 thru 54. Typical examples of these cable assemblies are shown to the right.

And, to meet the internal shielding requirements of today's complex electronic equipment, custom designed shielded FFC cable assemblies can be made to your specific specifications.



FFC Contacts, .050 x .100 [1.27 x 2.54] Centerline



Receptacle Strip



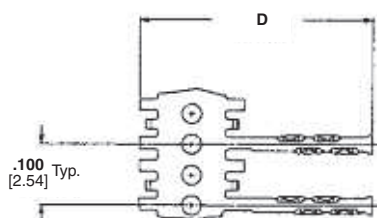
Solder Tab Strip

Receptacle



Accepts .015 [0.38] Sq. Post
.125-.350 [3.18-8.89] Long

Solder Tab



Material and Finish

Phosphor bronze; plated gold
duplex or bright tin-lead overall
(See chart.)

Related Product Data

Performance Characteristics —
page 63

Housings — pages 49-52

Application Tooling — page 60-62

Technical Documents — page 64

Product Specification 108-16022

Application Specification
114-16008

Type	Config.	Part No./ Finish	Contacts			Application Tooling Part Numbers	
			Dimensions			Machine	Machine With Programmer
			B	C*	D		
Receptacle	Strip	1-487547-1 ¹	—	.520 [13.21]	.725 [18.42]		
	Strip	487923-4 ²	.245 [6.22]	.480 [12.19]	.685 [17.40]		
Solder Tab	Strip	487923-5 ³	.245 [6.22]	.480 [12.19]	.685 [17.40]	224910-4 (120 V)	318619-4 (120 V)
	Strip	487940-4 ²	.110 [2.79]	.345 [8.76]	.550 [13.97]	224910-6 (240 V)	318619-6 (240 V)
Contact Splice	Strip	487941-4 ⁴	—	—	.385 [9.78]		
Receptacle	Strip	1-487547-2 ⁵	—	.520 [13.21]	.725 [18.42]		

¹Duplex plated .000030 [0.00076] gold on mating area, .000100 [0.00254] min. bright tin in crimp area, with entire contact underplated .000050 [0.00127] min. nickel.

²Plated .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel.

³Duplex plated .000015 [0.00038] gold on solder tab end, .000100 [0.00254] min. bright tin in crimp area, with entire contact underplated .000050 [0.00127] min. nickel.

⁴Plated .000150 [3.81µm] min. bright tin over .000050 [1.27µm] min. nickel.

⁵Duplex Plated .000150 [0.00038] gold on mating area, .000100 [0.00254] min bright tin in crimp area, with entire contact underplated .000050 [0.00127] min. nickel.

*After cut-off from carrier strip.

Note: All part numbers are RoHS compliant.

Single Row Receptacle Housings, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board



Plain Style Housings



Latch Style Housings

Material and Finish

Housing — Black thermoplastic, flame retardant, 94V-0 rated

Related Product Data

Performance Characteristics — page 63

Receptacle Contacts — page 48

Mateable Headers — pages 27, 28, 32 & 33

Technical Documents — page 64

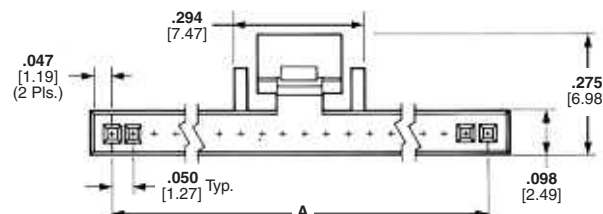
Product Specification 108-16022

Application Specification
114-16008

Plain Style Housings



Latch Style Housings



Single Row Receptacle Housings, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board (Continued)

No. of Pos.	Dimensions		Part Numbers	
	A	B	Plain Receptacle Housing	Latch Style Receptacle Housing
4	.150 [3.18]	.244 [6.20]	487544-1	487545-1
5	.200 [5.08]	.294 [7.47]	487544-2	487545-2
6	.250 [6.35]	.344 [8.74]	487544-3	487545-3
7	.300 [7.62]	.394 [10.01]	487544-4	487545-4
8	.350 [8.89]	.444 [11.28]	487544-5	487545-5
10	.450 [11.43]	.544 [13.82]	487544-7	487545-7
12	.550 [13.97]	.644 [16.36]	487544-9	487545-9
13	.600 [15.24]	.694 [17.63]	—	1-487545-0
15	.700 [17.78]	.794 [20.17]	1-487544-2	1-487545-2
16	.750 [19.05]	.844 [21.44]	1-487544-3	—
17	.800 [20.32]	.894 [22.71]	1-487544-4	1-487545-4
20	.950 [24.13]	1.044 [26.52]	1-487544-7	1-487545-7
22	1.050 [26.67]	1.144 [29.06]	1-487544-9	1-487545-9
25	1.200 [30.48]	1.294 [32.87]	2-487544-2	2-487545-2
26	1.250 [31.75]	1.343 [34.11]	—	2-487545-3
28	1.350 [34.29]	1.443 [36.65]	—	2-487545-5
30	1.450 [36.83]	1.544 [39.22]	—	2-487545-7
36	1.750 [44.45]	1.844 [46.84]	3-487544-3	3-487545-3
40	1.950 [49.53]	2.044 [51.92]	—	3-487545-7
45	2.200 [55.88]	2.294 [58.27]	—	4-487545-2
50	2.450 [62.23]	2.544 [64.62]	4-487544-7	4-487545-7

Note: Other sizes of receptacle housings (plain and latch style) can be made available, consult TE.



- Notes:** 1. Plain housings are side-to-side stackable on either straight or right-angle posted, unshrouded AMPMODU System 50 headers.
2. For end-to-end stacking, the posts located between the adjoining housings must be removed to provide housing end clearance.

Typical Cable-to-Board Application of Plain Receptacle Housing

Typical Cable-to-Board Application of Latch Style Receptacle Housing

Note: All part numbers are RoHS compliant.

Double Row Receptacle Housings, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board

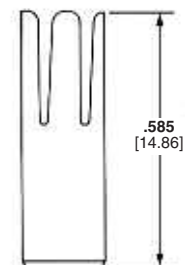
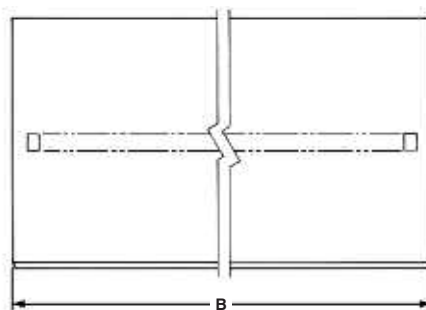
Plain Style Housings



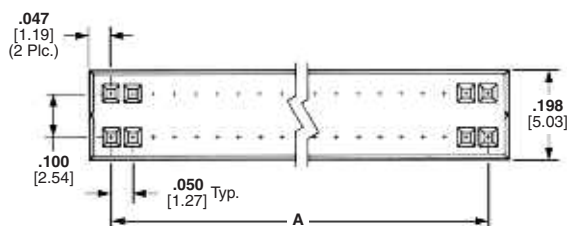
Plain Style Housings



Latch Style Housings



Plain



Material

Black thermoplastic, flame retardant,
94V-0 rated

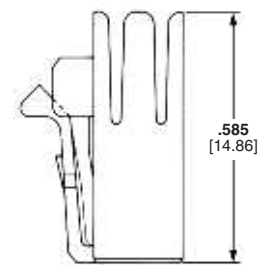
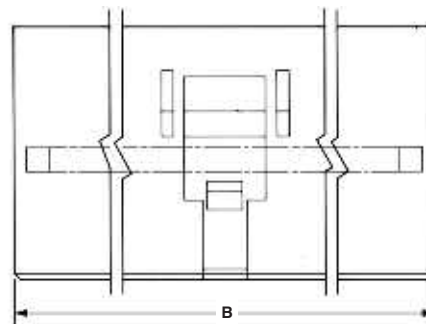
Related Product Data

Performance Characteristics —
page 63

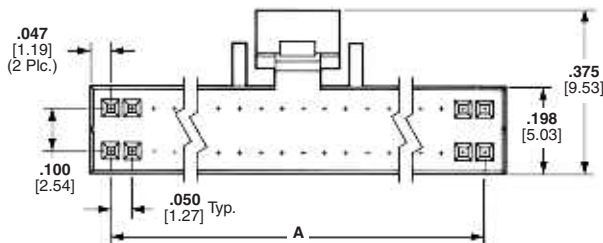
Receptacle Contacts — page 48

Mateable Headers — pages 29, 30,
34, 35, & 44

Latch Style Housings



Latch



Technical Documents — page 64

Product Specification 108-16022

Application Specification
114-16008

Double Row Receptacle Housings, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board (Continued)

No. of Pos.	Dimensions		Plain Housing Part Numbers	Latch Style Housing Part Numbers
	A	B		
8	.150 [3.81]	.247 [6.27]	487938-8	487937-8
10	.200 [5.08]	.297 [7.54]	1-487938-0	1-487937-0
12	.250 [6.35]	.374 [8.81]	1-487938-2	1-487937-2
14	.300 [7.62]	.397 [10.08]	1-487938-4	1-487937-4
16	.350 [8.89]	.447 [11.35]	1-487938-6	1-487937-6
20	.450 [11.43]	.547 [13.89]	2-487938-0	2-487937-0
24	.550 [13.97]	.647 [16.43]	2-487938-4	2-487937-4
26	.600 [15.24]	.697 [17.7]	2-487938-6	2-487937-6
30	.700 [17.78]	.797 [20.24]	3-487938-0	3-487937-0
34	.800 [20.32]	.897 [22.78]	3-487938-4	3-487937-4
40	.950 [24.13]	1.047 [26.59]	4-487938-0	4-487937-0
44	1.050 [26.67]	1.147 [29.13]	4-487938-4	4-487937-4
50	1.200 [30.48]	1.297 [39.94]	5-487938-0	5-487937-0
60	1.450 [36.83]	1.547 [39.29]	—	6-487937-0
72	1.750 [44.45]	1.847 [46.91]	7-487938-2	7-487937-2
80	1.950 [49.53]	2.047 [51.99]	8-487938-0	8-487937-0
100	2.450 [62.23]	2.547 [64.69]	487938-1	487937-1

Note: Other sizes of receptacle housings, up to 120 positions, can be made available, consult TE.



- Notes:** 1. Plain housings are end-to-end stackable on either straight or right-angle posted, unshrouded AMPMODU System 50 headers.
2. For end-to-end stacking, the two posts located between the adjoining housings must be removed to provide housing end clearance.

Typical Cable-to-Board Application of Plain Receptacle Housing



Typical Cable-to-Board Application of Latch Style Receptacle Housing

Note: All part numbers are RoHS compliant.

ZIF-Line Connectors, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board

Vertical Cable Entry



Material and Finish

Housing and Cover — Black thermoplastic, flame retardant, 94V-0 rated

Contacts — Phosphor bronze, plated .000150 [0.00381] min. bright tin over .000050 [0.00127] min. nickel on entire contact

Performance Characteristic

Contact Current Rating — 1 ampere†

†1 ampere rating is for single circuit. Multiple circuits, ambient temperature and conductor size affect current carrying capacity.

Related Product Data

FFC Cable (with Tin-Plated Prepared Ends) — Consult TE.

Technical Documents — page 64

Product Specification 108-16025

Application Specification 114-16014



Recommended Mounting Hole Pattern

*±.002 [±0.05] tolerance not to accumulate within one mounting hole pattern.

**This mounting hole required for even-numbered connector sizes only.



*FFC cable with tin-plated prepared ends can be made available, consult TE.

Note: Special preparation of cable is required, refer to TE Application Specification No. 114-16014.

Typical Flexible Flat Conductor Cable-to-Board Application

ZIF-Line Connectors, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board (Continued)

No. of Pos.	Dimensions		Connector Part Numbers
	A	B	
5	.470 [11.94]	.410 [10.41]	5-487576-0
6	.520 [13.21]	.460 [11.68]	5-487576-1
7	.570 [14.48]	.510 [12.95]	4-487576-8
8	.620 [15.75]	.560 [14.22]	4-487576-9
9	.670 [17.02]	.610 [15.49]	487576-1
10	.720 [18.29]	.660 [16.76]	487576-2
11	.770 [19.56]	.710 [18.03]	487576-3
12	.820 [20.83]	.760 [19.30]	487576-4
13	.870 [22.10]	.810 [20.57]	487576-5
14	.920 [23.37]	.860 [21.84]	487576-6
15	.970 [24.64]	.910 [23.11]	487576-7
16	1.020 [25.91]	.960 [24.38]	487576-8
17	1.070 [27.18]	1.010 [25.65]	487576-9
18	1.120 [28.45]	1.060 [26.92]	1-487576-0
19	1.170 [29.72]	1.110 [28.19]	1-487576-1
20	1.220 [30.99]	1.160 [29.46]	1-487576-2
21	1.270 [32.26]	1.210 [30.73]	1-487576-3
22	1.320 [33.53]	1.260 [32.00]	1-487576-4
23	1.370 [34.80]	1.310 [33.27]	1-487576-5
24	1.420 [36.07]	1.360 [34.54]	1-487576-6
25	1.470 [37.34]	1.410 [35.81]	1-487576-7
26	1.520 [38.61]	1.460 [37.08]	1-487576-8
27	1.570 [39.88]	1.510 [38.35]	1-487576-9
28	1.620 [41.15]	1.560 [39.62]	2-487576-0
29	1.670 [42.42]	1.610 [40.89]	2-487576-1
30	1.720 [43.69]	1.660 [42.16]	2-487576-2

No. of Pos.	Dimensions		Connector Part Numbers
	A	B	
31	1.770 [44.96]	1.710 [43.43]	2-487576-3
32	1.820 [46.23]	1.760 [44.70]	2-487576-4
33	1.870 [47.50]	1.810 [45.97]	2-487576-5
34	1.920 [48.77]	1.860 [47.24]	2-487576-6
35	1.970 [50.04]	1.910 [48.51]	2-487576-7
36	2.020 [51.31]	1.960 [49.78]	2-487576-8
37	2.070 [52.58]	2.010 [51.05]	2-487576-9
38	2.120 [53.85]	2.060 [52.32]	3-487576-0
39	2.170 [55.12]	2.110 [53.59]	3-487576-1
40	2.220 [56.39]	2.160 [54.86]	3-487576-2
41	2.270 [57.66]	2.210 [56.13]	3-487576-3
42	2.320 [58.93]	2.260 [57.40]	3-487576-4
43	2.370 [60.20]	2.310 [58.67]	3-487576-5
44	2.420 [61.47]	2.360 [59.94]	3-487576-6
45	2.470 [62.74]	2.410 [61.21]	3-487576-7
46	2.520 [64.01]	2.460 [62.48]	3-487576-8
47	2.570 [65.28]	2.510 [63.75]	3-487576-9
48	2.620 [66.55]	2.560 [65.02]	4-487576-0
49	2.670 [67.82]	2.610 [66.29]	4-487576-1
50	2.720 [69.09]	2.660 [67.56]	4-487576-2
51	2.770 [70.36]	2.710 [68.83]	4-487576-3
52	2.820 [71.63]	2.760 [70.10]	4-487576-4
53	2.870 [72.90]	2.810 [71.37]	4-487576-5
54	2.920 [74.17]	2.860 [72.64]	4-487576-6
55	2.970 [75.44]	2.910 [73.91]	4-487576-7

Note: All part numbers are RoHS compliant.

Cable-to-Board Connectors, .050 x .100 [1.27 x 2.54] Centerline, Ribbon Cable, System 50

Product Facts

- Preassembled housing and cover
- One step termination
- End and daisy chain termination
- Positive end latching of connector to shrouded headers
- Terminates 30 AWG [0.05 mm²] solid or stranded and 32 AWG [0.03 mm²]* stranded .025 [0.64] centerline ribbon cable with PVC insulation
- 0.5 ampere current rating (limited by cable)



The AMP-LATCH System 50 Ribbon Cable connector is a receptacle connector that will terminate ribbon cable on .025 [0.64] centerlines. It is available in select sizes from 10 to 100 positions and will accommodate 30 AWG [0.05 mm²] solid or stranded and 32 AWG [0.03 mm²]

stranded conductors, with PVC cable insulation.

The housing and cover (black) have a 94V-0 rating. A copper alloy single mating beam contact provides the interconnect between the conductor and the .015 [0.38] square posts on the .050 x .100 [1.27 x 2.54] grid. The

contacts are plated with 30 gold duplex plating. The latching feature is located on the receptacle, not the header, and saves board space and eliminates future problems of "latch height compatibility."

Double Row Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board, Ribbon Cable, System 50



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Latches — Stainless steel

Contacts — Copper alloy, plated gold over nickel with tin in termination area

Related Product Data

Performance Characteristics — page 63

Mateable Headers — pages 29, 30, 34, 35 & 44

Application Tooling — page 60-62

Mates with Posts — .015 [0.38] square, .125 [3.18] long, on .050 x .100 [1.27 x 2.54] grid

Technical Documents — page 64

Product Specification 108-1109

Application Specification 114-25029

No. of Pos.	Dimensions						Part Numbers
	A	B	C	D	E	F	
10	.510 [12.95]	.445 [11.30]	.225 [5.72]	.200 [5.08]	.096 [2.44]	.294 [7.47]	2-111196-5
14	.610 [15.49]	.545 [13.84]	.325 [8.26]	.300 [7.62]	.146 [3.71]	.394 [10.01]	2-111196-6
16	.660 [16.76]	.595 [15.11]	.375 [9.52]	.350 [8.89]	.171 [4.34]	.444 [11.28]	2-111196-7
20	.760 [19.30]	.695 [17.65]	.475 [12.07]	.450 [11.43]	.221 [5.61]	.544 [13.82]	1-111196-8
24	.860 [20.32]	.795 [20.19]	.575 [14.61]	.550 [13.97]	.271 [6.88]	.644 [16.36]	2-111196-8
26	.910 [23.11]	.845 [21.46]	.625 [15.88]	.600 [15.24]	.296 [7.52]	.694 [17.63]	2-111196-9
30	1.010 [25.65]	.945 [24.00]	.725 [18.42]	.700 [17.78]	.346 [8.79]	.794 [20.17]	1-111196-9
34	1.110 [28.19]	1.045 [26.54]	.825 [20.96]	.800 [20.32]	.396 [10.06]	.894 [22.71]	3-111196-0
40	1.260 [32.00]	1.195 [30.35]	.975 [24.54]	.950 [24.13]	.471 [11.96]	1.044 [26.52]	2-111196-0
44	1.360 [34.54]	1.295 [32.89]	1.075 [27.31]	1.050 [26.67]	.521 [13.23]	1.144 [29.06]	3-111196-1
50	1.510 [38.35]	1.445 [36.70]	1.225 [31.12]	1.200 [30.48]	.596 [15.14]	1.294 [32.87]	2-111196-1
60	1.760 [44.70]	1.695 [43.05]	1.475 [37.47]	1.450 [36.83]	.721 [18.31]	1.544 [39.22]	2-111196-2
64	1.860 [47.24]	1.795 [45.59]	1.575 [40.00]	1.550 [39.37]	.771 [19.58]	1.644 [41.76]	3-111196-2
68	1.960 [49.78]	1.895 [48.13]	1.675 [42.55]	1.650 [41.91]	.821 [20.85]	1.744 [44.30]	3-111196-4
72	2.060 [52.32]	1.995 [50.67]	1.775 [45.08]	1.750 [44.45]	.871 [22.12]	1.844 [46.84]	2-111196-3
80	2.260 [57.40]	2.195 [55.75]	1.975 [50.17]	1.950 [49.53]	.971 [24.66]	2.044 [51.92]	3-111196-3
100	2.760 [70.10]	2.695 [68.45]	2.475 [62.87]	2.450 [62.23]	1.221 [31.01]	2.544 [64.62]	2-111196-4

Note: All part numbers are RoHS compliant.

Paddleboard Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board, Ribbon Cable, System 50



Material and Finish

Housing — Black LCP thermoplastic, 94V-0 rated

Cover — Black polyester, 94V-0 rated

Contacts — Copper alloy, plated
.000100-.000200 [0.00245-0.00508]
bright tin over .000050-.000100
[0.00127-0.00254] nickel

Related Product Data

Performance Characteristics —
page 63

Application Tooling — pages 60-62

Technical Documents — page 64

Product Specification 108-1109

Application Specification
114-25040



No. of Pos.	PCB Hole Layout	Dimensions		Part Numbers
		A	B	

Flat Ribbon Cable, PVC Insulation

**30 AWG [0.05 mm²],
Solid Bare Copper**

Product Specifications

Voltage — 150 Volts

Impedance — 80 Ohms Nominal
(GND, SIG, GND, applies to 30AWG
Solid Bare Copper)

Capacitance — 19.2 pF/ft at
1 MHz nom.

Propagation Delay — 1.51 ns/ft nom.

Crosstalk —

10 ft sample 5 ns rise time:

Near End — 4.0% max.

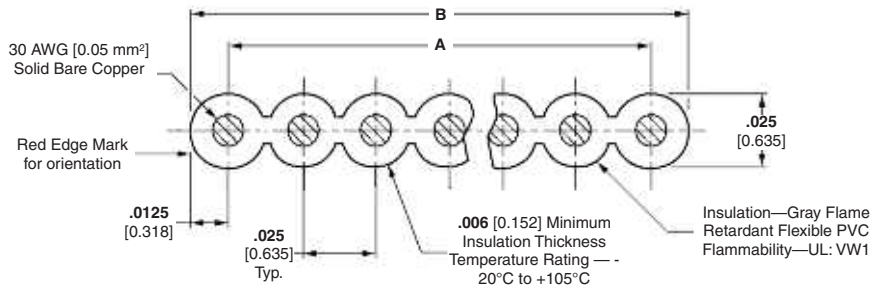
Far End — 6.0% max.

UL Listing — STYLE 2678

Recognized under the
Component Program of
Underwriters
Laboratories Inc.,
File No. E53793



Certified by Canadian
Standards Association,
(CSA File No. LL83498)



No. of Conductors	Dimensions		Part Numbers	
	A	B	Length Per Reel*	
			100 ft. [30.48 m]	500 ft. [152.4 m]
16	.375 [9.52]	.400 [10.16]	5-57013-1	5-57013-2
20	.475 [12.07]	.500 [12.70]	1-57013-3	57013-1
24	.575 [14.61]	.600 [15.24]	1-57013-4	57013-8
26	.625 [15.88]	.650 [16.51]	2-57013-5	2-57013-6
28	.675 [17.14]	.700 [17.78]	4-57013-6	4-57013-7
30	.725 [18.42]	.750 [19.05]	1-57013-5	57013-6
34	.825 [20.95]	.850 [21.59]	4-57013-9	5-57013-0
36	.875 [22.23]	.900 [22.86]	1-57013-6	57013-7
40	.975 [24.77]	1.000 [25.40]	1-57013-7	57013-2
44	1.075 [27.31]	1.100 [27.94]	1-57013-8	57013-9
50	1.225 [27.94]	1.250 [31.75]	1-57013-9	1-57013-0
60	1.475 [37.47]	1.500 [38.10]	2-57013-0	57013-3
68	1.675 [42.55]	1.700 [43.18]	2-57013-1	1-57013-1
72	1.775 [45.09]	1.800 [45.72]	2-57013-2	1-57013-2
80	1.975 [50.17]	2.000 [50.80]	2-57013-3	57013-4
100	2.475 [62.87]	2.500 [63.50]	2-57013-4	57013-5

*Reel may contain separate lengths, 20 ft. [6.1 m] min. per length.

Electrical Characteristics of .025 [0.64] Centerline IDC Ribbon Cable

Base Part No.	Insulation	AWG	Voltage	Impedance Single Ended G-S-G	Capacitance Nominal G-S-G	Inductance Nominal	Nominal Prop. Delay	NEXT 10 Ft 5ns Rise Time	FEXT 10 Ft 5ns Rise Time
57013	PVC	30 Solid	150 Vac	80 Ohms Nom	19.2 pF/ft	.160 mH/ft	1.51 ns/ft	4.0% Max	6.0% Max
219054, 219137	TPE	30 Solid	150 Vac	90+/- 6 Ohms	15.3 pF/ft	.124 mH/ft	1.382 ns/ft	2.39% Nom	2.99% Nom
57119, 57139, 57145	FEP	30 Solid	300 Vac	93 Ohms Nom	13.6 pF/ft	.120 mH/ft	1.34 ns/ft	2.6% Nom	2.8% Nom
57131	PVC	30 Stranded	150 VAC	66 Ohms Nom	23.0 pF/ft	.100 mH/ft	1.55 ns/ft	2.8% Max	4.5% Max
219055	TPE	30 Stranded	150 VAC	78 Ohms Nom	19.4 pF/ft	.118 mH/ft	1.510 ns/fr	1.37% Nom	2.37% Nom
57288, 57289, 57290	FEP	30 Stranded	300 Vac	85 Ohms Nom	15.4 pF/ft	.110 mH/ft	1.36 ns/ft	2.5% Nom	2.8% Nom
219253	TPE	31 Stranded	150 Vac	90+/- 6 Ohms	15.4 pF/ft	.125 mH/ft	1.527 ns/ft	1.97% Nom	2.51% Nom
57038	PVC	32 Stranded	150 Vac	80 Ohms Nom	19.2 pF/ft	.147 mH/ft	1.51 ns/ft	4.0% Max	6.0% Max
219138	TPE	32 Stranded	150 Vac	104 Ohms Nom	12.8 pF/ft	.138 mH/ft	1.664 ns/ft	2.10% Nom	2.57% Nom
57118, 57138, 57144	FEP	32 Stranded	300 Vac	105 Ohms Nom	13.0 pF/ft	.120 mH/ft	1.36 ns/ft	2.6% Nom	2.8% Nom

Note: All part numbers are RoHS compliant.

Centerline IDC Ribbon Cable, PVC Insulation

30 AWG 7/38 Stranded Tinned Copper

For use with:

AMP-LATCH System 50,
AMPLIMITE .050 Series and
AMPMODU System 50
Connectors

Compatible with:

AMP R-CAM Ribbon Cable
Assembly Machine

Product Specifications

Voltage Rating — 150 Volts

Impedance — 66 ohms (GND, SIG,
GND)

Capacitance — 23 pF/ft. at
1 KHz

Propagation Delay —

1.55 ns/ft. [5.6 ns/m]

Crosstalk —

10 Ft. sample 5 ns rise time

Near End — 2.8% max

Near End — 4.5% max

UL AWM Style 2678



Certified



No. of Conductors	Dimensions		Part Numbers	
	A	B	Length Per Reel	
			100 ft. [30.5 m]	500 ft. [152.4 m]
20	.475 [12.07]	.500 [12.70]	1-57131-3	57131-1
40	.975 [24.77]	1.000 [25.40]	1-57131-7	57131-2
50	1.225 [31.12]	1.250 [31.75]	1-57131-9	1-57131-0
68	1.675 [42.55]	1.700 [43.18]	2-57131-1	1-57131-1
80	1.975 [50.17]	2.000 [50.80]	2-57131-3	57131-4
100	2.475 [62.87]	2.500 [63.50]	2-57131-4	57131-5

Note: All part numbers are RoHS compliant.

Application Tooling for Flexible Film Contacts

Hand Crimping Tool Assemblies (for repair purposes)



Part No. 90273-5—for .100 ϕ
Multi-Crimp Contacts (408-9564)

Extraction Tools for .100 ϕ Contacts

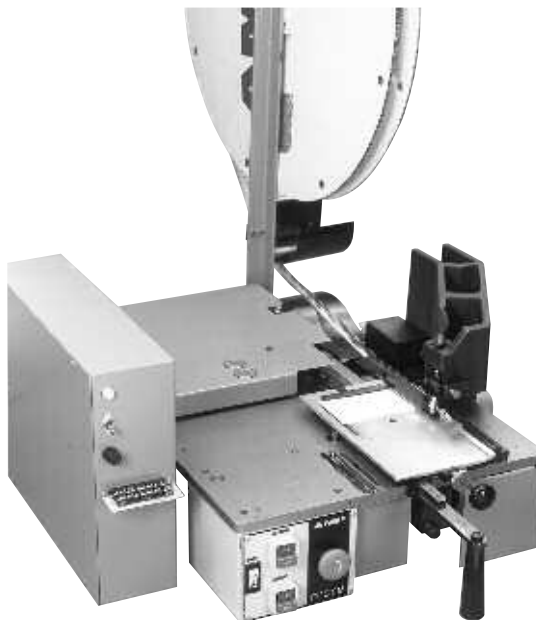
Tool No. 91200-□*— for Receptacle
Housings with **Side Locking Lance
Slot** (408-7916)

Tool No. 91047-□*— for Receptacle
and Pin Housings with **End Locking
Lance Slot** (408-7384)

*Consult TE for specific dash nos.

For tooling information, contact the
Technical Support Center:
1-800-522-6752.

Flexible Film Termination Machine (Terminates Continuous Strip Contacts Sequentially)



The flexible film semiautomatic bench machine for terminating .050 [1.27] and .100 [2.54] centerline flexible flat conductor cable (FFC), flexible etched circuitry (FEC), and flexible printed wiring (FPW) with AMP FFC reel-mounted contacts. For each cable or circuitry, the contacts are automatically applied one-at-a-time in a straight sequence. To skip positions, an optional programmer control box is available. Crimp height is easily adjustable in .0002 [.0051] increments. Termination rates up to 200 contacts per minute.

Description	Machine Part Numbers	
	Machine	Machine With Programmer*
.100 [2.54] ϕ , Multi-Crimp, 120 V	224910-1	318619-1
.100 [2.54] ϕ , Multi-Crimp, 240 V	224910-2	318619-2
.100 [2.54] ϕ , ARINC, 120 V	224910-3	318619-3
.050 [1.27] ϕ , Multi-Crimp, 120 V	224910-4	318619-4
.050 [1.27] ϕ , Multi-Crimp, 240 V	224910-6	318619-6

*The Programmer Kit (**Part No. 356484-1**) may be purchased with a new machine, or separately for adding onto an existing machine.

Technical Documents

Customer Manuals

409-5835 (Part Numbers 224910 and 318619)

409-5880 Programmer Kit (Part Number 356484-1)

Specifications

Width — 20.5 [520]

Depth — 27.5 [700]

Height — 18 [460] (with reel support)

Reel Size — 24 [610] (max.)

Weight — 100 lb. [45.4 kg]

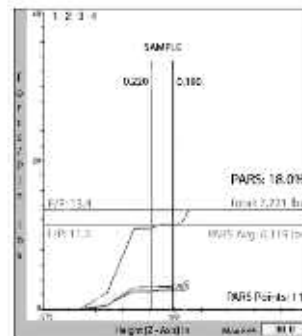
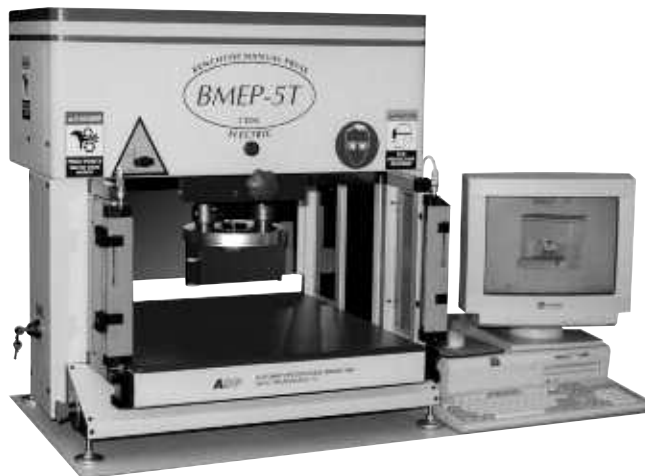
Electrical Source —
120 VAC, 50/60 Hz, 7.0 A;
240 VAC, 50/60 Hz, 3.5 A

Note: All part numbers are RoHS compliant.

Application Tooling for Compliant Pin Connectors

ASG Servo Electric Presses for Compliant Pin Connectors</

TE offers the ASG line of servo electric presses for the application of compliant



Application Tooling for Ribbon Cable Connectors

These application tools are designed for one-step termination of ribbon cable connectors to planar, ground plane and shielded/jacketed ribbon cable on .025 [0.64] centers. A complete set of tooling consists of an Arbor Tool (manual, Part No. 91085-2 or pneumatic, Part No. 91112-3), a Base Assembly, Part No. 768338-4 and a Connector Specific Kit, Part No. 679167-1 (receptacle).



Pneumatic Auto-Cycle Tool Part No. 91112-3



Manual Arbor Tool Part No. 91085-2

Technical Documents

Instruction Sheets

408-7777 — Manual Arbor Frame Assembly

408-6732 — Pneumatic Auto-Cycle Assembly

408-9827 — Universal Base Assembly, Arbor Tool

408-9872 — Connector Specific Kit for Receptacle Connectors (.025 [0.64] Centerline Cable)

408-9928 — Connector Specific Kit for Paddleboard Connectors (.025 [0.64] Centerline Cable)

Note: Tooling is available for other manufacturers' manual arbor tools. For information contact the TE Technical Support Center: 1-800-522-6752

Note: All part numbers are RoHS compliant.

Performance Specifications

Board-to-Board Spacing for Thru-Hole and Surface-Mount Connector Combinations

Thru-Hole Receptacle-Thru-Hole Header

(Single and Double Row, Shrouded and Unshrouded)



Thru-Hole Receptacle-Surface-Mount Header

(Double Row, Shrouded)



Surface-Mount Receptacle-Thru-Hole Header

(Double Row, Shrouded and Unshrouded)



Surface-Mount Receptacle-Surface-Mount Header

(Double Row, Shrouded)



Need more information?

Call the Technical Support Center: **1-800-522-6752**.

The Technical Support Center is staffed with specialists well versed in all TE products. The Center can provide you with:

- Technical Support
- Catalogs
- Technical Documents
- Product Samples
- TE Authorized Distributor Locations

Performance Specifications

Description	Board-to-Board, Thru-Hole Headers and Receptacles	Board-to-Board, Surface-Mount, Headers and Receptacles	Cable-to-Board, .050 [1.27] Centerline FFC Cable Receptacles	Cable-to-Board, .025 [0.64] Centerline Ribbon Cable Receptacles
Size Range-Single Row Double Row	4 thru 50 10 thru 100	— 10 thru 100	4 thru 50 8 thru 100	— 10 thru 100
Current Rating (per contact)	1.0 amperes	1.0 amperes	1.5 amperes	0.5 amperes
Dielectric Withstanding Voltage	500 VAC	500 VAC	300 VAC	200 VAC
Insulation Resistance	5,000 Megohms	5,000 Megohms	5,000 Megohms	5,000 Megohms
Durability (tested to)	200 Cycles	200 Cycles	200 Cycles	150 Cycles
Mating Force (per contact)	5 oz. [1.38 N] Max.	5 oz. [1.38 N] Max.	8 oz. [2.22 N] Max.	4 oz. [1.11 N] Max.
Unmating Force (per contact)	0.8 oz. [0.22 N] Min.	0.8 oz. [0.22 N] Min.	1.0 oz. [0.27 N] Min.	*0.5 oz. [0.13 N] Min.
Operating Temperature	-65°C to +105°C	-65°C to +105°C	-55°C to +105°C	-65°C to +105°C

*With latches depressed.

Technical Documents

The following is a list of technical documents covering the application, performance and maintenance of AMPMODU System 50 connectors.

Product Specifications describe technical performance characteristics and verification tests. They are intended for the Design, Component and Quality Engineer.

- 108-1093—AMPMODU System 50 Interconnection System, Board-to-Board
- 108-1109—AMPLATCH System 50 Receptacle and Paddleboard Connector
- 108-16022—Connector System, .050 [1.27] Centerline FFC Cable
- 108-16025—Connector, ZIF-Line 50
- 108-16029—Shielded Flexible Flat Conductor Cable
- 108-40002—Flexible Flat Conductor Cable

Application Specifications describe requirements for using the product in its intended application and/or crimping information. They are intended for the Packaging and Design Engineer and the Machine Setup Person.

- 114-16008—Multiple Crimp Contact for .050 [1.27] Centerline FFC and FEC Cable
- 114-16014—AMP ZIF-Line 50 & 100 PCB Connectors
- 114-25029—AMPMODU System 50 Ribbon Cable Connectors
- 114-25031—AMPMODU System 50 Thru-Hole Connectors
- 114-25035—AMPMODU Surface-Mount Connectors
- 114-25040—AMPMODU System 50 Paddleboard Connectors

Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

- 408-6732—Pneumatic Arbor Tool, Part Number 91112-3 (Auto-Cycle)
- 408-7384—Extraction Tool, Part Number 91047
- 408-7763—Pneumatic Arbor Tool, Part Number 91112-2
- 408-7777—Manual Arbor Tool, Part Number 91085-2
- 408-7916—Extraction Tool, Part Number 91200
- 408-9827—Universal Base Assembly, Arbor Tool, Part Number 768338-1
- 408-9872—Connector Specific Kit, Part Number 679167-1, AMPMODU System 50 Receptacle Connectors (.025 [0.64] Centerline Cable)
- 408-9928—Connector Specific Kit, Part Number 679176-1, AMPMODU System 50 Paddleboard Connectors (.025 [0.64] Centerline Cable)
- 408-9564—Hand Crimping Tool Assembly, Part Number 90273-5
- 408-9719—FFC Contact Positioning Hand Tool Kit, Part Number 91292-1

Note: All part numbers are RoHS compliant.

AMPMODU 2mm Connectors (Board to Board)

Product Facts

- 2.0 x 2.0 [.08 x .08] centerline spacing
- Two-piece, double-row connector system
- Unshrouded header styles include; breakaway and surface-mount
- All headers with 0.5 [.02] square posted contacts
- Surface-mount connectors compatible with standard surface-mount processing (VPR, IR)
- Closed top-entry receptacle assemblies include; vertical mount and right-angle
- Receptacle contacts employ dual cantilever beams for two-point electrical stability
- Duplex (gold/tin-lead) plated posted contacts and receptacle contacts
- Thermoplastic housing material, UL 94V-0 rated
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR7189 
- Produced under a Quality Management System certified to ISO 9001 

A copy of the certificate is available upon request.



AMPMODU 2mm connectors reliably and economically meet the packaging and inter-connection requirements of today's miniature sophisticated electronics. They are ideal for mobile and portable personal computers and disk drive applications. In today's marketplace, 2mm is expanding over many other industry segments due to space constraints.

This versatile double-row connector system is comprised of various straight and right-angle posted headers for thru-hole and surface mounting and several closed top-entry receptacle assemblies for vertical and horizontal mounting. Headers and receptacle assemblies are available in selected sizes ranging from 4 through 80 positions.

Thru-hole breakaway headers feature brass straight or right-angle posts with a post length of 4.0 [.16] and a lead length of 2.6 [.10].

The receptacle assemblies employ phosphor bronze contacts with dual cantilever beams and built-in anti-overstress. This feature, coupled with duplex (gold/tin-lead) plating of the header posts and receptacle contacts, provide superior electrical performance as well as excellent solderability.

