

METRIC

AMPMODU 2 mm 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, wide body and surface-mount
- All headers with 0.5 [.02] square posted contacts
- Surface-mount right-angle headers available in four mating pin-to-pc board dimensional relationships
- Surface-mount right-angle headers compatible with standard surface-mount processing (VPR, IR)
- Closed top-entry receptacle assemblies include: vertical mount, raised 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
- Low cost alternative gold/palladium duplex plating available on surface-mount headers
- Thermoplastic housing material, 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 2 mm connectors reliably and economically meet the packaging and interconnection requirements of today's miniature sophisticated electronics. They are ideal for "Lap Top" and "Note Book" personal computers and disk drive applications.

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 64 positions.

Thru-hole breakaway headers feature brass straight or right-angle posts with a post length of 4.0 [.16] and lead lengths of 1.5 [.06], 1.8 [.07] and 2.6 [.10]. The thru-hole wide body headers use copper alloy right-angle posts with a post length of 4.0 [.16] and lead lengths of 1.5 [.06] or 2.6 [.10].

Surface-mount right-angle headers are designed to allow low profile or mid-mount pc board orientation for customer low profile applications. Four mating pin-to-pc board dimensional relationships are offered.

These headers are available with 0.00076 [.000030] gold or gold flash over palladium-nickel plating options. Also, two metallic spring hold-downs on

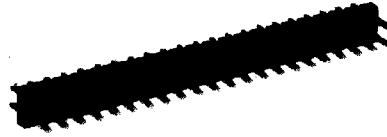
each side of the header work with the plastic location features for pc board retention prior to solder reflow. The header housings are made of a high temperature material compatible with standard surface-mount processing (VPR and IR).

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.

METRIC

**Breakaway Headers,
Unshrouded, Double Row,
Thru-Hole Mount**

**0.5 [.02] Square
Straight Posted Contacts**



Material and Finish

Housing—Black thermoplastic, 94V-0 rated

Posted Contacts—Brass, duplex plated as follows:

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

Mates with— Receptacle Assemblies, Vertical Mount; Receptacle Assemblies, Vertical Mount, Raised (6.0 [.24]) Stack Height; and Receptacle Assemblies with Hold-downs, Right-Angle Mount

Note: 24 Pos. Housing Dim. (Typ.)—24.0 [.94] L x 4.2 [.17] W

No. of Positions	Header Part Numbers			
	Lead Length 1.5 [.06]**		Lead Length 2.6 [.10]**	
	Contact Plating		Contact Plating	
	Duplex A	Duplex B	Duplex A	Duplex B
4	178751-1	2-178751-5	176264-1	1-176264-6
6	178751-2	2-178751-6	176264-2	1-176264-7
8	178751-3	2-178751-7	176264-3	1-176264-8
10	178751-4	2-178751-8	176264-4	1-176264-9
12	178751-5	2-178751-9	176264-5	2-176264-0
14	178751-6	3-178751-0	176264-6	2-176264-1
16	178751-7	3-178751-1	176264-7	2-176264-2
18	178751-8	3-178751-2	176264-8	2-176264-3
20	178751-9	3-178751-3	176264-9	2-176264-4
22	1-178751-0	3-178751-4	1-176264-0	2-176264-5
24	1-178751-1	3-178751-5	1-176264-1	2-176264-6
26	1-178751-2	3-178751-6	1-176264-2	2-176264-7
28	1-178751-3	3-178751-7	1-176264-3	2-176264-8
30	1-178751-4	3-178751-8	1-176264-4	2-176264-9
32	1-178751-5	3-178751-9	1-176264-5	3-176264-0
34	—	—	3-176264-1	4-176264-0
36	—	—	3-176264-2	4-176264-1
38	—	—	3-176264-3	4-176264-2
40	—	—	3-176264-4	4-176264-3
42	2-178751-0	4-178751-4	3-176264-5	4-176264-4
44	—	—	3-176264-6	4-176264-5
46	2-178751-2	4-178751-6	3-176264-7	4-176264-6
48	—	—	3-176264-8	4-176264-7
50	2-178751-4	4-178751-8	3-176264-9	4-176264-8

**1.5 [.06] lead length for use with 0.5 [.02] thick Pc boards; 2.6 [.10] lead length for use with 1.6 [.062] thick Pc boards.