2mm Headers, Unshrouded, Double Row, Thru-Hole, Vertical Mount

0.5 [.02] Square Straight Posts

Material and Finish

Housing — Black thermoplastic, UL 94V-0 Rated

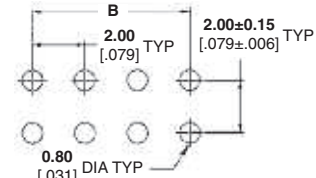
Posted Contacts — Copper alloy, duplex plated as follows:
0.00020 [.000008] min. gold on contact area, 0.00254 [.000100] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

Related Product Data

Mateable Receptacles — pages 80-84

Product Specification
108-57197

Packaging Method — Loose piece, bag



Recommended Solder Pad Layout



Position	Dimensions		Part Numbers	
	A	B	Reflow	
			240°C	265°C
4	4.0 [.16]	2.0 [.08]	1470213-4	1734508-4
6	6.0 [.24]	4.0 [.16]	1470213-6	1734508-6
8	8.0 [.32]	6.0 [.24]	1470213-8	1734508-8
10	10.0 [.39]	8.0 [.32]	1-1470213-0	1-1734508-0
12	12.0 [.47]	10.0 [.39]	1-1470213-2	1-1734508-2
14	14.0 [.55]	12.0 [.47]	1-1470213-4	1-1734508-4
16	16.0 [.63]	14.0 [.55]	1-1470213-6	1-1734508-6
18	18.0 [.71]	16.0 [.63]	1-1470213-8	1-1734508-8
20	20.0 [.79]	18.0 [.71]	2-1470213-0	2-1734508-0
22	22.0 [.87]	20.0 [.79]	2-1470213-2	2-1734508-2
24	24.0 [.94]	22.0 [.87]	2-1470213-4	2-1734508-4
26	26.0 [1.02]	24.0 [.94]	2-1470213-6	2-1734508-6
28	28.0 [1.10]	26.0 [1.02]	2-1470213-8	2-1734508-8
30	30.0 [1.18]	28.0 [1.10]	3-1470213-0	3-1734508-0
32	32.0 [1.26]	30.0 [1.18]	3-1470213-2	3-1734508-2
34	34.0 [1.34]	32.0 [1.26]	3-1470213-4	3-1734508-4
36	36.0 [1.42]	34.0 [1.34]	3-1470213-6	3-1734508-6
38	38.0 [1.50]	36.0 [1.42]	3-1470213-8	3-1734508-8
40	40.0 [1.57]	38.0 [1.50]	4-1470213-0	4-1734508-0
42	42.0 [1.65]	40.0 [1.57]	4-1470213-2	4-1734508-2
44	44.0 [1.73]	42.0 [1.65]	4-1470213-4	4-1734508-4
46	46.0 [1.81]	44.0 [1.73]	4-1470213-6	4-1734508-6
48	48.0 [1.89]	46.0 [1.81]	4-1470213-8	4-1734508-8
50	50.0 [1.97]	48.0 [1.89]	5-1470213-0	5-1734508-0
52	52.0 [2.05]	50.0 [1.97]	5-1470213-2	5-1734508-2
54	54.0 [2.13]	52.0 [2.05]	5-1470213-4	5-1734508-4
56	56.0 [2.20]	54.0 [2.13]	5-1470213-6	5-1734508-6
58	58.0 [2.28]	56.0 [2.20]	5-1470213-8	5-1734508-8
60	60.0 [2.36]	58.0 [2.28]	6-1470213-0	6-1734508-0
62	62.0 [2.44]	60.0 [2.36]	6-1470213-2	6-1734508-2
64	64.0 [2.52]	62.0 [2.44]	6-1470213-4	6-1734508-4
66	66.0 [2.60]	64.0 [2.52]	6-1470213-6	6-1734508-6
68	68.0 [2.68]	66.0 [2.60]	6-1470213-8	6-1734508-8
70	70.0 [2.76]	68.0 [2.68]	7-1470213-0	7-1734508-0
72	72.0 [2.83]	70.0 [2.76]	7-1470213-2	7-1734508-2
74	74.0 [2.91]	72.0 [2.83]	7-1470213-4	7-1734508-4
76	76.0 [2.99]	74.0 [2.91]	7-1470213-6	7-1734508-6
78	78.0 [3.07]	76.0 [2.99]	7-1470213-8	7-1734508-8
80	80.0 [3.15]	78.0 [3.07]	8-1470213-0	8-1734508-0

Note: All part numbers are RoHS compliant.

2mm Headers, Unshrouded, Double Row, Thru-Hole, Right-Angle Mount

0.5 [.02] Square Straight Posts

Material and Finish

Housing — Black thermoplastic, UL 94V-O Rated, 265°C Process Capable

Posted Contacts — Copper alloy, duplex plated as follows:
0.00020 [.000008] min. gold on contact area, 0.00254 [.000100] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

Related Product Data

Mateable Receptacles — pages 80-84

Product Specification
108-57197

Packaging Method — Loose piece, bag



Position	Dimensions		Part Numbers
	A	B	
4	4.0 [0.16]	2.0 [0.08]	1734507-4
6	6.0 [0.24]	4.0 [0.16]	1734507-6
8	8.0 [0.31]	6.0 [0.24]	1734507-8
10	10.0 [0.39]	8.0 [0.31]	1-1734507-0
12	12.0 [0.47]	10.0 [0.39]	1-1734507-2
14	14.0 [0.55]	12.0 [0.47]	1-1734507-4
16	16.0 [0.63]	14.0 [0.55]	1-1734507-6
18	18.0 [0.71]	16.0 [0.63]	1-1734507-8
20	20.0 [0.79]	18.0 [0.71]	2-1734507-0
22	22.0 [0.87]	20.0 [0.79]	2-1734507-2
24	24.0 [0.94]	22.0 [0.87]	2-1734507-4
26	26.0 [1.02]	24.0 [0.94]	2-1734507-6
28	28.0 [1.10]	26.0 [1.02]	2-1734507-8
30	30.0 [1.18]	28.0 [1.10]	3-1734507-0
32	32.0 [1.26]	30.0 [1.18]	3-1734507-2
34	34.0 [1.34]	32.0 [1.26]	3-1734507-4
36	36.0 [1.42]	34.0 [1.34]	3-1734507-6
38	38.0 [1.50]	36.0 [1.42]	3-1734507-8
40	40.0 [1.57]	38.0 [1.50]	4-1734507-0
42	42.0 [1.65]	40.0 [1.57]	4-1734507-2
44	44.0 [1.73]	42.0 [1.65]	4-1734507-4
46	46.0 [1.81]	44.0 [1.73]	4-1734507-6
48	48.0 [1.89]	46.0 [1.81]	4-1734507-8
50	50.0 [1.97]	48.0 [1.89]	5-1734507-0
52	52.0 [2.05]	50.0 [1.97]	5-1734507-2
54	54.0 [2.13]	52.0 [2.05]	5-1734507-4
56	56.0 [2.20]	54.0 [2.13]	5-1734507-6
58	58.0 [2.28]	56.0 [2.20]	5-1734507-8
60	60.0 [2.36]	58.0 [2.28]	6-1734507-0
62	62.0 [2.44]	60.0 [2.36]	6-1734507-2
64	64.0 [2.52]	62.0 [2.44]	6-1734507-4
66	66.0 [2.60]	64.0 [2.52]	6-1734507-6
68	68.0 [2.68]	66.0 [2.60]	6-1734507-8
70	70.0 [2.76]	68.0 [2.68]	7-1734507-0
72	72.0 [2.83]	70.0 [2.76]	7-1734507-2
74	74.0 [2.91]	72.0 [2.83]	7-1734507-4
76	76.0 [2.99]	74.0 [2.91]	7-1734507-6
78	78.0 [3.07]	76.0 [2.99]	7-1734507-8
80	80.0 [3.15]	78.0 [3.07]	8-1734507-0

Note: All part numbers are RoHS compliant.

2mm Breakaway Headers, Unshrouded, Double Row, Thru-Hole, Right-Angle Mount

0.5 [.02] Square Right-Angle Posts

Material and Finish

Housing — Black thermoplastic, UL 94V-0 rated

Posted Contacts — Brass, duplex plated as follows:

A — 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

B — 0.00076 [.000030] min. gold on contact area, 0.00100 [.000039] min. tin on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data

Mateable Receptacles — pages 80-84

Product Specification 108-5296

Packaging Method — Loose piece, bag



Recommended PC Board Hole Layout

* Hole centerline to be 2.0±0.08 [.08±.003]; tolerances not to accumulate within one connector pattern.

No. of Positions	Dimensions		Contact Plating	
	A	B	A	B
4	4.0 [0.16]	2.0 [0.08]	5176837-1	2-5176837-5
6	6.0 [0.24]	4.0 [0.16]	5176837-2	2-5176837-6
8	8.0 [0.31]	6.0 [0.24]	5176837-3	—
10	10.0 [0.39]	8.0 [0.31]	5176837-4	—
12	12.0 [0.47]	10.0 [0.39]	5176837-5	—
14	14.0 [0.55]	12.0 [0.47]	5176837-6	3-5176837-0
16	16.0 [0.63]	14.0 [0.55]	5176837-7	—
18	18.0 [0.71]	16.0 [0.63]	—	3-5176837-2
20	20.0 [0.79]	18.0 [0.71]	—	3-5176837-3
22	22.0 [0.87]	20.0 [0.79]	—	3-5176837-4
26	26.0 [1.02]	24.0 [0.94]	1-5176837-2	—
30	30.0 [1.18]	28.0 [1.10]	1-5176837-4	—
32	32.0 [1.26]	30.0 [1.18]	1-5176837-5	3-5176837-9
34	34.0 [1.34]	32.0 [1.26]	—	4-5176837-0
36	36.0 [1.42]	34.0 [1.34]	—	4-5176837-1
38	38.0 [1.50]	36.0 [1.42]	1-5176837-8	4-5176837-2
40	40.0 [1.57]	38.0 [1.50]	1-5176837-9	5-5176837-2
42	42.0 [1.65]	40.0 [1.57]	2-5176837-0	4-5176837-4
44	44.0 [1.73]	42.0 [1.65]	2-5176837-1	—
46	46.0 [1.81]	44.0 [1.73]	2-5176837-2	4-5176837-6
48	48.0 [1.89]	46.0 [1.81]	2-5176837-3	4-5176837-7
50	50.0 [1.97]	48.0 [1.89]	2-5176837-4	4-5176837-8

2mm Breakaway Headers, Unshrouded, Double Row, Thru-Hole, Vertical Mount

0.5 [.02] Square Straight Posts

Material and Finish

Housing — Black thermoplastic, UL 94V-0 rated

Posted Contacts — Brass, duplex plated as follows:

Plating A — 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Plating B — 0.00076 [.000030] min. gold on contact area, 0.00100 [.000039] min. tin on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data

Mateable Receptacles — pages 80-84

Product Specification
108-5296

Packaging Method — Loose piece, bag



2mm Breakaway Headers, Unshrouded, Double Row, Thru-Hole, Vertical Mount (Continued)

0.5 [.02] Square Straight Posts

No. of Positions	Dimensions		Contact Plating			
			Lead Length L = 1.5 [.06]		Lead Length L = 2.6 [.10]	
	A	B	Plating A	Plating B	Plating A	Plating B
4	4.0 [0.16]	2.0 [0.08]	5178751-1	2-5178751-5	5176264-1	1-5176264-6
6	6.0 [0.24]	4.0 [0.16]	—	2-5178751-6	5176264-2	1-5176264-7
8	8.0 [0.31]	6.0 [0.24]	—	2-5178751-7	5176264-3	1-5176264-8
10	10.0 [0.39]	8.0 [0.31]	5178751-4	2-5178751-8	5176264-4	1-5176264-9
12	12.0 [0.47]	10.0 [0.39]	—	2-5178751-9	5176264-5	2-5176264-0
14	14.0 [0.55]	12.0 [0.47]	5178751-6	3-5178751-0	5176264-6	2-5176264-1
16	16.0 [0.63]	14.0 [0.55]	—	3-5178751-1	5176264-7	2-5176264-2
18	18.0 [0.71]	16.0 [0.63]	5178751-8	3-5178751-2	5176264-8	2-5176264-3
20	20.0 [0.79]	18.0 [0.71]	5178751-9	3-5178751-3	5176264-9	2-5176264-4
22	22.0 [0.87]	20.0 [0.79]	1-5178751-0	3-5178751-4	1-5176264-0	2-5176264-5
24	24.0 [0.94]	22.0 [0.87]	1-5178751-1	3-5178751-5	1-5176264-1	2-5176264-6
26	26.0 [1.02]	24.0 [0.94]	1-5178751-2	3-5178751-6	—	—
28	28.0 [1.10]	26.0 [1.02]	—	3-5178751-7	1-5176264-3	—
30	30.0 [1.18]	28.0 [1.10]	1-5178751-4	3-5178751-8	1-5176264-4	2-5176264-9
32	32.0 [1.26]	30.0 [1.18]	1-5178751-5	3-5178751-9	1-5176264-5	—
34	34.0 [1.34]	32.0 [1.26]	1-5178751-6	4-5178751-0	—	4-5176264-0
36	36.0 [1.42]	34.0 [1.34]	1-5178751-7	4-5178751-1	3-5176264-2	4-5176264-1
38	38.0 [1.50]	36.0 [1.42]	1-5178751-8	4-5178751-2	3-5176264-3	—
40	40.0 [1.57]	38.0 [1.50]	1-5178751-9	4-5178751-3	3-5176264-4	—
42	42.0 [1.65]	40.0 [1.57]	2-5178751-0	4-5178751-4	—	—
44	44.0 [1.73]	42.0 [1.65]	2-5178751-1	4-5178751-5	3-5176264-6	4-5176264-5
46	46.0 [1.81]	44.0 [1.73]	2-5178751-2	4-5178751-6	—	4-5176264-6
48	48.0 [1.89]	46.0 [1.81]	2-5178751-3	4-5178751-7	—	4-5176264-7
50	50.0 [1.97]	48.0 [1.89]	2-5178751-4	4-5178751-8	3-5176264-9	4-5176264-8

Note: All part numbers are RoHS compliant.

2mm Breakaway Headers, Unshrouded, Double Row, Surface Mount, Vertical Mount

0.5 [.02] Square Straight Posts

Material and Finish

Housing — Black polyphenylene sulfide, UL 94V-0 rated

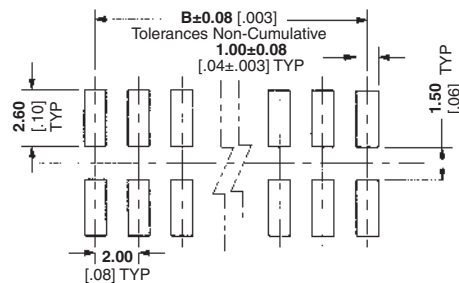
Posted Contacts — Phosphor bronze, plated as follows, Duplex plated 0.00020 [.000008] min. gold on contact area, 0.00200 [.000079] min. tin on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data

Mateable Receptacles —
pages 80-84

Product Specification
108-51001

Packaging Method — Tape & Reel



Recommended Solder Pad Layout

No. of Positions	Dimensions			Part Numbers
	A	B	C	
4	4.0 [0.16]	2.0 [0.08]	4.0 [0.16]	5084476-1
6	6.0 [0.24]	4.0 [0.16]	6.0 [0.24]	5084476-2
12	12.0 [0.47]	10.0 [0.39]	5.0 [0.20]	5084476-7
16	16.0 [0.63]	14.0 [0.55]	8.0 [0.31]	5084476-3

Note: All part numbers are RoHS compliant.

2mm Breakaway Headers, Unshrouded, Double Row, Surface Mount, Vertical Mount (Continued)

0.5 [.02] Square Straight Posts

Material and Finish

Housing — Black polyphenylene sulfide, UL 94V-0 rated

Posted Contacts — Phosphor bronze, plated as follows, Duplex plated 0.0076 [.000030] min. gold on contact area, 0.00254-0.00406 [.000100-.000160] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

Related Product Data

Mateable Receptacles — pages 80-84

Product Specification
108-18544

Packaging Method — Tape & Reel



Recommended Solder Pad Layout

No. of Positions	Dimensions			Part Numbers
	A	B	C	
4	4.0 [0.16]	2.0 [0.08]	7.60 [0.30]	966926-2
6	6.0 [0.24]	4.0 [0.16]	9.60 [0.38]	966926-3
8	8.0 [0.31]	6.0 [0.24]	11.60 [0.46]	966926-4
10	10.0 [0.39]	8.0 [0.31]	13.60 [0.53]	966926-5
12	12.0 [0.47]	10.0 [0.39]	15.60 [0.61]	966926-6
14	14.0 [0.55]	12.0 [0.47]	17.60 [0.69]	966926-7
16	16.0 [0.63]	14.0 [0.55]	19.60 [0.77]	966926-8
18	18.0 [0.71]	16.0 [0.63]	21.60 [0.85]	966926-9
20	20.0 [0.79]	18.0 [0.71]	23.60 [0.93]	1-966926-0
22	22.0 [0.87]	20.0 [0.79]	25.60 [1.01]	1-966926-1
24	24.0 [0.94]	22.0 [0.87]	27.60 [1.09]	1-966926-2

Note: All part numbers are RoHS compliant.

2mm Stacking Header, Unshrouded, Double Row, Thru-Hole, Vertical Mount

0.5 [.02] Square Straight Posts

12 Position Part Number 1734770-1

Material and Finish

Housing — Black thermoplastic, UL 94 V-0 Rated

Posted Contacts — Copper alloy, duplex plated as follows:
Gold flash all over contact underplated 0.00127 [.000050] min. nickel

Related Product Data

Mateable Receptacles —
pages 80-84

Product Specification
108-57331

Packaging Method — Loose piece, bag



Note: All part numbers are RoHS compliant.

2mm Headers, Shrouded, Double Row, Thru-Hole, Right-Angle Mount

0.5 [.02] Square Right-Angle Posts

26 Position Part Number 5084780-1

Material and Finish

Housing — High temperature, black thermoplastic, UL 94 V-O Rated

Posted Contacts — Copper alloy, duplex plated as follows:
0.00038 [.000015] min. gold on contact area, 0.00254 [.000100] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

Related Product Data

Mateable Receptacles — pages 80 and 84

Product Specification
108-5296

Packaging Method — Tube



Recommended PCB Layout

Note: All part numbers are RoHS compliant.

2mm Headers, Shrouded, Double Row, Thru-Hole, Right-Angle Mount

(Continued)

0.5 [.02] Square Right-Angle Posts

Material and Finish

Housing — Natural color thermoplastic, UL 94 V-0 Rated

Posted Contacts — Brass, plated as follows:

0.00020 [.000008] min. gold on contact area, with 0.00254 [.00010] tin on soldertails, with entire contact underplated 0.00127 [.000050] min. nickel

Related Product Data

Mateable Receptacles — pages 80 and 84

Product Specification 108-57197

Packaging Method — Tubes


Recommended PCB Layout

No. of Positions	Dimensions			Part Numbers
	A	B	C	
8	6.0 [0.24]	8.85 [0.35]	9.95 [0.39]	1734493-8
10	8.0 [0.31]	10.85 [0.43]	11.95 [0.47]	1-1734493-0
12	10.0 [0.39]	12.85 [0.51]	13.95 [0.55]	1-1734493-2
14	12.0 [0.47]	14.85 [0.58]	15.95 [0.63]	1-1734493-4
16	14.0 [0.55]	16.85 [0.66]	17.95 [0.71]	1-1734493-6
18	16.0 [0.63]	18.85 [0.74]	19.95 [0.79]	1-1734493-8
20	18.0 [0.71]	20.85 [0.82]	21.95 [0.86]	2-1734493-0
22	20.0 [0.79]	22.85 [0.90]	23.95 [0.94]	2-1734493-2
24	22.0 [0.87]	24.85 [0.98]	25.95 [1.02]	2-1734493-4
26	24.0 [0.94]	26.85 [1.06]	27.95 [1.10]	2-1734493-6
28	26.0 [1.02]	28.85 [1.14]	29.95 [1.18]	2-1734493-8
30	28.0 [1.10]	30.85 [1.21]	31.95 [1.26]	3-1734493-0
32	30.0 [1.18]	32.85 [1.29]	33.95 [1.34]	3-1734493-2
34	32.0 [1.26]	34.85 [1.37]	35.95 [1.42]	3-1734493-4
36	34.0 [1.34]	36.85 [1.45]	37.95 [1.49]	3-1734493-6
38	36.0 [1.42]	38.85 [1.53]	39.95 [1.57]	3-1734493-8
40	38.0 [1.50]	40.85 [1.61]	41.95 [1.65]	4-1734493-0
42	40.0 [1.57]	42.85 [1.69]	43.95 [1.73]	4-1734493-2
44	42.0 [1.65]	44.85 [1.77]	45.95 [1.81]	4-1734493-4
46	44.0 [1.73]	46.85 [1.84]	47.95 [1.89]	4-1734493-6
48	46.0 [1.81]	48.85 [1.92]	49.95 [1.97]	4-1734493-8
50	48.0 [1.89]	50.85 [2.00]	51.95 [2.05]	5-1734493-0
52	50.0 [1.97]	52.85 [2.08]	53.95 [2.12]	5-1734493-2
54	52.0 [2.05]	54.85 [2.16]	55.95 [2.20]	5-1734493-4
56	54.0 [2.13]	56.85 [2.24]	57.95 [2.28]	5-1734493-6
58	56.0 [2.20]	58.85 [2.32]	59.95 [2.36]	5-1734493-8
60	58.0 [2.28]	60.85 [2.40]	61.95 [2.44]	6-1734493-0
62	60.0 [2.36]	62.85 [2.47]	63.95 [2.52]	6-1734493-2
64	62.0 [2.44]	64.85 [2.55]	65.95 [2.60]	6-1734493-4

Note: All part numbers are RoHS compliant.

2mm Headers, Shrouded, Double Row, Surface Mount, Vertical Mount

0.5 [.02] Square Posts

Material and Finish

Housing — Black color, PA9T (Nylon 9T), UL 94 V-0 Rated

Posted Contacts — Brass, plated as follows:

0.00076 [.00003] min. gold on contact area, with 0.00254 [.00010] matte tin on soldertails, with entire contact underplated 0.00127 [.000050] min. nickel

Related Product Data

Mateable Receptacles — pages 80, 81, and 84



Recommended PCB Layout

No. of Positions	Dimensions			Part Numbers
	A	B	C	
8	6.0 [0.24]	8.85 [0.35]	9.95 [0.39]	2041068-8
10	8.0 [0.31]	10.85 [0.43]	11.95 [0.47]	1-2041068-0
12	10.0 [0.39]	12.85 [0.51]	13.95 [0.55]	1-2041068-2
14	12.0 [0.47]	14.85 [0.58]	15.95 [0.63]	1-2041068-4
16	14.0 [0.55]	16.85 [0.66]	17.95 [0.71]	1-2041068-6
18	16.0 [0.63]	18.85 [0.74]	19.95 [0.79]	1-2041068-8
20	18.0 [0.71]	20.85 [0.82]	21.95 [0.86]	2-2041068-0
22	20.0 [0.79]	22.85 [0.90]	23.95 [0.94]	2-2041068-2
24	22.0 [0.87]	24.85 [0.98]	25.95 [1.02]	2-2041068-4
26	24.0 [0.94]	26.85 [1.06]	27.95 [1.10]	2-2041068-6
28	26.0 [1.02]	28.85 [1.14]	29.95 [1.18]	2-2041068-8
30	28.0 [1.10]	30.85 [1.21]	31.95 [1.26]	3-2041068-0
32	30.0 [1.18]	32.85 [1.29]	33.95 [1.34]	3-2041068-2
34	32.0 [1.26]	34.85 [1.37]	35.95 [1.42]	3-2041068-4
36	34.0 [1.34]	36.85 [1.45]	37.95 [1.49]	3-2041068-6
38	36.0 [1.42]	38.85 [1.53]	39.95 [1.57]	3-2041068-8
40	38.0 [1.50]	40.85 [1.61]	41.95 [1.65]	4-2041068-0
42	40.0 [1.57]	42.85 [1.69]	43.95 [1.73]	4-2041068-2
44	42.0 [1.65]	44.85 [1.77]	45.95 [1.81]	4-2041068-4
46	44.0 [1.73]	46.85 [1.84]	47.95 [1.89]	4-2041068-6
48	46.0 [1.81]	48.85 [1.92]	49.95 [1.97]	4-2041068-8
50	48.0 [1.89]	50.85 [2.00]	51.95 [2.05]	5-2041068-0

Note: All part numbers are RoHS compliant.

2mm Headers, Shrouded, Double Row, Surface Mount, Vertical Mount

(Continued)

0.5 [.02] Square Straight Posts

Material and Finish

Housing — Black high temperature thermoplastic, UL 94 V-O Rated

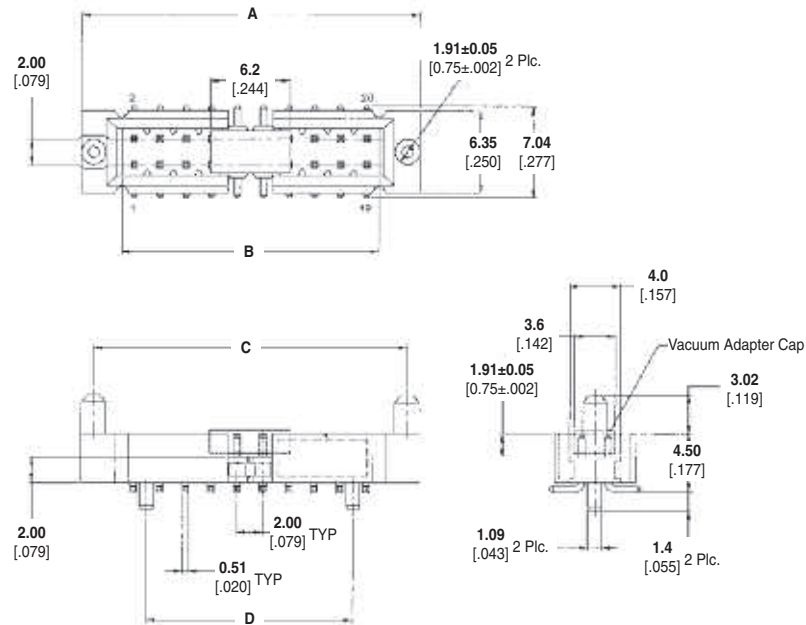
Posted Contacts — Phosphor Bronze, duplex plated as follows:

0.00076(0.000030) min. gold on contact area, 0.00381(0.000150) min. tin on solder area, with entire contact underplated 0.00127(0.000050) min. nickel

Product Specification

108-57328

Packaging Method — Tape and reel



Recommended PCB Layout

No. of Positions	Dimensions				Part Numbers
	A	B	C	D	
20	26.2 [1.03]	20.0 [0.79]	24.3 [0.96]	16.0 [.63]	2-1734569-0
30	36.2 [1.43]	30.0 [1.18]	34.3 [1.35]	26.0 [1.02]	3-1734569-0

Note: All part numbers are RoHS compliant.

2mm Headers, Shrouded, Double Row, Thru-Hole, Vertical Mount

0.5 [.02] Square Straight Posts with Cable Shroud

Material and Finish

Housing — Black thermoplastic, UL 94 V-0 Rated

Posted Contacts — Brass, duplex plated as follows:

0.00254 [.000100] min. tin on contact area, with entire contact underplated
0.00127 [.000050] min. nickel

Related Product Data

Mateable Receptacles —

See Drawings 1470106 Contacts and 1470107 Housing

Product Specification

108-57217

Packaging Method — Loose piece, bag



No. of Position	Dimensions			Part Numbers
	A	B	C	
6	4.0 [0.16]	8.0 [0.31]	6.74 [0.26]	1470109-6
8	6.0 [0.24]	10.0 [0.39]	8.74 [0.34]	1470109-8
10	8.0 [0.31]	12.0 [0.47]	10.74 [0.42]	1-1470109-0
12	10.0 [0.39]	14.0 [0.55]	12.74 [0.50]	1-1470109-2
14	12.0 [0.47]	16.0 [0.63]	14.74 [0.58]	1-1470109-4
16	14.0 [0.55]	18.0 [0.71]	16.74 [0.66]	1-1470109-6
18	16.0 [0.63]	20.0 [0.79]	18.74 [0.74]	1-1470109-8
20	18.0 [0.71]	22.0 [0.87]	20.74 [0.82]	2-1470109-0
22	20.0 [0.79]	24.0 [0.94]	22.74 [0.89]	2-1470109-2
24	22.0 [0.87]	26.0 [1.02]	24.74 [0.97]	2-1470109-4
26	24.0 [0.94]	28.0 [1.10]	26.74 [1.05]	2-1470109-6
28	26.0 [1.02]	30.0 [1.18]	28.74 [1.13]	2-1470109-8
30	28.0 [1.10]	32.0 [1.26]	30.74 [1.21]	3-1470109-0
32	30.0 [1.18]	34.0 [1.34]	32.74 [1.29]	3-1470109-2

Note: All part numbers are RoHS compliant.

2mm Headers, Shrouded, Double Row, Thru-Hole, Right-Angle Mount

0.5 [.02] Square Right-Angle Posts with Cable Shroud

Material and Finish

Housing — Black thermoplastic, UL 94 V-0 Rated

Posted Contacts — Brass, duplex plated as follows:

0.00254 [.000100] min. tin on contact area, with entire contact underplated
0.00127 [.000050] min. nickel

Related Product Data

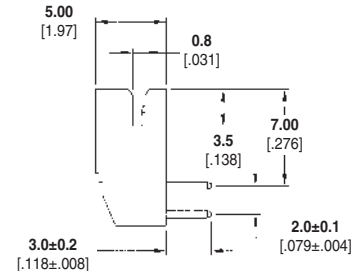
Mateable Receptacles —

See Drawings 1470106 Contacts and 1470107 Housing

Product Specification

108-57217

Packaging Method — Loose piece, bag



Recommended PCB Layout

No. of Position	Dimensions			Part Numbers
	A	B	C	
6	4.0 [0.16]	8.00 [0.31]	6.74 [0.26]	1470108-6
8	6.0 [0.24]	10.00 [0.39]	8.74 [0.34]	1470108-8
10	8.0 [0.32]	12.00 [0.47]	10.74 [0.42]	1-1470108-0
12	10.0 [0.39]	14.00 [0.55]	12.74 [0.50]	1-1470108-2
14	12.0 [0.47]	16.00 [0.63]	14.74 [0.58]	1-1470108-4
16	18.0 [0.71]	18.00 [0.71]	16.74 [0.66]	1-1470108-6
18	14.0 [0.55]	20.00 [0.79]	18.74 [0.74]	1-1470108-8
20	16.0 [0.63]	22.00 [0.87]	20.74 [0.82]	2-1470108-0
22	22.0 [0.87]	24.00 [0.94]	22.74 [0.89]	2-1470108-2
24	20.0 [0.79]	26.00 [1.02]	24.74 [0.97]	2-1470108-4
26	24.0 [0.94]	28.00 [1.10]	26.74 [1.05]	2-1470108-6
28	28.0 [1.10]	30.00 [1.18]	28.74 [1.13]	2-1470108-8
30	26.0 [1.02]	32.00 [1.26]	30.74 [1.21]	3-1470108-0
32	30.0 [1.18]	34.00 [1.34]	32.74 [1.29]	3-1470108-2

Note: All part numbers are RoHS compliant.

2mm Centerline Receptacles, Double Row, Thru-Hole, Vertical Mount

Receptacle, Thru-Hole, Vertical

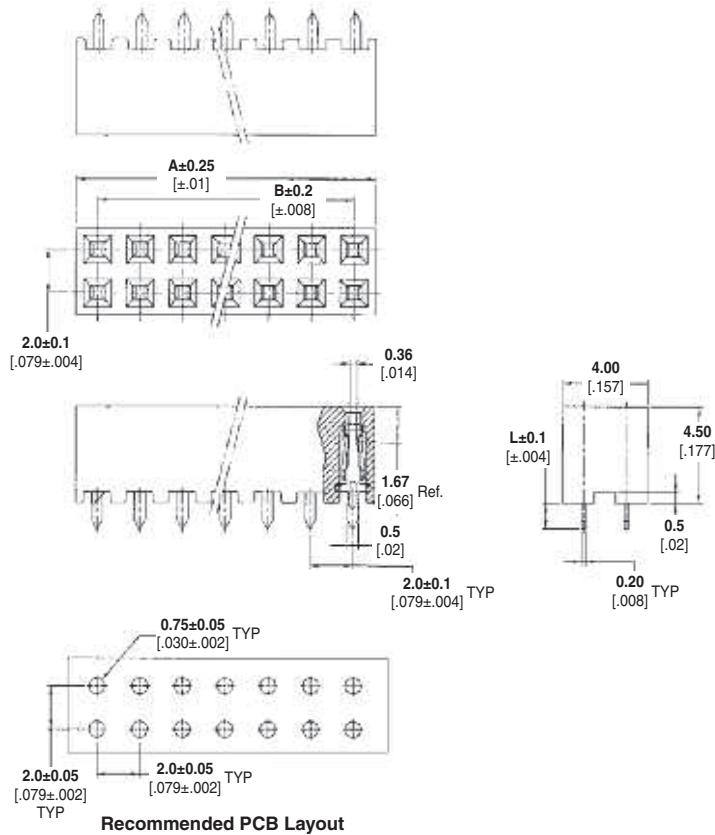
Material and Finish

Housing — Black thermoplastic, UL 94 V-0 Rated, 245°C Reflow

Contacts — Copper alloy, plated as follows:

A — 0.00020 [.000008] min. gold on contact area, 0.00203 [.000080] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

B — 0.00076 [.000030] min. gold on contact area, 0.00203 [.000080] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel



Recommended PCB Layout

Related Product Data

Mateable Headers — pages 66-76, 78, 79

Product Specification 108-57197

Packaging Method — Tray

No. of Positions	Dimensions		Part Numbers			
			Plating A		Plating B	
	A	B	Dim. L 1.2+/-0.1 (.047+/-0.004)	Dim. L 2.6+/-0.1 (.102+/-0.004)	Dim. L 1.2+/-0.1 (.047+/-0.004)	Dim. L 2.6+/-0.1 (.102+/-0.004)
4	4.0 [.157]	2.0 [.079]	1470209-1	2-1470209-5	5-1470209-1	7-1470209-5
6	6.0 [.236]	4.0 [.157]	1470209-2	2-1470209-6	5-1470209-2	7-1470209-6
8	8.0 [.315]	6.0 [.236]	1470209-3	2-1470209-7	5-1470209-3	7-1470209-7
10	10.0 [.394]	8.0 [.315]	1470209-4	2-1470209-8	5-1470209-4	7-1470209-8
12	12.0 [.472]	10.0 [.394]	1470209-5	2-1470209-9	5-1470209-5	7-1470209-9
14	14.0 [.551]	12.0 [.472]	1470209-6	3-1470209-0	5-1470209-6	8-1470209-0
16	16.0 [.630]	14.0 [.551]	1470209-7	3-1470209-1	5-1470209-7	8-1470209-1
18	18.0 [.709]	16.0 [.630]	1470209-8	3-1470209-2	5-1470209-8	8-1470209-2
20	20.0 [.787]	18.0 [.709]	1470209-9	3-1470209-3	5-1470209-9	8-1470209-3
22	22.0 [.866]	20.0 [.787]	1-1470209-0	3-1470209-4	6-1470209-0	8-1470209-4
24	24.0 [.945]	22.0 [.866]	1-1470209-1	3-1470209-5	6-1470209-1	8-1470209-5
26	26.0 [1.024]	24.0 [.945]	1-1470209-2	3-1470209-6	6-1470209-2	8-1470209-6
28	28.0 [1.102]	26.0 [1.024]	1-1470209-3	3-1470209-7	6-1470209-3	8-1470209-7
30	30.0 [1.181]	28.0 [1.102]	1-1470209-4	3-1470209-8	6-1470209-4	8-1470209-8
32	32.0 [1.260]	30.0 [1.181]	1-1470209-5	3-1470209-9	6-1470209-5	8-1470209-9
34	34.0 [1.339]	32.0 [1.260]	1-1470209-6	4-1470209-0	6-1470209-6	9-1470209-0
36	36.0 [1.417]	34.0 [1.339]	1-1470209-7	4-1470209-1	6-1470209-7	9-1470209-1
38	38.0 [1.496]	36.0 [1.417]	1-1470209-8	4-1470209-2	6-1470209-8	9-1470209-2
40	40.0 [1.575]	38.0 [1.496]	1-1470209-9	4-1470209-3	6-1470209-9	9-1470209-3
42	42.0 [1.654]	40.0 [1.575]	2-1470209-0	4-1470209-4	7-1470209-0	9-1470209-4
44	44.0 [1.732]	42.0 [1.654]	2-1470209-1	4-1470209-5	7-1470209-1	9-1470209-5
46	46.0 [1.811]	44.0 [1.732]	2-1470209-2	4-1470209-6	7-1470209-2	9-1470209-6
48	48.0 [1.890]	46.0 [1.811]	2-1470209-3	4-1470209-7	7-1470209-3	9-1470209-7
50	50.0 [1.969]	48.0 [1.890]	2-1470209-4	4-1470209-8	7-1470209-4	9-1470209-8

Note: All part numbers are RoHS compliant.

2mm Centerline Receptacles, Double Row, Thru-Hole, Vertical Mount (Continued)

Receptacle, Thru-Hole, Vertical

Material and Finish

Housing — Black thermoplastic, UL 94 V-O Rated, 265°C Process Capable

Contacts — Copper alloy, plated as follows:

A — 0.00020 [.000008] min. gold on contact area, 0.00203 [.000080] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

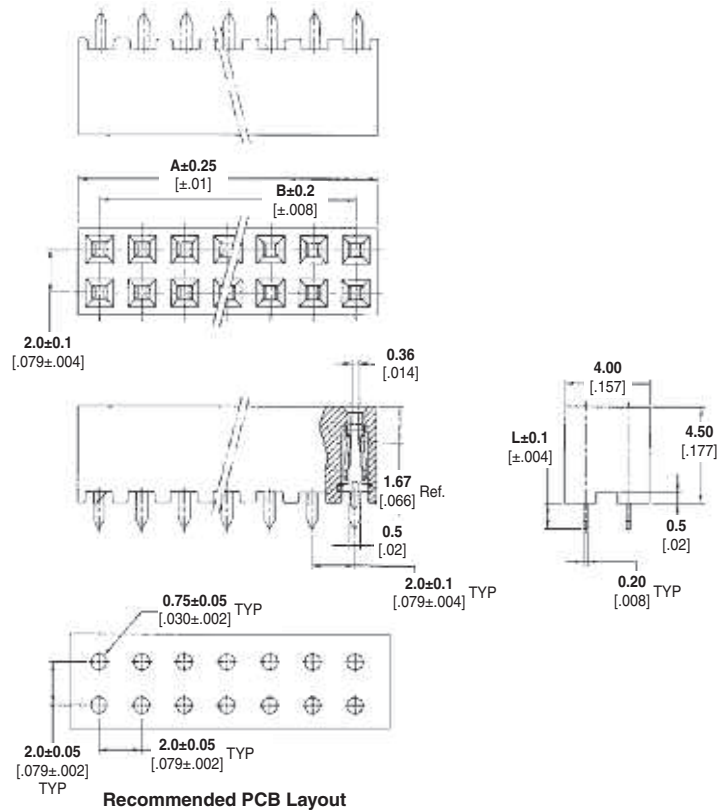
B — 0.00076 [.000030] min. gold on contact area, 0.00203 [.000080] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

Related Product Data

Mateable Headers — pages 66-76, 78, 79

Product Specification 108-57197

Packaging Method — Tray



Recommended PCB Layout

No. of Positions	Dimensions		Part Numbers			
			Plating A		Plating B	
	A	B	Dim. L 1.2+/-0.1 (.047+/- .004)	Dim. L 2.6+/-0.1 (.102+/- .004)	Dim. L 1.2+/-0.1 (.047+/- .004)	Dim. L 2.6+/-0.1 (.102+/- .004)
4	4.0 [.157]	2.0 [.079]	1734506-1	2-1734506-5	5-1734506-1	7-1734506-5
6	6.0 [.236]	4.0 [.157]	1734506-2	2-1734506-6	5-1734506-2	7-1734506-6
8	8.0 [.315]	6.0 [.236]	1734506-3	2-1734506-7	5-1734506-3	7-1734506-7
10	10.0 [.394]	8.0 [.315]	1734506-4	2-1734506-8	5-1734506-4	7-1734506-8
12	12.0 [.472]	10.0 [.394]	1734506-5	2-1734506-9	5-1734506-5	7-1734506-9
14	14.0 [.551]	12.0 [.472]	1734506-6	3-1734506-0	5-1734506-6	8-1734506-0
16	16.0 [.630]	14.0 [.551]	1734506-7	3-1734506-1	5-1734506-7	8-1734506-1
18	18.0 [.709]	16.0 [.630]	1734506-8	3-1734506-2	5-1734506-8	8-1734506-2
20	20.0 [.787]	18.0 [.709]	1734506-9	3-1734506-3	5-1734506-9	8-1734506-3
22	22.0 [.866]	20.0 [.787]	1-1734506-0	3-1734506-4	6-1734506-0	8-1734506-4
24	24.0 [.945]	22.0 [.866]	1-1734506-1	3-1734506-5	6-1734506-1	8-1734506-5
26	26.0 [1.024]	24.0 [.945]	1-1734506-2	3-1734506-6	6-1734506-2	8-1734506-6
28	28.0 [1.102]	26.0 [1.024]	1-1734506-3	3-1734506-7	6-1734506-3	8-1734506-7
30	30.0 [1.181]	28.0 [1.102]	1-1734506-4	3-1734506-8	6-1734506-4	8-1734506-8
32	32.0 [1.260]	30.0 [1.181]	1-1734506-5	3-1734506-9	6-1734506-5	8-1734506-9
34	34.0 [1.339]	32.0 [1.260]	1-1734506-6	4-1734506-0	6-1734506-6	9-1734506-0
36	36.0 [1.417]	34.0 [1.339]	1-1734506-7	4-1734506-1	6-1734506-7	9-1734506-1
38	38.0 [1.496]	36.0 [1.417]	1-1734506-8	4-1734506-2	6-1734506-8	9-1734506-2
40	40.0 [1.575]	38.0 [1.496]	1-1734506-9	4-1734506-3	6-1734506-9	9-1734506-3
42	42.0 [1.654]	40.0 [1.575]	2-1734506-0	4-1734506-4	7-1734506-0	9-1734506-4
44	44.0 [1.732]	42.0 [1.654]	2-1734506-1	4-1734506-5	7-1734506-1	9-1734506-5
46	46.0 [1.811]	44.0 [1.732]	2-1734506-2	4-1734506-6	7-1734506-2	9-1734506-6
48	48.0 [1.890]	46.0 [1.811]	2-1734506-3	4-1734506-7	7-1734506-3	9-1734506-7
50	50.0 [1.969]	48.0 [1.890]	2-1734506-4	4-1734506-8	7-1734506-4	9-1734506-8
40*	40.0 [1.575]	38.0 [1.496]	—	4-1734506-9	—	9-1734506-9

*Keying position 6.