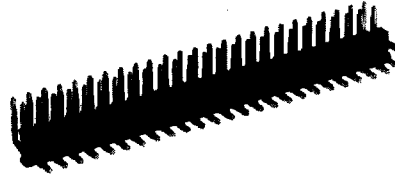
Note: Post length is 4.0 [.16]

3
Printed Circuit Board Connectors
AMPMODU 2 mm Connectors (Board-to-Board)

METRIC

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

**0.5 [.02] Square
Right-Angle Posted
Contacts**



Note: 24 Pos. Housing Dim. (Typ.)— 24.0 [.94] L x 4.2 [.17] W

Material and Finish

Housing—Black thermoplastic, 94V-0 rated

Posted Contacts—Brass, duplex plated as follows:

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

Mates with— Receptacle Assemblies, Vertical Mount; Receptacle Assemblies, Vertical Mount, Raised (6.0 [.24]) Stack Height; and Receptacle Assemblies with Hold-downs, Right-Angle Mount

No. of Positions	Header Part Numbers			
	Lead Length 1.8 [.07]**		Lead Length 2.6 [.10]**	
	Contact Plating		Contact Plating	
	Duplex A	Duplex B	Duplex A	Duplex B
4	178698-1	2-178698-5	176837-1	2-176837-5
6	178698-2	2-178698-6	176837-2	2-176837-6
8	178698-3	2-178698-7	176837-3	2-176837-7
10	178698-4	2-178698-8	176837-4	2-176837-8
12	178698-5	2-178698-9	176837-5	2-176837-9
14	178698-6	3-178698-0	176837-6	3-176837-0
16	178698-7	3-178698-1	176837-7	3-176837-1
18	178698-8	3-178698-2	176837-8	3-176837-2
20	178698-9	3-178698-3	176837-9	3-176837-3
22	1-178698-0	3-178698-4	1-176837-0	3-176837-4
24	1-178698-1	3-178698-5	1-176837-1	3-176837-5
26	1-178698-2	3-178698-6	1-176837-2	3-176837-6
28	1-178698-3	3-178698-7	1-176837-3	3-176837-7
30	1-178698-4	3-178698-8	1-176837-4	3-176837-8
32	1-178698-5	3-178698-9	1-176837-5	3-176837-9
34	—	—	1-176837-6	4-176837-0
36	—	—	1-176837-7	4-176837-1
38	—	—	1-176837-8	4-176837-2
40	—	—	1-176837-9	4-176837-3
42	2-178698-0	4-178698-4	2-176837-0	4-176837-4
44	—	—	2-176837-1	4-176837-5
46	2-178698-2	4-178698-6	2-176837-2	4-176837-6
48	—	—	2-176837-3	4-176837-7
50	2-178698-4	4-178698-8	2-176837-4	4-176837-8

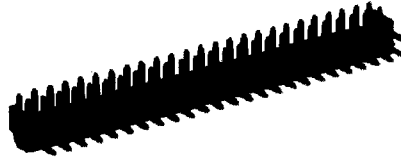
**1.8 [.07] lead length for use with 0.8 [.03] thick Pc boards; 2.6 [.10] lead length for use with 1.6 [.062] thick Pc boards.