Note: All part numbers are RoHS compliant.

2mm Receptacle, Double Row, Surface Mount, Right-Angle Mount

Receptacle, Surface Mount, Right-Angle

Material and Finish

Housing — Black Thermoplastic,
UL 94V-0 Rated

Contact — Phosphor Bronze

Contact Finish — 0.00020 [.000008]
Min. Gold Plated on Contact Area,
0.00229 [.000090] Min. Tin Plated on
Solder Tail, 0.00127 [.000050] Min.
Nickel Underplated Over All

Related Product Data

Mateable Headers — pages 66-73

Product Specification
108-57197

Packaging Method — Tape and reel



Recommended PCB Layout

Position	Dimensions		Part Numbers
	A	B	
6	6.20 [0.244]	4.0 [0.157]	1734606-6
8	8.20 [0.323]	6.0 [0.236]	1734606-8
10	10.20 [0.402]	8.0 [0.315]	1-1734606-0
12	12.20 [0.480]	10.0 [0.394]	1-1734606-2
14	14.20 [0.559]	12.0 [0.472]	1-1734606-4
16	16.20 [0.638]	14.0 [0.551]	1-1734606-6
18	18.20 [0.717]	16.0 [0.630]	1-1734606-8
20	20.20 [0.795]	18.0 [0.709]	2-1734606-0
22	22.20 [0.874]	20.0 [0.787]	2-1734606-2
24	24.20 [0.953]	22.0 [0.866]	2-1734606-4
26	26.20 [1.031]	24.0 [0.945]	2-1734606-6
28	28.20 [1.110]	26.0 [1.024]	2-1734606-8
30	30.20 [1.189]	28.0 [1.102]	3-1734606-0
32	32.20 [1.268]	30.0 [1.181]	3-1734606-2
34	34.20 [1.346]	32.0 [1.260]	3-1734606-4
36	36.20 [1.425]	34.0 [1.339]	3-1734606-6
38	38.20 [1.504]	36.0 [1.417]	3-1734606-8
40	40.20 [1.583]	38.0 [1.496]	4-1734606-0
42	42.20 [1.661]	40.0 [1.575]	4-1734606-2
44	44.20 [1.740]	42.0 [1.654]	4-1734606-4
46	46.20 [1.819]	44.0 [1.732]	4-1734606-6
48	48.20 [1.898]	46.0 [1.811]	4-1734606-8
50	50.20 [1.976]	48.0 [1.890]	5-1734606-0

Note: All part numbers are RoHS compliant.

2mm Receptacle, Double Row, Thru-Hole, Right-Angle Mount

Receptacle, Thru-Hole, Right-Angle

Material and Finish

Housing — Black Thermoplastic, UL 94V-0 Rated

Contact — Phosphor Bronze

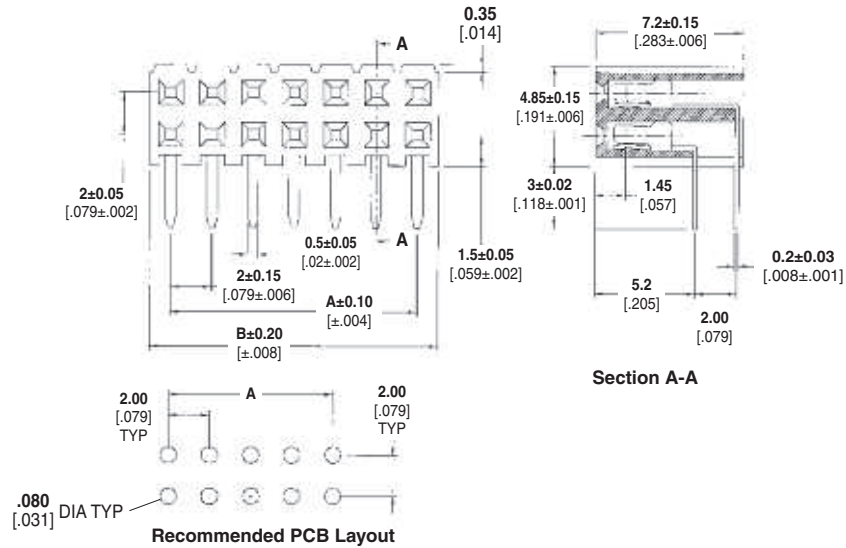
Contact Finish — 0.00020 [.000008] Min. Gold Plated on Contact Area, 0.00254 [.000100] Min. Tin Plated on Solder Tail, 0.00127 [.000050] Min. Nickel Underplated Over All

Related Product Data

Mateable Headers — pages 66-73

Product Specification
108-57197

Packaging Method — Tube



Position	Dimensions		Part Numbers
	A	B	
8	6.0 [.236]	8.50 [.335]	1734531-8
10	8.0 [.315]	10.50 [.413]	1-1734531-0
12	10.0 [.394]	12.50 [.492]	1-1734531-2
14	12.0 [.472]	14.50 [.571]	1-1734531-4
16	14.0 [.551]	16.50 [.650]	1-1734531-6
18	16.0 [.630]	18.50 [.728]	1-1734531-8
20	18.0 [.709]	20.50 [.807]	2-1734531-0
22	20.0 [.787]	22.50 [.886]	2-1734531-2
24	22.0 [.866]	24.50 [.965]	2-1734531-4
26	24.0 [.945]	26.50 [1.043]	2-1734531-6
28	26.0 [1.024]	28.50 [1.122]	2-1734531-8
30	28.0 [1.102]	30.50 [1.201]	3-1734531-0
32	30.0 [1.181]	32.50 [1.280]	3-1734531-2
34	32.0 [1.260]	34.50 [1.358]	3-1734531-4
36	34.0 [1.339]	36.50 [1.437]	3-1734531-6
38	36.0 [1.417]	38.50 [1.516]	3-1734531-8
40	38.0 [1.496]	40.50 [1.594]	4-1734531-0
42	40.0 [1.575]	42.50 [1.673]	4-1734531-2
44	42.0 [1.654]	44.50 [1.752]	4-1734531-4
46	44.0 [1.732]	46.50 [1.831]	4-1734531-6
48	46.0 [1.811]	48.50 [1.909]	4-1734531-8
50	48.0 [1.890]	50.50 [1.988]	5-1734531-0
52	50.0 [1.969]	52.50 [2.067]	5-1734531-2
54	52.0 [2.047]	54.50 [2.146]	5-1734531-4
56	54.0 [2.123]	56.50 [2.224]	5-1734531-6
58	56.0 [2.205]	58.50 [2.303]	5-1734531-8
60	58.0 [2.283]	60.50 [2.381]	6-1734531-0
62	60.0 [2.362]	62.50 [2.461]	6-1734531-2
64	62.0 [2.441]	64.50 [2.539]	6-1734531-4
66	64.0 [2.520]	66.50 [2.618]	6-1734531-6
68	66.0 [2.598]	68.50 [2.697]	6-1734531-8
70	68.0 [2.677]	70.50 [2.776]	7-1734531-0
72	70.0 [2.756]	72.50 [2.854]	7-1734531-2
74	72.0 [2.834]	74.50 [2.933]	7-1734531-4
76	74.0 [2.913]	76.50 [3.012]	7-1734531-6
78	76.0 [2.992]	78.50 [3.091]	7-1734531-8
80	78.0 [3.071]	80.50 [3.169]	8-1734531-0

Note: All part numbers are RoHS compliant.

2mm Receptacle, Double Row, Surface Mount, Vertical Mount

Receptacle, Top Entry, Surface Mount

Material and Finish

Housing—Black Thermoplastic,
UL 94V-0 Rated

Contact—Copper Alloy, plated 0.00076
[.000030] Min. Gold Plated on Contact
Area, 0.00254 [.000100] Tin Plated on
Solder Tail, Underplated 0.00127
[.000050] Nickel

Cap—Thermoplastic

Related Product Data

Mateable Headers—pages 66-75,
78, 79

Product Specification
108-57227

Packaging Method—Tape and reel



Recommended PCB Layout



Recommended PCB Layout
(Without Alignment Peg)

Position	Dimensions		245C Reflow Part Numbers		265C Reflow Part Numbers	
	A	B	with Alignment Peg*	without Alignment Peg	with Alignment Peg*	without Alignment Peg
8	6.0 [.236]	8.40 [.331]	1734516-8	5-1734516-8	2041069-8	5-2041069-8
10	8.0 [.315]	10.40 [.409]	1-1734516-0	6-1734516-0	1-2041069-0	6-2041069-0
12	10.0 [.394]	12.40 [.488]	1-1734516-2	6-1734516-2	1-2041069-2	6-2041069-2
14	12.0 [.472]	14.40 [.567]	1-1734516-4	6-1734516-4	1-2041069-4	6-2041069-4
16	14.0 [.551]	16.40 [.646]	1-1734516-6	6-1734516-6	1-2041069-6	6-2041069-6
18	16.0 [.630]	18.40 [.724]	1-1734516-8	6-1734516-8	1-2041069-8	6-2041069-8
20	18.0 [.709]	20.40 [.803]	2-1734516-0	7-1734516-0	2-2041069-0	7-2041069-0
22	20.0 [.787]	22.40 [.881]	2-1734516-2	7-1734516-2	2-2041069-2	7-2041069-2
24	22.0 [.866]	24.40 [.961]	2-1734516-4	7-1734516-4	2-2041069-4	7-2041069-4
26	24.0 [.945]	26.40 [1.039]	2-1734516-6	7-1734516-6	2-2041069-6	7-2041069-6
28	26.0 [1.024]	28.40 [1.118]	2-1734516-8	7-1734516-8	2-2041069-8	7-2041069-8
30	28.0 [1.102]	30.40 [1.197]	3-1734516-0	8-1734516-0	3-2041069-0	8-2041069-0
32	30.0 [1.181]	32.40 [1.276]	3-1734516-2	8-1734516-2	3-2041069-2	8-2041069-2
34	32.0 [1.260]	34.40 [1.354]	3-1734516-4	8-1734516-4	3-2041069-4	8-2041069-4
36	34.0 [1.339]	36.40 [1.433]	3-1734516-6	8-1734516-6	3-2041069-6	8-2041069-6
38	36.0 [1.417]	38.40 [1.512]	3-1734516-8	8-1734516-8	3-2041069-8	8-2041069-7
40	38.0 [1.496]	40.40 [1.591]	4-1734516-0	9-1734516-0	4-2041069-0	9-2041069-0

*See views 1a and 1b

Note: All part numbers are RoHS compliant.

AMPMODU .025 [0.64] Square Interconnection System

AMPMODU Headers and Receptacles, .100 [2.54] Centerline



For drawings, technical data or samples, contact your TE sales engineer or call the TE Product Information Center: 1-800-522-6752

Note: All part numbers are RoHS compliant.

AMPMODU .025 [0.64] Square Interconnection System (Continued)

AMPMODU Headers and Receptacles, .100 [2.54] Centerline



Legend:

SR	Single Row
DR	Double Row
VT	Vertical
RA	Right Angle
RET	Retention Feature
AP	ACTION PIN
BE	Bottom Entry
3/4	3-Sided-Shrouded Header
BA	Breakaway
TR	Triple Row
SMT	Surface Mount
HORZ	Horizontal
DE	Dual Entry

For drawings, technical data or samples, contact your TE sales engineer or call the TE Product Information Center: 1-800-522-6752

Note: All part numbers are RoHS compliant.

AMPMODU .025 [0.64] Square Interconnection System

The AMPMODU interconnection system provides interconnections with a unique modular concept, utilizing precision formed receptacle contacts and mating posts.

Mating of the post and receptacle contacts of this system is very tolerant. This is made possible by a post with a burr-free lead-in and a receptacle contact featuring double cantilever beams and anti-overstress stops.

AMPMODU receptacle contacts and posts categorically fall into three general classifications of products, which include: board mounted posts and receptacle assemblies, post headers and wire-applied contact housings for crimp snap-in pin and receptacle contacts.

Board mounted receptacle assemblies are available in various geometries, offering packaging interconnections that include perpendicular, parallel and stacking capabilities.

Crimp snap-in pins for 26-22 AWG [0.12-0.4 mm²] wire and crimp snap-in receptacles for 32-20 AWG [0.03-0.6 mm²] wire provide excellent discrete wire terminations. Housings for these contacts provide ease of handling terminations in high density applications.

Machine applied terminations, through matched application equipment, are geared for virtually any production volume requirement, for the lowest possible applied cost.

AMPMODU mating posts are supplied typically as headers. They are available in various populations to meet the interconnection and packaging requirements of most systems. However, in instances where packaging configurations do not lend themselves to the economies of headers, TE can provide application equipment for the discrete location of individual posts.

Looking at the electronic industry's standard "levels of packaging," the AMPMODU .025 [0.64] square interconnection system is primarily used in levels three and four.

In level three it is used as a connection between two or more printed circuits. A mother/daughter board connection is typical. In level four it is used as a

connection between two subassemblies, such as a power supply and an associated subassembly.

It is also important to note this product can serve as an interconnection in more than one level, depending on the application.

The .025 [0.64] square interconnection system offers the most complete line of post/receptacle packaging products available today. This system, rated at 3 amperes per contact, has been used by almost every industry and marketplace over the last decade and is one of the oldest, most versatile and reliable interconnection systems employing .025 [0.64] square packaging technology.

Receptacle Contacts

The AMPMODU receptacle cross-section is primarily rectangular, with rounded corners. Two integral cantilever beams contact the mating square or round male posts. Deflection of these spring members is limited by anti-overstress stops, and excessive permanent deformation is prevented. This feature allows a wide range for tolerance of misalignment of mating contacts.

The configuration of the receptacle completely encloses the spring members preventing damage during handling and assembly and makes the system compatible with automatic application techniques.

Note: Application of a contact lubricant is part of the manufacturing process of all AMPMODU tin-plated crimp products. However, it is not part of the manufacturing process of products that customers will solder, then clean. For these products, TE recommends that customers use contact lubricant. See the TE web page for further information.



Offers standard, intermediate and high pressure contact forces



Receptacle-Closed Entry Housing Design

The closed entry housing style better eliminates the chance of a mating post stubbing on the edges of the receptacle contact.



Wire-to-Board, .100 [2.54] Centerline Products

Wire Sizes

Wire Size		Product Family
AWG	[mm²]	
20	0.5-0.6	Locking Clip, Mod. IV, IV.v, V, MT, Short Point
22-30	0.3-0.05	Locking Clip, Mod. IV, IV.v, V, MTE, MT, Short Point
32	0.03	Mod. IV, IV.v, V, Short Point

Contact Platings

Platings	Product Family
.000015 [0.00038] Gold	Mod. IV, IV.v, V, MTE, MT, Short Point
.000030 [0.00076] Gold	Locking Clip, Mod. IV, IV.v, V, MTE, MT, Short Point
.000050 [0.00127] Gold	Locking Clip, Mod. IV, IV.v, V, MT
Tin	Locking Clip, Mod. IV, IV.v, V, MTE, MT, Short Point

Mating Post Lengths

Post Lengths	Product Family
.210-.283 [5.33-7.19]	Mod. IV (.600 [15.24] Profile Height)
.205-.283 [5.21-7.19]	Mod. IV.v (.600 [15.24] Profile Height)
.185-.283 [4.70-7.19]	Mod. V (.600 [15.24] Profile Height)
.256-.323 [6.50-8.20]	Mod. IV (.645 [16.38] Profile Height)
.251-.323 [6.38-8.20]	Mod. IV.v (.645 [16.38] Profile Height)
.231-.323 [5.87-8.20]	Mod. V (.645 [16.38] Profile Height)
.222-.273 [5.64-6.93]	MT Assembly with Standard Pressure Contacts
.200-.273 [5.08-6.93]	MT Assembly with High Pressure Contacts
.200-.250 [5.08-6.35]	MTE Assembly
.169-.259 [4.29-6.58]	Short Point Connector Assembly
.273-.350 [6.93-8.89]	Locking Clip (Connector Assembly)
.200-.277 [5.08-7.04]	Locking Clip (Single Contact)

Application Tooling

Application Tooling Description	Product Family					
	Mod. IV, IV.v, V	MT	Locking Clip	MTE	Short Point	Level V
Manual Hand Tools (Wire Crimp)	•		•	•	•	
Manual Hand Tools (IDC)		•		•		•
AMP-O-MATIC Stripper/Crimper Machines with Applicator	•		•		•	
CHAMPOMATOR Model 2.5 Machine		•				•
CHAMPOMATOR Model 3A Machine		•				
AMP-O-ELECTRIC Machines with Applicator	•		•		•	
Pneumatic Hand Tools	•	•	•	•	•	•
IDC Electric Power Unit				•		
Tube-Fed Ribbon Cable Machine				•		
AMPOMATOR CLS Machines	•		•		•	
Discrete Wire Machine		•				•
Manual Arbor Tool		•				•
Pneumatic Arbor Tool		•				•

Board-to-Board Solutions Guide, .100 [2.54] Centerline Products

Problem or Concern	TE's Potential Solution	Single-Row Vertical Headers and Receptacles (Page Ref.)	Single-Row Right-Angle Headers, Horizontal Receptacles (Page Ref.)	Double-Row Vertical Headers and Receptacles (Page Ref.)	Double-Row Right-Angle Headers, Horizontal Receptacles (Page Ref.)
Headers Float Off Board Soldering Operation	HEADERS Retention Feature: Unshrouded Shrouded	102 —	103 —	198 104, 199	199 105, 200
Header Contacts Damaged During Manufacturing Operation or In-Field Use	Shrouded HEADERS : Standard Profile	115	116	117-121	122-128
Board/Backplane Requires High Temperature Surface-Mount Compatibility	Press-Fit ACTION PIN POST				
	HEADERS : Unshrouded Shrouded	146 —	— —	147 148, 149, 199	— —
	Machine Applied Posts	163, 164			
	Surface-Mount Compatible Thru-Hole: HEADERS : Unshrouded Shrouded (Low Profile) RECEPTABLES	102* — —	103* — —	104* 130*, 137* 196*	105* 138* 195*
	Surface-Mount: HEADERS RECEPTABLES	109* 187, 188	— 172	110 189-192	— 173
	Two-Piece Family: w/Guide Posts: HEADERS RECEPTABLES	— —	— —	198, 199 196*	200 195*
Reduction in Parallel Board-to-Board Stack Height Necessary (Refer to Parallel Stack Guide on Page 62.)	Mod IV Low Profile RECEPTABLES : TOP ENTRY : Thru-Hole Surface-Mount BOTTOM ENTRY : Thru-Hole Surface-Mount DUAL ENTRY	178 — 177 — 181 187, 188	— — — — — —	179, 180* — — — 182-184 189-192	— — — — — —
	Soldering Problems with Thru-Hole Bottom Entry Receptacles (Must Mask Post Holes in Board During Soldering Operation)	RECEPTABLES : Bottom Entry Outrigger (Separate Holes for Receptacle Leads and Mating Leads)	181	182	—
	End-to-End Stackable: HEADERS (Unshrouded): Thru-Hole Thru-Hole* Surface-Mount RECEPTABLES : Thru-Hole Surface Mount	93, 102 102* 109* 175, 177, 178, 181 188	94, 95, 103* 103* — 169* 172	96, 97, 104* 104* 110* 176, 179, 180*, 182*, 183, 184 191, 192	98, 99, 105 108* — 170 173
	Application Requires Connectors to be End-to-End Stackable on .100 [2.54] Grid				

*High temperature compatible version, refer to page ref. listed.

Wire-to-Board Solutions Guide, .100 [2.54] Centerline Products

Customer Requirement	TE's Potential Solution	Catalog Page(s)
Application Requires Guidance, Polarization	Mod IV Polarized Housing	220
	MTE Latched Receptacle and Header	230, 231, 244-250
	MT with Polarizing Covers	256-258
	Short Point Polarized Housing	224
Wire-to-Wire Application	Mod IV Receptacle Contacts and Pins	211-213
Wire-to-Wire Application (Latched)	MTE Latched Receptacle and Shrouded Pin Assembly	230, 231, 236, 237
Wire-to-Wire Application (Through Panel)	MTE Panel Mount	242
High Vibration and Shock Applications	Locking Clip Contacts and Housings	207-209
Printed Circuit Board Polarization	MTE Header with PC Board Orientation Peg	248, 249
Board Requires Surface Mount Capability	MTE Surface Mount Headers	251, 252
	MTE High Temperature Compatible Headers	249, 250
Need to mate to AMP-LATCH Eject Headers	Mod IV Ejection Housing	220
Need to Minimize Strain to Cable	MT with Eject Covers	256-259
	Mod IV Housing with Strain Relief	218, 219
Application Requires Self-Retaining Contacts	Locking Clip Contacts	207, 298
Header Secured to Board During/Prior to Soldering	MTE Headers with Post Retention or Holdowns	244-250
Mate to Unshrouded Header with Retention Requirements	Mod IV plain Housing with Mod V Contacts	213, 214, 216
	MTE with High Pressure Contacts	234, 235
Multiple Cables to be Common to One Header	MTE Coupling Shroud, Double- or Single-Row	240, 241
Right-Angle Cable Dress	MT with Hermaphroditic Covers	229, 256, 257, 259
Application Requires Crimp Contacts and MTE Housings	Short Point Contacts	222
Housings and End-to-End and Side-to-Side Stackable	Short Point Double-Row Housing, MTE Plain Housing	223, 228, 229
Connector Must Mate to Post Lengths of .169 [4.29] Min.	Short Point Contacts	222

Mating Post Selection Guide

The following selection guide is provided to help in choosing a mating product after a receptacle, header or post has been selected.

In some instances references are given on the catalog page to specific mating connectors. In other instances the reader is referred here to the selection guide for mating product recommendations.

If your application requirement is not answered here, consult TE for further recommendations.

Posts Without Shoulders

For drawn wire products (ie, AMPMODU Breakaway and Low Profile Headers) and for products having the shoulder of the post below the housing or pc board surface (ie, AMPMODU MTE and Single Row Shrouded Headers) the effective mating length starts at the housing or pc board surface.



Posts With Shoulders

For product having the shoulder of the post extending above the housing or pc board surface (ie, Standard AMPMODU Shrouded and Unshrouded Headers) the effective mating length starts at the top of the shoulder.



Receptacle Type	Recommended Effective Mating Posts Lengths	
	Minimum	Maximum
AMPMODU Mod II Horizontal Board Mount Receptacle, Single and Double Row, Short Point-of-Contact—pages 169, 170, 172, 173	.230 [5.84]	.280 [7.11]
AMPMODU Mod II Vertical Board Mount Receptacle, Single Row, Standard Profile, Top Entry—page 175	.183 [4.65]	.330 [8.38]
AMPMODU Mod II Vertical Board Mount Receptacle, Standard Profile, Double Row, Top Entry, 100 x .100 mt.—page 176	.183 [4.65]	.330 [8.38]
AMPMODU Mod IV Vertical Board Mount Receptacle, Low Profile, Single Row, Top Entry, Single Tine—page 178	.183 [4.65]	.255 [6.48]
AMPMODU Mod IV Vertical Board Mount Receptacle, Low Profile, Single Row, Bottom Entry—page 177	.280 [7.11]	*
AMPMODU Mod IV Vertical Board Mount Receptacle, Low Profile, Double Row, Top Entry—pages 179, 180	.183 [4.65]	.255 [6.48]
AMPMODU Surface-Mount Receptacle, Top Entry Vertical Board Mount, Single Row, Dual Entry—page 187, 188	.183 [4.65]	*
AMPMODU Surface-Mount Receptacle, Bottom Entry Vertical Board Mount, Single Row, Dual Entry—page 187, 188	.204 [5.18]	*
AMPMODU Mod IV Vertical Board Mount Receptacle, Low Profile, Double Row, Dual Entry—page 182	Top Entry .183 [4.65] Bottom Entry .204 [5.18]	* *
AMPMODU Surface-Mount Receptacle, Top Entry Vertical Board Mount, Double Row, Dual Entry—page 189-192	.183 [4.65]	*
AMPMODU Surface-Mount Receptacle, Bottom Entry Vertical Board Mount, Double Row, Dual Entry—page 189-192	.204 [5.18]	*
AMPMODU .600 [15.24] Mod IV Housing with Standard Pressure Contacts—pages 211-220	.210 [5.33]	.283 [7.19]
AMPMODU .600 [15.24] Mod IV Housing with Intermediate Pressure Contacts—pages 211-220	.205 [5.21]	.283 [7.19]
AMPMODU .600 [15.24] Mod IV Housing with High Pressure Contacts—pages 211-220	.185 [4.70]	.283 [7.19]
AMPMODU Mod IV Vertical Board Mount Receptacle, Low Profile, Single Row, Dual Entry—page 181	Top Entry .183 [4.65] Bottom Entry .204 [5.18]	* *

Receptacle Type	Recommended Effective Mating Posts Lengths	
	Minimum	Maximum
Short Point Housing with Contacts—pages 222-224	.169 [4.29]	.259 [6.58]
AMPMODU MTE Unloaded Housing with Short Point Contacts—pages 222, 229, 231, 233	.169 [4.29]	.259 [6.58]
AMPMODU MTE IDC Assemblies	.200 [5.08]	.250 [6.35]
AMPMODU MT IDC Assembly with Standard Pressure Contacts—page 256	.222 [5.64]	.273 [6.93]
AMPMODU MT IDC Assembly with High Pressure Contacts—page 257	.200 [5.08]	.273 [6.93]
Locking Clip Housing with Contacts—pages 207-209	.273 [6.93]	.350 [8.89]
Locking Clip Contact without Housing—page 207	.200 [5.08]	.277 [7.04]
Flexible Flat Conductor Cable Receptacle with Round Wire Crimp High Pressure Contact—Catalog 82007	Single Row .267 [6.78] Double Row .282 [7.16]	.323 [8.20] .323 [8.20]
Flexible Flat Conductor Cable Receptacle with Multiple Wire Crimp High Pressure Contact—Catalog 82007	Single Row .210 [5.33] Double Row .225 [5.72]	.323 [8.20] .323 [8.20]
Flexible Flat Conductor Cable Receptacle with Round Wire Crimp Standard Pressure Contact—Catalog 82007	Single Row .267 [6.78] Double Row .282 [7.16]	.323 [8.20] .323 [8.20]
Flexible Flat Conductor Cable Receptacle with Multiple Wire Crimp Standard Pressure Contact—Catalog 82007	Single Row .220 [5.59] Double Row .235 [5.97]	.323 [8.20] .323 [8.20]

*Maximum post length is determined by customer's application; (i.e., available space beyond rear of horizontal receptacle assembly, or above bottom entry vertical receptacle assembly or below vertical receptacle assemblies used in pass through applications).

Parallel Stacking Guide for Board-to-Board Applications

See Figure Below	Dimension Between PC Boards	Product Family Headers (See Note 1.)	Single-Row (Page Ref.)	Double-Row (Page Ref.)	Product Family Receptacles	Single-Row (Page Ref.)	Double-Row (Page Ref.)
	.060 [1.52]	Bandolier Posts	163	NA	Dual Entry, Mod IV	177, 181, 187, 188	182-184, 189-192
1	.090 [2.29]	Breakaway** (Unshrouded)	102**	104**	Dual Entry, Mod IV	177, 181, 187, 188	182-184, 189-192
	.153 [3.89]	Surface Mount** Breakaway (Unshrouded)	NA	110	Dual Entry, Mod IV	177, 181, 187, 188	182-184, 189-192
	.265 [6.73]	Bandolier Posts	163	137**	Top Entry, Mod IV	178, 181, 187, 188	179, 180, 182-184, 189-192
2	.355 [9.02]	Breakaway** (Unshrouded)	102**	104**	Top Entry, Mod IV	178, 181, 187, 188	179, 180, 182-184, 189-192
	.385 [9.78]	Low Profile Shrouded	NA	135, 137**	Top Entry, Mod IV	NA	179, 180
3	.418 [10.6]	Surface Mount** Breakaway (Unshrouded)	109	110	Surface Mount**, Mod IV, Top Entry	187, 188	189-192
2*	.430 [10.92]	Breakaway** (Unshrouded)	102**	104**	Top Entry, Mod II	175	176
4*	.440 [11.18]	Shrouded, Mod II	115, 116	117, 119	Top Entry, Mod II or Mod IV	175, 178	176, 179, 180
	.528 [13.41]	Stacking Shroud (See Note 2.)	NA	156 (Hood)	Inner Board Receptacle (See Note 2.)	NA	157
	.547 [13.89]	Stacking Shroud (See Note 2.)	NA	160	Outer Board Receptacle (See Note 2.)	NA	158
4	.550 [13.97]	Two-Piece Header Connector System	NA	198, 199	Two-Piece Receptacle** Connector System	NA	196**
	.748 [19.00]	Stacking Shroud (See Note 2.)	NA	156 (Hood)	Inner Board Receptacle (See Note 2.)	NA	157
	.768 [19.51]	Stacking Shroud (See Note 2.)	NA	161	Outer Board Receptacle (See Note 2.)	NA	158
	Various	Stacking Unshrouded	112	113	Mod II/IV Receptacles, Top/Bottom Entry	Various	Various

**High temperature version available, see page ref. listed.

Notes: 1. Headers listed are standard thru-hole versions. Many headers are available with retention feature and ACTION PIN posts. See product specification pages in individual sections for option availability.

2. These headers and receptacles are Related Board-to-Board products. They are not part of the AMPMODU .025 [0.64] Square Product Family.

Board-to-Board Stacking Heights (By Receptacle/Header Combination)



Figure 1
Double-Row, Mod IV,
Bottom Entry, Breakaway Header



Figure 2
Double-Row, Mod IV,
Top Entry, Breakaway Header
*Mod II Receptacle Height is .340 [8.64] for a total stack height of .430 [10.92]



Figure 3
Double-Row, Mod IV,
Surface-Mount, Top Entry,
Receptacle and Surface-Mount
Breakaway Header



Figure 4
Double-Row, Two-Piece
Receptacle and Two-Piece
Shrouded Header
*Mod II Shrouded Header Height is .440 [11.18] for a total stack height of .440 [11.18]

Standard Headers—Unshrouded

Product Facts

- Variety of popular sizes available
- Substantial time/labor savings—install all posts at one time
- Vertical and right-angle versions available in single- and double-row configurations
- Triple-row version available in vertical configuration with .230 [5.84] mating length
- Copper alloy posts
- Choice of select gold or tin plated posts
- Mating length for single and double row is .318 [8.08] (.278 [7.06] effective mating length—see page 90)
- Flame retardant, black thermoplastic housings; 94V-0 rated
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



Performance Characteristics

Electrical

Insulation Resistance — 5,000 megohms minimum initial

Dielectric Withstanding Voltage — 750 V rms at sea level

Environmental

Operating Temperature — -65°C to +105°C (black thermoplastic housings)

Current — 3 amperes maximum per contact (dependent upon mating connector)

Standard Headers—Unshrouded, Single Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Post



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Copper alloy, plated as follows:

Plating A — Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Plating B — Selectively plated .000015 [0.00038] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Tin/Nickel — Plating option available; minimum order quantities may apply. Consult TE.

Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90

Technical Documents — page 276

See mating connector for applicable product and application specifications.



**Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)**

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
1	.084 [2.13]	—	87220-1	87224-1
2	.184 [4.67]	.100 [2.54]	87220-2	87224-2
3	.284 [7.21]	.200 [5.08]	87220-3	87224-3
4	.384 [9.75]	.300 [7.62]	87220-4	87224-4
5	.484 [12.29]	.400 [10.16]	87220-5	87224-5
6	.584 [14.83]	.500 [12.70]	87220-6	87224-6
7	.684 [17.37]	.600 [15.24]	87220-7	87224-7
8	.784 [19.91]	.700 [17.78]	87220-8	87224-8
9	.884 [22.45]	.800 [20.32]	87220-9	87224-9
10	.984 [24.99]	.900 [22.86]	1-87220-0	1-87224-0
11	1.084 [27.53]	1.000 [25.40]	1-87220-1	1-87224-1
12	1.184 [30.07]	1.100 [27.94]	1-87220-2	1-87224-2
13	1.284 [32.61]	1.200 [30.48]	1-87220-3	1-87224-3
14	1.384 [35.15]	1.300 [33.02]	1-87220-4	1-87224-4
15	1.484 [37.69]	1.400 [35.56]	1-87220-5	1-87224-5
16	1.584 [40.23]	1.500 [38.10]	1-87220-6	1-87224-6
17	1.684 [42.77]	1.600 [40.64]	1-87220-7	1-87224-7
18	1.784 [45.31]	1.700 [43.18]	1-87220-8	1-87224-8
19	1.884 [47.85]	1.800 [45.72]	1-87220-9	1-87224-9
20	1.984 [50.39]	1.900 [48.26]	2-87220-0	2-87224-0
21	2.084 [52.93]	2.000 [50.80]	2-87220-1	2-87224-1
22	2.184 [55.47]	2.100 [53.34]	2-87220-2	2-87224-2
23	2.284 [58.01]	2.200 [55.88]	2-87220-3	2-87224-3
24	2.384 [60.55]	2.300 [58.42]	2-87220-4	2-87224-4
25	2.484 [63.09]	2.400 [60.96]	2-87220-5	2-87224-5
26	2.584 [65.63]	2.500 [63.50]	2-87220-6	2-87224-6
27	2.684 [68.17]	2.600 [66.04]	2-87220-7	2-87224-7
28	2.784 [70.71]	2.700 [68.58]	2-87220-8	2-87224-8
29	2.884 [73.25]	2.800 [71.12]	2-87220-9	2-87224-9
30	2.984 [75.79]	2.900 [73.66]	3-87220-0	3-87224-0
31	3.084 [78.33]	3.000 [76.20]	3-87220-1	3-87224-1
32	3.184 [80.87]	3.100 [78.74]	3-87220-2	3-87224-2
33	3.284 [83.41]	3.200 [81.28]	3-87220-3	3-87224-3
34	3.384 [85.95]	3.300 [83.82]	3-87220-4	3-87224-4
35	3.484 [88.49]	3.400 [86.36]	3-87220-5	3-87224-5
36	3.584 [91.03]	3.500 [88.90]	3-87220-6	3-87224-6
37	3.684 [93.57]	3.600 [91.44]	3-87220-7	3-87224-7
38	3.784 [96.11]	3.700 [93.98]	3-87220-8	3-87224-8
39	3.884 [98.65]	3.800 [96.52]	3-87220-9	3-87224-9
40	3.984 [101.19]	3.900 [99.06]	4-87220-0	4-87224-0

Note: All part numbers are RoHS compliant.

Standard Headers—Unshrouded, Single Row, .100 [2.54] Centerline (Continued)

.025 [0.64] Square Right-Angle Post



Material and Finish

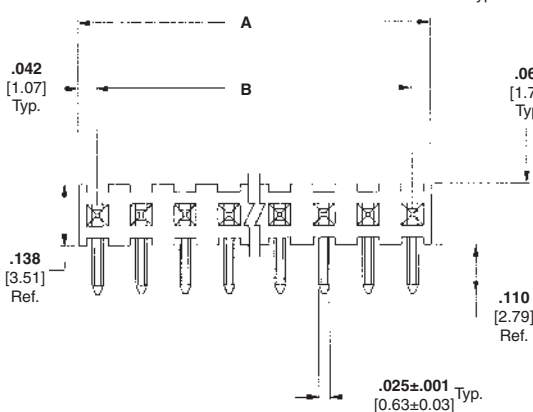
Housing — Black thermoplastic, 94V-0 rated

Posts — Copper alloy, plated as follows:

Plating A — Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Plating B — Selectively plated .000015 [0.00038] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Tin/Nickel — Plating option available; minimum order quantities may apply. Consult TE.



Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
1	.084 [2.13]	—	87232-1	87233-1
2	.184 [4.67]	.100 [2.54]	87232-2	87233-2
3	.284 [7.21]	.200 [5.08]	87232-3	87233-3
4	.384 [9.75]	.300 [7.62]	87232-4	87233-4
5	.484 [12.29]	.400 [10.16]	87232-5	87233-5
6	.584 [14.83]	.500 [12.70]	87232-6	87233-6
7	.684 [17.37]	.600 [15.24]	87232-7	87233-7
8	.784 [19.91]	.700 [17.78]	87232-8	87233-8
9	.884 [22.45]	.800 [20.32]	87232-9	87233-9
10	.984 [24.99]	.900 [22.86]	1-87232-0	1-87233-0
11	1.084 [27.53]	1.000 [25.40]	1-87232-1	1-87233-1
12	1.184 [30.07]	1.100 [27.94]	1-87232-2	1-87233-2
13	1.284 [32.61]	1.200 [30.48]	1-87232-3	1-87233-3
14	1.384 [35.15]	1.300 [33.02]	1-87232-4	1-87233-4
15	1.484 [37.69]	1.400 [35.56]	1-87232-5	1-87233-5
16	1.584 [40.23]	1.500 [38.10]	1-87232-6	1-87233-6
17	1.684 [42.77]	1.600 [40.64]	1-87232-7	1-87233-7
18	1.784 [45.31]	1.700 [43.18]	1-87232-8	1-87233-8
19	1.884 [47.85]	1.800 [45.72]	1-87232-9	1-87233-9
20	1.984 [50.39]	1.900 [48.26]	2-87232-0	2-87233-0

Note: All part numbers are RoHS compliant.

Standard Headers—Unshrouded, Single Row, .100 [2.54] Centerline (Continued)

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
21	2.084 [52.93]	2.000 [50.80]	2-87232-1	2-87233-1
22	2.184 [55.47]	2.100 [53.34]	2-87232-2	2-87233-2
23	2.284 [58.01]	2.200 [55.88]	2-87232-3	2-87233-3
24	2.384 [60.55]	2.300 [58.42]	2-87232-4	2-87233-4
25	2.484 [63.09]	2.400 [60.96]	2-87232-5	2-87233-5
26	2.584 [65.63]	2.500 [63.50]	2-87232-6	2-87233-6
27	2.684 [68.17]	2.600 [66.04]	2-87232-7	2-87233-7
28	2.784 [70.71]	2.700 [68.58]	2-87232-8	2-87233-8
29	2.884 [73.25]	2.800 [71.12]	2-87232-9	2-87233-9
30	2.984 [75.79]	2.900 [73.66]	3-87232-0	3-87233-0
31	3.084 [78.33]	3.000 [76.20]	3-87232-1	3-87233-1
32	3.184 [80.87]	3.100 [78.74]	3-87232-2	3-87233-2
33	3.284 [83.41]	3.200 [81.28]	3-87232-3	3-87233-3
34	3.385 [85.95]	3.300 [83.82]	3-87232-4	3-87233-4
35	3.484 [88.49]	3.400 [86.36]	3-87232-5	3-87233-5
36	3.584 [91.03]	3.500 [88.90]	3-87232-6	3-87233-6
37	3.684 [93.57]	3.600 [91.44]	3-87232-7	3-87233-7
38	3.784 [96.11]	3.700 [93.98]	3-87232-8	3-87233-8
39	3.884 [98.65]	3.800 [96.52]	3-87232-9	3-87233-9
40	3.984 [101.19]	3.900 [99.06]	4-87232-0	4-87233-0

Note: All part numbers are RoHS compliant.

Standard Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post



Material and Finish

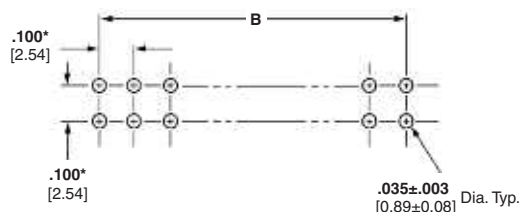
Housing — Black thermoplastic, 94V-0 rated

Posts — Copper alloy, plated as follows:

Plating A — Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Plating B — Selectively plated .000015 [0.00038] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Tin/Nickel — Plating option available; minimum order quantities may apply. Consult TE.



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
2	.084 [2.13]	—	1-87215-0	87227-1
4	.184 [4.67]	.100 [2.54]	1-87215-1	87227-2
6	.284 [7.21]	.200 [5.08]	1-87215-2	87227-3
8	.384 [9.75]	.300 [7.62]	87215-1	87227-4
10	.484 [12.29]	.400 [10.16]	87215-2	87227-5
12	.584 [14.83]	.500 [12.70]	87215-3	87227-6
14	.684 [17.37]	.600 [15.24]	87215-4	87227-7
16	.784 [19.91]	.700 [17.78]	87215-5	87227-8
18	.884 [22.45]	.800 [20.32]	87215-6	87227-9
20	.984 [24.99]	.900 [22.86]	87215-7	1-87227-0
22	1.084 [27.53]	1.000 [25.40]	1-87215-3	1-87227-1
24	1.184 [30.07]	1.100 [27.94]	87215-8	1-87227-2
26	1.284 [32.61]	1.200 [30.48]	87215-9	1-87227-3
28	1.384 [35.15]	1.300 [33.02]	1-87215-4	1-87227-4
30	1.484 [37.69]	1.400 [35.56]	1-87215-5	1-87227-5
32	1.584 [40.23]	1.500 [38.10]	1-87215-6	1-87227-6
34	1.684 [42.77]	1.600 [40.64]	1-87215-7	1-87227-7
36	1.784 [45.31]	1.700 [43.18]	1-87215-8	1-87227-8
38	1.884 [47.85]	1.800 [45.72]	1-87215-9	1-87227-9
40	1.984 [50.39]	1.900 [48.26]	2-87215-0	2-87227-0

Note: All part numbers are RoHS compliant.

Standard Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
42	2.084 [52.93]	2.000 [50.80]	2-87215-1	2-87227-1
44	2.184 [55.47]	2.100 [53.34]	2-87215-2	2-87227-2
46	2.284 [58.01]	2.200 [55.88]	2-87215-3	2-87227-3
48	2.384 [60.55]	2.300 [58.42]	2-87215-4	2-87227-4
50	2.484 [63.09]	2.400 [60.96]	2-87215-5	2-87227-5
52	2.584 [65.63]	2.500 [63.50]	2-87215-6	2-87227-6
54	2.684 [68.17]	2.600 [66.04]	2-87215-7	2-87227-7
56	2.784 [70.71]	2.700 [68.58]	2-87215-8	2-87227-8
58	2.884 [73.25]	2.800 [71.12]	2-87215-9	2-87227-9
60	2.984 [75.79]	2.900 [73.66]	3-87215-0	3-87227-0
62	3.084 [78.33]	3.000 [76.20]	3-87215-1	3-87227-1
64	3.184 [80.87]	3.100 [78.74]	3-87215-2	3-87227-2
66	3.284 [83.41]	3.200 [81.28]	3-87215-3	3-87227-3
68	3.384 [85.95]	3.300 [83.82]	3-87215-4	3-87227-4
70	3.484 [88.49]	3.400 [86.36]	3-87215-5	3-87227-5
72	3.584 [91.03]	3.500 [88.90]	3-87215-6	3-87227-6
74	3.684 [93.57]	3.600 [91.44]	3-87215-7	3-87227-7
76	3.784 [96.11]	3.700 [93.98]	3-87215-8	3-87227-8
78	3.884 [98.65]	3.800 [96.52]	3-87215-9	3-87227-9
80	3.984 [101.19]	3.900 [99.06]	4-87215-0	4-87227-0

Note: All part numbers are RoHS compliant.

Standard Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

.025 [0.64] Square Right-Angle Post



Material and Finish

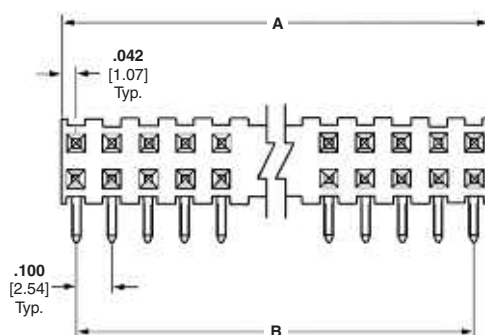
Housing — Black thermoplastic,
94V-0 rated

Posts — Copper alloy, plated as follows:

Plating A — Selectively plated
.000030 [0.00076] gold on contact area,
with gold flash over .000050 [0.00127]
nickel on entire post

Plating B — Selectively plated
.000015 [0.00038] gold on contact area,
with gold flash over .000050 [0.00127]
nickel on entire post

Tin/Nickel — Plating option available;
minimum order quantities may apply.
Consult TE.



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate
within one connector pattern.

Related Product Data

Mateable Connectors —
Refer to the Mating Post Selection
Guide — page 90

Technical Documents — page 276

See mating connector for applicable
product and application specifications.

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
2	.084 [2.13]	—	1-86479-3	87230-1
4	.184 [4.67]	.100 [2.54]	1-86479-4	87230-2
6	.284 [7.21]	.200 [5.08]	1-86479-5	87230-3
8	.384 [9.75]	.300 [7.62]	1-86479-6	87230-4
10	.484 [12.29]	.400 [10.16]	86479-3	87230-5
12	.584 [14.83]	.500 [12.70]	86479-4	87230-6
14	.684 [17.37]	.600 [15.24]	86479-5	87230-7
16	.784 [19.91]	.700 [17.78]	86479-2	87230-8
18	.884 [22.45]	.800 [20.32]	86479-6	87230-9
20	.984 [24.99]	.900 [22.86]	86479-1	1-87230-0
22	1.084 [27.53]	1.000 [25.40]	1-86479-7	1-87230-1
24	1.184 [30.07]	1.100 [27.94]	86479-7	1-87230-2
26	1.284 [32.61]	1.200 [30.48]	1-86479-0	1-87230-3
28	1.384 [35.15]	1.300 [33.02]	1-86479-8	1-87230-4
30	1.484 [37.69]	1.400 [35.56]	1-86479-9	1-87230-5
32	1.584 [40.23]	1.500 [38.10]	2-86479-0	1-87230-6
34	1.684 [42.77]	1.600 [40.64]	2-86479-1	1-87230-7
36	1.784 [45.31]	1.700 [43.18]	2-86479-2	1-87230-8
38	1.884 [47.85]	1.800 [45.72]	2-86479-3	1-87230-9
40	1.984 [50.39]	1.900 [48.26]	2-86479-4	2-87230-0

Note: All part numbers are RoHS compliant.

Standard Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
42	2.084 [52.93]	2.000 [50.80]	2-86479-5	2-87230-1
44	2.184 [55.47]	2.100 [53.34]	2-86479-6	2-87230-2
46	2.284 [58.01]	2.200 [55.88]	2-86479-7	2-87230-3
48	2.384 [60.55]	2.300 [58.42]	2-86479-8	2-87230-4
50	2.484 [63.09]	2.400 [60.96]	2-86479-9	2-87230-5
52	2.584 [65.63]	2.500 [63.50]	3-86479-0	2-87230-6
54	2.684 [68.17]	2.600 [66.04]	3-86479-1	2-87230-7
56	2.784 [70.71]	2.700 [68.58]	3-86479-2	2-87230-8
58	2.884 [73.25]	2.800 [71.12]	3-86479-3	2-87230-9
60	2.984 [75.79]	2.900 [73.66]	3-86479-4	3-87230-0
62	3.084 [78.33]	3.000 [76.20]	3-86479-5	3-87230-1
64	3.184 [80.87]	3.100 [78.74]	3-86479-6	3-87230-2
66	3.284 [83.41]	3.200 [81.28]	3-86479-7	3-87230-3
68	3.384 [85.95]	3.300 [83.82]	3-86479-8	3-87230-4
70	3.484 [88.49]	3.400 [86.36]	3-86479-9	3-87230-5
72	3.584 [91.03]	3.500 [88.90]	4-86479-0	3-87230-6
74	3.684 [93.57]	3.600 [91.44]	4-86479-1	3-87230-7
76	3.784 [96.11]	3.700 [93.98]	4-86479-2	3-87230-8
78	3.884 [98.65]	3.800 [96.52]	4-86479-3	3-87230-9
80	3.984 [101.19]	3.900 [99.06]	4-86479-4	4-87230-0

Note: All part numbers are RoHS compliant.

Standard Headers—Unshrouded, Triple-Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Post



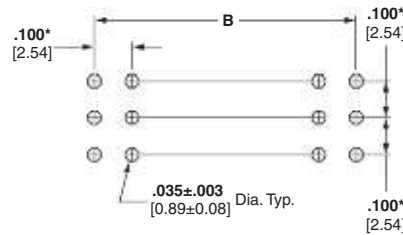
Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, duplex plated 000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Technical Documents — page 276

See mating connector for applicable product and application specifications.



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Part Nos.
	A	B	
9	.284 [7.21]	.200 [5.08]	5-103817-1
12	.384 [9.75]	.300 [7.62]	5-103817-2
15	.484 [12.29]	.400 [10.16]	5-103817-3
18	.584 [14.83]	.500 [12.70]	5-103817-4
21	.684 [17.37]	.600 [15.24]	5-103817-5
24	.784 [19.91]	.700 [17.78]	5-103817-6
27	.884 [22.45]	.800 [20.32]	5-103817-7
30	.984 [24.99]	.900 [22.86]	5-103817-8
33	1.084 [27.53]	1.000 [25.40]	5-103817-9
42	1.384 [35.15]	1.300 [33.02]	6-103817-2
45	1.484 [37.69]	1.400 [35.56]	6-103817-3
60	1.984 [50.39]	1.900 [48.26]	6-103817-8
69	2.284 [58.01]	2.200 [55.88]	7-103817-1
72	2.384 [60.55]	2.300 [58.42]	7-103817-2
96	3.184 [80.87]	3.100 [78.74]	8-103817-0
120	3.984 [101.19]	3.900 [99.06]	8-103817-8

Note: All part numbers are RoHS compliant.

Breakaway and Retention Headers—Unshrouded

Product Facts

- Design and inventory versatility—headers can be broken into any size needed
- Variety of popular sizes available
- Substantial time/labor savings can install all posts at one time
- Vertical and right-angle versions available in single- and double-row configurations
- Phosphor bronze posts
- Choice of gold duplex or tin plated posts
- Post lengths include .230 [5.84] and .318 [8.08] for connector mating
- Board retention feature available
- Black, glass-filled thermoplastic housings; high temperature compatible
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



Performance Characteristics

Electrical

Insulation Resistance — 5,000 megohms minimum initial

Dielectric Withstanding Voltage — 750 V rms at sea level

Environmental

Operating Temperature — -65°C to +105°C (black thermoplastic housings)

Current — 3 amperes maximum per contact (dependent upon mating receptacle)

Breakaway Headers—Unshrouded, Single-Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Posts



Material and Finish

Housing — Black thermoplastic, 94V-0 rated, high temperature compatible

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder tail, with entire post underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder tail, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel

Performance Characteristics (Board Retention Tails)

Insertion Force — 12 lb [53.4N] max.

Retention Force — .25 lb [1.11N] min.

Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90

Technical Documents — page 276

See mating connector for applicable product and application specifications.

Headers with Solder Tails



Recommended PC Board Mounting Pattern (for .062 [1.57] thick PC board; .008 [2.03] thick stencil)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Headers with Board Retention Tails



Recommended PC Board Mounting Pattern (for .062 [1.57] thick PC board; .008 [2.03] thick stencil)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Header Style	No. of Pos.	Dimensions		C = .090 [2.29] D = .230 [5.84] E = .185 [4.70]			C = .120 [3.05] D = .230 [5.84] E = .185 [4.70]			C = .125 [3.18] D = .318 [8.08] E = .200 [5.08]		
				Post Plating/Part Nos.			Post Plating/Part Nos.			Post Plating/Part Nos.		
		A	B	Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	Plating A	Plating B	Plating C
With Solder Tails (See Notes 1 and 2.)	1	.084 [2.13]	—	5-146285-1	5-146284-1	5-146282-1	5-146281-1	5-146280-1	5-146278-1	5-146277-1	5-146276-1	5-146274-1
	40	3.984 [101.19]	3.900 [99.06]	9-146285-0	9-146284-0	9-146282-0	9-146281-0	9-146280-0	9-146278-0	9-146277-0	9-146276-0	9-146274-0
With Board Retention Tails (See Notes 2 and 3.)	3	.284 [7.21]	.200 [5.08]	5-146297-3	5-146296-3	5-146294-3	5-146293-3	5-146292-3	5-146290-3	5-146289-3	5-146288-3	5-146286-3
	40	3.984 [101.19]	3.900 [99.06]	9-146297-0	9-146296-0	9-146294-0	9-146293-0	9-146292-0	9-146290-0	9-146289-0	9-146288-0	9-146286-0

- Notes:** 1. Headers without retention tails may be broken to the desired number of positions using **Tool Kit No. 314818-1 (not shown)**.
2. Headers are also available in sizes 2 thru 39 positions (with Solder Tails) and 4 thru 39 positions (with Board Retention Tails). When ordering, add the prefix and/or suffix (dash) numbers plus 5- to the base part number that corresponds with the desired size. For example, the complete part number for an 8-position header with solder tails (C dimension .090 [2.29], post plating A) would be 5-146285-8. The complete part number for a 26-position header with board retention tails (C dimension .120 [3.05], post plating B) would be 7-146292-6. This part numbering system applies only to this page.
3. For C dimensions .120 [3.05] and .125 [3.18], board retention using kinked tails are for headers 6 positions and smaller; headers 7 positions and larger use swaged tails. Headers with a C dimension of .090 [2.29] have swaged tails for all sizes.

Note: All part numbers are RoHS compliant.

Breakaway Headers—Unshrouded, Single-Row, .100 [2.54] Centerline (Continued)

.025 [0.64] Square Right-Angle Posts



Material and Finish

Housing — Black thermoplastic, 94V-0 rated, high temperature compatible

Posts — Phosphor bronze, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-.000508] matte tin on solder tail, with entire post underplated .000050 [0.00127] nickel

Performance Characteristics (Board Retention Tails)

Insertion Force — 12 lb [53.4N] max.

Retention Force — .25 lb [1.11N] min.

Related Product Data

Mateable Connectors

Refer to the Mating Post Selection Guide — page 90

Technical Documents — page 276

See mating connector for applicable product and application specifications.

Headers with Solder Tails



Headers with Board Retention Tails



Board Retention using Swaged Tails (All Header Sizes)

Header Style	No. of Pos.	Dimensions		C = .120 [3.05] D = .230 [5.84] E = .185 [4.70] Part Nos.	
		A	B	C = .110 [2.79] D = .318 [8.08] E = .200 [5.08] Part Nos.	
With Solder Tails (See Notes 1 and 2.)	1	.084 [2.13]	—	5-146304-1	5-146305-1
	40	3.984 [101.19]	3.900 [99.06]	9-146304-0	9-146305-0
With Board Retention Tails (See Note 2.)	3	.084 [2.13]	—	5-146306-3	5-146307-3
	40	3.984 [101.19]	3.900 [99.06]	9-146306-0	9-146307-0

Notes: 1. Headers without retention tails may be broken to the desired number of positions using **Tool Kit No. 314818-1 (not shown)**.
2. Headers are also available in sizes 2 thru 39 positions (with Solder Tails) and 4 thru 39 positions (with Board Retention Tails).
When ordering, add the prefix and/or suffix (dash) numbers plus 5- -0 to the base part number that corresponds with the number of positions. For example, the complete part number for an 8-position header with solder tails (C dimension .120 [3.05]) would be 5-146304-8. The complete part number for a 26-position header with board retention tails (C dimension .120 [3.05]) would be 7-146306-6. This part numbering system applies only to this page.

Note: All part numbers are RoHS compliant.

Breakaway Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Posts



Material and Finish

Housing — Black thermoplastic, 94V-0 rated, high temperature compatible

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder tail, with entire post underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder tail, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel

Performance Characteristics (Board Retention Tails)

Insertion Force — 12 lb [53.4N] max.

Retention Force — .25 lb [1.11N] min.

Related Product Data

Mateable Connectors

Refer to the Mating Post Selection Guide — page 90

Technical Documents — page 276

See mating connector for applicable product and application specifications.

Headers with Solder Tails



Headers with Board Retention Tails



Header Style	No. of Pos.	Dimensions A B		C = .090 [2.29] D = .230 [5.84] E = .185 [4.70]			C = .120 [3.05] D = .230 [5.84] E = .185 [4.70]			C = .125 [3.18] D = .318 [8.08] E = .200 [5.08]		
				Post Plating/Part Nos.			Post Plating/Part Nos.			Post Plating/Part Nos.		
				Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	Plating A	Plating B	Plating C
With Solder Tails (See Notes 1 and 2.)	2	.084 [2.13]	—	5-146261-1	5-146260-1	5-146258-1	5-146257-1	5-146256-1	5-146254-1	5-146253-1	5-146252-1	5-146250-1
	80	3.984 [101.19]	3.900 [99.06]	9-146261-0	9-146260-0	9-146258-0	9-146257-0	9-146256-0	9-146254-0	9-146253-0	9-146252-0	9-146250-0
With Board Retention Tails (See Note 2.)	2	.084 [2.13]	—	5-146273-1	5-146272-1	5-146270-1	5-146269-1	5-146268-1	5-146266-1	5-146265-1	5-146264-1	5-146262-1
	80	3.984 [101.19]	3.900 [99.06]	9-146273-0	9-146272-0	9-146270-0	9-146269-0	9-146268-0	9-146266-0	9-146265-0	9-146264-0	9-146262-0

Notes: 1. Headers without retention tails may be broken to the desired number of positions using Tool Kit No. 314818-1 (not shown).

2. Headers are also available in sizes 4 thru 78 positions. When ordering, add the prefix and/or suffix (dash) numbers plus 5-0 to the base part number that corresponds with the number of positions per row. For example, the complete part number for a 16-position header with solder tails (C dimension .090 [2.29], post plating A) would be 5-146261-8. The complete part number for a 40-position header with board retention tails (C dimension .120 [3.05], post plating B) would be 7-146268-0. This part numbering system applies only to this page.

Note: All part numbers are RoHS compliant.

Breakaway Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

.025 [0.64] Square Right-Angle Posts



Material and Finish

Housing — Black thermoplastic, 94V-0 rated, high temperature compatible

Posts — Phosphor bronze, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder tail, with entire post underplated .000050 [0.00127] nickel

Performance Characteristics (Board Retention Tails)

Insertion Force — 12 lb [53.4N] max.

Retention Force — .25 lb [1.11N] min.

Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90

Technical Documents — page 276

See mating connector for applicable product and application specifications.

Headers with Solder Tails



Recommended PC Board Mounting Pattern
(for .062 [1.57] thick PC board; .008 [.203] thick stencil)
*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Headers with Board Retention Tails



Recommended PC Board Mounting Pattern
(for .062 [1.57] thick PC board; .008 [.203] thick stencil)
*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Header Style	No. of Pos.	Dimensions		C = .120 [3.05] D = .230 [5.84] E = .185 [4.70] Part Nos.	C = .110 [2.79] D = .318 [8.08] E = .200 [5.08] Part Nos.
		A	B		
With Solder Tails (See Notes 1 and 2.)	2	.084 [2.13]	—	5-146308-1	5-146309-1
	80	3.984 [101.19]	3.900 [99.06]	9-146308-0	9-146309-0
With Board Retention Tails (See Note 2.)	2	.084 [2.13]	—	5-146310-1	5-146311-1
	80	3.984 [101.19]	3.900 [99.06]	9-146310-0	9-146311-0

Notes: 1. Headers without retention tails may be broken to the desired number of positions using **Tool Kit No. 314818-1** (not shown).
2. Headers are also available in sizes 4 thru 78 positions. When ordering, add the prefix and/or suffix (dash) numbers plus 5-0 to the base part number that corresponds with the number of positions per row. For example, the complete part number for a 16-position header with solder tails (C dimension .120 [3.05]) would be 5-146308-8. The complete part number for a 40-position header with board retention tails (C dimension .120 [3.05]) would be 7-146310-0. This part numbering system applies only to this page.

Note: All part numbers are RoHS compliant.

AMPMODU Reeled Breakaway Headers

Features of Breakaway Headers

- Design and inventory versatility — headers can easily be made into a variety of sizes
- High Temperature Compatible
- Reduced part number base
- Reduced inventory burden

Applications

- Desktops & workstations
- Set-top boxes
- Televisions
- Automotive instrument panels & radios
- Medical and test equipment

Benefits

- Off the shelf availability
- Various header length capability using the same reel
- Reduction of inventory costs
- Economy version of the standard breakaway headers



TE now offers AMPMODU reeled breakaway headers, which are used for board-to-board interconnections, on a continuous reel. The reeled breakaway headers are an economy version of the standard breakaway headers, and continue to provide the same high quality standards that TE is known for in the connector industry.

Reeled breakaway headers provide the flexibility to cut the headers to many different lengths, while only having to stock one part number. As a result, the amount of part numbers that need to be purchased and stored can be greatly reduced.

Reeled breakaway headers can be purchased in single and double rows with tin, 5 Au, 15 Au, and 30 Au duplex plating. The lower applied cost also offers .230" and .318" mating lengths. (See standard breakaway-to-reeled header conversion chart for vertical headers on the reverse side of this sheet)

Potential industries include: computer peripherals, telecommunications equipment, consumer, automotive, medical and test equipment.

Tooling available from:
Robo-Pak, Inc.
814 Lakeshore Drive
East Bethel, MN 55902

A pin retention and pin removal tooling option is also available in addition to cutting.

AMPMODU Reeled Breakaway Headers (Continued)

Single Row



Double Row



(1) See table for other mate and tail lengths.

Standard Breakaway-to-Reeled Header Conversion Chart (Vertical)

Plating Options	Double Row Headers				Single Row Headers			
	Existing TE P/N	Make From Reeled P/N	Existing TE P/N	Make From Reeled P/N	Existing TE P/N	Make From Reeled P/N	Existing TE P/N	Make From Reeled P/N
	Mate: .318 Tail: .125	Mate: .318 Tail: .115	Mate: .230 Tail: .120	Mate: .230 Tail: .110	Mate: .318 Tail: .125	Mate: .318 Tail: .115	Mate: .230 Tail: .120	Mate: .230 Tail: .110
Tin	103322	5-146853-1	103328	5-146851-1	103321	5-146852-1	103327	5-146850-1
	146250		146254		146274		146278	
15 Au Duplex	102973	5-146861-1	103186	5-146859-1	102972	5-146860-1	103185	5-146858-1
	146252		146256		146276		146280	
30 Au Duplex	102977	5-146871-1	103240	5-146869-1	102976	5-146870-1	103239	5-146868-1
	146253		146257		146277		146281	

Note: Reeled Headers are a functional substitute for standard breakaways, however there are visual differences (i.e. housing appearance and bow due to reeling requirement).

Note: All part numbers are RoHS compliant.

Breakaway Surface Mount Headers, .100 x .100 [2.54 x 2.54] Centerline

Product Facts

- Surface Mount Leads
- Contact Material: phosphor bronze
- High temperature, black thermoplastic housings, 94V-0 rated, capable of withstanding IR or vapor-phase reflow
- Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 
- Choice of gold duplex or tin plated posts
- Posts coplanar within .006 [0.15]
- Tape and reel packaging available in addition to single tube packaging. Contact TE.
- Pick-and-place cap available for vacuum placement. Contact TE.



An extension of the AMPMODU Breakaway Header product family are the surface mount, vertical breakaway headers. The AMPMODU Surface Mount breakaway headers (Unshrouded) are available

in single- and double-row vertical configurations with mating lengths of .230 [5.84] and .320 [8.13]. Posts are offered with a choice of either .000030 [.0007] gold duplex or tin plating.

Current packaging is in a single tube but tape and reel is available for automatic pick-and-place. We also can provide a pick-and-place cap for vacuum placement if required.

Breakaway Surface Mount Headers—Unshrouded Single-Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Post



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel entire post

Related Product Data

Mateable Receptacle — Refer to Mating Post Selection Guide — page 90

Technical Documents — page 276

See mating connector for applicable product and application specifications.



Recommended Etched Circuit Layout
(Using .008 [0.20] thick stencil)

No. of Pos.	Dimensions		C = .230 [5.84] D = .185 [4.70]		C = .320 [8.13] D = .200 [5.08]	
			Post Plating/Part Nos.		Post Plating/Part Nos.	
	A	B	Plating A	Plating B	Plating A	Plating B
3	.284 [7.21]	.200 [5.08]	5-146128-1	5-146132-1	5-146129-1	5-146133-1
4	.384 [9.75]	.300 [7.62]	5-146128-2	5-146132-2	5-146129-2	5-146133-2
5	.484 [12.29]	.400 [10.16]	5-146128-3	5-146132-3	5-146129-3	5-146133-3
6	.584 [14.83]	.500 [12.70]	5-146128-4	5-146132-4	5-146129-4	5-146133-4
7	.684 [17.37]	.600 [15.24]	5-146128-5	5-146132-5	5-146129-5	5-146133-5
8	.784 [19.91]	.700 [17.78]	5-146128-6	5-146132-6	5-146129-6	5-146133-6
9	.884 [22.45]	.800 [20.32]	5-146128-7	5-146132-7	5-146129-7	5-146133-7
10	.984 [24.99]	.900 [22.86]	5-146128-8	5-146132-8	5-146129-8	5-146133-8
11	1.084 [27.53]	1.000 [25.40]	5-146128-9	5-146132-9	5-146129-9	5-146133-9
12	1.184 [30.07]	1.100 [27.94]	6-146128-0	6-146132-0	6-146129-0	6-146133-0
13	1.284 [32.61]	1.200 [30.48]	6-146128-1	6-146132-1	6-146129-1	6-146133-1
14	1.384 [35.15]	1.300 [33.02]	6-146128-2	6-146132-2	6-146129-2	6-146133-2
15	1.484 [37.69]	1.400 [35.56]	6-146128-3	6-146132-3	6-146129-3	6-146133-3

Note: All part numbers are RoHS compliant.

Breakaway Surface Mount Headers—Unshrouded Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel entire post

Related Product Data

Mateable Receptacles — Refer to Mating Post Selection Guide — page 90



Recommended Etched Circuit Layout
(Using .008 [0.20] thick stencil)

No. of Pos.	Dimensions		C = .230 [5.84] D = .185 [4.70]		C = .320 [8.13] D = .200 [5.08]	
	A	B	Post Plating/Part Nos.		Post Plating/Part Nos.	
			Plating A	Plating B	Plating A	Plating B
4	.184 [4.67]	.100 [2.54]	5-146130-1	5-146134-1	5-146131-1	5-146135-1
6	.284 [7.21]	.200 [5.08]	5-146130-2	5-146134-2	5-146131-2	5-146135-6
8	.384 [9.75]	.300 [7.62]	5-146130-3	5-146134-3	5-146131-3	5-146135-3
10	.484 [12.29]	.400 [10.16]	5-146130-4	1-146134-7	5-146131-4	5-146135-4
12	.584 [14.83]	.500 [12.70]	5-146130-5	5-146134-5	5-146131-5	5-146135-5
14	.684 [17.37]	.600 [15.24]	5-146130-6	5-146134-6	5-146131-6	5-146135-6
16	.784 [19.91]	.700 [17.78]	5-146130-7	5-146134-9	5-146131-7	5-146135-7
18	.884 [22.45]	.800 [20.32]	5-146130-8	5-146134-8	5-146131-8	5-146135-8
20	.984 [24.99]	.900 [22.86]	5-146130-9	5-146134-9	5-146131-9	5-146135-9
22	1.084 [27.53]	1.000 [25.40]	6-146130-0	6-146134-0	6-146131-0	6-146135-0
24	1.184 [30.07]	1.100 [27.94]	6-146130-1	6-146134-1	6-146131-1	6-146135-1
26	1.284 [32.61]	1.200 [30.48]	6-146130-2	6-146134-2	6-146131-2	6-146135-2
28	1.384 [35.15]	1.300 [33.02]	6-146130-3	6-146134-3	6-146131-3	6-146135-3
30	1.484 [37.69]	1.400 [35.56]	6-146130-4	2-146134-1	6-146131-4	6-146135-4

Note: All part numbers are RoHS compliant.

Unshrouded Stacking Headers—Breakaway
.100 x .100 [2.54 x 2.54] Centerline**Product Facts**

- Available in single and double row
- Parallel PC board stacking with numerous stack heights available
- Drawn wire posts allow 4 side mateability
- May eliminate the need for additional board spacers
- Can be used in conjunction with bottom entry receptacles
- Gold or tin plated
- Up to 1.430 [36.32] overall post length
- Retention and surface mount features available upon request
- Other header sizes can be made upon request
- Tape and reel packaging available. Contact TE.
- Pick-and-place cap available for vacuum placement. Contact TE.



Unshrouded Stacking Headers — Breakaway, Single-Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Posts



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating — As noted in chart:

Tin — .000100-.000200 [0.00254-.00508] tin over .000050 [0.00127] nickel entire post

15Au — .000015 [0.00038] gold over .000050 [0.00127] nickel entire post



Recommended PC Board Hole Layout

Related Product Data

Mateable Receptacles — Refer to the Mating Post Selection Guide — page 88

Technical Documents — page 276

See mating connector for applicable product and application specifications.

Retention and surface mount features available upon request.
Other header sizes can be made upon request.

***Note:** Headers are available in sizes 1 thru 40. When ordering, add the prefix and/or suffix (dash) numbers plus 5- to the base part number that corresponds with the number of positions per row. For example, the complete part number for an 8-position header is 5-146455-8. The complete part number for a 16-position of the same series would be 6-146455-6.

Base Number (see note)	A Stack Height	B Tail Length	C Post Length	D Mating Length	B End Plating	D End Plating
146455	.200 [5.08]	.130 [3.30]	.440 [11.17]	.110 [2.79]	TIN	TIN
146456	.250 [6.35]	.080 [2.03]	.440 [11.17]	.110 [2.79]	TIN	TIN
146457	.250 [6.35]	.114 [2.89]	.474 [12.03]	.110 [2.79]	TIN	TIN
146458	.300 [7.62]	.123 [3.12]	.533 [13.53]	.110 [2.79]	TIN	TIN
146459	.400 [10.16]	.107 [2.71]	.617 [15.67]	.110 [2.79]	TIN	TIN
146460	.450 [11.43]	.057 [1.45]	.617 [15.67]	.110 [2.79]	TIN	TIN
146461	.500 [12.70]	.129 [3.27]	.739 [18.77]	.110 [2.79]	TIN	TIN
146462	.300 [7.62]	.109 [2.77]	.739 [18.77]	.330 [8.38]	TIN	15 AU
146463	.600 [15.24]	.107 [2.71]	.817 [20.75]	.110 [2.79]	TIN	TIN
146464	.400 [10.16]	.087 [2.20]	.817 [20.75]	.330 [8.38]	TIN	15 AU
146465	.700 [17.78]	.120 [3.05]	.930 [23.62]	.110 [2.79]	TIN	TIN
146466	.500 [12.70]	.100 [2.54]	.930 [23.62]	.330 [8.38]	TIN	15 AU
146467	.270 [6.86]	.330 [8.38]	.930 [23.62]	.330 [8.38]	15 AU	15 AU
146468	.800 [20.32]	.120 [3.05]	1.030 [26.16]	.110 [2.79]	TIN	TIN
146469	.600 [15.24]	.100 [2.54]	1.030 [26.16]	.330 [8.38]	TIN	15 AU
146470	.370 [9.39]	.330 [8.38]	1.030 [26.16]	.330 [8.38]	15 AU	15 AU
146471	.900 [22.86]	.120 [3.05]	1.130 [28.70]	.110 [2.79]	TIN	TIN
146472	.700 [17.78]	.100 [2.54]	1.130 [28.70]	.330 [8.38]	TIN	15 AU
146473	.470 [11.39]	.330 [8.38]	1.130 [28.70]	.330 [8.38]	15 AU	15 AU
146474	1.000 [25.40]	.120 [3.05]	1.230 [31.24]	.110 [2.79]	TIN	TIN
146475	.800 [20.32]	.100 [2.54]	1.230 [31.24]	.330 [8.38]	TIN	15 AU
146476	.570 [14.47]	.330 [8.38]	1.230 [31.24]	.330 [8.38]	15 AU	15 AU
146477	1.100 [27.94]	.120 [3.05]	1.330 [33.78]	.110 [2.79]	TIN	TIN
146478	.900 [22.68]	.100 [2.54]	1.330 [33.78]	.330 [8.38]	TIN	15 AU
146479	.670 [17.01]	.330 [8.38]	1.330 [33.78]	.330 [8.38]	15 AU	15 AU
146480	1.200 [30.48]	.120 [3.05]	1.430 [36.32]	.110 [2.79]	TIN	TIN
146481	1.000 [25.40]	.100 [2.54]	1.430 [36.32]	.330 [8.38]	TIN	15 AU
146482	.770 [19.55]	.330 [8.38]	1.430 [36.32]	.330 [8.38]	15 AU	15 AU

Note: All part numbers are RoHS compliant.

Unshrouded Stacking Headers — Breakaway, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Posts



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating — As noted in chart:

Tin — .000100-.000200 [0.00254-.00508] tin over .000050 [0.00127] nickel entire post

15Au — .000015 [0.00038] gold over .000050 [0.00127] nickel entire post

Related Product Data

Mateable Connectors —

Refer to the Mating Post Selection Guide — page 90

Technical Documents — page 276

See mating connector for applicable product and application specifications.

Retention and surface mount features available upon request. Other header sizes can be made upon request.

***Note:** Headers are available in sizes 2 thru 80. When ordering, add the prefix and/or suffix (dash) numbers plus 5- -0 to the base part number that corresponds with the number of positions per row. For example, the complete part number for a 16-position header is 5-146283-8. The complete part number for a 32-position of the same series would be 6-146283-6.

Recommended PC Board Hole Layout

Base Number (see note)	A Stack Height	B Tail Length	C Post Length	D Mating Length	B End Plating	D End Plating
146483	.200 [5.08]	.130 [3.30]	.440 [11.17]	.110 [2.79]	TIN	TIN
146484	.250 [6.35]	.080 [2.03]	.440 [11.17]	.110 [2.79]	TIN	TIN
146485	.250 [6.35]	.114 [2.89]	.474 [12.03]	.110 [2.79]	TIN	TIN
146486	.300 [7.62]	.123 [3.12]	.533 [13.53]	.110 [2.79]	TIN	TIN
146487	.400 [10.16]	.107 [2.71]	.617 [15.67]	.110 [2.79]	TIN	TIN
146488	.450 [11.43]	.057 [1.45]	.617 [15.67]	.110 [2.79]	TIN	TIN
146489	.500 [12.70]	.129 [3.27]	.739 [18.77]	.110 [2.79]	TIN	TIN
146490	.300 [7.62]	.109 [2.77]	.739 [18.77]	.330 [8.38]	TIN	15 AU
146491	.600 [15.24]	.107 [2.71]	.817 [20.75]	.110 [2.79]	TIN	TIN
146492	.400 [10.16]	.087 [2.20]	.817 [20.75]	.330 [8.38]	TIN	15 AU
146493	.700 [17.78]	.120 [3.05]	.930 [23.62]	.110 [2.79]	TIN	TIN
146494	.500 [12.70]	.100 [2.54]	.930 [23.62]	.330 [8.38]	TIN	15 AU
146495	.270 [6.86]	.330 [8.38]	.930 [23.62]	.330 [8.38]	15 AU	15 AU
146496	.800 [20.32]	.120 [3.05]	1.030 [26.16]	.110 [2.79]	TIN	TIN
146497	.600 [15.24]	.100 [2.54]	1.030 [26.16]	.330 [8.38]	TIN	15 AU
146498	.370 [9.39]	.330 [8.38]	1.030 [26.16]	.330 [8.38]	15 AU	15 AU
146499	.900 [22.86]	.120 [3.05]	1.130 [28.70]	.110 [2.79]	TIN	TIN
146500	.700 [17.78]	.100 [2.54]	1.130 [28.70]	.330 [8.38]	TIN	15 AU
146501	.470 [11.93]	.330 [8.38]	1.130 [28.70]	.330 [8.38]	15 AU	15 AU
146502	1.000 [25.40]	.120 [3.05]	1.230 [31.24]	.110 [2.79]	TIN	TIN
146503	.800 [20.32]	.100 [2.54]	1.230 [31.24]	.330 [8.38]	TIN	15 AU
146504	.570 [14.74]	.330 [8.38]	1.230 [31.24]	.330 [8.38]	15 AU	15 AU
146505	1.100 [27.94]	.120 [3.05]	1.330 [33.78]	.110 [2.79]	TIN	TIN
146506	.900 [22.86]	.100 [2.54]	1.330 [33.78]	.330 [8.38]	TIN	15 AU
146507	.670 [17.01]	.330 [8.38]	1.330 [33.78]	.330 [8.38]	15 AU	15 AU
146508	1.200 [30.48]	.120 [3.05]	1.430 [36.32]	.110 [2.79]	TIN	TIN
146509	1.000 [25.40]	.100 [2.54]	1.430 [36.32]	.330 [8.38]	TIN	15 AU
146510	.770 [19.55]	.330 [8.38]	1.430 [36.32]	.330 [8.38]	15 AU	15 AU

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded

Product Facts

- Available in several styles—right-angle with three- and four-sided pin protection, and straight post with pin protection and mounting ears
- Post retention feature available
- Can be used for feed-to and feed-thru applications
- Housings are black thermoplastic, flame retardant 94V-0 rated
- Contacts are copper alloy
- Available in gold duplex, gold over nickel and tin over nickel platings
- Headers with .066 [1.68] and .150 [3.81] end dimensions are available in select sizes up to 60 positions
- Can be select loaded, consult TE
- Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189



Performance Characteristics

Electrical

Insulation Resistance — 5,000 megohms minimum initial

Dielectric Withstanding Voltage — 750 RMS at sea level

Environmental

Operating Temperature — -65°C to +105°C (black thermoplastic housings)

Current — 3 amperes maximum per contact

Standard Profile Headers—Shrouded, Single-Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Post (with Standoffs)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post under-plated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post under-plated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors —

AMPMODU Wire-Applied

Receptacles — page 215

AMPMODU MTE Receptacles — pages 228, 229, 234

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions			Post Plating/Part Nos.		
	A	B	C	Plating A	Plating B	Plating C
3	.420 [10.67]	.340 [8.64]	.200 [5.08]	5-103414-1	8-102202-4	5-103080-1
4	.520 [13.21]	.440 [11.18]	.300 [7.62]	5-103414-2	5-102202-1	5-103080-2
5	.620 [15.75]	.540 [13.72]	.400 [10.16]	5-103414-3	5-102202-2	5-103080-3
6	.720 [18.29]	.640 [16.26]	.500 [12.70]	5-103414-4	5-102202-3	5-103080-4
7	.820 [20.83]	.740 [18.80]	.600 [15.24]	5-103414-5	5-102202-4	5-103080-5
8	.920 [23.37]	.840 [21.34]	.700 [17.78]	5-103414-6	5-102202-5	5-103080-6
9	1.020 [25.91]	.940 [23.88]	.800 [20.32]	5-103414-7	5-102202-6	5-103080-7
10	1.120 [28.45]	1.040 [26.42]	.900 [22.86]	5-103414-8	5-102202-7	5-103080-8
11	1.220 [30.99]	1.140 [28.96]	1.000 [25.40]	5-103414-9	5-102202-8	5-103080-9
12	1.320 [33.53]	1.240 [31.50]	1.100 [27.94]	6-103414-0	5-102202-9	6-103080-0
13	1.420 [36.07]	1.340 [34.04]	1.200 [30.48]	6-103414-1	6-102202-0	6-103080-1
14	1.520 [38.61]	1.440 [36.58]	1.300 [33.02]	6-103414-2	6-102202-1	6-103080-2
15	1.620 [41.15]	1.540 [39.12]	1.400 [35.56]	6-103414-3	6-102202-2	6-103080-3
16	1.720 [43.69]	1.640 [41.66]	1.500 [38.10]	6-103414-4	6-102202-3	6-103080-4
17	1.820 [46.23]	1.740 [44.20]	1.600 [40.64]	6-103414-5	6-102202-4	6-103080-5
18	1.920 [48.77]	1.840 [46.74]	1.700 [43.18]	6-103414-6	6-102202-5	6-103080-6
19	2.020 [51.31]	1.940 [49.28]	1.800 [45.72]	6-103414-7	6-102202-6	6-103080-7
20	2.120 [53.85]	2.040 [51.82]	1.900 [48.26]	6-103414-8	6-102202-7	6-103080-8
21	2.220 [56.39]	2.140 [54.36]	2.000 [50.80]	6-103414-9	6-102202-8	6-103080-9
22	2.320 [58.93]	2.240 [56.90]	2.100 [53.34]	7-103414-0	6-102202-9	7-103080-0
23	2.420 [61.47]	2.340 [59.44]	2.200 [55.88]	7-103414-1	7-102202-0	7-103080-1
24	2.520 [64.01]	2.440 [61.98]	2.300 [58.42]	7-103414-2	7-102202-1	7-103080-2
25	2.620 [66.55]	2.540 [64.52]	2.400 [60.96]	7-103414-3	7-102202-2	7-103080-3