Note: Post length is 4.0 [.16]

METRIC

**Wide Body Headers,
Unshrouded, Double Row,
Thru-Hole Mount**

**0.5 [.02] Square
Right-Angle Posted
Contacts**



Material and Finish

Housing—Black thermoplastic, 94V-0 rated

Posted Contacts—Copper alloy, duplex plated as follows:

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

B—0.00038 [.000015] min. gold on contact area, 0.00100 [.000039] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Mates with— Receptacle Assemblies, Vertical Mount; Receptacle Assemblies, Vertical Mount, Raised (6.0 [.24]) Stack Height; and Receptacle Assemblies with Hold-downs, Right-Angle Mount

Note: 32 Pos. Housing Dim. (Typ.)—32.0 [1.26] L x 4.0 [.16] W x 4.2 [.17] H

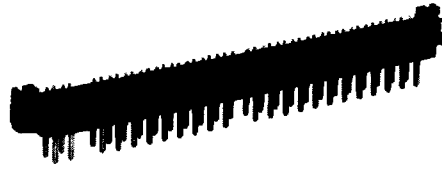
No. of Positions	Header Part Numbers			
	Lead Length 1.5 [.06]**		Lead Length 2.6 [.10]**	
	Contact Plating		Contact Plating	
	Duplex A	Duplex B	Duplex A	Duplex B
4	84023-1	84022-1	84025-1	84024-1
6	84023-2	84022-2	84025-2	84024-2
8	84023-3	84022-3	84025-3	84024-3
10	84023-4	84022-4	84025-4	84024-4
12	84023-5	84022-5	84025-5	84024-5
14	84023-6	84022-6	84025-6	84024-6
16	84023-7	84022-7	84025-7	84024-7
18	84023-8	84022-8	84025-8	84024-8
20	84023-9	84022-9	84025-9	84024-9
22	1-84023-0	1-84022-0	1-84025-0	1-84024-0
24	1-84023-1	1-84022-1	1-84025-1	1-84024-1
26	1-84023-2	1-84022-2	1-84025-2	1-84024-2
28	1-84023-3	1-84022-3	1-84025-3	1-84024-3
30	1-84023-4	1-84022-4	1-84025-4	1-84024-4
32	1-84023-5	1-84022-5	1-84025-5	1-84024-5
34	1-84023-6	1-84022-6	1-84025-6	1-84024-6
36	1-84023-7	1-84022-7	1-84025-7	1-84024-7
38	1-84023-8	1-84022-8	1-84025-8	1-84024-8
40	1-84023-9	1-84022-9	1-84025-9	1-84024-9
42	2-84023-0	2-84022-0	2-84025-0	2-84024-0
44	2-84023-1	2-84022-1	2-84025-1	2-84024-1
46	2-84023-2	2-84022-2	2-84025-2	2-84024-2
48	2-84023-3	2-84022-3	2-84025-3	2-84024-3
50	2-84023-4	2-84022-4	2-84025-4	2-84024-4
52	2-84023-5	2-84022-5	2-84025-5	2-84024-5
54	2-84023-6	2-84022-6	2-84025-6	2-84024-6
56	2-84023-7	2-84022-7	2-84025-7	2-84024-7
58	2-84023-8	2-84022-8	2-84025-8	2-84024-8
60	2-84023-9	2-84022-9	2-84025-9	2-84024-9
62	3-84023-0	3-84022-0	3-84025-0	3-84024-0
64	3-84023-1	3-84022-1	3-84025-1	3-84024-1

**1.5 [.06] lead length for use with 0.3 [.01] max. thick Pc boards; 2.6 [.10] lead length for use with 1.6 [.062] thick Pc boards.
Note: Post length is 4.0 [.16]

METRIC

Horizontal Headers with Hold-downs, Unshrouded, Double Row, Surface-Mount

1.25 [.050] Mating Pin-to-Pc Board Dimension



Two metallic spring hold-downs on each end of surface-mount right-angle header work with plastic location features for Pc board retention prior to solder flow.

Note: 50 Pos. Housing Dim. (Typ.)—56.2 [2.21] L x 3.73 [.147] W x 4.50 [.177] H

Material and Finish

Housing—Black polyphenylene sulfide, 94V-0 rated

Posted Contacts—Copper alloy, duplex plated as follows:

A—Gold flash over 0.00076 [.000030] min. palladium-nickel on contact area, 0.00508 [.000200] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

B—0.00010 [.000004] min. gold on contact area, 0.00508 [.000200] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Mates with— Receptacle Assemblies, Vertical Mount; Receptacle Assemblies, Vertical Mount, Raised (6.0 [.24]) Stack Height; and Receptacle Assemblies with Hold-downs, Right-Angle Mount

No. of Positions	Header Part Numbers Contact Plating		Posts Omitted
	Duplex A	Duplex B	
50	84094-1	—	24, 41, 42
	84094-2	84094-5	25, 45, 46
	84094-3	84094-6	5, 6, 26
	84094-4	—	9, 10, 27

1.25 [.050] Mating Pin-to-Pc Board Dimension

Two metallic spring hold-downs on each end of surface-mount right-angle header work with plastic location features for Pc board retention prior to solder flow.



Mates with— Receptacle Assemblies, Vertical Mount; Receptacle Assemblies, Vertical Mount, Raised (6.0 [.24]) Stack Height; and Receptacle Assemblies with Hold-downs, Right-Angle Mount

Note: 12 Pos. Housing Dim. (Typ.)—18.20 [.717] L x 3.73 [.147] W x 4.50 [.177] H

No. of Positions	Header Part Number	Posts Omitted
12	84104-1	None

3
Printed Circuit Board Connectors (Board-to-Board)
AMPMODU 2 mm Connectors (Board-to-Board)

METRIC

Horizontal Headers with Hold-downs, Unshrouded, Double Row, Surface-Mount (Continued)



1.00 [.039] Mating Pin-to-Pc Board Dimension

Two metallic spring hold-downs on each end of surface-mount right-angle header work with plastic location features for Pc board retention prior to solder flow.

Mates with— Receptacle Assemblies, Vertical Mount; Receptacle Assemblies, Vertical Mount, Raised (6.0 [.24]) Stack Height; and Receptacle Assemblies with Hold-downs, Right-Angle Mount

Note: 20 Pos. Housing Dim. (Typ.)—26.03 [1.025] L x 4.00 [.157] W x 3.72 [.146] H

No. of Positions	Header Part Numbers		Posts Omitted
	Contact Plating		
18	84108-6		7, 8, 18
	84108-4		None
20	84108-5		None
34	84108-3		14
50	84108-2		25, 45, 46
	84108-1		24, 41, 42

0.66 [.026] Mating Pin-to-Pc Board Dimension

Two metallic spring hold-downs on each end of surface-mount right-angle header work with plastic location features for Pc board retention prior to solder flow.

Mates with— Receptacle Assemblies, Vertical Mount; Receptacle Assemblies, Vertical Mount, Raised (6.0 [.24]) Stack Height; and Receptacle Assemblies with Hold-downs, Right-Angle Mount

Note: 20 Pos. Housing Dim. (Typ.)—26.03 [1.025] L x 4.00 [.157] W x 4.80 [.189] H



No. of Positions	Header Part Numbers		Posts Omitted
	Contact Plating		
6	84110-5		3
20	84110-4		13
	84110-3		5, 6, 26
50	84110-2		25, 45, 46
	84110-1		24, 41, 42

0.32 [.013] Mating Pin-to-Pc Board Dimension

Two metallic spring hold-downs on each end of surface-mount right-angle header work with plastic location features for Pc board retention prior to solder flow.