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, Single-Row, .100 [2.54] Centerline (Continued)

.025 [0.64] Square Right-Angle Post (with Standoffs)



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post

Related Product Data

Mateable Connectors —

AMPMODU Wire-Applied Receptacles — page 215

AMPMODU MTE Receptacles — pages 228, 229, 234

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions			Post Plating/Part Nos.		
	A	B	C	Plating A	Plating B	Plating C
3	.420 [10.67]	.340 [8.64]	.200 [5.08]	5-103361-1	8-102203-4	5-102523-1
4	.520 [13.21]	.440 [11.18]	.300 [7.62]	5-103361-2	5-102203-1	5-102523-2
5	.620 [15.75]	.540 [13.72]	.400 [10.16]	5-103361-3	5-102203-2	5-102523-3
6	.720 [18.29]	.640 [16.26]	.500 [12.70]	5-103361-4	5-102203-3	5-102523-4
7	.820 [20.83]	.740 [18.80]	.600 [15.24]	5-103361-5	5-102203-4	5-102523-5
8	.920 [23.37]	.840 [21.34]	.700 [17.78]	5-103361-6	5-102203-5	5-102523-6
9	1.020 [25.91]	.940 [23.88]	.800 [20.32]	5-103361-7	5-102203-6	5-102523-7
10	1.120 [28.45]	1.040 [26.42]	.900 [22.86]	5-103361-8	5-102203-7	5-102523-8
11	1.220 [30.99]	1.140 [28.96]	1.000 [25.40]	5-103361-9	5-102203-8	5-102523-9
12	1.320 [33.53]	1.240 [31.50]	1.100 [27.94]	6-103361-0	5-102203-9	6-102523-0
13	1.420 [36.07]	1.340 [34.04]	1.200 [30.48]	6-103361-1	6-102203-0	6-102523-1
14	1.520 [38.61]	1.440 [36.58]	1.300 [33.02]	6-103361-2	6-102203-1	6-102523-2
15	1.620 [41.15]	1.540 [39.12]	1.400 [35.56]	6-103361-3	6-102203-2	6-102523-3
16	1.720 [43.69]	1.640 [41.66]	1.500 [38.10]	6-103361-4	6-102203-3	6-102523-4
17	1.820 [46.23]	1.740 [44.20]	1.600 [40.64]	6-103361-5	6-102203-4	6-102523-5
18	1.920 [48.77]	1.840 [46.74]	1.700 [43.18]	6-103361-6	6-102203-5	6-102523-6
19	2.020 [51.31]	1.940 [49.28]	1.800 [45.72]	6-103361-7	6-102203-6	6-102523-7
20	2.120 [53.85]	2.040 [51.82]	1.900 [48.26]	6-103361-8	6-102203-7	6-102523-8
21	2.220 [56.39]	2.140 [54.36]	2.000 [50.80]	6-103361-9	6-102203-8	6-102523-9
22	2.320 [58.93]	2.240 [56.90]	2.100 [53.34]	7-103361-0	6-102203-9	7-102523-0
23	2.420 [61.47]	2.340 [59.44]	2.200 [55.88]	7-103361-1	7-102203-0	7-102523-1
24	2.520 [64.01]	2.440 [61.98]	2.300 [58.42]	7-103361-2	7-102203-1	7-102523-2
25	2.620 [66.55]	2.540 [64.52]	2.400 [60.96]	7-103361-3	7-102203-2	7-102523-3

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .066 [1.68] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post (with Detent Windows)



Material and Finish

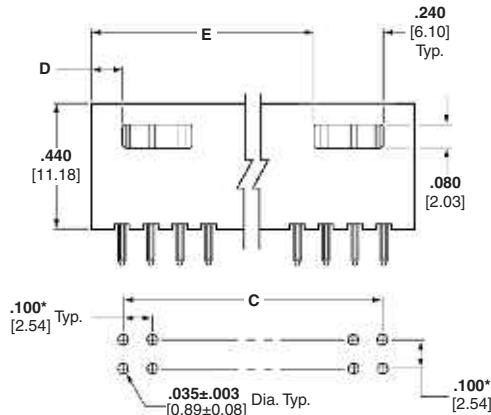
Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post



**Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)**

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors —

AMPMODU Board Mount Receptacles — pages 176, 179, 180

AMPMODU Wire-Applied Receptacles — pages 216-219

AMPMODU MTE Receptacles — pages 228, 229, 234

AMPMODU MT Receptacles — pages 256, 257

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
6	.412 [10.46]	.332 [8.43]	.200 [5.08]	.106 [2.69]	—	5-103168-1	5-102618-1	8-87589-6
8	.512 [13.00]	.432 [10.97]	.300 [7.62]	.106 [2.69]	—	5-103168-2	5-102618-2	8-87589-5
10	.612 [15.54]	.532 [13.51]	.400 [10.16]	.206 [5.23]	—	5-103168-3	5-102618-3	5-87589-1
12	.712 [18.08]	.632 [16.05]	.500 [12.70]	.206 [5.23]	—	5-103168-4	5-102618-4	5-87589-2
14	.812 [20.62]	.732 [18.59]	.600 [15.24]	.306 [7.77]	—	5-103168-5	5-102618-5	5-87589-3
16	.912 [23.16]	.832 [21.13]	.700 [17.78]	.306 [7.77]	—	5-103168-6	5-102618-6	5-87589-4
18	1.012 [25.70]	.932 [23.67]	.800 [20.32]	.406 [10.31]	—	5-103168-7	5-102618-7	5-87589-5
20	1.112 [28.24]	1.032 [26.21]	.900 [22.86]	.106 [2.69]	.806 [20.47]	5-103168-8	5-102618-8	5-87589-6
22	1.212 [30.78]	1.132 [28.75]	1.000 [25.40]	.106 [2.69]	.906 [23.01]	5-103168-9	5-102618-9	5-87589-7
24	1.312 [33.32]	1.232 [31.29]	1.100 [27.94]	.106 [2.69]	1.006 [25.55]	6-103168-0	6-102618-0	5-87589-8
26	1.412 [35.86]	1.332 [33.83]	1.200 [30.48]	.106 [2.69]	1.106 [28.09]	6-103168-1	6-102618-1	5-87589-9
28	1.512 [38.40]	1.432 [36.37]	1.300 [33.02]	.106 [2.69]	1.206 [30.63]	6-103168-2	6-102618-2	6-87589-0
30	1.612 [40.94]	1.532 [38.91]	1.400 [35.56]	.106 [2.69]	1.306 [33.17]	6-103168-3	6-102618-3	6-87589-1

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .066 [1.68] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

No. of Positions	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
32	1.712 [43.48]	1.632 [41.45]	1.500 [38.10]	.106 [2.69]	1.406 [35.71]	6-103168-4	6-102618-4	6-87589-2
34	1.812 [46.02]	1.732 [43.99]	1.600 [40.64]	.106 [2.69]	1.506 [38.25]	6-103168-5	6-102618-5	6-87589-3
36	1.912 [48.56]	1.832 [46.53]	1.700 [43.18]	.106 [2.69]	1.606 [40.79]	6-103168-6	6-102618-6	6-87589-4
38	2.012 [51.10]	1.932 [49.07]	1.800 [45.72]	.106 [2.69]	1.706 [43.33]	6-103168-7	6-102618-7	6-87589-5
40	2.112 [53.64]	2.032 [51.61]	1.900 [48.26]	.106 [2.69]	1.806 [45.87]	6-103168-8	6-102618-8	6-87589-6
42	2.212 [56.18]	2.132 [54.15]	2.000 [50.80]	.106 [2.69]	1.906 [48.41]	6-103168-9	6-102618-9	6-87589-7
44	2.312 [58.72]	2.232 [56.69]	2.100 [53.34]	.106 [2.69]	2.006 [50.95]	7-103168-0	7-102618-0	6-87589-8
46	2.412 [61.26]	2.332 [59.23]	2.200 [55.88]	.106 [2.69]	2.106 [53.49]	7-103168-1	7-102618-1	6-87589-9
48	2.512 [63.80]	2.432 [61.77]	2.300 [58.42]	.106 [2.69]	2.206 [56.03]	7-103168-2	7-102618-2	7-87589-0
50	2.612 [66.34]	2.532 [64.31]	2.400 [60.96]	.106 [2.69]	2.306 [58.57]	7-103168-3	7-102618-3	7-87589-1
52	2.712 [68.88]	2.632 [66.85]	2.500 [63.50]	.106 [2.69]	2.406 [61.11]	7-103168-4	7-102618-4	7-87589-2
54	2.812 [71.42]	2.732 [69.39]	2.600 [66.04]	.106 [2.69]	2.506 [63.65]	7-103168-5	7-102618-5	7-87589-3
56	2.912 [73.96]	2.832 [71.93]	2.700 [68.58]	.106 [2.69]	2.606 [66.19]	7-103168-6	7-102618-6	7-87589-4
58	3.012 [76.50]	2.932 [74.47]	2.800 [71.12]	.106 [2.69]	2.706 [68.73]	7-103168-7	7-102618-7	7-87589-5
60	3.112 [79.04]	3.032 [77.01]	2.900 [73.66]	.106 [2.69]	2.806 [71.27]	7-103168-8	7-102618-8	7-87589-6
62	3.212 [81.58]	3.132 [79.55]	3.000 [76.20]	.106 [2.69]	2.906 [73.81]	7-103168-9	7-102618-9	7-87589-7
64	3.312 [84.12]	3.232 [82.09]	3.100 [78.74]	.106 [2.69]	3.006 [76.35]	8-103168-0	8-102618-0	7-87589-8
66	3.412 [86.66]	3.332 [84.63]	3.200 [81.28]	.106 [2.69]	3.106 [78.89]	8-103168-1	8-102618-1	7-87589-9
68	3.512 [89.20]	3.432 [87.17]	3.300 [83.82]	.106 [2.69]	3.206 [81.43]	8-103168-2	8-102618-2	8-87589-0
70	3.612 [91.74]	3.532 [89.71]	3.400 [86.36]	.106 [2.69]	3.306 [83.97]	8-103168-3	8-102618-3	8-87589-1
72	3.712 [94.28]	3.632 [92.25]	3.500 [88.90]	.106 [2.69]	3.406 [86.51]	8-103168-4	8-102618-4	8-87589-2
74	3.812 [96.82]	3.732 [94.79]	3.600 [91.44]	.106 [2.69]	3.506 [89.05]	8-103168-5	8-102618-5	8-87589-3

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post (with Detent Windows)



Material and Finish

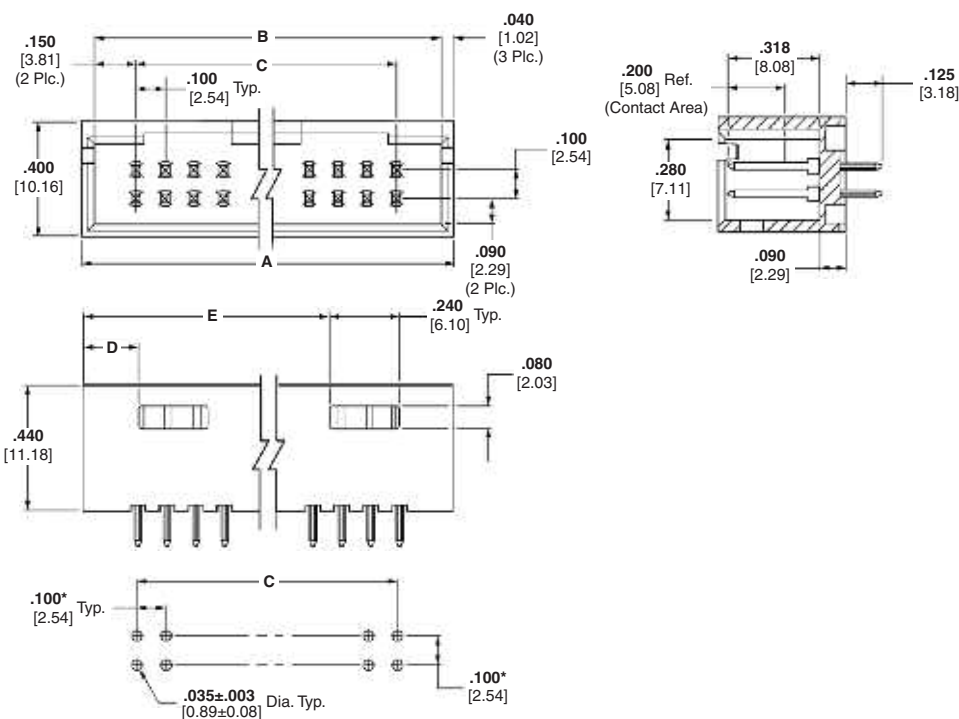
Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post



Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors

AMPMODU MTE Receptacles — pages 232, 233, 235 (used with coupling shroud on page 241)

AMPMODU Wire-Applied Receptacles — pages 216-219

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
6	.580 [14.73]	.500 [12.70]	.200 [5.08]	.190 [4.83]	—	5-103169-1	5-102619-1	8-87587-3
8	.680 [17.27]	.600 [15.24]	.300 [7.62]	.190 [4.83]	—	5-103169-2	5-102619-2	8-87587-4
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	.290 [7.37]	—	5-103169-3	5-102619-3	5-87587-1
12	.880 [22.35]	.800 [20.32]	.500 [12.70]	.290 [7.37]	—	5-103169-4	5-102619-4	5-87587-2
14	.980 [24.89]	.900 [22.86]	.600 [15.24]	.390 [9.91]	—	5-103169-5	5-102619-5	5-87587-3
16	1.080 [27.43]	1.000 [25.40]	.700 [17.78]	.390 [9.91]	—	5-103169-6	5-102619-6	5-87587-4
18	1.180 [29.97]	1.100 [27.94]	.800 [20.32]	.490 [12.45]	—	5-103169-7	5-102619-7	5-87587-5
20	1.280 [32.51]	1.200 [30.48]	.900 [22.86]	.190 [4.83]	.890 [22.61]	5-103169-8	5-102619-8	5-87587-6
22	1.380 [35.05]	1.300 [33.02]	1.000 [25.40]	.190 [4.83]	.990 [25.15]	5-103169-9	5-102619-9	5-87587-7
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	.190 [4.83]	1.090 [27.69]	6-103169-0	6-102619-0	5-87587-8
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	.190 [4.83]	1.190 [30.23]	6-103169-1	6-102619-1	5-87587-9
28	1.680 [42.67]	1.600 [40.64]	1.300 [33.02]	.190 [4.83]	1.290 [32.77]	6-103169-2	6-102619-2	6-87587-0
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	.190 [4.83]	1.390 [35.31]	6-103169-3	6-102619-3	6-87587-1

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

No. of Pos.	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
32	1.880 [47.75]	1.800 [45.72]	1.500 [38.10]	.190 [4.83]	1.490 [37.85]	6-103169-4	6-102619-4	6-87587-2
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	.190 [4.83]	1.590 [40.39]	6-103169-5	6-102619-5	6-87587-3
36	2.080 [52.83]	2.000 [50.80]	1.700 [43.18]	.190 [4.83]	1.690 [42.93]	6-103169-6	6-102619-6	6-87587-4
38	2.180 [55.37]	2.100 [53.34]	1.800 [45.72]	.190 [4.83]	1.790 [45.47]	6-103169-7	6-102619-7	6-87587-5
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	.190 [4.83]	1.890 [48.01]	6-103169-8	6-102619-8	6-87587-6
42	2.380 [60.45]	2.300 [58.42]	2.000 [50.80]	.190 [4.83]	1.990 [50.55]	6-103169-9	6-102619-9	6-87587-7
44	2.480 [62.99]	2.400 [60.96]	2.100 [53.34]	.190 [4.83]	2.090 [53.09]	7-103169-0	7-102619-0	6-87587-8
46	2.580 [65.53]	2.500 [63.50]	2.200 [55.88]	.190 [4.83]	2.190 [55.63]	7-103169-1	7-102619-1	6-87587-9
48	2.680 [68.07]	2.600 [66.04]	2.300 [58.42]	.190 [4.83]	2.290 [58.17]	7-103169-2	7-102619-2	7-87587-0
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	.190 [4.83]	2.390 [60.71]	7-103169-3	7-102619-3	7-87587-1
52	2.880 [73.15]	2.800 [71.12]	2.500 [63.50]	.190 [4.83]	2.490 [63.25]	7-103169-4	7-102619-4	7-87587-2
54	2.980 [75.69]	2.900 [73.66]	2.600 [66.04]	.190 [4.83]	2.590 [65.79]	7-103169-5	7-102619-5	7-87587-3
56	3.080 [78.23]	3.000 [76.20]	2.700 [68.58]	.190 [4.83]	2.690 [68.33]	7-103169-6	7-102619-6	7-87587-4
58	3.180 [80.77]	3.100 [78.74]	2.800 [71.12]	.190 [4.83]	2.790 [70.87]	7-103169-7	7-102619-7	7-87587-5
60	3.280 [83.31]	3.200 [81.28]	2.900 [73.66]	.190 [4.83]	2.890 [73.41]	7-103169-8	7-102619-8	7-87587-6
62	3.380 [85.85]	3.300 [83.82]	3.000 [76.20]	.190 [4.83]	2.990 [75.95]	7-103169-9	7-102619-9	7-87587-7
64	3.480 [88.39]	3.400 [86.36]	3.100 [78.74]	.190 [4.83]	3.090 [78.49]	8-103169-0	8-102619-0	7-87587-8
66	3.580 [90.93]	3.500 [88.90]	3.200 [81.28]	.190 [4.83]	3.190 [81.03]	8-103169-1	8-102619-1	7-87587-9
68	3.680 [93.47]	3.600 [91.44]	3.300 [83.82]	.190 [4.83]	3.290 [83.57]	8-103169-2	8-102619-2	8-87587-0
70	3.780 [96.01]	3.700 [93.98]	3.400 [86.36]	.190 [4.83]	3.390 [86.11]	8-103169-3	8-102619-3	8-87587-1
72	3.880 [98.55]	3.800 [96.52]	3.500 [88.90]	.190 [4.83]	3.490 [88.65]	8-103169-4	8-102619-4	8-87587-2

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

.025 [0.64] Square Straight Post (with Plastic Holddowns)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Related Product Data

Mateable Connectors

AMPMODU MTE Receptacles — pages 232, 233, 235 (used with coupling shroud on page 241)

AMPMODU Wire-Applied Receptacles — pages 216-219



Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions			Part Nos. Plating A
	A	B	C	
6	.580 [14.73]	.500 [12.70]	.200 [5.08]	5-104317-1
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	5-104317-2
12	.880 [22.35]	.800 [20.32]	.500 [12.70]	5-104317-3
14	.980 [24.89]	.900 [22.86]	.600 [15.24]	5-104317-4
16	1.080 [27.43]	1.000 [25.40]	.700 [17.78]	6-104317-6
18	1.180 [29.97]	1.100 [27.94]	.800 [20.32]	5-104317-5
20	1.280 [32.51]	1.200 [30.48]	.900 [22.86]	5-104317-6
22	1.380 [35.05]	1.300 [33.02]	1.000 [25.40]	5-104317-7
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	5-104317-8
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	5-104317-9
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	6-104317-0
32	1.880 [47.75]	1.800 [45.72]	1.500 [38.10]	6-104317-1
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	6-104317-8
36	2.080 [52.83]	2.000 [50.80]	1.700 [43.18]	6-104317-7
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	6-104317-2
42	2.380 [60.45]	2.300 [58.42]	2.000 [50.80]	6-104317-5
48	2.680 [68.07]	2.600 [66.04]	2.300 [58.42]	6-104317-3
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	6-104317-4

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .066 [1.68] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Right-Angle Post (with Detent Windows)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post



Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors

AMPMODU Board Mount

Receptacles — pages 176, 179, 180

AMPMODU Wire-Applied

Receptacles — pages 216-219

AMPMODU MTE Receptacles

— pages 228, 229, 234

AMPMODU MT Receptacles

— pages 256, 257

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
6	.412 [10.46]	.332 [8.43]	.200 [5.08]	.106 [2.69]	—	5-103166-1	5-102617-1	8-87579-5
8	.512 [13.00]	.432 [10.97]	.300 [7.62]	.106 [2.69]	—	5-103166-2	5-102617-2	5-87579-1
10	.612 [15.54]	.532 [13.51]	.400 [10.16]	.206 [5.23]	—	5-103166-3	5-102617-3	5-87579-2
12	.712 [18.08]	.632 [16.05]	.500 [12.70]	.206 [5.23]	—	5-103166-4	5-102617-4	5-87579-3
14	.812 [20.62]	.732 [18.59]	.600 [15.24]	.306 [7.77]	—	5-103166-5	5-102617-5	5-87579-4
16	.912 [23.16]	.832 [21.13]	.700 [17.78]	.306 [7.77]	—	5-103166-6	5-102617-6	5-87579-5
18	1.012 [25.70]	.932 [23.67]	.800 [20.32]	.406 [10.31]	—	5-103166-7	5-102617-7	5-87579-6
20	1.112 [28.24]	1.032 [26.21]	.900 [22.86]	.106 [2.69]	.806 [20.47]	5-103166-8	5-102617-8	5-87579-7
22	1.212 [30.78]	1.132 [28.75]	1.000 [25.40]	.106 [2.69]	.906 [23.01]	5-103166-9	5-102617-9	5-87579-8
24	1.312 [33.32]	1.232 [31.29]	1.100 [27.94]	.106 [2.69]	1.006 [25.55]	6-103166-0	6-102617-0	5-87579-9
26	1.412 [35.86]	1.332 [33.83]	1.200 [30.48]	.106 [2.69]	1.106 [28.09]	6-103166-1	6-102617-1	6-87579-0
28	1.512 [38.40]	1.432 [36.37]	1.300 [33.02]	.106 [2.69]	1.206 [30.63]	6-103166-2	6-102617-2	6-87579-1
30	1.612 [40.94]	1.532 [38.91]	1.400 [35.56]	.106 [2.69]	1.306 [33.17]	6-103166-3	6-102617-3	6-87579-2

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .066 [1.68] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

No. of Pos.	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
32	1.712 [43.48]	1.632 [41.45]	1.500 [38.10]	.106 [2.69]	1.406 [35.71]	6-103166-4	6-102617-4	6-87579-3
34	1.812 [46.02]	1.732 [43.99]	1.600 [40.64]	.106 [2.69]	1.506 [38.25]	6-103166-5	6-102617-5	6-87579-4
36	1.912 [48.56]	1.832 [46.53]	1.700 [43.18]	.106 [2.69]	1.606 [40.79]	6-103166-6	6-102617-6	6-87579-5
38	2.012 [51.10]	1.932 [49.07]	1.800 [45.72]	.106 [2.69]	1.706 [43.33]	6-103166-7	6-102617-7	6-87579-6
40	2.112 [53.64]	2.032 [51.61]	1.900 [48.26]	.106 [2.69]	1.806 [45.87]	6-103166-8	6-102617-8	6-87579-7
42	2.212 [56.18]	2.132 [54.15]	2.000 [50.80]	.106 [2.69]	1.906 [48.41]	6-103166-9	6-102617-9	6-87579-8
44	2.312 [58.72]	2.232 [56.69]	2.100 [53.34]	.106 [2.69]	2.006 [50.95]	7-103166-0	7-102617-0	6-87579-9
46	2.412 [61.26]	2.332 [59.23]	2.200 [55.88]	.106 [2.69]	2.106 [53.49]	7-103166-1	7-102617-1	7-87579-0
48	2.512 [63.80]	2.432 [61.77]	2.300 [58.42]	.106 [2.69]	2.206 [56.03]	7-103166-2	7-102617-2	7-87579-1
50	2.612 [66.34]	2.532 [64.31]	2.400 [60.96]	.106 [2.69]	2.306 [58.57]	7-103166-3	7-102617-3	7-87579-2
52	2.712 [68.88]	2.632 [66.85]	2.500 [63.50]	.106 [2.69]	2.406 [61.11]	7-103166-4	7-102617-4	7-87579-3
54	2.812 [71.42]	2.732 [69.39]	2.600 [66.04]	.106 [2.69]	2.506 [63.65]	7-103166-5	7-102617-5	7-87579-4
56	2.912 [73.96]	2.832 [71.93]	2.700 [68.58]	.106 [2.69]	2.606 [66.19]	7-103166-6	7-102617-6	7-87579-5
58	3.012 [76.50]	2.932 [74.47]	2.800 [71.12]	.106 [2.69]	2.706 [68.73]	7-103166-7	7-102617-7	7-87579-6
60	3.112 [79.04]	3.032 [77.01]	2.900 [73.66]	.106 [2.69]	2.806 [71.27]	7-103166-8	7-102617-8	7-87579-7
62	3.212 [81.58]	3.132 [79.55]	3.000 [76.20]	.106 [2.69]	2.906 [73.81]	7-103166-9	7-102617-9	7-87579-8
64	3.312 [84.12]	3.232 [82.09]	3.100 [78.74]	.106 [2.69]	3.006 [76.35]	8-103166-0	8-102617-0	7-87579-9
66	3.412 [86.66]	3.332 [84.63]	3.200 [81.28]	.106 [2.69]	3.106 [78.89]	8-103166-1	8-102617-1	8-87579-0
68	3.512 [89.20]	3.432 [87.17]	3.300 [83.82]	.106 [2.69]	3.206 [81.43]	8-103166-2	8-102617-2	8-87579-1
70	3.612 [91.74]	3.532 [89.71]	3.400 [86.36]	.106 [2.69]	3.306 [83.97]	8-103166-3	8-102617-3	8-87579-2
72	3.712 [94.28]	3.632 [92.25]	3.500 [88.90]	.106 [2.69]	3.406 [86.51]	8-103166-4	8-102617-4	8-87579-3
74	3.812 [96.82]	3.732 [94.79]	3.600 [91.44]	.106 [2.69]	3.506 [89.05]	8-103166-5	8-102617-5	8-87579-4

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Right-Angle Post (with Detent Windows)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post

Related Product Data

Mateable Connectors

AMPMODU MTE Receptacles — pages 232, 233, 235 (used with coupling shroud on page 241)

AMPMODU Wire-Applied Receptacles — pages 216-219



Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
8	.680 [17.27]	.600 [15.24]	.300 [7.62]	.190 [4.83]	—	5-103167-1	5-102570-2	5-87577-1
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	.290 [7.37]	—	5-103167-2	5-102570-3	5-87577-2
12	.880 [22.35]	.800 [20.32]	.500 [12.70]	.290 [7.37]	—	5-103167-3	5-102570-4	5-87577-3
14	.980 [24.89]	.900 [22.86]	.600 [15.24]	.390 [9.91]	—	5-103167-4	5-102570-5	5-87577-4
16	1.080 [27.43]	1.000 [25.40]	.700 [17.78]	.390 [9.91]	—	5-103167-5	5-102570-6	5-87577-5
18	1.180 [29.97]	1.100 [27.94]	.800 [20.32]	.490 [12.45]	—	5-103167-6	5-102570-7	5-87577-6
20	1.280 [32.51]	1.200 [30.48]	.900 [22.86]	.190 [4.83]	.890 [22.61]	5-103167-7	5-102570-8	5-87577-7
22	1.380 [35.05]	1.300 [33.02]	1.000 [25.40]	.190 [4.83]	.990 [25.15]	5-103167-8	5-102570-9	5-87577-8
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	.190 [4.83]	1.090 [27.69]	5-103167-9	6-102570-0	5-87577-9
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	.190 [4.83]	1.190 [30.23]	6-103167-0	6-102570-1	6-87577-0
28	1.680 [42.67]	1.600 [40.64]	1.300 [33.02]	.190 [4.83]	1.290 [32.77]	6-103167-1	6-102570-2	6-87577-1
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	.190 [4.83]	1.390 [35.31]	6-103167-2	6-102570-3	6-87577-2

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

No. of Pos.	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
32	1.880 [47.75]	1.800 [45.72]	1.500 [38.10]	.190 [4.83]	1.490 [37.85]	6-103167-3	6-102570-4	6-87577-3
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	.190 [4.83]	1.590 [40.39]	6-103167-4	6-102570-5	6-87577-4
36	2.080 [52.83]	2.000 [50.80]	1.700 [43.18]	.190 [4.83]	1.690 [42.93]	6-103167-5	6-102570-6	6-87577-5
38	2.180 [55.37]	2.100 [53.34]	1.800 [45.72]	.190 [4.83]	1.790 [45.47]	6-103167-6	6-102570-7	6-87577-6
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	.190 [4.83]	1.890 [48.01]	6-103167-7	5-102570-1	6-87577-7
42	2.380 [60.45]	2.300 [58.42]	2.000 [50.80]	.190 [4.83]	1.990 [50.55]	6-103167-8	6-102570-8	6-87577-8
44	2.480 [62.99]	2.400 [60.96]	2.100 [53.34]	.190 [4.83]	2.090 [53.09]	6-103167-9	6-102570-9	6-87577-9
46	2.580 [65.53]	2.500 [63.50]	2.200 [55.88]	.190 [4.83]	2.190 [55.63]	7-103167-0	7-102570-0	7-87577-0
48	2.680 [68.07]	2.600 [66.04]	2.300 [58.42]	.190 [4.83]	2.290 [58.17]	7-103167-1	7-102570-1	7-87577-1
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	.190 [4.83]	2.390 [60.71]	7-103167-2	7-102570-2	7-87577-2
52	2.880 [73.15]	2.800 [71.12]	2.500 [63.50]	.190 [4.83]	2.490 [63.25]	7-103167-3	7-102570-3	7-87577-3
54	2.980 [75.69]	2.900 [73.66]	2.600 [66.04]	.190 [4.83]	2.590 [65.79]	7-103167-4	7-102570-4	7-87577-4
56	3.080 [78.23]	3.000 [76.20]	2.700 [68.58]	.190 [4.83]	2.690 [68.33]	7-103167-5	7-102570-5	7-87577-5
58	3.180 [80.77]	3.100 [78.74]	2.800 [71.12]	.190 [4.83]	2.790 [70.87]	7-103167-6	7-102570-6	7-87577-6
60	3.280 [83.31]	3.200 [81.28]	2.900 [73.66]	.190 [4.83]	2.890 [73.41]	7-103167-7	7-102570-7	7-87577-7
62	3.380 [85.85]	3.300 [83.82]	3.000 [76.20]	.190 [4.83]	2.990 [75.95]	7-103167-8	7-102570-8	7-87577-8
64	3.480 [88.39]	3.400 [86.36]	3.100 [78.74]	.190 [4.83]	3.090 [78.49]	7-103167-9	7-102570-9	7-87577-9
66	3.580 [90.93]	3.500 [88.90]	3.200 [81.28]	.190 [4.83]	3.190 [81.03]	8-103167-0	8-102570-0	8-87577-0
68	3.680 [93.47]	3.600 [91.44]	3.300 [83.82]	.190 [4.83]	3.290 [83.57]	8-103167-1	8-102570-1	8-87577-1
70	3.780 [96.01]	3.700 [93.98]	3.400 [86.36]	.190 [4.83]	3.390 [86.11]	8-103167-2	8-102570-2	8-87577-2
72	3.880 [98.55]	3.800 [96.52]	3.500 [88.90]	.190 [4.83]	3.490 [88.65]	8-103167-3	8-102570-3	8-87577-3

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .066 [1.68] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Right-Angle Post (with Pin Protection on 3 Sides)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors

AMPMODU Board Mount

Receptacles — pages 176, 179, 180

AMPMODU Wire-Applied

Receptacles — pages 216, 217

AMPMODU MTE Receptacles

— pages 228, 229, 234

AMPMODU MT Receptacles

— pages 256, 257

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions			Post Plating/Part Nos.		
	A	B	C	Plating A	Plating B	Plating C
6	.412 [10.46]	.332 [8.43]	.200 [5.08]	5-103164-1	5-102055-2	8-87572-5
8	.512 [13.00]	.432 [10.97]	.300 [7.62]	5-103164-2	5-102055-3	5-87572-1
10	.612 [15.54]	.532 [13.51]	.400 [10.16]	5-103164-3	5-102055-4	5-87572-2
12	.712 [18.08]	.632 [16.05]	.500 [12.70]	5-103164-4	5-102055-5	5-87572-3
14	.812 [20.62]	.732 [18.59]	.600 [15.24]	5-103164-5	5-102055-6	5-87572-4
16	.912 [23.16]	.832 [21.13]	.700 [17.78]	5-103164-6	5-102055-7	5-87572-5
18	1.012 [25.70]	.932 [23.67]	.800 [20.32]	5-103164-7	5-102055-8	5-87572-6
20	1.112 [28.24]	1.032 [26.21]	.900 [22.86]	5-103164-8	5-102055-1	5-87572-7
24	1.312 [33.32]	1.232 [31.29]	1.100 [27.94]	6-103164-0	6-102055-0	—
26	1.412 [35.86]	1.332 [33.83]	1.200 [30.48]	6-103164-1	—	6-87572-0
30	1.612 [40.94]	1.532 [38.91]	1.400 [35.56]	6-103164-3	6-102055-3	—
34	1.812 [46.02]	1.732 [43.99]	1.600 [40.64]	6-103164-5	6-102055-5	6-87572-4
40	2.112 [53.64]	2.032 [51.61]	1.900 [48.26]	6-103164-8	6-102055-8	6-87572-7
50	2.612 [66.34]	2.532 [64.31]	2.400 [60.96]	7-103164-3	7-102055-3	7-87572-2
52	2.712 [68.88]	2.632 [66.85]	2.500 [63.50]	7-103164-4	—	—
54	2.812 [71.42]	2.732 [69.36]	2.600 [66.04]	—	7-102055-5	—
60	3.112 [79.04]	3.032 [77.01]	2.900 [73.66]	7-103164-8	7-102055-8	7-87572-7

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Right-Angle Post (with Pin Protection on 3 Sides)



Material and Finish

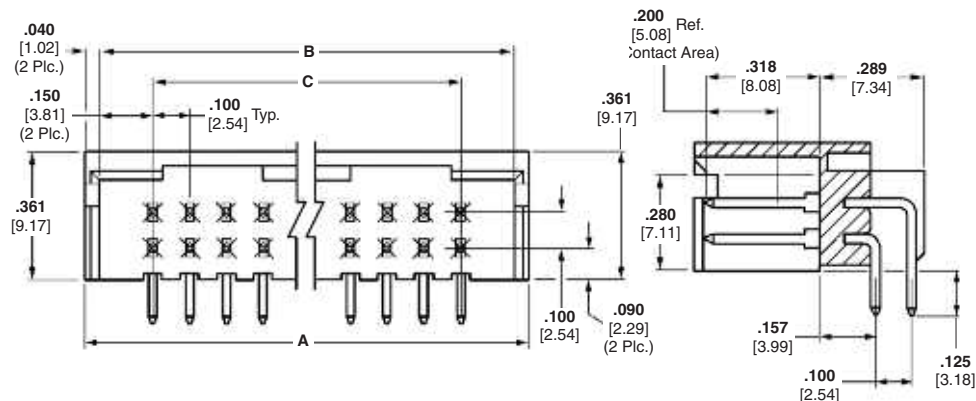
Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post



Related Product Data

Mateable Connectors

AMPMODU Wire-Applied Receptacles — pages 216, 217



Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions			Post Plating/Part Nos.		
	A	B	C	Plating A	Plating B	Plating C
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	5-103165-1	5-102620-1	5-87568-1
12	.880 [22.35]	.800 [20.32]	.500 [12.70]	5-103165-2	5-102620-2	5-87568-2
14	.980 [24.89]	.900 [22.86]	.600 [15.24]	5-103165-3	5-102620-3	5-87568-3
16	1.080 [27.43]	1.000 [25.40]	.700 [17.78]	5-103165-4	5-102620-4	5-87568-4
18	1.180 [29.97]	1.100 [27.94]	.800 [20.32]	5-103165-5	5-102620-5	5-87568-5
20	1.280 [32.51]	1.200 [30.48]	.900 [22.86]	5-103165-6	5-102620-6	5-87568-6
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	5-103165-8	5-102620-8	—
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	5-103165-9	5-102620-9	5-87568-9
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	6-103165-1	6-102620-1	—
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	6-103165-3	6-102620-3	6-87568-3
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	6-103165-6	6-102620-6	6-87568-6
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	7-103165-1	7-102620-1	7-87568-1
60	3.280 [83.31]	3.200 [81.28]	2.900 [73.66]	7-103165-6	7-102620-6	7-87568-6

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Right-Angle Post (with Plastic Holddowns)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Related Product Data

Mateable Connectors

AMPMODU MTE Receptacles — pages 232, 233, 235 (used with coupling shroud on page 241)

AMPMODU Wire-Applied Receptacles — pages 216-219

Technical Documents — page 276

See mating connector for applicable product and application specifications.



Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions			Part Nos.
	A	B	C	
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	5-104319-7
12	.880 [22.35]	.800 [20.32]	.500 [12.70]	5-104319-8
14	.980 [24.89]	.900 [22.86]	.600 [15.24]	5-104319-5
16	1.080 [27.43]	1.000 [25.40]	.700 [17.78]	5-104319-1
20	1.280 [32.51]	1.200 [30.48]	.900 [20.86]	5-104319-2
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	5-104319-3
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	5-104319-6
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	5-104319-4
48	2.680 [68.07]	2.600 [66.04]	2.300 [58.42]	5-104319-9

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

.025 [0.64] Square Straight Post (with Detent Windows and Mounting Ears)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Copper alloy, plated .000030 [0.00076] gold over .000050 [0.00127] nickel on entire post

Related Product Data

Mateable Connectors

AMPMODU Wire-Applied Receptacles — pages 216-219

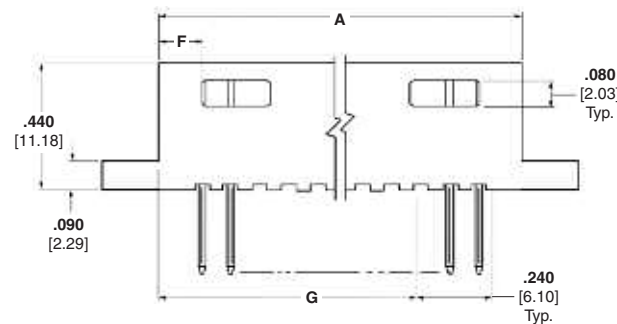
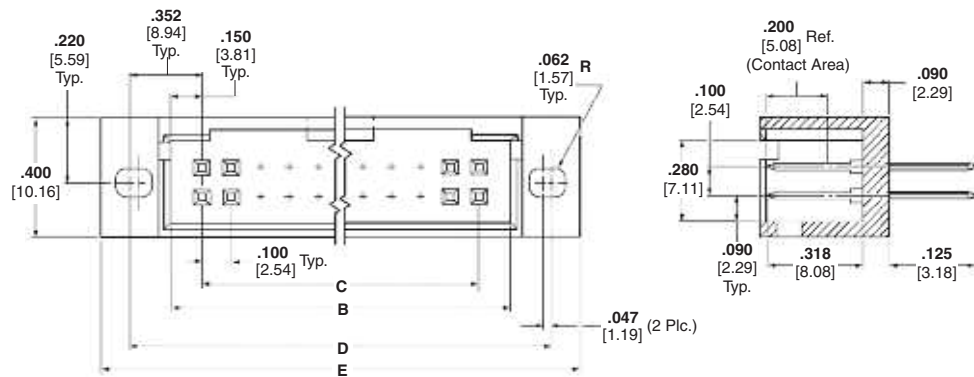
AMPMODU MTE Receptacles — pages 232, 233, 235 (used with coupling shroud on page 241)

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications.



Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions							Part Nos.
	A	B	C	D	E	F	G	
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	1.104 [28.04]	1.304 [33.12]	.290 [7.37]	—	87474-1
14	.980 [24.89]	.900 [22.86]	.600 [15.24]	1.304 [33.12]	1.504 [38.20]	.190 [4.83]	—	87474-9
20	1.280 [32.51]	1.200 [30.48]	.900 [22.86]	1.604 [40.74]	1.804 [45.82]	.190 [4.83]	.890 [22.61]	87474-2
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	1.804 [45.82]	2.004 [50.90]	.190 [4.83]	1.090 [27.69]	1-87474-3
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	1.904 [48.36]	2.104 [53.44]	.190 [4.83]	1.190 [30.23]	87474-3
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	2.304 [58.52]	2.504 [63.60]	.190 [4.83]	1.590 [40.39]	87474-4
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	2.604 [66.14]	2.804 [71.22]	.190 [4.83]	1.890 [48.01]	87474-6
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	3.104 [78.84]	3.304 [83.92]	.190 [4.83]	2.390 [60.71]	87474-7
60	3.280 [83.31]	3.200 [81.28]	2.900 [73.66]	3.604 [91.54]	3.804 [96.62]	.190 [4.83]	2.890 [73.41]	2-87474-6

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded Bulkhead Type; with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.45] Centerline

.025 [0.64] Square Straight Post (with Detent Windows and Mounting Ears)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Copper alloy, plated .000030 [0.00076] gold over .000050 [0.00127] nickel on entire post

Related Product Data

Mateable Connectors

AMPMODU MTE Receptacles — pages 232, 233, 235 (used with coupling shroud on page 241)

AMPMODU Wire-Applied Receptacles — pages 216-219

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications.



Recommended Panel Cutout

**Both mating faces have same end dimension.

No. of Pos.	Dimensions								Part Nos.
	A	B	C	D	E	F	G	H	
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	1.104 [28.04]	1.304 [33.12]	.290 [7.37]	—	.800 [20.32]	87605-1
20	1.280 [32.51]	1.200 [30.48]	.900 [22.86]	1.604 [40.74]	1.804 [45.82]	.190 [4.83]	.890 [22.61]	1.300 [33.02]	87605-6
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	1.804 [45.82]	2.004 [50.90]	.190 [4.83]	1.090 [27.69]	1.500 [38.10]	87605-8
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	1.904 [48.36]	2.104 [53.44]	.190 [4.83]	1.190 [30.23]	1.600 [40.64]	87605-9
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	2.104 [53.44]	2.304 [58.52]	.190 [4.83]	1.390 [35.31]	1.800 [45.72]	1-87605-1
32	1.880 [47.75]	1.800 [45.72]	1.500 [38.10]	2.204 [55.98]	2.404 [61.06]	.190 [4.83]	1.490 [37.85]	1.900 [48.26]	1-87605-2
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	2.304 [58.52]	2.504 [63.60]	.190 [4.83]	1.590 [40.39]	2.000 [50.80]	1-87605-3
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	2.604 [66.14]	2.804 [71.22]	.190 [4.83]	1.890 [48.01]	2.300 [58.42]	1-87605-6
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	3.104 [78.84]	3.304 [83.92]	.190 [4.83]	2.390 [60.71]	2.800 [71.12]	2-87605-1
60	3.280 [83.31]	3.200 [81.28]	2.900 [73.66]	3.604 [91.54]	3.804 [96.62]	.190 [4.83]	2.890 [73.41]	3.300 [83.82]	2-87605-6

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded Bulkhead Type; with .066/.150 [1.68/3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.45] Centerline

.025 [0.64] Square Straight Post (with Detent Windows and Mounting Ears)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Copper alloy, plated .000030 [0.00076] gold over .000050 [0.00127] nickel on entire post

Related Product Data

Mateable Connectors with .066 [1.68] End Dimension — AMPMODU Board Mount Receptacles — pages 176, 179, 180

AMPMODU Wire-Applied Receptacles — pages 216-219

AMPMODU MTE Receptacles — pages 228, 229, 234

AMPMODU MT Receptacles — pages 256, 257

Mateable Connectors with .150 [3.81] End Dimension — AMPMODU MTE Receptacles — pages 232, 233, 235 (used with coupling shroud on page 241)

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications.



Standard Profile Headers—Shrouded Bulkhead Type; with .066/.150 [1.68/3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.45] Centerline (Continued)

No. of Pos.	Dimensions						Part Nos.
	A	B	C	D	E	F	
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	1.104 [28.04]	1.304 [33.12]	.290 [7.37]	87496-2
20	1.280 [32.51]	1.200 [30.48]	.900 [22.86]	1.604 [40.74]	1.804 [45.82]	.190 [4.83]	87496-7
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	1.804 [45.82]	2.004 [50.90]	.190 [4.83]	87496-9
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	1.904 [48.36]	2.104 [53.44]	.190 [4.83]	1-87496-0
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	2.104 [53.44]	2.304 [58.52]	.190 [4.83]	1-87496-2
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	2.304 [58.52]	2.504 [63.60]	.190 [4.83]	1-87496-4
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	2.604 [66.14]	2.804 [71.22]	.190 [4.83]	1-87496-7
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	3.304 [83.92]	3.304 [83.92]	.190 [4.83]	87496-1
60	3.280 [83.31]	3.200 [81.38]	2.900 [73.66]	3.604 [91.54]	3.804 [96.62]	.190 [4.83]	2-87496-6

No. of Pos.	Dimensions						Part Nos.
	G	H	J	K	L	M	
10	—	.206 [5.23]	—	.612 [15.54]	.532 [13.51]	.632 [16.05]	87496-2
20	.890 [22.61]	.106 [2.69]	.806 [20.47]	1.112 [28.24]	1.032 [26.21]	1.132 [28.75]	87496-7
24	1.090 [27.69]	.106 [2.69]	1.006 [25.55]	1.312 [33.32]	1.232 [31.29]	1.332 [33.83]	87496-9
26	1.190 [30.23]	.106 [2.69]	1.106 [28.09]	1.412 [35.86]	1.332 [33.83]	1.432 [36.37]	1-87496-0
30	1.390 [35.31]	.106 [2.69]	1.306 [33.17]	1.612 [40.94]	1.532 [38.91]	1.632 [41.45]	1-87496-2
34	1.590 [40.39]	.106 [2.69]	1.506 [38.25]	1.812 [46.02]	1.732 [43.99]	1.832 [46.53]	1-87496-4
40	1.890 [48.01]	.106 [2.69]	1.806 [45.87]	2.112 [53.64]	2.032 [51.61]	2.132 [54.15]	1-87496-7
50	2.390 [60.71]	.106 [2.69]	2.306 [58.57]	2.612 [66.34]	2.532 [64.31]	2.632 [66.85]	87496-1
60	2.890 [73.41]	.106 [2.69]	2.806 [71.27]	3.112 [79.04]	3.032 [77.01]	3.132 [79.55]	2-87496-6

Note: All part numbers are RoHS compliant.

AMP-LATCH Low Profile Headers—Shrouded

Product Facts

- Available in selected positions 10 thru 60
- Flame retardant, thermoplastic housings, 94V-0 rated
- Vertical and right-angle versions available in double row configurations
- Available in .025 [0.64] square drawn wire posts
- Wash out clearance for flux removal
- Mates with AMP-LATCH Ribbon Cable Connectors
- Available with and without eject latches
- Available with and without kinked soldertails for PCB retention
- Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189



Performance Characteristics

Electrical

Insulation Resistance — 5,000 megohms minimum initial

Dielectric Withstanding Voltage — 1,000 V rms at sea level

Environmental

Operating Temperature — -65°C to +105°C

Current — 1 ampere maximum per contact

AMP-LATCH Low Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post



Material and Finish

Housing — Glass-filled nylon, black, 94V-0 rated

Posts — Copper alloy, plated as follows:

Plating A — Gold flash over .000030 [0.00076] min. palladium-nickel plate on the mating surfaces, .000100 [0.00254] min. tin plate on soldertails, with entire post underplated .000050 [0.00127] min. nickel

Plating B — Gold flash over .000015 [0.00038] min. palladium-nickel plate on the mating surfaces, .000100 [0.00254] min. tin plate on soldertails, with entire post underplated .000050 [0.00127] min. nickel

Related Product Data

Electrical Characteristics — page 134

Mateable Connectors —

AMPMODU Wire-Applied Receptacles — page 220

AMPMODU Board Mount Receptacles — pages 179, 180

Short Point Wire-Applied Connectors — page 224



Recommended PC Board Hole Layout For Manual Insertion

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
10	.800 [20.32]	.400 [10.16]	5103309-1	5103308-1
14	1.000 [25.40]	.600 [15.24]	5103309-2	5103308-2
16	1.100 [27.94]	.700 [17.78]	5103309-3	5103308-3
20	1.300 [33.02]	.900 [22.86]	5103309-5	5103308-5
24	1.400 [35.56]	1.100 [27.94]	—	1-5103308-3
26	1.600 [40.64]	1.200 [30.48]	5103309-6	5103308-6
34	2.000 [50.80]	1.600 [40.64]	5103309-7	5103308-7
40	2.300 [58.42]	1.900 [48.26]	5103309-8	5103308-8
50	2.800 [71.12]	2.400 [60.96]	1-5103309-0	1-5103308-0
60	3.300 [83.82]	2.900 [73.66]	—	1-5103308-2

Note: All part numbers are RoHS compliant.

AMP-LATCH Low Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

.025 [0.64] Square Right-Angle Post



Material and Finish

Housing — Glass-filled nylon, black, 94V-0 rated

Posts — Copper alloy, plated as follows:

Plating A — Gold flash over .000030 [0.00076] min. palladium-nickel plate on the mating surfaces, .000100 [0.00254] min. tin plate on solder tails, with entire post underplated .000050 [0.00127] min. nickel

Plating B — Gold flash over .000015 [0.00038] min. palladium-nickel plate on the mating surfaces, .000100 [0.00254] min. tin plate on solder tails, with entire post underplated .000050 [0.00127] min. nickel



Related Product Data

Electrical Characteristics — page 134

Mateable Connectors — AMPMODU Wire-Applied Receptacles — page 220

Short Point Wire-Applied Connectors — page 224



Recommended PC Board Hole Layout For Manual Insertion

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
10	.800 [20.32]	.400 [10.16]	5103311-1	5103310-1
14	1.000 [25.40]	.600 [15.24]	5103311-2	5103310-2
16	1.100 [27.94]	.700 [17.78]	5103311-3	5103310-3
20	1.300 [33.02]	.900 [22.86]	5103311-5	5103310-5
26	1.600 [40.64]	1.200 [30.48]	5103311-6	5103310-6
34	2.000 [50.80]	1.600 [40.64]	5103311-7	5103310-7
40	2.300 [58.42]	1.900 [48.26]	5103311-8	5103310-8
50	2.800 [71.12]	2.400 [60.96]	1-5103311-0	1-5103310-0
60	3.300 [83.82]	2.900 [73.66]	1-5103311-2	—

Note: All part numbers are RoHS compliant.

AMP-LATCH Low Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline & “Kinked” Solderetails for PCB Retention

.025 [0.64] Square Straight Post (with Board Retention Feature)



Material and Finish

Housing — Glass-filled PPA, black, 94V-0 rated

Posts — Copper alloy, plated with gold flash over .000015 [0.00038] min. palladium-nickel plate on the mating surfaces, .000100 [0.00254] min. tin plate on solderetails, with entire post underplated .000050 [0.00127] min. nickel

Related Product Data

Electrical Characteristics — page 134

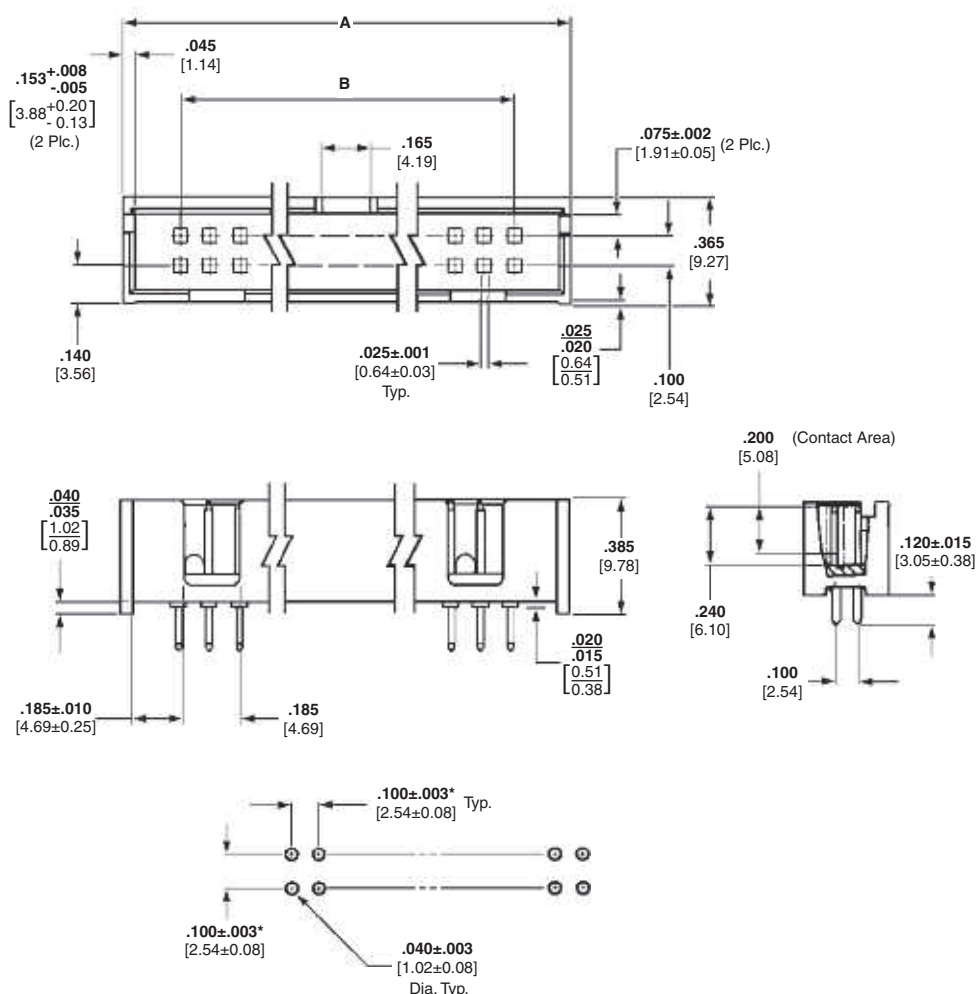
Mateable Connectors —

AMPMODU Wire-Applied Receptacles — page 220

AMPMODU Board Mount Receptacles — pages 179, 180

Short Point Wire-Applied Connectors — page 224

*Reflow solder process compatible



Recommended PC Board Hole Layout For Manual Insertion

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Post Plating Part Nos.
	A	B	
10	.800 [20.32]	.400 [10.16]	5104338-1
14	1.000 [25.40]	.600 [15.24]	5104338-2
16	1.100 [27.94]	.700 [17.78]	5104338-3
20	1.300 [33.02]	.900 [22.86]	5104338-4
24	1.400 [35.56]	1.100 [27.94]	5104338-5
34	2.000 [50.80]	1.600 [40.64]	5104338-7
40	2.300 [58.42]	1.900 [48.26]	5104338-8
50	2.800 [71.12]	2.400 [60.96]	5104338-9
60	3.300 [83.82]	2.900 [73.66]	1-5104338-0

Note: All part numbers are RoHS compliant.

AMP-LATCH Low Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline & “Kinked” Solderetails for PCB Retention (Continued)

.025 [0.64] Square Right-Angle Post (with Board Retention Feature)



Material and Finish

Housing — Glass-filled PPA, black, 94V-0 rated

Posts — Copper alloy, plated with gold flash over .000015 [0.00038] min. palladium-nickel plate on the mating surfaces, .000100 [0.00254] min. tin plate on solderetails, with entire post underplated .000050 [0.00127] min. nickel



Recommended PC Board Hole Layout For Manual Insertion

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Post Plating Part Nos.
	A	B	
10	.800 [20.32]	.400 [10.16]	5104340-1
14	1.000 [25.40]	.600 [15.24]	5104340-2
16	1.100 [27.94]	.700 [17.78]	5104340-3
20	1.300 [33.02]	.900 [22.86]	5104340-4
40	2.300 [58.42]	1.900 [48.26]	5104340-8
50	2.800 [71.12]	2.400 [60.96]	5104340-9

Note: All part numbers are RoHS compliant.

Universal Ejection Style Pin Headers, Military, Center and Dual Polarized, .100 x .100 [2.54 x 2.54] Centers (Continued)

Right-Angle, 4-Sided .025 [0.64] Sq. Posts



Pin Header
with Latches



Pin Header
without Latches

Material and Finish

Housing & Latches — Black thermoplastic, 94V-0 rated

Contacts — Brass or phosphor bronze (at TE's option); Duplex .000030 [0.00076] gold on mating end, .000100 [0.00254] min. tin on termination end, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Electrical Characteristics — page 134

Mateable Connectors — AMPMODU Wire-Applied Receptacles — page 220

Mounting Information

4-24 self-tapping screws and 2-56 bolts and nuts are available for mounting straight-thru pin headers of pc boards. Typical applications and part nos. for ordering this hardware are presented below.

Note: 2-56 bolts and nuts may be used to mount pin headers with and without latches. If latches are to be used, the bolts must be positioned in the pin header before the latches are installed.

Note: All part numbers are RoHS compliant.



AMPMODU Stacking Connectors—Shrouded, .025 x .025 [0.64 x 0.64] Posts

Product Facts

- Parallel PC board stacking without use of mother boards
- Provides space between boards for interference-free routing of wire-to-board connections
- Two header heights available: .785 [19.94] and 1.200 [30.48]
- Vertical mount headers are fully shrouded
- Receptacle contacts have dual cantilever beams with built-in overstress protection
- .025 [0.64] sq. posts and receptacle contacts on double-row, .100 x .100 [2.54 x 2.54] centers
- Header posts and receptacle contacts are phosphor bronze, duplex plated
- Housings are made of flame retardant, glass-filled thermoplastic



AMPMODU stacking connectors are a two-piece interconnection system designed for parallel stacking printed circuit boards, without the use of mother boards.

Vertical mount headers and receptacle assemblies feature duplex plated posts and receptacle contacts on a double-row, .100 x .100 [2.54 x 2.54] grid. The .025 [0.64] sq. header posts are more protected, and the top-entry receptacle contacts utilize the proven

AMPMODU receptacle contact design; dual cantilever beams with built-in overstress protection.

Headers are available in two heights: .785 [19.94] and 1.200 [30.48]. This allows the customer to use the height of the header to keep wire-to-board connections up and away from other board components, particularly if the components are densely packaged around the header.

Receptacle Assemblies, Double-Row Board Mounted

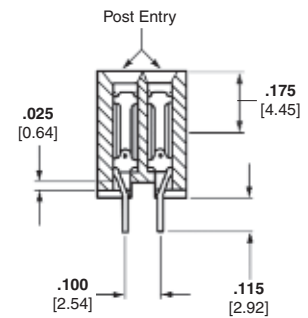
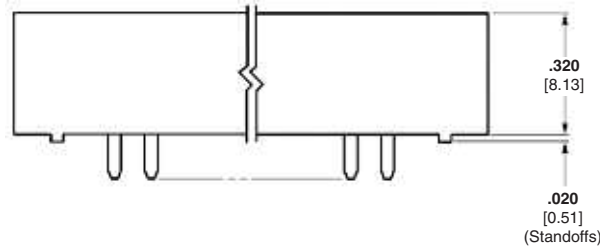
**Vertical Mount, Top Entry,
High Profile, Selectively
Loaded (with Standoffs)**



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated .000010 [0.000254] min. gold on mating area, .000150-.000300 [0.00381-0.00762] matte tin on solder area, with entire contact underplated .000050-.000100 [0.00127-0.00254] nickel



Recommended PC Board Hole Layout

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Receptacle Assembly Part No.
	A	B	
48* (40 Active)	2.400 [60.96]	2.300 [58.42]	5-102766-1
60* (52 Active)	3.000 [76.2]	2.900 [73.66]	5-102766-4

*In addition to the *active* positions, each receptacle has four cavities on each end that are not loaded with contacts. These empty cavities aid in aligning the receptacle with header posts during mating.

Notes: 1. Part no. and date code stamped on housing where size permits.
2. These receptacle assemblies mate with headers of the same size as the *active* positions listed above. Refer to pages 143 and 144.

Note: All part numbers are RoHS compliant.

Headers, Double-Row, .785 [19.94] Height

**.025 x .025 [0.64 x 0.64]
Straight Post (with
Pin Protection)**



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated .000015 [0.000381] min. gold on mating area, .000100-.000200 [0.00254-.00508] matte tin on solder area, with entire post underplated .000050 [0.00127] nickel



Recommended PC Board Hole Layout

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions				Header Part No.
	A	B	C	D	
40	2.720 [69.09]	2.400 [60.96]	1.900 [48.26]	2.430 [61.27]	5-102871-2
52	3.320 [84.33]	3.000 [76.2]	2.500 [63.5]	3.030 [76.96]	5-102871-1

Note: These headers mate with receptacle assemblies having the same number of active positions. See page 142.

Note: All part numbers are RoHS compliant.

Headers, Double-Row, 1.200 [30.48] Height

**.025 x .025 [0.64 x 0.64]
Straight Post (with
Pin Protection)**



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated .000015 [0.000381] min. gold on mating area, .000100-.000200 [0.00254-.00508] matte tin on solder area, with entire post underplated .000050 [0.00127] nickel



Recommended PC Board Hole Layout

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions				Header Part No.
	A	B	C	D	
52	3.320 [84.33]	3.000 [76.2]	2.500 [63.5]	3.030 [76.96]	5-102826-1

Note: This header mates with receptacle assembly having the same number of active positions. See page 142.

Note: All part numbers are RoHS compliant.

ACTION PIN Headers—Shrouded and Unshrouded

Product Facts

- Straight posted unshrouded and shrouded versions
- .025 [0.64] square ACTION PIN posts
- ACTION PIN posts make a gas-tight, press-fit connection in plated-through holes
- Designed not to damage plated-through holes
- Unshrouded headers available in selected sizes 1 through 40 positions (single-row) and 4 through 80 positions (double-row)
- Shrouded headers (double-row) available in selected sizes of 6 through 60 positions
- Flame retardant, black thermoplastic housings, 94V-0 rated
- .100 [2.54] Centerline spacing
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 16455 



ACTION PIN Headers—Unshrouded, Single-Row, .100 [2.54] Centerline

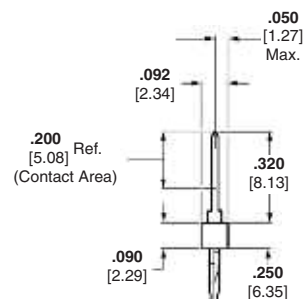
.025 [0.64] Square Straight Post



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel



Recommended PC Board Hole Layout

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors —

Refer to the Mating Post Selection Guide — page 90

ACTION PIN Posts — pages 150, 151

Application Tooling — page 152

Technical Documents — page 276

See mating connector for applicable product and application specifications

No. of Pos.	Dimensions		Part Nos.	
	A	B	For .062 [1.57] Thick PC Boards	For .093-.125 [.236-3.18] Thick PC Boards
1	.084 [2.13]	—	8-103336-5	8-102898-5
2	.184 [4.67]	.100 [2.54]	8-103336-4	8-102898-4
3	.284 [7.21]	.200 [5.08]	9-103336-0	9-102898-0
4	.384 [9.75]	.300 [7.62]	8-103336-6	8-102898-6
5	.484 [12.29]	.400 [10.16]	8-103336-8	8-102898-8
6	.584 [14.83]	.500 [12.70]	8-103336-7	8-102898-7
7	.684 [17.37]	.600 [15.24]	8-103336-9	8-102898-9
8	.784 [19.91]	.700 [17.78]	5-103336-1	5-102898-1
9	.884 [22.45]	.800 [20.32]	5-103336-2	5-102898-2
10	.984 [24.99]	.900 [22.86]	5-103336-3	5-102898-3
11	1.084 [27.53]	1.000 [25.40]	5-103336-4	5-102898-4
12	1.184 [30.07]	1.100 [27.94]	5-103336-5	5-102898-5
13	1.284 [32.61]	1.200 [30.48]	5-103336-6	5-102898-6
14	1.384 [35.15]	1.300 [33.02]	5-103336-7	5-102898-7
15	1.484 [37.69]	1.400 [35.56]	5-103336-8	5-102898-8
16	1.584 [40.23]	1.500 [38.10]	5-103336-9	5-102898-9
17	1.684 [42.77]	1.600 [40.64]	6-103336-0	6-102898-0
18	1.784 [45.31]	1.700 [43.18]	6-103336-1	6-102898-1
19	1.884 [47.85]	1.800 [45.72]	6-103336-2	6-102898-2
20	1.984 [50.39]	1.900 [48.26]	6-103336-3	6-102898-3
21	2.084 [52.93]	2.000 [50.80]	—	6-102898-4
22	2.184 [55.47]	2.100 [53.34]	—	6-102898-5
23	2.284 [58.01]	2.200 [55.88]	—	6-102898-6
24	2.384 [60.55]	2.300 [58.42]	—	6-102898-7
25	2.484 [63.09]	2.400 [60.96]	6-103336-8	6-102898-8
26	2.584 [65.63]	2.500 [63.50]	—	6-102898-9
27	2.684 [68.17]	2.600 [66.04]	—	7-102898-0
28	2.784 [70.71]	2.700 [68.58]	—	7-102898-1
29	2.884 [73.25]	2.800 [71.12]	—	7-102898-2
30	2.984 [75.79]	2.900 [73.66]	7-103336-3	7-102898-3
32	3.184 [80.87]	3.100 [78.74]	7-103336-5	7-102898-5
36	3.584 [91.03]	3.500 [88.90]	7-103336-9	7-102898-9
40	3.984 [101.19]	3.900 [99.06]	8-103336-3	8-102898-3

Note: To insert header into PC board, use seating tool with arbor tool or air powered machine—page 152.

Note: All part numbers are RoHS compliant.

ACTION PIN Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90

ACTION PIN Posts — pages 150, 151

Application Tooling — page 152

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications



Recommended PC Board Hole Layout

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Part Nos.	
	A	B	For .062 [1.57] Thick PC Boards	For .093-.125 [.236-3.18] Thick PC Boards
4	.184 [4.67]	.100 [2.54]	5-103542-1	5-103233-1
6	.284 [7.21]	.200 [5.08]	5-103542-2	5-103233-2
8	.384 [9.75]	.300 [7.62]	5-103542-3	5-103233-3
10	.484 [12.29]	.400 [10.16]	5-103542-4	5-103233-4
12	.584 [14.83]	.500 [12.70]	5-103542-5	5-103233-5
14	.684 [17.37]	.600 [15.24]	5-103542-6	5-103233-6
16	.784 [19.91]	.700 [17.78]	5-103542-7	5-103233-7
18	.884 [22.45]	.800 [20.32]	5-103542-8	5-103233-8
20	.984 [24.99]	.900 [22.86]	5-103542-9	5-103233-9
22	1.084 [27.53]	1.000 [25.40]	6-103542-0	6-103233-0
24	1.184 [30.07]	1.100 [27.94]	6-103542-1	6-103233-1
26	1.284 [32.61]	1.200 [30.48]	6-103542-2	6-103233-2
28	1.384 [35.15]	1.300 [33.02]	6-103542-3	6-103233-3
30	1.484 [37.69]	1.400 [35.56]	6-103542-4	6-103233-4
32	1.584 [40.23]	1.500 [38.10]	6-103542-5	6-103233-5
34	1.684 [42.77]	1.600 [40.64]	6-103542-6	6-103233-6
36	1.784 [45.31]	1.700 [43.18]	6-103542-7	6-103233-7
38	1.884 [47.85]	1.800 [45.72]	6-103542-8	6-103233-8
40	1.984 [50.39]	1.900 [48.26]	6-103542-9	6-103233-9
42	2.084 [52.93]	2.000 [50.80]	7-103542-0	7-103233-0
46	2.284 [58.01]	2.200 [55.88]	7-103542-2	—
50	2.484 [63.09]	2.400 [60.96]	7-103542-4	7-103233-4
60	2.984 [75.79]	2.900 [73.66]	7-103542-9	7-103233-9
66	3.284 [83.41]	3.200 [81.28]	8-103542-2	—
80	3.984 [101.19]	3.900 [99.06]	8-103542-9	8-103233-9

Note: All part numbers are RoHS compliant.

ACTION PIN Headers—Shrouded with .066 [1.68] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post (with Detent Windows, for .093-.125 [.236-3.18] Thick PC Board)



See page 151 for hole dimensions

Recommended PC Board Hole Layout

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data

Mateable Connectors —

AMPMODU Board Mount Receptacles — pages 176, 179, 180

AMPMODU Wire-Applied Receptacles — pages 217-219

AMPMODU MT Receptacles — pages 256, 257

ACTION PIN Posts — pages 150, 151

Application Tooling — page 152

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications

No. of Pos.	Dimensions					Header Part Nos.
	A	B	C	D	E	
6	.412 [10.46]	.332 [8.43]	.200 [5.08]	.106 [2.69]	—	5-102699-2
8	.512 [13.00]	.432 [10.97]	.300 [7.62]	.106 [2.69]	—	5-102699-3
10	.612 [15.54]	.532 [13.51]	.400 [10.16]	.206 [5.23]	—	5-102699-4
12	.712 [18.08]	.632 [16.05]	.500 [12.70]	.206 [5.23]	—	5-102699-5
14	.812 [20.62]	.732 [18.59]	.600 [15.24]	.306 [7.77]	—	5-102699-6
16	.912 [23.16]	.832 [21.13]	.700 [17.78]	.306 [7.77]	—	5-102699-7
18	1.012 [25.70]	.932 [23.67]	.800 [20.32]	.406 [10.31]	—	5-102699-8
20	1.112 [28.24]	1.032 [26.21]	.900 [22.86]	.106 [2.69]	.806 [20.47]	5-102699-9
26	1.412 [35.86]	1.332 [33.83]	1.200 [30.48]	.106 [2.69]	1.106 [28.09]	6-102699-2
30	1.612 [40.94]	1.532 [38.91]	1.400 [35.56]	.106 [2.69]	1.306 [33.17]	6-102699-4
34	1.812 [46.02]	1.732 [43.99]	1.600 [40.64]	.106 [2.69]	1.506 [38.25]	6-102699-6
40	2.112 [53.64]	2.032 [51.61]	1.900 [48.26]	.106 [2.69]	1.806 [45.87]	6-102699-9
50	2.612 [66.34]	2.532 [64.31]	2.400 [60.96]	.106 [2.69]	2.306 [58.57]	7-102699-3
60	3.112 [79.04]	3.032 [77.01]	2.900 [73.66]	.106 [2.69]	2.806 [71.27]	7-102699-8

Note: All part numbers are RoHS compliant.

ACTION PIN Headers—Shrouded with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post (with Detent Windows, for .093-.125 [.236-3.18] Thick PC Board)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Copper alloy, duplex plated
.000030 [0.00076] gold on contact area,
.000100-.000200 [0.00254-0.00508]
matte tin on termination end, with entire
post underplated .000050 [0.00127]
nickel

Related Product Data

Mateable Connectors —

AMPMODU MTE Receptacles —
pages 232, 233

ACTION PIN Posts — pages 150, 151

Application Tooling — page 152

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable
product and application specifications



See page 151 for
hole dimensions

Recommended PC Board Hole Layout

*±.003 [±0.08] tolerances not to accumulate
within one connector pattern.

No. of Pos.	Dimensions					Header Part Nos.
	A	B	C	D	E	
6	.580 [14.73]	.500 [8.43]	.200 [5.08]	.190 [4.83]	—	6-102557-0
8	.680 [17.27]	.600 [10.97]	.300 [7.62]	.190 [4.83]	—	6-102557-1
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	.290 [7.37]	—	5-102557-9
12	.880 [22.35]	.800 [20.32]	.500 [12.70]	.290 [7.37]	—	6-102557-2
14	.980 [24.89]	.900 [22.86]	.600 [15.24]	.390 [9.91]	—	6-102557-3
16	1.080 [27.43]	1.000 [25.40]	.700 [17.78]	.390 [9.91]	—	6-102557-4
18	1.180 [29.97]	1.100 [27.94]	.800 [20.32]	.490 [10.31]	—	6-102557-5
20	1.280 [32.51]	1.200 [30.48]	.900 [22.86]	.190 [4.83]	.890 [22.61]	5-102557-2
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	.190 [4.83]	1.090 [27.69]	6-102557-7
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	.190 [4.83]	1.190 [30.23]	5-102557-3
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	.190 [4.83]	1.390 [35.31]	5-102557-4
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	.190 [4.83]	1.590 [40.39]	5-102557-5
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	.190 [4.83]	1.890 [48.01]	5-102557-1
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	.190 [4.83]	2.390 [60.71]	5-102557-6
60	3.280 [83.31]	3.200 [81.28]	2.900 [73.66]	.190 [4.83]	2.890 [73.41]	5-102557-7

Note: All part numbers are RoHS compliant.

ACTION PIN Press-Fit Posts

The Reliable Plated-Through Hole Interconnect

Solderless interconnections have been popular in electrical and electronic applications with world-wide success for decades. They provide reliable electrical and mechanical stability and offer applied-cost savings across the board. For PC board applications, compliant ACTION PIN posts provide these features:

- Large gas-tight contact zone
- High reliability due to stored energy
- More resistant to damage to plated-through holes during installation
- Especially suited for multilayer PC boards
- Less costly board manufacturing due to larger hole tolerances compared to use of solid pins
- Application can be made by end-user
- Repairability—contact can be replaced in the same pin location (two repairs)
- Installation with no heat cycling of board
- Permits mass insertion by minimizing forces needed to insert pins as compared to solid pin press-fit application
- Significant applied-cost savings in many applications

Since compliant ACTION PIN posts do not have to be soldered, problems associated with solder are eliminated, such as:

- Faulty solder joints
- Solder fumes; contaminants are deposited on the contacts
- Solder spots; short circuits between printed circuits
- Flux residuals
- Thermal strain on printed circuit boards and components
- Degassing of plated-through holes

Solderless press-fit interconnections using compliant pins are primarily integrated in, but not limited to, backplanes.

Solderless press-fit interconnections are used in racks, especially where connectors must be fixed on the solder side of the PC board and/or component side. In these applications, the holes for ACTION PIN post connectors are covered during the soldering process and press-fitting is performed after soldering.

Other applications for ACTION PIN post interconnections include PC boards that incorporate components using surface mount technology (SMT). Here, too, press-fit interconnections can be applied after soldering, thus eliminating complications associated with connectors suitable for surface mounting.



Principle of the Compliant ACTION PIN Post

When a compliant ACTION PIN post is inserted into a plated-through hole, two spring members are compressed, exerting force against the hole for a gas-tight connection. The diameter of the hole is smaller than the diagonal size of the pin (see cross-section illustration below).

The beam characteristics of the pin are designed so that a plastic, as well as an elastic, deformation takes place during insertion. The two spring members compress to different degrees to accommodate hole tolerances. The compliant pin also reduces strain on the board. With a rigid pin, the elastic strain energy is stored entirely in the board, leading to damage of the plated-through holes. With the compliant ACTION PIN post, the residual force of the elastic deformation maintains stored energy to produce a tight contact zone between the pin and the plated-through hole. This maintains long-term electrical and mechanical reliability of the interconnection.



Cross-Section Area of ACTION PIN Press-Fit Post in Printed Circuit Board Holes

ACTION PIN Press-Fit Posts (Continued)



ACTION PIN posts provide a more reliable press-fit connection. Localized pressure in the interface area provides oxide break-through and prevents corrosion better in many of the harshest environments to help provide a reliable connection. Also, radial and axial distortion are controlled to meet today's standards for multilayer board applications.

PC Board Thickness

ACTION PIN posts are designed for use in a variety of PC board thicknesses. However, certain ACTION PIN posts are to be used in specific ranges of board thicknesses. To promote optimum performance, the recommended board thicknesses provided with the connector being used must be followed.



- ① Annular Ring (See Note)
- ② Drilled Hole
- ③ Copper Thickness
- ④ Tin-lead Thickness
- ⑤ Plated-Through Hole

ACTION PIN Post/PC Board Applications

ACTION PIN Contact Material Thickness	Drilled Hole Diameter [®]	Plating Thicknesses		Plated-Through Hole Diameter [®]	Distortion Specification*	
		Copper ^{®*}	Tin-lead [®]		Average	Maximum
.025 [0.64]	.0453 ^{±.001} [1.151 ^{±0.03}]	.001-.003 [0.03-0.08]	.0003 [0.008]Min.	.037-.043 [0.94-1.09]	.0015 [0.038]	.002 [0.05]

*Maximum hardness of copper layer is 150 Knoop.

**Radial hole distortion.

Note: Recommended annular ring diameter is hole diameter plus .020 [0.51].

Application Tooling for AMPMODU Headers with ACTION PIN Posts

ACTION PIN Post Replacement Tooling



Rear Insertion/Extraction Tool
No. 265871-7 (Ref. 408-2636)

Includes:

Impact Tool No. 380392-8
Removal Tool No. 265964-1
Replacement Tip No. 308554-1

Single-Row Connector Seating Tools

Tooling Assembly No. 91171-1 is used to install single-row AMPMODU headers with ACTION PIN posts into PC boards.

Pin headers with ACTION PIN posts allow high speed, solderless back-plane construction through press-fit application. Press fitting connectors to printed circuit boards requires special seating tools which transfer application force directly to the contacts.

Force applied to the tool to seat the connectors can be provided by the TE seating machines shown on this page.

For tooling information, call the TE Automation Group 1-800-722-1111.

Double-Row Connector Seating Tools

Header Size (No. of Pos.)	Tool Assembly No.
4	91170-1
6	91170-1
8	91170-2
12	91170-5
14	91170-6
16	91170-7
20	91170-9
24	1-91170-1
30	1-91170-4
36	1-91170-7
40	1-91170-9
50	2-91170-4
60	2-91170-9
80	3-91170-2
96	3-91170-5
100	3-91170-6
120	3-91170-8
140	4-91170-0
200	4-91170-2

Triple-Row Connector Seating Tools

Header Size (No. of Pos.)	Tool Assembly No.
96	91169-8
105	91169-6
120	91169-7
150	91169-3
195	91169-2
204	91169-1
210	91169-5
300	91169-9

ASG Servo Electric Presses

TE offers a wide range of servo-electric presses for the application of press-fit connectors. Systems are available with varying force capacity, board size capacity and process capability. Each system features real-time force feedback and PC control to allow the highest level of control and traceability. Every connector

pressed is monitored to confirm that maximum force is not exceeded and minimum force is met. Each system controls force, height and speed to allow termination of the pressing cycle by force or height parameters. Complete SPC data is available as each connector press cycle is monitored and stored.

Please see the matrix below and contact TE Automation Group at 1-800-722-1111 for assistance in understanding which system will best meet your needs.



BMEP 5T



AEP 6T

Press Model	Description	Max Pressing Force tons [kN]	Max Board Size (L x W) in [mm]
BMEP 3T	Semi-automatic, benchtop servo-electric press	3 [26.7]	18 x 24 [460 x 610]
BMEP 5T	Semi-automatic, benchtop servo-electric press	5 [44.5]	18 x 24 [460 x 610]
MEP 6T	Semi-automatic, stand-alone servo-electric press	6 [53.4]	24 x 36 [610 x 914]
MEP 12T	Semi-automatic, stand-alone servo-electric press	12 [106.8]	30 x 36 [762 x 914]
AEP 12T	Automatic, inline servo-electric press	12 [106.8]	36 x 48 [914 x 1219]
AEP 6T	Automatic, stand alone servo-electric press	6 [53.4]	30 x 36 [762 x 914]

Note: All part numbers are RoHS compliant.

Application Tooling for Post Insertion

TE offers a wide range of application tooling solutions ranging from stand alone manual insertion systems through fully automatic inline systems. Please contact your local TE representative or the TE Tooling Assistance Center at 1-800-722-1111 for help in finding the right solution to meet your particular requirements.

Modular Insertion System Bench Machine No. 217600-1

This machine uses TE insertion heads to install a variety of printed circuit board products at rates of 2,000 per hour. The printed circuit board is placed in a Board Holding Fixture which is attached to a two-hand controlled mechanism. The operator moves the board over the machine anvil; a switch in the anvil actuates the machine when the printed circuit board is placed on the anvil. A spotlight illuminates the insertion area.

Consult TE for further information on this machine and the insertion heads.