Material and Finish

Housing—Black polyphenylene sulfide, 94V-0 rated

Plated Contacts—Copper alloy, duplex plated as follows:

A—Gold flash over 0.00076 [.000030] min. palladium-nickel on contact area, 0.00508 [.000200] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

B—0.00076 [.000030] min. gold on contact area, 0.00508 [.00200] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Mates with— Receptacle Assemblies, Vertical Mount; Receptacle Assemblies, Vertical Mount, Raised (6.0 [.24]) Stack Height; and Receptacle Assemblies with Hold-downs, Right-Angle Mount

Note: 32 Pos. Housing Dim. (Typ.)—38.03 [1.497] L x 4.00 [.157] W x 4.80 [.189] H

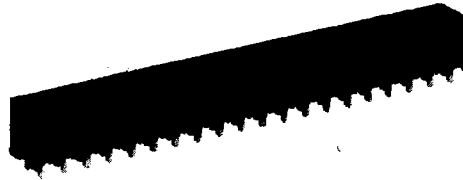
No. of Positions	Header Part Numbers		Posts Omitted
	Contact Plating		
	Duplex A	Duplex B	
24	84156-3	—	11, 12, 17, 18
	—	84156-2	9
32	—	84156-1	1, 2, 9
	—	84156-4	1, 2, 9
	—	84156-5	9

SOURCE: Catalog 82771

Printed Circuit Board Connectors
AMPMODU 2 mm Connectors (Board-to-Board)

METRIC

Receptacle Assemblies, Double Row, Vertical Mount



Closed Top Entry

Material and Finish

Housing—Black thermoplastic, 94V-0 rated

Receptacle Contacts—Phosphor bronze, duplex plated as follows:

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

Mates with— Breakaway Headers, Wide Body Headers, and Horizontal Headers with Hold-downs

Note: 28 Pos. Housing Dim. (Typ.)—28.0 [1.10] L x 4.0 [.16] W x 4.5 [.18] H

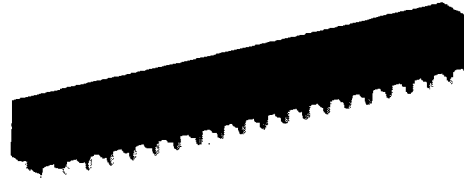
No. of Positions	Receptacle Assembly Part Numbers			
	Lead Length 1.2 [.05]**		Lead Length 2.6 [.10]**	
	Contact Plating		Contact Plating	
	Duplex A	Duplex B	Duplex A	Duplex B
4	176135-1	2-176135-5	1-176135-3	3-176135-7
6	4-176135-9	5-176135-5	5-176135-2	5-176135-8
8	176135-2	2-176135-6	1-176135-4	3-176135-8
10	176135-3	2-176135-7	1-176135-5	3-176135-9
12	176135-4	2-176135-8	1-176135-6	4-176135-0
14	176135-5	2-176135-9	1-176135-7	4-176135-1
16	176135-6	3-176135-0	1-176135-8	4-176135-2
18	176135-7	3-176135-1	1-176135-9	4-176135-3
20	176135-8	3-176135-2	2-176135-0	4-176135-4
22	176135-9	3-176135-3	2-176135-1	4-176135-5
24	1-176135-0	3-176135-4	2-176135-2	4-176135-6
26	1-176135-1	3-176135-5	2-176135-3	4-176135-7
28	5-176135-0	5-176135-6	5-176135-3	5-176135-9
30	5-176135-1	5-176135-7	5-176135-4	6-176135-0
32	1-176135-2	3-176135-6	2-176135-4	4-176135-8
34	6-176135-1	6-176135-7	6-176135-4	7-176135-0
36	7-176135-3	8-176135-5	7-176135-9	9-176135-1
38	7-176135-4	8-176135-6	8-176135-0	9-176135-2
40	6-176135-2	6-176135-8	6-176135-5	7-176135-1
42	7-176135-5	8-176135-7	8-176135-1	9-176135-3
44	7-176135-6	8-176135-8	8-176135-2	9-176135-4
46	7-176135-7	8-176135-9	8-176135-3	9-176135-5
48	7-176135-8	9-176135-0	8-176135-4	9-176135-6
50	6-176135-3	6-176135-9	6-176135-6	7-176135-2

**1.2 [.05] lead length for use with 0.3 [.01] max. thick Pc boards; 2.6 [.10] lead length for use with 1.6 [.062] thick Pc boards.