P300 and P350 Automatic Insertion Machines

The P300 and P350 are automatic insertion machines for the application of reeled compliant pin and thru-hole products. Systems are available as stand alone or fully inline with SMEMA compatible conveyor system. Up to 3 different insertion heads can be mounted on a system allowing one machine to apply up to 3 different products. Insertion rates of up to 3 insertions per second on the P300 and up to 5 insertions per second on a P350 are possible (application dependent). PCBs up to 15.5" x 23.5" [400x600mm] on the P300 and up to 17.5" x 17.5" [450x450mm] on the P350 can be processed by high speed XY positioning tables. A wide range of options, including force monitoring, PCB vision correct, and PCB thickness measurement are available to meet your performance and production flexibility requirements.

Note: All part numbers are RoHS compliant.

ACTION PIN Stacking Connector System (Non-Intermateable with AMPMODU Connectors)

Product Facts

- Can stack multiple printed circuit boards without the need of a mother board
- Connect bus lines in the shortest possible distance
- Receptacle assembly has ACTION PIN posts for solderless board mounting
- Can be mounted onto the board simply by press fitting with Mini-Press
- Receptacle assembly is easy to service and replace (up to 2 times)
- Receptacle contacts are of fork design to mate with posts at two points. Virtually eliminates danger of scooping at mating/unmating
- Stacking dimensions are 13.4 [.528] or 19.0 [.748] when using receptacle assemblies together, and 13.9 [.547] or 19.5 [.768] when using a combination of receptacle and post header assemblies
- Accepts 1.6 [.062] thick boards
- Housing provided with polarization to help prevent mismating
- Housing made of chemical-resistant glass-filled PBT, black in color
- Contacts are of copper alloy material with high spring characteristics, gold-over-nickel plated
- Post hood available to protect the post portion of receptacle contacts. Can be selected depending on stacking dimensions
- Connectors available in sizes of 26, 30, 34, 40, 50 and 60 positions
- Product specification: 108-5197



ACTION PIN Stacking Connectors are a family of two-piece connectors used to stack multiple printed circuit boards in parallel. They have been developed to provide a more reliable and economical means of compact wiring and high-density packaging inside a variety of electronic equipment.

The connectors have many advanced features: they can be used to connect

bus lines in the shortest possible distance without the need of a mother board, thus permitting effective utilization of space above the board; compared with other methods of jumper connection using cable connectors, they make the overall board layout more clean and straight for compact packaging.

Contacts are on 2.54 x 2.54 [.100 x .100] grid. The connectors are available in

sizes of 26, 30, 34, 40, 50 and 60 positions. ACTION PIN Stacking Connectors consist of a receptacle assembly, a mating post header and a post hood to protect the post portion of the receptacle assembly.

A complete description of the ACTION PIN Stacking Connectors is presented on the following page (155).

ACTION PIN Stacking Connector System (Non-Intermateable with AMPMODU Connectors) (Continued)

Receptacle Assembly

The receptacle assembly features reliability and economy characteristic of this product line.

The mating portion of its built-in receptacle contacts is a fork design, highly resilient and helps prevent damage to contacts by scooping at mating/unmating.

On the board mount side of the assembly are 0.55 [.022] square ACTION PIN posts.

No soldering is required to mount the assembly on the board, the posts being simply, press fit into the board's 0.825 [.032] diameter holes.

Two types of receptacle assemblies are available;

one is used with an outermost board and the other with intermediary boards. A solder version is also available for the outer board mount assembly.

Post Hood

When using the intermediary board mount receptacle assembly, this post hood is used to protect the post portion of the assembly. The post hood is available in two types: one with the housing height of 10.0 [.394] and the other with the housing height of 15.7 [.618]. They can be selected, depending on stacking dimensions.

Post Header

The post header is mounted onto the outer board on the other side of the board to

which an outer board mount receptacle assembly is applied. The post header is preloaded with 0.50 [.022] square soldering posts. These posts are protected by the side walls of the housing.

Stacking dimensions provided by this connector line are as follows:

When the outer board receptacle and intermediary board receptacle assemblies are used 13.4 [.528] or 19.0 [.748].

When the intermediary board receptacle assembly and the post header assembly are used 13.9 [.547] or 19.5 [.768].

Typical Application



Note: All part numbers are RoHS compliant.

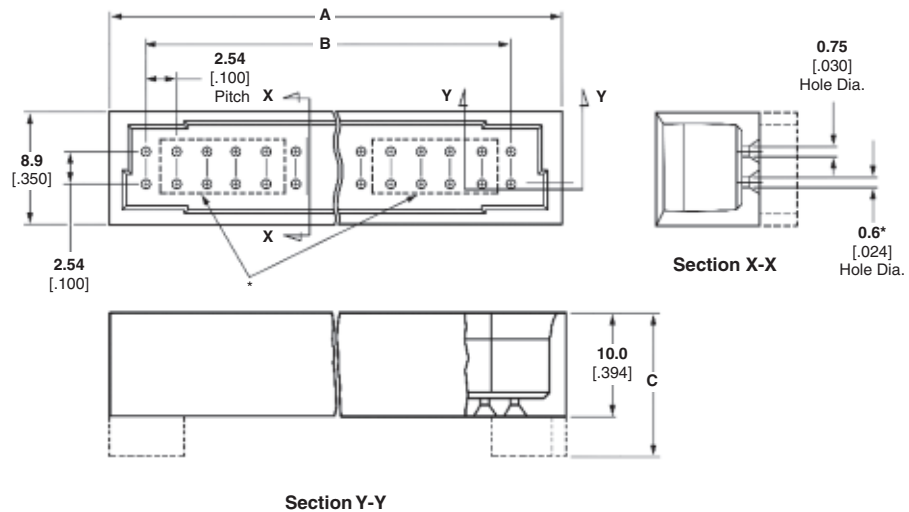
Post Hood (Non-Intermateable with AMPMODU Connectors)



The post hood, mounted onto the post of the intermediary receptacle assembly, protects the post and serves as a header assembly when stacking several boards.

Material

Black glass-filled PBT, 94V-0 rated



Acceptable Post Length	No. of Pos.	Dimensions (See Note.)			Post Hood Part Nos.
		A	B	C	
For 8.9 [.350] or 10.9 [.429] (For Stacking Dimension) 13.4 [.528]	26	38.1 [1.500]	30.48 [1.200]	10.0 [.394]	1-173144-1
	30	43.2 [1.700]	33.56 [1.321]	10.0 [.394]	173144-2
	34	48.3 [1.900]	40.64 [1.600]	10.0 [.394]	1-173144-2
	40	55.9 [2.200]	48.26 [1.900]	10.0 [.394]	173144-3
	50	68.6 [2.700]	65.96 [2.597]	10.0 [.394]	173144-4
	60	81.3 [3.200]	73.66 [2.900]	10.0 [.394]	173144-5
For 14.5 [.571] or 16.5 [.650] (For Stacking Dimension) 19.0 [.748]	26	38.1 [1.500]	30.48 [1.200]	15.6 [.614]	1-173144-3
	30	43.2 [1.700]	33.56 [1.321]	15.6 [.614]	173144-7
	34	48.3 [1.900]	40.64 [1.600]	15.6 [.614]	1-173144-4
	40	55.9 [2.200]	48.26 [1.900]	15.6 [.614]	173144-8
	50	68.6 [2.700]	65.96 [2.597]	15.6 [.614]	3-173144-8*
	60	81.3 [3.200]	73.66 [2.900]	15.6 [.614]	173144-9
					1-173144-0

*0.60 [.024] dia. applies to 16 holes on both sides, except Part No. 3-173144-8.

Note: All part numbers are RoHS compliant.

Receptacle Assemblies with ACTION PIN Posts and Solder Posts (Non-Intermateable with AMPMODU Connectors)

Receptacle Assembly for Outer Board (With 0.55 [.022] Square Post)



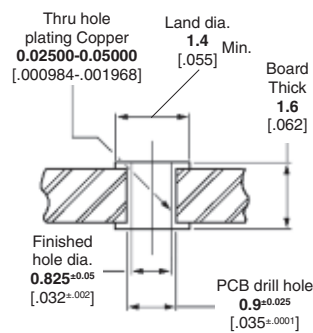
Material and Finish

Housing — Black glass-filled PBT,
94V-0 rated

Contacts — Copper alloy, plated
0.00020 [.000008] gold on contact area
and post mating area, gold flash on
ACTION PIN tail or 0.000070 [.0000027]
tin on solder tail, with entire contact
underplated 0.00130 [.000050] nickel

Application Tooling shown on
page 162.

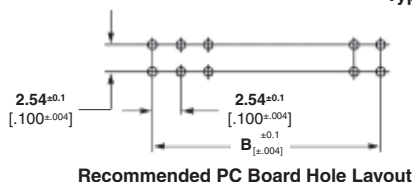
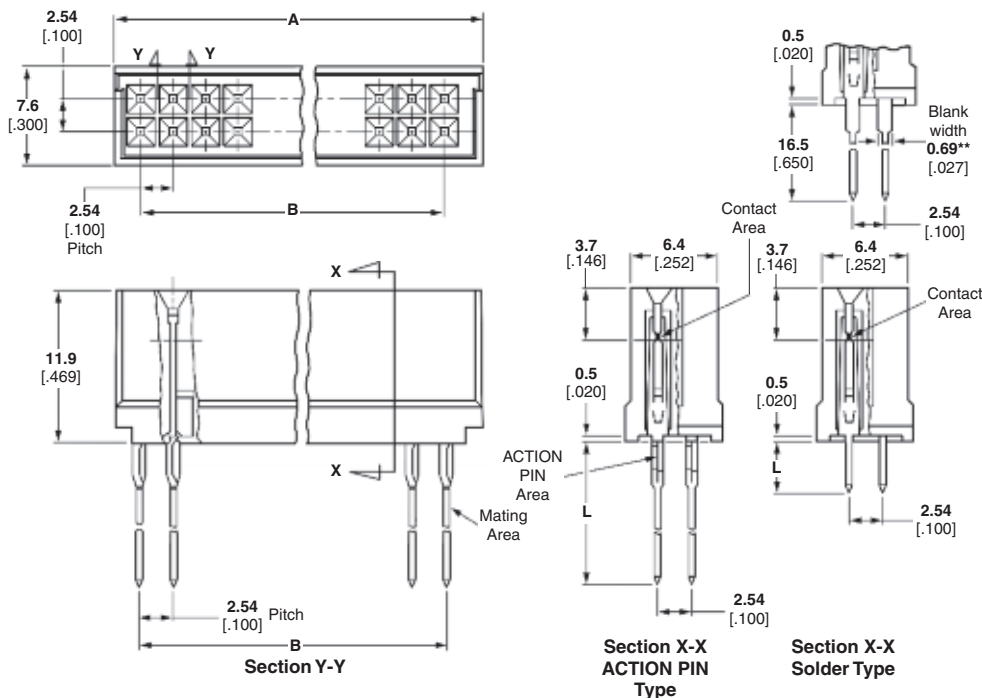
PC Board Mounting Dimensions



ACTION PIN Post



Solder Post



Recommended PC Board Hole Layout

For Outer Board

Type	Post Length L	No. of Pos.	Dimensions (See Note.)		Receptacle Assembly Part Nos.
			A	B	
ACTION PIN Post	4.2*	26	35.6 [1.402]	30.48 [1.200]	1-173145-7
		30	40.6 [1.598]	35.56 [1.400]	173145-2
		34	45.7 [1.799]	40.64 [1.600]	1-173145-8
		40	53.3 [2.098]	48.26 [1.900]	173145-3
		50	66.0 [2.598]	60.96 [2.400]	173145-4
		60	78.7 [3.098]	73.66 [2.900]	173145-5
Solder Post	4.2*	26	35.6 [1.402]	30.48 [1.200]	2-173145-8
		30	40.6 [1.598]	35.56 [1.400]	2-173145-4
		34	45.7 [1.799]	40.64 [1.600]	2-173145-9
		40	53.3 [2.098]	48.26 [1.900]	2-173145-5
		50	66.0 [2.598]	60.96 [2.400]	2-173145-6
		60	78.7 [3.098]	73.66 [2.900]	2-173145-7 3-173145-0**

*After mounted receptacle assembly is on board, dimension of extrude length from board is 2.6 [.102].

**Post Length = 17.0 [.669], Blank Width = 0.69 [.027] (see above figure) (finished hole dia. = 1.0 [.039]).

Note: All part numbers are RoHS compliant.

Receptacle Assemblies with ACTION PIN Posts (Non-Intermateable with AMPMODU Connectors)

Receptacle Assembly for Inner Board (With 0.55 [.022] Square Post)



Material and Finish

Housing — Black glass-filled PBT, 94V-0 rated

Contacts — Copper alloy, plated 0.00020 [0.00008] gold on contact area and post mating area, gold flash on ACTION PIN tail or 0.000070 [0.000027] tin on solder tail, with entire contact underplated 0.00130 [0.00050] nickel

Application Tooling shown on page 162.



Section Y-Y

Section X-X

PC Board Mounting Dimensions



Recommended PC Board Hole Layout

For Inner Board

Stacking Dimensions	Post Length L	No. of Pos.	Dimensions (See Note.)		Receptacle Assembly Part Nos.
			A	B	
13.4 [.528]	8.9 .350	30	40.6 [1.598]	35.56 [1.400]	3-173145-2
		34	45.7 [1.799]	40.64 [1.600]	3-173145-7
		40	53.3 [2.098]	48.26 [1.900]	3-173145-3
					3-173145-1*
		50	66.0 [2.598]	60.96 [2.400]	3-173145-4
		60	78.7 [3.098]	73.66 [2.900]	3-173145-5
	10.9 .429	26	35.6 [1.402]	30.48 [1.200]	1-173145-9
		30	40.6 [1.598]	35.56 [1.400]	173145-7
		34	45.7 [1.799]	40.64 [1.600]	2-173145-0
		40	53.3 [2.098]	48.26 [1.900]	173145-8
		50	66.0 [2.598]	60.96 [2.400]	173145-9
		60	78.7 [3.098]	73.66 [2.900]	1-173145-0

*Contact area and post mating area: 0.00050 [0.00020] min. gold over 0.00130 [0.00050] min. nickel plated.

Note: All part numbers are RoHS compliant.

Receptacle Assemblies with ACTION PIN Posts (Non-Intermateable with AMPMODU Connectors) (Continued)

For Inner Board (Continued)

Stacking Dimensions	Post Length L	No. of Pos.	Dimensions (See Note.)		Receptacle Assembly Part Nos.
			A	B	
19.0 [.748]	14.5 [.571]	26	35.6 [1.402]	30.48 [1.200]	4-173145-2
		30	40.6 [1.598]	35.56 [1.400]	3-173145-8
		34	45.7 [1.799]	40.64 [1.600]	4-173145-3
		40	53.3 [2.098]	48.26 [1.900]	3-173145-9
		50	66.0 [2.598]	60.96 [2.400]	4-173145-0
		60	78.7 [3.098]	73.66 [2.900]	4-173145-1
	16.5 [.650]	26	35.6 [1.402]	30.48 [1.200]	2-173145-1
		30	40.6 [1.598]	35.56 [1.400]	1-173145-2
		34	45.7 [1.799]	40.64 [1.600]	2-173145-2
		40	53.3 [2.098]	48.26 [1.900]	1-173145-3
		50	66.0 [2.598]	60.96 [2.400]	1-173145-4
		60	78.7 [3.098]	73.66 [2.900]	1-173145-5

*Contact area and post mating area: 0.00050 [.000020] min. gold over 0.00130 [.000050] min. nickel plated.

Note: All part numbers are RoHS compliant.

Post Headers with Solder Posts (Non-Intermateable with AMPMODU Connectors)

Post Header (With 0.55 [.022] Square Post)



Material and Finish

Housing — Black glass-filled PBT, 94V-0 rated

Posts — Copper alloy, plated 0.00020 [.000008] gold on contact area, 0.000070 [.0000027] min. tin on solder tail, with entire post underplated 0.00130 [.000050] nickel

PC Board Mounting Dimensions



Section Y-Y



Section X-X



Recommended PC Board Hole Layout

Stacking Dimensions	Post Length L	No. of Pos.	Dimensions (See Note.)			Part Nos. of Post Header Assembly
			A	B	C	
13.9 [.547]	5.8 [.228]	26	38.1 [1.500]	30.48 [1.200]	10.5 [.413]	3-173146-5
		30	43.2 [1.700]	35.56 [1.400]	10.5 [.413]	3-173146-1
		34	48.3 [1.900]	40.64 [1.600]	10.5 [.413]	3-173146-6
		40	55.9 [2.200]	48.26 [1.900]	10.5 [.413]	3-173146-2
		50	68.6 [2.700]	60.96 [2.400]	10.5 [.413]	3-173146-3
		60	81.3 [3.200]	73.66 [2.900]	10.5 [.413]	3-173146-4
	7.8 [.307]	26	38.1 [1.500]	30.48 [1.200]	10.5 [.413]	2-173146-1
		30	43.2 [1.700]	35.56 [1.400]	10.5 [.413]	1-173146-7
		34	48.3 [1.900]	40.64 [1.600]	10.5 [.413]	2-173146-2
		40	55.9 [2.200]	48.26 [1.900]	10.5 [.413]	1-173146-8
		50	68.6 [2.700]	60.96 [2.400]	10.5 [.413]	4-173146-3*
		60	81.3 [3.200]	73.66 [2.900]	10.5 [.413]	1-173146-9
						2-173146-0

*Contact mating area: 0.00050 [.000020] min. gold over 0.00130 [.000050] min. nickel plated.

Note: All part numbers are RoHS compliant.

Post Headers with Solder Posts (Non-Intermateable with AMPMODU Connectors) (Continued)

Stacking Dimensions	Post Length L	No. of Pos.	Dimensions (See Note.)			Part Nos. of Post Header Assembly
			A	B	C	
19.5 [.768]	11.4 [.449]	26	38.1 [1.500]	30.48 [1.200]	16.1 [.634]	4-173146-1
		30	43.2 [1.700]	35.56 [1.400]	16.1 [.634]	3-173146-7
		34	48.3 [1.900]	40.64 [1.600]	16.1 [.634]	4-173146-2
		40	55.9 [2.200]	48.26 [1.900]	16.1 [.634]	3-173146-8
		50	68.6 [2.700]	60.96 [2.400]	16.1 [.634]	3-173146-9
		60	81.3 [3.200]	73.66 [2.900]	16.1 [.634]	4-173146-0
	13.4 [.528]	26	38.1 [1.500]	30.48 [1.200]	16.1 [.634]	2-173146-8
		30	43.2 [1.700]	35.56 [1.400]	16.1 [.634]	2-173146-4
		34	48.3 [1.900]	40.64 [1.600]	16.1 [.634]	2-173146-9
		40	55.9 [2.200]	48.26 [1.900]	16.1 [.634]	2-173146-5
		50	68.6 [2.700]	60.96 [2.400]	16.1 [.634]	2-173146-6
		60	81.3 [3.200]	73.66 [2.900]	16.1 [.634]	2-173146-7

*Contact mating area: 0.00050 [.000020] min. gold over 0.00130 [.000050] min. nickel plated.

Note: All part numbers are RoHS compliant.

Application Tooling for ACTION PIN Stacking Connectors

Mini-Press



No. of Pos.	Part No.
40	1-758030-1
50	1-758030-2
60	1-758030-3

The part numbers above include the Mini-Press unit, insertion support plate and press-fit jig.

Mini-Press Unit Part No. 1-758030-3

When ordering a press-fit jig only, consult the table below.

Press-fit Jig (separate order)

No. of Pos.	Part No.
26	907459-1
30	907459-2
34	907459-3
40	907459-4
50	907459-5
60	907459-6

Also, optional insertion support plates are obtainable by separate order to meet your specific requirements for improved board handling.



1. Insert connector into the board tentatively (Be sure that connector is in the right direction).



2. Attach insertion support plate to the leg portion of connector from below.



3. Set insertion support plate in place by butting it against Mini-Press platform.



4. By pressing Mini-Press handle down, rest the press-fit jig against connector.



5. Press handle down gently and insert connector into the board.



6. Now connector has been mounted to the board securely.



Insertion Support Unit
(Option)



Note: All part numbers are RoHS compliant.

.025 [0.64] Square Posts

Bandolier Posts (Uninsulated)



Material and Finish

Bandolier — Brass

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post

Related Product Data

Mateable Connectors —

Refer to the Mating Post Selection Guide — page 90

Accessories

End Shrouds — page 203

Application Tooling — page 153

Technical Documents

See mating connector for applicable product and application specifications.

Strip Form Posts (Uninsulated)



Material and Finish

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000030 [0.00076] gold over .000050 [0.00127] nickel on entire post

Plating D — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post



Dimensions				Post Plating/Part Nos.			Bandolier Insertion Head
A	B	C	D	Plating A	Plating B	Plating C	
.353 [8.97]	.071 [1.80]	.424 [10.77]	.034 [0.86]	5-103577-1	6-103577-3	5-103577-7	904592-1
.318 [8.08]	.071 [1.80]	.389 [9.88]	.034 [0.86]	5-103577-3	6-103577-5	5-103577-9	904591-1
.270 [6.86]	.071 [1.80]	.341 [8.66]	.034 [0.86]	5-103577-5	6-103577-7	6-103577-1	904590-1
.183 [4.65]	.097 [2.46]	.280 [7.11]	.031 [0.79]	5-146079-1	—	—	—
				—	—	6-146079-3	—

Notes: 1. Posts can be applied using **Hand Tool 91419-1**.

2. Approximate posts per reel—30,000.

3. The Bandolier Insertion head can be used on the Comp-U

AMPMODU .025 [0.64] Square Continuous Posts

Features of .025 [0.64] Square Continuous Posts

- Brass drawn wire for posts
- .400 to 1.000 [10.16 to 25.40] overall pin length (.010 [0.25] increments)
- Plating Options:
Tin
15μ in. gold
30μ in. gold
- Star feature also available

Benefits

- Less expensive than bandolier style posts
- Can be placed on printed circuit boards at any desired centerline
- Less scrap material (no carrier strip)

Technical Documents — page 276

Application Specification 114-13011



TE now offers AMPMODU .025 [0.64] Square Continuous Posts. These posts can be used instead of the original posts that come on a bandolier style carrier strip. These posts are on a reel, but the posts are 'notched' at the desired length (no carrier strip is needed). This feature allows more versatility by providing post lengths from .400 to 1.000 [10.16 to 25.40], available in increments of .010 [0.25].

The posts are brass drawn wire and are inserted into a printed circuit board via application tooling at any centerline configuration. They can be used for wire wrap applications or mated to a receptacle.

The current rating is 3 amps. The posts are available plated with tin, 15μ in. gold, or 30μ in. gold. Other platings are available upon request.

TE application tooling is a modular head (Part Number 904641-1) placed on the Modular Insertion System Bench Machine (Part Number 217600-1.)

Note: All part numbers are RoHS compliant.

AMPMODU .025 [0.64] Square Continuous Posts (Continued)

Pre-Plated Tin

Part Number		Description Post Length
Square	Square with Star	
147333-1	147433-1	0.400 [10.16]
147333-2	147433-2	0.410 [10.41]
147333-3	147433-3	0.420 [10.67]
147333-4	147433-4	0.430 [10.92]
147333-5	147433-5	0.440 [11.18]
147333-6	147433-6	0.450 [11.43]
147333-7	147433-7	0.460 [11.68]
147333-8	147433-8	0.470 [11.94]
147333-9	147433-9	0.480 [12.19]
1-147333-0	1-147433-0	0.490 [12.45]
1-147333-1	1-147433-1	0.500 [12.70]
1-147333-2	1-147433-2	0.510 [12.95]
1-147333-3	1-147433-3	0.520 [13.21]
1-147333-4	1-147433-4	0.530 [13.46]
1-147333-5	1-147433-5	0.540 [13.72]
1-147333-6	1-147433-6	0.550 [13.97]
1-147333-7	1-147433-7	0.560 [14.22]
1-147333-8	1-147433-8	0.570 [14.48]
1-147333-9	1-147433-9	0.580 [14.73]
2-147333-0	2-147433-0	0.590 [14.99]
2-147333-1	2-147433-1	0.600 [15.24]

Part Number		Description Post Length
Square	Square with Star	
2-147333-2	2-147433-2	0.610 [15.49]
2-147333-3	2-147433-3	0.620 [15.75]
2-147333-4	2-147433-4	0.630 [16.00]
2-147333-5	2-147433-5	0.640 [16.26]
2-147333-6	2-147433-6	0.650 [16.51]
2-147333-7	2-147433-7	0.660 [16.76]
2-147333-8	2-147433-8	0.670 [17.02]
2-147333-9	2-147433-9	0.680 [17.27]
3-147333-0	3-147433-0	0.690 [17.53]
3-147333-1	3-147433-1	0.700 [17.78]
3-147333-2	3-147433-2	0.710 [18.03]
3-147333-3	3-147433-3	0.720 [18.29]
3-147333-4	3-147433-4	0.730 [18.54]
3-147333-5	3-147433-5	0.740 [18.80]
3-147333-6	3-147433-6	0.750 [19.05]
3-147333-7	3-147433-7	0.760 [19.30]
3-147333-8	3-147433-8	0.770 [19.56]
3-147333-9	3-147433-9	0.780 [19.81]
4-147333-0	4-147433-0	0.790 [20.07]
4-147333-1	4-147433-1	0.800 [20.32]
4-147333-2	4-147433-2	0.810 [20.57]

Part Number		Description Post Length
Square	Square with Star	
4-147333-3	4-147433-3	0.820 [20.83]
4-147333-4	4-147433-4	0.830 [21.08]
4-147333-5	4-147433-5	0.840 [21.34]
4-147333-6	4-147433-6	0.850 [21.59]
4-147333-7	4-147433-7	0.860 [21.84]
4-147333-8	4-147433-8	0.870 [22.10]
4-147333-9	4-147433-9	0.880 [22.35]
5-147333-0	5-147433-0	0.890 [22.61]
5-147333-1	5-147433-1	0.900 [22.86]
5-147333-2	5-147433-2	0.910 [23.11]
5-147333-3	5-147433-3	0.920 [23.3

AMPMODU .045 [1.14] Square Continuous Posts

Features of .045 [1.14] Square Continuous Posts

- Brass drawn wire for posts
- .400 to 1.000 [10.16 to 25.40] overall pin length (.010 [0.25] increments)
- Plating Options:
Tin
15μ in. gold
30μ in. gold
- Star feature also available

Benefits

- Less expensive than bandolier style posts
- Can be placed on printed circuit boards at any desired centerline
- Less scrap material (no carrier strip)

Technical Documents — page 276
Application Specification
 114-13011



TE now offers AMPMODU .045 [1.14] Square Continuous Posts. These posts can be used instead of the original posts that come on a bandolier style carrier strip. These posts are on a reel, but the posts are 'notched' at the desired length (no carrier strip is needed). This feature allows more versatility by providing post lengths from .400 to 1.000 [10.16 to 25.40], available in increments of .010 [0.25].

The posts are brass drawn wire and are inserted into a printed circuit board via application tooling at any centerline configuration. They can be used for wire wrap applications or mated to a receptacle.

Potential industries include: building systems, commercial/home equipment, household appliances, home power tools and equipment.

The current rating is 7 amps. The posts are available plated with tin, 15μ in. gold, or 30μ in. gold. Other platings are available upon request.

TE application tooling is a modular head (Part Number 904640-1) placed on the Modular Insertion System Bench Machine (Part Number 217600-1.)

Note: All part numbers are RoHS compliant.

AMPMODU .045 [1.14] Square Continuous Posts (Continued)

Pre-Plated Tin

Part Number		Description Post Length
Square	Square with Star	
147070-1	147436-1	0.400 [10.16]
147070-2	147436-2	0.410 [10.41]
147070-3	147436-3	0.420 [10.67]
147070-4	147436-4	0.430 [10.92]
147070-5	147436-5	0.440 [11.18]
147070-6	147436-6	0.450 [11.43]
147070-7	147436-7	0.460 [11.68]
147070-8	147436-8	0.470 [11.94]
147070-9	147436-9	0.480 [12.19]
1-147070-0	1-147436-0	0.490 [12.45]
1-147070-1	1-147436-1	0.500 [12.70]
1-147070-2	1-147436-2	0.510 [12.95]
1-147070-3	1-147436-3	0.520 [13.21]
1-147070-4	1-147436-4	0.530 [13.46]
1-147070-5	1-147436-5	0.540 [13.72]
1-147070-6	1-147436-6	0.550 [13.97]
1-147070-7	1-147436-7	0.560 [14.22]
1-147070-8	1-147436-8	0.570 [14.48]
1-147070-9	1-147436-9	0.580 [14.73]
2-147070-0	2-147436-0	0.590 [14.99]
2-147070-1	2-147436-1	0.600 [15.24]

Part Number		Description Post Length
Square	Square with Star	
2-147070-2	2-147436-2	0.610 [15.49]
2-147070-3	2-147436-3	0.620 [15.75]
2-147070-4	2-147436-4	0.630 [16.00]
2-147070-5	2-147436-5	0.640 [16.26]
2-147070-6	2-147436-6	0.650 [16.51]
2-147070-7	2-147436-7	0.660 [16.76]
2-147070-8	2-147436-8	0.670 [17.02]
2-147070-9	2-147436-9	0.680 [17.27]
3-147070-0	3-147436-0	0.690 [17.53]
3-147070-1	3-147436-1	0.700 [17.78]
3-147070-2	3-147436-2	0.710 [18.03]
3-147070-3	3-147436-3	0.720 [18.29]
3-147070-4	3-147436-4	0.730 [18.54]
3-147070-5	3-147436-5	0.740 [18.80]
3-147070-6	3-147436-6	0.750 [19.05]
3-147070-7	3-147436-7	0.760 [19.30]
3-147070-8	3-147436-8	0.770 [19.56]
3-147070-9	3-147436-9	0.780 [19.81]
4-147070-0	4-147436-0	0.790 [20.07]
4-147070-1	4-147436-1	0.800 [20.32]
4-147070-2	4-147436-2	0.810 [20.57]

Part Number		Description Post Length
Square	Square with Star	
4-147070-3	4-147436-3	0.820 [20.83]
4-147070-4	4-147436-4	0.830 [21.08]
4-147070-5	4-147436-5	0.840 [21.34]
4-147070-6	4-147436-6	0.850 [21.59]
4-147070-7	4-147436-7	0.860 [21.84]
4-147070-8	4-147436-8	0.870 [22.10]
4-147070-9	4-147436-9	0.880 [22.35]
5-147070-0	5-147436-0	0.890 [22.61]
5-147070-1	5-147436-1	0.900 [22.86]
5-147070-2	5-147436-2	0.910 [23.11]
5-147070-3	5-147436-3	0.920 [23.37]

Receptacle Assemblies, Horizontal Mount

Product Facts

- All receptacle assemblies are end stackable
- Contact design employs dual cantilever beams with built-in anti-overstress feature
- Closed entry housings help prevent post stubbing
- Wide range of sizes available
- Other versions available upon request
- Housings made of high temperature, surface mount compatible thermoplastic material, 94V-0 rated
- Duplex gold and matte tin plated contacts have full nickel underplate
- Housings feature PC board standoffs
- Solder tails accommodate a PC board thickness of .062 [1.57]
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189



Horizontal Mount receptacle assemblies are designed to reliably and economically meet the packaging and interconnection requirements of today's electronics industry, generally for applications using the mother/daughter board arrangement.

This product line is offered in both single and double row configurations. The .100 [2.54] centerline

assemblies are available in a wide range of position sizes. They have end stacking capability which gives the added advantage of flexibility.

The housings are made of high temperature, surface mount compatible thermoplastic material that is 94V-0 rated. Contacts are phosphor bronze, fully underplated with nickel to help prevent corrosion and are available in three plating options.

The receptacle contact is an established proven design with a fully enclosed, one-piece "box" to protect the contact area. In addition, the receptacle contact has dual cantilever beams with a built-in anti-overstress feature. Standard solder tails accommodate a board thickness of .062 [1.57].

Performance Characteristics

Mechanical Characteristics

Mating Force — 6.0 oz. [1.67N] per contact (max.)

Unmating Force — .75 oz. [0.21N] per contact (min.) during third mating cycle

Durability — 200 cycles

Environmental Characteristics

Operating Temperature — -65°C to +125°C

Electrical Characteristics

Current Rating — 3.0 amperes (max.) for single contact; 2.0 amperes (max.) per contact when connector is fully energized

Contact Resistance — 12 milliohms (max.)

Insulation Resistance — 5000 megohms (min.) between adjacent contacts

Dielectric Withstanding Voltage (at sea level) — 750 V rms

Mod II Receptacle Assemblies, Single-Row, .100 [2.54] Centerline

Closed Entry, End Stackable, Short Point-of-Contact, with Standoffs



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel

Related Product Data

Mateable Headers — Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 168

Technical Documents — page 276

Product Specification
108-25026

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

Keying Plug



Part No. 86286-1
(Plugs into receptacle contact)

Material — Natural color nylon



Recommended PC Board Hole Layout
(for .062 [1.57] thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
2	.200 [5.08]	.100 [2.54]	5535676-1	5146139-1	5535677-1
3	.300 [7.62]	.200 [5.08]	5535676-2	5146139-2	5535677-2
4	.400 [10.16]	.300 [7.62]	5535676-3	5146139-3	5535677-3
5	.500 [12.70]	.400 [10.16]	5535676-4	5146139-4	5535677-4
6	.600 [15.24]	.500 [12.70]	5535676-5	5146139-5	5535677-5
7	.700 [17.78]	.600 [15.24]	5535676-6	5146139-6	5535677-6
8	.800 [20.32]	.700 [17.78]	5535676-7	5146139-7	5535677-7
9	.900 [22.86]	.800 [20.32]	5535676-8	5146139-8	5535677-8
10	1.000 [25.40]	.900 [22.86]	5535676-9	5146139-9	5535677-9
11	1.100 [27.94]	1.000 [25.40]	1-5535676-0	1-5146139-0	1-5535677-0
12	1.200 [30.48]	1.100 [27.94]	1-5535676-1	1-5146139-1	1-5535677

Mod II Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerlines

**Closed Entry, End Stackable,
Short Point-of-Contact,
with Standoffs**



**Recommended PC Board Hole Layout
(for .062 [1.57] thick PC board)**

*±.003 [±0.08] tolerances not to accumulate
within one connector pattern.

Material and Finish

Housing — Glass-filled thermoplastic,
black, 94V-0 rated

Contacts — Phosphor bronze,
plated as follows:

Plating A — Duplex .000030 [0.00076]
gold on contact area, .000150-.000300
[0.00381-0.00762] matte tin on solder
area all over .000050 [0.00127] nickel

Plating B — Duplex .000010
[0.000254] gold on contact area,
.000150-.000300 [0.00381-0.00762]
matte tin on solder area all over .000050
[0.00127] nickel

Plating C — .000150-.000300
[0.00381-0.00762] matte tin on solder
leads, all over .000050 [0.00127] nickel

Related Product Data

Mateable Headers —

Refer to the Mating Post Selection
Guide — page 90

Performance Characteristics —
page 168

Technical Documents — page 276

Product Specification

108-25026

Application Specification

114-25018

**Additional receptacle assembly
sizes are available; minimum order
quantities may apply. Consult TE.**

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
4	.200 [5.08]	.100 [2.54]	6-5535512-1	5146140-1	6-5102084-4
6	.300 [7.62]	.200 [5.08]	6-5535512-2	5146140-2	6-5102084-3
8	.400 [10.16]	.300 [7.62]	6-5535512-3	5146140-3	6-5102084-2
10	.500 [12.70]	.400 [10.16]	6-5535512-4	5146140-4	6-5102084-1
12	.600 [15.24]	.500 [12.70]	5535512-1	5146140-5	6-5102084-0
14	.700 [17.78]	.600 [15.24]	1-5535512-7	5146140-6	5-5102084-9
16	.800 [20.32]	.700 [17.78]	1-5535512-8	5146140-7	5-5102084-8
18	.900 [22.86]	.800 [20.32]	1-5535512-6	5146140-8	5-5102084-7
20	1.000 [25.40]	.900 [22.86]	5535512-2	5146140-9	5-5102084-6
22	1.100 [27.94]	1.000 [25.40]	1-5535512-9	1-5146140-0	5-5102084-5
24	1.200 [30.48]	1.100 [27.94]	5535512-3	1-5146140-1	5-5102084-4
26	1.300 [33.02]	1.200 [30.48]	2-5535512-0	1-5146140-2	5-5102084-3

Mod II Surface Mount Horizontal Receptacle Assemblies, .100 x .100 [2.54 x 2.54] Centerline

Product Facts

- Surface mount leads
- All receptacle assemblies are end stackable
- Contact design employs dual cantilever beams with built-in anti-overstress feature
- Closed entry housings help prevent post stubbing
- Housings made of high temperature, surface mount compatible thermoplastic material, 94 V-0 rated
- Duplex gold and matte tin plated contacts have full nickel underplate
- Housings feature PC board standoffs
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



Horizontal surface mount receptacle assemblies are designed to reliably and economically meet the packaging and interconnection requirements of today's electronics industry as process technologies evolve from wave soldering to surface mount processing.

This broad product line is offered in both single and

double row configurations. The .100 [2.54] centerline assemblies are available in 2-40 (single row) positions and 4-80 (double row) positions. Housings are end stackable, which gives the advantage of added flexibility.

The housings are made of high temperature material that is 94V-0 rated. Contacts

are phosphor bronze, fully underplated with nickel to help prevent corrosion and are available in three plating options.

The receptacle contact is an established proven design, with a fully enclosed one-piece "box" to protect the contact beams with built-in anti-overstress feature.

Performance Characteristics

Mechanical Characteristics

Mating Force — 6.0 oz. [1.67N] per contact (max.)

Unmating Force — .75 oz. [0.21N] per contact (min.) during third mating cycle

Durability — 200 cycles

Environmental Characteristics

Operating Temperature — -65°C to +125°C

Electrical Characteristics

Current Rating — 3.0 amperes (max.) for single contact; 2.0 amperes (max.) per contact when connector is fully energized

Contact Resistance — 12 milliohms (max.)

Insulation Resistance — 5000 megohms (min.) between adjacent contacts

Dielectric Withstanding Voltage (at sea level) — 750 V rms

Mod II Receptacle Assemblies, Single-Row, Surface Mount .100 [2.54] Centerline

**Closed Entry, End Stackable,
Short Point-of-Contact,
with Standoffs**



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel



Recommended Etched Circuit Layout
(for .040 [1.02] min. thick PC Board;
.008 [0.20] thick stencil)

Related Product Data

Mateable Headers —
Refer to the Mating Post Selection
Guide — page 90

Performance Characteristics —
page 171

Technical Documents — page 276

Product Specification

108-25026

Application Specification

114-25018

**Additional receptacle assembly
sizes are available; minimum order
quantities may apply. Consult TE.**

Keying Plug



Part No. 86286-1
(Plugs into receptacle contact)

Material — Natural color nylon

Note: All part numbers are RoHS compliant.

No. of Pos.	Dimension A	Contact Plating/Part Nos.		
		Plating A	Plating B	Plating C
2	.200 [5.08]	5147721-1	5147732-1	5147733-1
3	.300 [7.62]	5147721-2	5147732-2	5147733-2
4	.400 [10.16]	5147721-3	5147732-3	5147733-3
5	.500 [12.70]	5147721-4	5147732-4	5147733-4
6	.600 [15.24]	5147721-5	5147732-5	5147733-5
7	.700 [17.78]	5147721-6	5147732-6	5147733-6
8	.800 [20.32]	5147721-7	5147732-7	5147733-7
9	.900 [22.86]	5147721-8	5147732-8	5147733-8
10	1.000 [25.40]	5147721-9	5147732-9	5147733-9
11	1.100 [2			

Mod II Receptacle Assemblies, Double-Row, Surface Mount .100 [2.54] Centerline

**Closed Entry, End Stackable,
Short Point-of-Contact,
with Standoffs**



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel

Related Product Data

Mateable Headers —

Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 171

Technical Documents — page 276

Product Specification

108-25026

Application Specification

114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

Note: All part numbers are RoHS compliant.



Receptacle Assemblies, Vertical Mount

Product Facts

- Dual-cantilever beam contact with box design
- Single-row assemblies have .100 [2.54] centerline contact spacing; double-row assemblies have .100 x .100 [2.54 x 2.54] centerline contact spacing
- 3 through 40 positions in single-row assemblies; 2 through 80 positions in double-row assemblies
- Mod II Standard .340 [8.64] and Mod IV low .265 [6.73] profiles
- Mod II and Mod IV profiles available in dual entry
- Duplex gold and matte tin plated contacts have full nickel underplate
- Thermoplastic housings, 94V-0 rated
- Standoffs for easy flux cleaning
- All throughhole assemblies are end stackable
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



Vertical receptacle assemblies are designed to reliably and economically meet the packaging and interconnection requirements of today's electronics industry.

This broad product line offers a wide variety of assembly styles and features. They are available in dual entry style, in both single and double row configurations. The .100 [2.54] centerline assemblies are available in 3-40 (single

row) positions and 2-80 (double row) positions. Standard and low profile housings which are end stackable also enhance the product line giving the advantage of added flexibility.

The housings are made of flame retardant material that is 94 V-0 rated. Contacts are phosphor bronze, fully underplated with nickel to help prevent corrosion and are available in three plating options.

The receptacle contact is an established proven design, with a fully enclosed one-piece "box" to protect the contact beams.

These assemblies are offered in .265 [6.73] (Mod IV) and .340 [8.64] (Mod II) high profiles. Standard solder tails accommodate board thickness of .062 [1.57].

Product styles include single and dual line variations. Outrigger tine styles are also available for bottom entry parallel board stacking applications.

Performance Characteristics

Mechanical Characteristics

Mating Force — 9.0 oz. [2.5N] per contact (max.)

Unmating Force — 1.5 oz. [0.42N] per contact (min.)

Durability (Tested to) — 200 cycles

Environmental Characteristics

Operating Temperature — -65°C to +125°C

Electrical Characteristics

Current Rating — 3.0 amperes (max.) for single contact; 2.0 amperes (max.) per contact when connector is fully energized

Contact Resistance — 12 milliohms (max.)

Insulation Resistance — 5000 megohms (min.) between adjacent contacts

Dielectric Withstanding Voltage (at sea level) — 750 V rms

Mod II Receptacle Assemblies, Single-Row, .100 [2.54] Centerline

**Closed Top Entry,
End Stackable, with
Single Tine Contacts**



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel



Recommended PC Board Hole Layout

Related Product Data

Mateable Headers —

Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 174

Technical Documents — page 276

Product Specification
108-25022

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

Keying Plug



Part No. 86286-1

(Plugs into receptacle contact)

Material — Natural color nylon

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
3	.300 [7.62]	.200 [5.08]	5-534237-1	5-146386-1	5-146763-5
4	.400 [10.16]	.300 [7.62]	5-534237-2	6-146386-9	5-146763-6
5	.500 [12.70]	.400 [10.16]	5-534237-3	5-146386-2	5-146763-7
6	.600 [15.24]	.500 [12.70]	5-534237-4	5-146386-3	5-146763-8
7	.700 [17.78]	.600 [15.24]	5-534237-5	5-146386-4	5-146763-1
8	.800 [20.32]	.700 [17.78]	5-534237-6	5-146386-5	5-146763-2
9	.900 [22.86]	.800 [20.32]	5-534237-7	5-146386-6	5-146763-9
10	1.000 [25.40]	.900 [22.86]	5-534237-8	5-146386-7	5-146763-3
11	1.100 [27.94]	1.000 [25.40]			

Mod IV Receptacle Assemblies, Single-Row, .100 [2.54] Centerline

Dual Entry, End Stackable, Low Profile with Dual Tine Contacts



Material and Finish

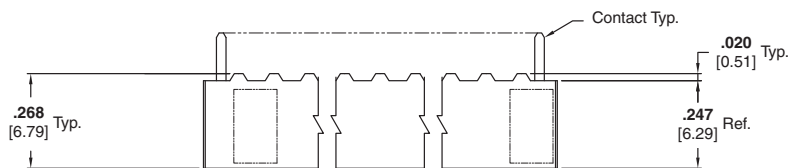
Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel



Recommended PC Board Hole Layout

Related Product Data

Mateable Headers — Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 174

Technical Documents — page 276

Product Specification 108-25022

Application Specification 114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

Keying Plug



Part No. 86286-1

(Plugs into receptacle contact)

Material — Natural color nylon

Note: All part numbers are RoHS compliant.

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
3	.300 [7.62]	.200 [5.08]	8-87879-7	5-147326-1	5-102742-4
4	.400 [10.16]	.300 [7.62]	8-87879-6	5-147326-2	5-102742-8
5	.500 [12.70]	.400 [10.16]	8-87879-8	5-147326-3	5-102742-9
6	.600 [15.24]	.500 [12.70]	5-87879-3	5-147326-4	6-102742-0
7	.700 [17.78]	.600 [15.24]	5-87879-4	5-147326-5	5-102742-7
8	.800				

Mod IV Receptacle Assemblies, Single-Row, .100 [2.54] Centerline

**Closed Top Entry,
End Stackable, Low Profile
with Single Tine Contacts**



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel



Related Product Data

Mateable Headers — Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 174

Technical Documents — page 276

Product Specification
108-25022

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
3	.300 [7.62]	.200 [5.08]	5-535541-1	5-146138-1	5-535584-3
4	.400 [10.16]	.300 [7.62]	5-535541-2	5-146138-2	5-535584-4
5	.500 [12.70]	.400 [10.16]	5-535541-3	5-146138-3	5-535584-5
6	.600 [15.24]	.500 [12.70]	5-535541-4	5-146138-4	5-535584-1
7	.700 [17.78]	.600 [15.24]	5-535541-5	5-146138-5	5-535584-6
8	.800 [20.32]	.700 [17.78]	5-535541-6	5-146138-6	5-535584-7
9	.900 [22.86]	.800 [20.32]	5-535541-7	5-146138-7	5-535584-8
10	1.000 [25.40]	.900 [22.86]	5-535541-8	5-146138-8	5-535584-9
11	1.100 [27.94]	1.000 [25.40]	5-535541-9	5-146138-9	6-535584-0
12	1.200 [30.48]	1.100 [27.94]	6-535541-0	6-146138-0	6-535584-1
13	1.300 [33.02]	1.200 [30.48]	6-535541-1	6-146138-1	6-535584-2

Mod IV Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

**Closed Top Entry,
End and Side Stackable,
Low Profile, .100 x .100
[2.54 x 2.54] Centerline,
.100 [2.54] Tine Spacing**



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel



Recommended PC Board Hole Layout

Related Product Data

Mateable Headers —

Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 174

Technical Documents — page 276

Product Specification

108-25022

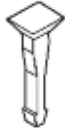
Application Specification

114-25018

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
2	.100 [2.54]	—	5-534998-1	5-535598-2	5-535585-3
4	.200 [5.08]	.100 [2.54]	5-534998-2	5-535598-3	5-535585-4
6	.300 [7.62]	.200 [5.08]	5-534998-3	5-535598-4	5-535585-5
8	.400 [10.16]	.300 [7.62]	5-534998-4	5-535598-5	5-535585-6
10	.500 [12.70]	.400 [10.16]	5-534998-5	5-535598-6	5-535585-1
12	.600 [15.24]	.500 [12.70]	5-534998-6	5-535598-7	5-535585-2
14	.700 [17.78]	.600 [15.24]	5-534998-7	5-535598-1	5-535585-7
16	.800 [20.32]	.700 [17.78]	5-534998-8	5-535598-8	5-535585-8
18	.900 [22.86]	.800 [20.32]	5-53		

Mod IV Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

Keying Plug



Part No. 86286-1

(Plugs into receptacle contact)

Material — Natural color nylon

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
42	2.100 [53.34]	2.000 [50.80]	7-534998-1	7-535598-4	7-535585-4
44	2.200 [55.88]	2.100 [53.34]	7-534998-2	7-535598-5	7-535585-5
46	2.300 [58.42]	2.200 [55.88]	7-534998-3	7-535598-6	7-535585-6
48	2.400 [60.96]	2.300 [58.42]	7-534998-4	7-535598-7	7-535585-7
50	2.500 [63.50]	2.400 [60.96]	7-534998-5	7-535598-1	7-535585-1
52	2.600 [66.04]	2.500 [63.50]	7-534998-6	7-535598-8	7-535585-8
54	2.700 [68.58]	2.600 [66.04]	7-534998-7	7-535598-9	7-535585-9
56	2.800 [71.12]	2.700 [68.58]	7-534998-8	8-535598-0	8-535585-0
58	2.900 [73.66]	2.800 [71.12]	7-534998-9	8-535598-1	8-535585-1
60	3.000 [76.20]	2.900 [73.66]	8-534998-0	7-535598-2	7-535585-2
62	3.100 [78.74]	3.000 [76.20]	8-534998-1	8-535598-2	8-535585-2
64	3.200 [81.28]	3.100 [78.74]	8-534998-2	8-535598-3	8-535585-3
66	3.300 [83.82]	3.200 [81.28]	8-534998-3	8-535598-4	8-535585-4
68	3.400 [86.36]	3.300 [83.82]	8-534998-4	8-535598-5	8-535585-5
70	3.500 [88.90]	3.400 [86.36]	8-534998-5	8-535598-6	8-535585-6
72	3.600 [91.44]	3.500 [88.90]	8-534998-6	8-535598-7	8-535585-7
74	3.700 [93.98]	3.600 [91.44]	8-534998-7	8-535598-8	8-535585-8
76	3.800 [96.52]	3.700 [93.98]	8-534998-8	8-535598-9	8-535585-9
78	3.900 [99.06]	3.800 [96.52]	8-534998-9	9-535598-0	9-535585-0
80	4.000 [101.60]	3.900 [99.06]	9-534998-0	7-535598-3	7-535585-3

Mod IV Receptacle Assemblies, Single-Row, Outrigger Design .100 x .100 [2.54 x 2.54] Centerline, End To End Stackable

**Dual Entry, End Stackable,
Low Profile, .100 x .100
[2.54 x 2.54] Centerline,
.200 [5.08] Tine Spacing**



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-0.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel



Recommended PC Board Hole Layout

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
3	.300 [7.62]	.200 [5.08]	5-147720-2	5-147726-2	5-147727-2
4	.400 [10.16]	.300 [7.62]	5-147720-3	5-147726-3	5-147727-3
5	.500 [12.70]	.400 [10.16]	5-147720-4	5-147726-4	5-147727-4
6	.600 [15.24]	.500 [12.70]	5-147720-5	5-147726-5	5-147727-5
7	.700 [17.78]	.600 [15.24]	5-147720-6	5-147726-6	5-147727-6
8	.800 [20.32]	.700 [17.78]	5-147720-7	5-147726-7	5-147727-7
9	.900 [22.86]	.800 [20.32]	5-147720-8	5-147726-8	5-147727-8
10	1.000 [25.40]	.900 [22.86]	5-147720-9	5-147726-9	5-147727-9
11	1.100 [27.94]	1.000 [25.40]	6-147720-0	6-147726-0	6-147727-0
12	1.200 [30.48]	1.100 [27.94]	6-147720-1	6-147726-1	6-147727-1
13	1.300 [33.02]	1.200 [30.48]	6-147720-2	6-147726-2	6-147727-2
14	1.400 [35.56]	1.300 [			

Mod. IV Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Closed Dual Entry, Side and End Stackable Low Profile, .100 x .100 [2.54 x 2.54] Centerline, .150 [3.81] Tine Spacing



Material and Finish

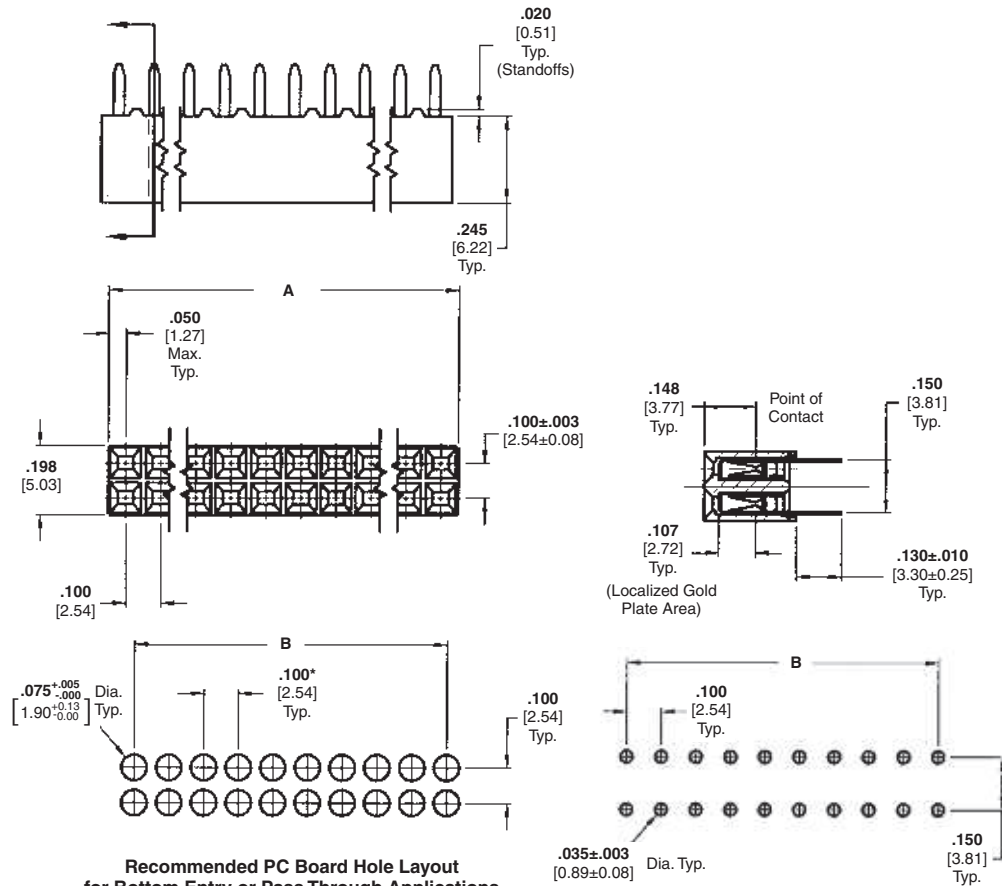
Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel



Recommended PC Board Hole Layout for Bottom Entry or Pass Through Applications

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Recommended PC Board Hole Layout for Top Entry

Related Product Data

Mateable Headers —

Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 174

Technical Documents — page 276

Product Specification

108-25022

Application Specification

114-25018

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
2	.100 [2.54]	—	5-535542-1	5-147095-1	5-147096-1
4	.200 [5.08]	.100 [2.54]	5-535542-2	5-147095-2	5-147096-2
6	.300 [7.62]	.200 [5			

Mod. IV Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
42	2.100 [53.34]	2.000 [50.80]	7-535542-1	7-147095-1	7-147096-1
44	2.200 [55.88]	2.100 [53.34]	7-535542-2	7-147095-2	7-147096-2
46	2.300 [58.42]	2.200 [55.88]	7-535542-3	7-147095-3	7-147096-3
48	2.400 [60.96]	2.300 [58.42]	7-535542-4	7-147095-4	7-147096-4
50	2.500 [63.50]	2.400 [60.96]	7-535542-5	7-147095-5	7-147096-5
52	2.600 [66.04]	2.500 [63.50]	7-535542-6	7-147095-6	7-147096-6
54	2.700 [68.58]	2.600 [66.04]	7-535542-7	7-147095-7	7-147096-7
56	2.800 [71.12]	2.700 [68.58]	7-535542-8	7-147095-8	7-147096-8
58	2.900 [73.66]	2.800 [71.12]	7-535542-9	7-147095-9	7-147096-9
60	3.000 [76.20]	2.900 [73.66]	8-535542-0	8-147095-0	8-147096-0
62	3.100 [78.74]	3.000 [76.20]	8-535542-1	8-147095-1	8-147096-1
64	3.200 [81.28]	3.100 [78.74]	8-535542-2	8-147095-2	8-147096-2
66	3.300 [83.82]	3.200 [81.28]	8-535542-3	8-147095-3	8-147096-3
68	3.400 [86.36]	3.300 [83.82]	8-535542-4	8-147095-4	8-147096-4
70	3.500 [88.90]	3.400 [86.36]	8-535542-5	8-147095-5	8-147096-5
72	3.600 [91.44]	3.500 [88.90]	8-535542-6	8-147095-6	8-147096-6
74	3.700 [93.98]	3.600 [91.44]	8-535542-7	8-147095-7	8-147096-7
76	3.800 [96.52]	3.700 [93.98]	8-535542-8	8-147095-8	8-147096-8
78	3.900 [99.06]	3.800 [96.52]	8-535542-9	8-147095-9	8-147096-9
80	4.000 [101.60]	3.900 [99.06]	9-535542-0	9-147095-0	9-147096-0

Note: All part numbers are RoHS compliant.

Mod IV Surface Mount Vertical Receptacle Assemblies, .100 x .100 [2.54 x 2.54] Centerline

Product Facts

- Surface Mount Leads
- Contact Material: phosphor bronze
- High temperature, black thermoplastic housings, 94V-0 rated, capable of withstanding IR or vapor-phase reflow
- Gold/tin duplex plating for reliable mating interconnection and solder interface
- Metallic hold downs provide retention in the PC board prior to and during the reflow process ... and strain relief after soldering
- Hold downs provide for proper lead-to-pad registration
- Closed-entry receptacle housings provide lead-in ramp for positive mating
- Receptacle contacts employ dual cantilever beams for reliable connections
- Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189



The AMPMODU 0.025 [0.64] square interconnection system is an industry standard that has provided level III and IV thru-hole interconnections to almost every industry and marketplace for years. As technology advances, so has the AMPMODU product line.

Surface mount vertical receptacle assemblies are available to meet your level II packaging needs as process technologies evolve from wave soldering to surface mount reflow (infrared and vapor-phase) processes. AMPMODU surface mount receptacle assemblies are offered in vertical dual entry configurations. These receptacles are available in single-row and double-row configurations with a contact centerline spacing of .100 x .100 [2.54 x 2.54].

AMPMODU surface mount vertical receptacle assemblies continue to provide the proven features and benefits of their thru-hole counterparts in the AMPMODU product family. Closed-entry style housing design provides a lead-in ramp for positive mating of contacts, virtually eliminating the possibility of stubbing. The dual-beam receptacle contact design, coupled with gold plating in the contact area, provides a reliable interface. Tin plating on the solder tails also enhances solderability.

The incorporation of compliant metallic hold downs on receptacle assemblies offers multiple benefits. The hold downs provide for proper lead-to-pad registration and provide retention to the PC board prior to and during processing. Used with a plated thru-hole, the hold

downs are soldered during the reflow process and serve as a strain relief for the solder joints during mating/unmating.

The design of the hold downs results in an excellent ratio of insertion/extraction forces (into the PC board); 20 lb. [89 N] maximum insertion force per pair and 10 lb. [44.5 N] minimum extraction force per pair (unsoldered). No tools are required for insertion.

**Mod IV Surface Mount Vertical Receptacle Assemblies,
.100 x .100 [2.54 x 2.54] Centerline** (Continued)

Performance Specifications**Voltage Rating:** 250 VAC**Current Rating:** 3.0 amperes (max.) for single contact;
2.0 amperes (max.) per contact when connector is fully energized**Operating Temperature Range (Receptacle Assemblies):** -65°C to +125°C**Operating Temperature Range (Headers):** -65°C to +105°C**Dielectric Withstanding Voltage:** 750 VAC**Termination Resistance:** 12 milliohms (max.)**Insulation Resistance:** 5000 megohms (min.)**Mating Force (Receptacle Assemblies):** 9.0 oz. [2.50N] (max.) per contact**Unmating Force (Receptacle Assemblies):** 1.5 oz. [0.42N] (min.) per contact**Durability:** Tested to 200 cycles (min.) for .000030 [0.00076] gold plated contacts

Mod IV Receptacle Assemblies, Single-Row, Surface Mount, .100 [2.54] Centerline with Compliant Pin Hold Downs

Surface Mount, Single-Row, Dual Entry with Compliant Pin Holddowns



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel

Related Product Data

Mateable Headers — Refer to Mating Post Selection Guide — page 90

Performance Specifications — page 186



No. of Pos.	Dimensions				Packaged in Tubes			Packaged in Tape & Reel		
	A	B	C	D	Contact Plating/ Part Nos.			Contact Plating/ Part Nos.		
					Plating A	Plating B	Plating C	Plating A	Plating B	Plating C
3	.500 [12.70]	.200 [5.08]	See note 3	.400 [10.16]	5-147744-1	5-147743-1	5-147742-1	5-147724-1	5-147730-1	5-147731-1
4	.600 [15.24]	.300 [7.62]	See note 3	.500 [12.70]	5-14774					

Mod IV Receptacle Assemblies, Single-Row, Surface Mount, .100 [2.54] x .100 [2.54] Centerline End To End Stackable without Compliant Pin Holdowns

Surface Mount, Single-Row, Dual Entry, End to End Stackable



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel

Related Product Data

Mateable Headers — Refer to Mating Post Selection Guide — page 90

Performance Specifications — page 186



Recommended PC Board Pad Pattern
(.008 [0.20] thick stencil)

No. of Pos.	Dimensions		Packaged in Tubes			Packaged in Tape & Reel		
	A	B	Contact Plating/ Part Nos.			Contact Plating/ Part Nos.		
			Plating A	Plating B	Plating C	Plating A	Plating B	Plating C
3	.300 [7.62]	.200 [5.08]	5-147738-2	5-147737-2	5-147736-2	5-147723-2	5-147728-2	5-147729-2
4	.400 [10.16]	.300 [7.62]	5-147738-3	5-147737-3	5-147736-3	5-147723-3	5-147728-3	5-147729-3
5	.500 [12.70]	.400 [10.16]	5-147738-4	5-147737-4	5-147736-4	5-147723-4	5-147728-4	5-147729-4
6								

Mod IV Surface Mount Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centers

Surface Mount, Double Row, Dual Entry with Holddowns



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel

Related Product Data

Mateable Headers — Refer to Mating Post Selection Guide — page 90

Performance Specifications — page 186

Technical Documents — page 276

Product Specification
108-25022

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.



Keying Plug



Part No. 86286-1

(Plugs into receptacle contact)

Material — Natural color nylon

Note: All part numbers are RoHS compliant.

Mod IV Surface Mount Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centers (Continued)

No. of Pos.	Dimensions					Packaged in Tubes			Packaged in Tape and Reel			
	A	B	C	D		Contact Plating/Part Nos.			Contact Plating/Part Nos.			
						Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	
10	.700 [17.78]	.400 [10.16]	.600 [15.24]	See Note 1		5-147102-5	5-147101-5	5-147103-5	5-147747-5	5-147746-5	5-147745-5	
14	.900 [22.86]	.600 [15.24]	.800 [20.32]	See Note 1		5-147102-7	5-147101-7	5-147103-7	5-147747-7	5-147746-7	5-147745-7	
20	1.200 [30.48]	.900 [22.86]	1.100 [27.94]	See Note 1		6-147102-0	6-147101-0	6-147103-0	6-147747-0	6-147746-0	6-147745-0	
22	1.300 [33.02]	1.000 [25.40]	1.200 [30.48]	See Note 1		6-147102-1	6-147101-1	6-147103-1	6-147747-1	6-147746-1	6-147745-1	
26	1.500 [38.10]	1.200 [30.48]	1.400 [35.56]	See Note 1		6-147102-3	6-147101-3	6-147103-3	6-147747-3	6-147746-3	6-147745-3	
30	1.700 [43.18]	1.400 [35.56]	1.600 [40.64]	See Note 1		6-147102-5	6-147101-5	6-147103-5	6-147747-5	6-147746-5	6-147745-5	
34	1.900 [48.26]	1.600 [40.64]	1.800 [45.72]	See Note 1		6-147102-7	6-147101-7	6-147103-7	6-147747-7	6-147746-7	6-147745-7	
36	2.000 [50.80]	1.700 [43.18]	1.900 [48.26]	See Note 1		6-147102-8	6-147101-8	6-147103-8	6-147747-8	6-147746-8	6-147745-8	
40	2.200 [55.88]	1.900 [48.26]	2.100 [53.34]	See Note 1		7-147102-0	7-147101-0	7-147103-0	7-147747-0	7-147746-0	7-147745-0	
46	2.500 [63.50]	2.200 [55.88]	2.400 [60.96]	See Note 1		7-147102-3	7-147101-3					

Mod IV Surface Mount Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Surface Mount, Double Row, Dual Entry End to End Stackable



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] tin-lead over .000050 [0.00127] nickel

Related Product Data

Mateable Headers — Refer to Mating Post Selection Guide — page 90

Performance Specifications — page 186

Technical Documents — page 276

Product Specification

108-25022

Application Specification

114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

Keying Plug



Part No. 86286-1

(Plugs into receptacle contact)

Material — Natural color nylon



Mod IV Surface Mount Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

No. of Pos.	Dimensions		Packaged in Tubes			Packaged in Tape & Reel		
			Contact Plating/ Part Nos.			Contact Plating/ Part Nos.		
	A	B	Plating A	Plating B	Plating C	Plating A	Plating B	Plating C
10	.500 [12.70]	.400 [10.16]	5-147741-5	5-147740-5	5-147739-5	5-147105-5	5-147104-5	5-147106-5
14	.700 [17.78]	.600 [15.24]	5-147741-7	5-147740-7	5-147739-7	5-147105-7	5-147104-7	5-147106-7
20	1.000 [25.40]	.900 [22.86]	6-147741-0	6-147740-0	6-147739-0	6-147105-0	6-147104-0	6-147106-0
22	1.100 [27.94]	1.000 [25.40]	6-147741-1	6-147740-1	6-147739-1	6-147105-1	6-147104-1	6-147106-1
26	1.300 [33.02]	1.200 [30.48]	6-147741-3	6-147740-3	6-147739-3	6-147105-3	6-147104-3	6-147106-3
30	1.500 [38.10]	1.400 [35.56]	6-147741-5	6-147740-5	6-147739-5	6-147105-5	6-147104-5	6-147106-5
34	1.700 [43.18]	1.600 [40.64]	6-147741-7	6-147740-7	6-147739-7	6-147105-7	6-147104-7	6-147106-7
36	1.800 [45.72]	1.700 [43.18]	6-147741-8	6-147740-8	6-147739-8	6-147105-8	6-147104-8	6-147106-8
40	2.000 [50.80]	1.900 [48.26]	7-147741-0	7-147740-0	7-147739-0	7-147105-0	7-147104-0	7-147106-0
46	2.300 [58.42]	2.200 [55.88]	7-147741-3	7-147740-3	7-147739-3	7-147105-3	7-147104-3	7-147106-3
50	2.500 [63.50]	2.400 [60.96]	7-147741-5	7-147740-5	7-147739-5	7-147105-5	7-147104-5	7-147106-5
62	3.100 [78.74]	3.000 [76.20]	8-147741-1	8-147740-1	8-147739-1	8-147105-1	8-147104-1	8-147106-1
64	3.200 [81.28]	3.100 [78.74]						

Two-Piece Printed Circuit Board Connectors

Product Facts

- Two-Piece reliability
- Two- and three-row systems available
- Short signal path for VLSI applications
- Receptacles employ dual cantilever beams and built-in anti-overstress to provide reliable connections
- Built-in guides provide alignment before contact engagement
- Closed entry receptacle housings provide lead-in ramp for positive mating of contacts
- Shrouded headers provide full pin protection
- Polarized headers
- Vertical headers available with ACTION PIN posts or .025 [0.64] square solder posts
- Repairable ACTION PIN posts
- Simple seating tooling for headers with ACTION PIN posts
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189



ACTION PIN Posts



Solder Posts



Receptacle Contact
(Double Beam with Anti-Overstress)
Board Retention Feature Available



Note: All part numbers are RoHS compliant.

For drawings, technical data or samples, contact your TE sales engineer or call the TE Product Information Center: 1-800-522-6752

Two-Piece Printed Circuit Board Connectors (Continued)

AMPMODU Two-Piece Printed Circuit Board connectors are designed to reliably and economically meet the packaging and interconnection requirements of today's sophisticated electronics.

The double row system is produced in 10 thru 200 positions in the vertical headers and horizontal receptacles, and 10 thru 160 positions in the right angle headers and vertical receptacles.

The AMPMODU three-row connector system is produced in 30 through 300 positions (straight post headers and mating horizontal receptacles).

Both two- and three-row vertical headers are available with press-fit ACTION PIN posts or standard .025 [0.64] square solder posts. There is a simple seating tool for headers with ACTION PIN posts.

A board retention feature is offered in the two-row horizontal receptacles, two-row right angle headers and two- and three-row vertical headers. Built-in guides assure accurate header and receptacle alignment before contact engagement.

Closed entry receptacle housings provide a lead-in ramp for positive mating of contacts.

Performance Specifications

Current Rating —

3 amperes max. for single contact;
2 amperes max. per contact for fully energized connector

Voltage Rating — 250 VAC

Dielectric Rating — 750 VAC rms between contacts for one minute

Termination Resistance —

12 milliohms max. at 100 milliamperes test current, and 50 millivolts open circuit voltage

Insulation Resistance — 1000

megohms after temperature/humidity cycling

Temperature Rating —

Headers and Receptacles —
–65°C to +125°C (black thermoplastic housings, 94V-0 rated)

Durability (Tested to) — 200 cycles for .000030 [0.00076] gold plating;
75 cycles for .000015 [0.00038] gold plating

Mating Force — 8 oz. [2.22N] maximum per contact

Unmating Force — .75 oz. [0.2N] minimum per contact during third mating cycle

Receptacle Assemblies, Board Mount, Double-Row, Closed Entry, .100 x .100 [2.54 x 2.54] Centerline

Horizontal Mount (with Guide Pin Slots and Standoffs)



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000050-.000100 [0.00127-0.00254] matte tin on solder area, with entire contact under-plated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000050-.000100 [0.00127-0.00254] matte tin on solder area, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Mateable Headers — pages 198, 199

Performance Specifications — page 194

Technical Documents — page 276

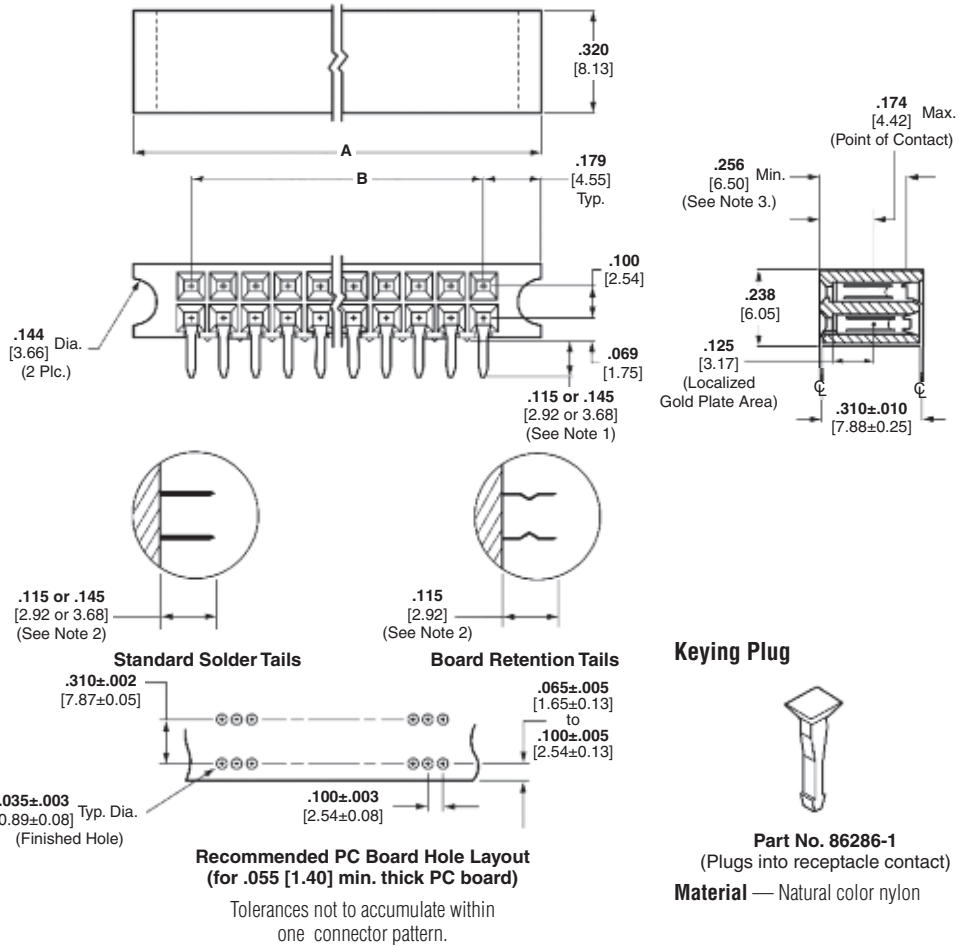
Product Specification

108-25017

Application Specification

114-9009

Additional receptacle assembly sizes and solder tail lengths are available; minimum order quantities may apply. Consult TE.



No. of Pos.	Dimensions		Receptacle Assembly Part Nos. with .115 [2.92] Solder Tail Lengths				Receptacle Assembly Part Nos. with .145 [3.68] Solder Tail Lengths	
	A	B	Standard Solder Tails		Board Retention Tails		Standard Solder Tails	
			Plating A	Plating B	Plating A	Plating B	Plating A	
12	.858 [21.79]	.500 [12.70]	5-532956-1					

Receptacle Assemblies, Board Mount, Double-Row, Closed Entry, .100 x .100 [2.54 x 2.54] Centerline (Continued)

Vertical Mount (with Guide Pin Slots and Standoffs)



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, duplex plated .000030 [0.00076] gold on contact area, .000050-.000100 [0.00127-0.00254] matte tin on solder area, with entire contact underplated .000050 [0.00127] nickel



Related Product Data

Mateable Headers — pages 198, 199

Performance Specifications — page 194

Technical Documents — page 276

Product Specification

108-25017

Application Specification

114-9009

Additional receptacle assembly sizes and solder tail lengths are available; minimum order quantities may apply. Consult TE.



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

Tolerances not to accumulate within one connector pattern.

Keying Plug

Receptacle Assemblies, Board Mount, Triple-Row, Closed Entry, .100 x .100 [2.54 x 2.54] Centerline

Horizontal Mount (with Guide Pin Slots and Standoffs)



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated .000030 [0.00076] gold in mating area, .000050-.000100 [0.00127-0.00254] matte tin on solder area, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Mateable Headers — page 201

Performance Specifications — page 194

Technical Documents — page 276

Product Specification
108-25017

Application Specification
114-9009

Additional receptacle assembly sizes and solder tail lengths are available; minimum order quantities may apply. Consult TE.



**Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)**

Tolerances not to accumulate within one connector pattern.

Keying Plug



Part No. 86286-1
(Plugs into receptacle contact)

Material — Natural color nylon

No. of Pos.	Dimensions		Receptacle Assembly Part Nos.
	A	B	Plating A
72	2.658 [67.51]</		

Headers, Straight Post, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Solder Posts and ACTION PIN Posts (with Pin Protection and Guide Pins)



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel

Plating C — Selectively plated .000030 [0.00076] gold on contact area and .000015 [0.00038] gold on termination end, with gold flash over .000050 [0.00127] nickel on entire post



Headers, Straight Post, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)



No. of Pos.	Dimensions		Header Part Nos. with ACTION PIN Posts				
	A	B	.250 [6.35] Tail Length Plating A	.250 [6.35] Tail Length Plating B	.480 [12.19] Tail Length Plating A	.480 [12.19] Tail Length Plating C	.680 [17.27] Tail Length Plating C
12	.980 [24.89]	.500 [12.70]	5-102690-1	5-103291-4	—	—	—
14	1.080 [27.43]	.600 [15.24]	—	5-103291-3	—	—	—
20	1.380 [35.05]	.900 [22.86]	6-102690-3	5-103291-6	—	—	—
24	1.580 [40.13]	1.100 [27.94]	5-102690-2	5-103291-7	—	—	—
36	2.180 [55.37]	1.700 [43.18]	5-102690-3	5-103291-9	—	—	—
40	2.380 [60.45]	1.900 [48.26]	6-102690-6	5-103291-2	—	—	—
50	2.880 [73.15]	2.400 [60.96]	5-102690-4	6-103291-0	—	—	—
60	3.380 [85.85]	2.900 [73.66]	5-102690-5	6-103291-1	—	—	—
70	3.880 [98.55]	3.400 [86.36]	6-102690-7	6-103291-2	—	—	—
80	4.380 [111.25]	3.900 [99.06]	5-102690-6	6-103291-4	—	—	—</

Headers, Right-Angle Post, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Card Extender (with Pin Protection and Guide Pins)



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data

Mateable Receptacles — pages 195, 196

Performance Specifications — page 194

Technical Documents — page 276

Product Specification
108-25017

Application Specification
114-9009

Additional header sizes are available; minimum order quantities may apply. Consult TE.



Headers, Straight Post, Triple-Row, .100 x .100 [2.54 x 2.54] Centerline

Solder Posts (with Pin Protection and Guide Pins)



Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data

Mateable Receptacles — page 197

Performance Specifications — page 194

Technical Documents — page 276

Product Specification
108-25017

Application Specification
114-9009

Additional header assembly sizes are available; minimum order quantities may apply. Consult TE.



Headers, VRM (Voltage Regulator Module), .100 x .100 [2.54 x 2.54] Centerline

Solder Posts and ACTION PIN Posts (with Pin Protection, Guide Ribs, and Latching)

Material and Finish

Housing — Glass-filled thermoplastic, black, 94V-0 rated

Posts — Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data

Mateable Receptacles —
pages 195, 196

Performance Specifications —
page 194

ACTION PIN Posts —
page 150, 151

Application Tooling —
pages 152

Technical Documents — page 276

Product Specification
108-25017

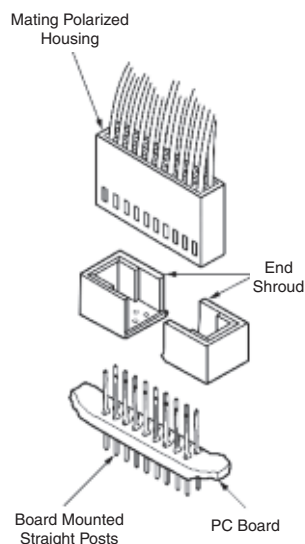
Application Specification
114-9009



Accessories: End Shrouds for Machine-Applied Posts

Single-Row, .100 [2.54] Centers Part No. 102338-1

Material — Black thermoplastic, flame retardant



Typical Assembly

Technical Documents — page 276



Double-Row, .100 x .100 [2.54 x 2.54] Centers Part No. 102114-1

Material — Black glass-filled polyester



Accessories: Barrier Insert, Part No. 87743-1

Material

Black polyester

Technical Documents — page 276

The barrier insert can be used on double row headers (.100 x .100 [2.54 x 2.54] centers), including shrouded versions—3 and 4 sides, as well as unshrouded straight post headers. With one barrier insert several configurations can be obtained, providing headers with capabilities of accepting various combinations of polarized and non-polarized AMPMODU connectors.

For unshrouded headers, the barrier insert is used to establish polarization and to compartmentalize the header. For shrouded headers, the barrier insert is used to compartmentalize the header, while maintaining polarization. The barrier insert itself is notched to facilitate cutting off the ends with a simple tool such as tin snips or scissors to achieve the desired configuration.



Barrier Insert Cutoffs



Accessories: Snap-In Polarizer for Low Profile Headers

Material

Black thermoplastic, flame retardant

Part Numbers

499991-2 (Packaged 50 per bag)

499991-3 (Packaged 1000 per bag)

Related Product Data

Low Profile Headers used with —
pages 135-140



The snap-in polarizer provides military polarization for low profile headers. Installation of the polarizer is as follows:

Orient the polarizer so that the polarizer latch is on the same side as the inner wall (post side) of the header housing.



Slide the polarizer over the polarizing slot of the housing until the latch engages the hole. Snap off the tab at the break line next to the housing. Using the remaining polarizer, repeat the process for the other housing location.



Locking Clip Contacts and Housings

Product Facts

- Self-retaining contacts provide permanent connection with quick connect and disconnect
- Fast, easy installation with no additional locking hardware required
- Mates with .025 [0.64] square posts in a variety of configurations
- Single- and double-row configurations in up to 20 positions on .100 [2.54] centers
- Modular design permits end-to-end stacking (double-row only) for circuit grouping
- Choice of tin or select gold plating
- Housings made of 94V-0 rated glass-filled polyester
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 

Performance Characteristics

Contact Current Rating — 3 amperes

Termination Resistance —
12 milliohms (max.) — Gold plated contacts
16 milliohms (max.) — Tin plated contacts

Durability — Ref. Product Specification 108-36028 and 108-36028-1



Typical Application



Locking Clip Contacts

Wire Crimp Contacts with Insulation Support

Material and Finish

Wire-Applied Housings for Locking Clip