Printed Circuit Board Connectors
AMPMODU 2 mm Connectors (Board-to-Board)

METRIC

Receptacle Assemblies, Double Row, Vertical Mount



Closed Top Entry with Keying

Material and Finish:

Housing—Black glass-filled nylon, 94V-0 rated

Receptacle Contacts—Phosphor bronze, duplex plated as follows:

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

Note: 14 Pos. Housing Dim. (Typ.)—14.0 [.55] L x 4.0 [.16] W x 4.5 [.18] H

No. of Positions	Lead Length**	Receptacle Assembly Part Numbers		Keyed Positions (See Note)
		Contact Plating		
		Duplex A	Duplex B	
8	1.2 [.05]	—	1-176136-3	1, 6
10	1.2 [.05]	176136-1	176136-3	3, 8
	2.6 [.10]	176136-2	176136-4	3, 8
12	2.0 [.08]	1-176136-0	—	3
		1-176136-1	—	4
		1-176136-5	—	2
14	2.0 [.08]	176136-5	176136-7	2
	2.6 [.10]	176136-6	176136-8	2
40	1.2 [.05]	—	2-176136-1	17
	2.6 [.10]	—	2-176136-3	17
44	1.2 [.05]	1-176136-6	—	20
	1.5 [.06]	2-176136-5	—	20
	2.6 [.10]	1-176136-7	—	20
50	2.6 [.10]	1-176136-8	—	26
		—	2-176136-4	27

**1.2 [.05] lead length for use with 0.3 [.01] max. thick Pc boards; 1.5 [.06] lead length for use with 0.6 [.02] max. thick Pc boards; 2.0 [.08] lead length for use with 1.0 [.040] thick Pc boards; 2.6 [.10] lead length for use with 1.6 [.062] thick Pc boards.
Note: Keyed circuits contain contact with mating face molded shut.

Closed Top Entry, Sealed with Solder Barrier Tape

Note: Solder Barrier Tape provides protection for special applications, such as upside-down hand soldering

Mates with— Breakaway Headers, Wide Body Headers, and Horizontal Headers with Hold-downs

Closed Top Entry, Raised (6.0 [.24]) Stack Height



28 Positions
Part Number 84129-1

Note: 28 Pos. Housing Dim. (Typ.)—28.0 [1.10] L x 4.0 [.16] W x 4.7 [.185] H
2.6 [.10] lead length for use with 1.6 [.062] thick Pc board.

Mates with— Breakaway Headers, Wide Body Headers, and Horizontal Headers with Hold-downs



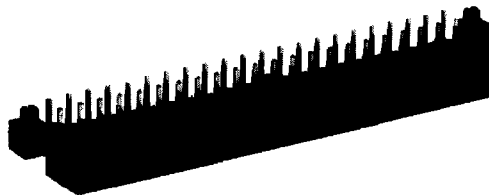
50 Positions
Part Number 84198-1

Note: 50 Pos. Housing Dim. (Typ.)—53.90 [2.122] L x 4.0 [.16] W x 6.0 [.24] H
2.8 [.11] lead length for use with 2.0 [.08] thick Pc board.

Receptacle Assemblies with Hold-downs, Double Row, Right-Angle Mount

Closed Top Entry with Hold-downs

Mates with— Breakaway Headers, Wide Body Headers, and Horizontal Headers with Hold-downs



Note: 44 Pos. Housing Dim. (Typ.)—49.8 [1.96] L x 7.4 [.29] W x 6.13 [.241] H

No. of Positions	Receptacle Assembly Part Numbers
14	84140-2
44	84140-1
50	84140-3

Note: Lead length 1.37 [.054]