



AMP Soft Shell Pin and Socket Connectors

**Restriction on the use of
Hazardous Substances
(RoHS)**

At Tyco Electronics, 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 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. 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.tycoelectronics.com/leadfree

RoHS
Customer
Support
Center 

Table of Contents

Introduction

AMP Soft Shell Pin and Socket Connectors provide a highly reliable and economic means of grouping multiple-lead connections in today's computer, computer/peripheral equipment, business machines, entertainment centers, appliances and other sophisticated commercial equipment. The electrical connector is an integral component in these applications. They also offer worldwide application approval because of their reliability and economy. Electrical functions have increased in complexity and new designs continually call for the maximum use of space. The Soft Shell Pin and Socket family of connectors offers the design and features to answer these modern industry requirements.

This catalog is organized by contact centerline spacing (High Density and Standard Density) to provide you with the basic information necessary to select the Soft Shell connector system best suited for your specific application. It contains general information to acquaint you with the complete family of connectors and application tooling.

Since your specific application will determine the degree of automatic, semiautomatic or manual application tooling required, complete specifications are covered on pages 207-204.

Summary Chart

Page No.	Product Name	No. of Positions	Centerline (in) mm	Wire Size (AWG)	Wire Insulation Dia. Max. (in) mm	Current Rating Max (A)*	Voltage Rating Max.	Operating Temp. Range (C)	UL94 Flammability Rating	Sealed Version Available	Approvals
High Density											
9	2.5 mm Signal Double Lock (SDL)	2-13	(.098) 2.50	26-20	(.071) 1.80	3	50 VAC or VDC	-30° to +105°	V-0	No	UL, CSA, VDE
17	Micro MATE-N-LOK 3 mm	2-24	(.118) 3.00	30-20	(.060) 1.52	5	250 VAC	-40° to +105°	V-0	No	UL, CSA, VDE
49	Grace Inertia Connectors (GIC) 3.5	2-6	(.137) 3.50	26-18	(.106) 2.70	7	300 VAC	-30° to +105°	V-0	No	UL, CSA
53	.062 Commercial Pin & Socket	1-9	(.145) 3.68	30-18	(.110) 2.79	7	250 VAC or VDC	-55° to +105°	V-2	No	UL, CSA
59	Power Double Lock (PDL)	1-12 3-12 2 2	(.156) 3.96 (.256) 6.50 (.312) 7.92 (.512) 13.00	26-16	(.122) 3.10	14	300 VAC (3.96 WTW, 6.5 WTB and 7.92 WTB) 50 VAC (3.96 WTB)	-30° to +105°	V-0	No	UL, CSA, VDE
83	Mini-Universal MATE-N-LOK	1-24	(.163) 4.14	30-16	(.126) 3.20	9.5	600 VAC or VDC	-55° to +105°	V-0 & V-2	Yes	UL, CSA, VDE (250 V Max.)
99	Mini-Universal MATE-N-LOK 2	2-24	(.163) 4.14	30-16	(.126) 3.20	10.5	600 VAC or VDC	-55° to +105°	V-0 & V-2	No	UL, CSA, VDE
109	MR (Miniature Rectangular)	2-36	(.165) 4.20	26-18	(.115) 2.92	9	250 VAC	-55° to +85°	V-0	No	UL, CSA
119	VAL-U-LOK Connector System	2-24	(.165) 4.20	26-18	(.094) 2.39	9	600 VAC	-40° to +105°	V-0 & V-2	No	UL, CSA
125	AMP-DUAC	2-24	(.165) 4.20	26-18	(.130) 3.30	9	600 VAC	-55° to +105°	V-2	No	UL, CSA
Standard Density											
135	5.0 mm Power Key Connectors (PKC)	2-6	(.197) 5.00	24-16	(.122) 3.10	10	300 VAC	-30° to +105°	V-0	No	UL, CSA
143	.093 Commercial Pin & Socket	1-15	(.198) 5.03	14-24	(.180) 4.57	13	250 VAC or VDC	-55° to +105°	V-2	No	UL, CSA
151	Commercial MATE-N-LOK	1-16	(.200) 5.08	30-14	(.130) 3.30	19	250 VAC	-55° to +105°	V-2	No	UL, CSA
165	.140 MATE-N-LOK	2-9	(.240) 6.10	20-10	(.180) 4.57	28	600 VAC or VDC	-55° to +105°	V-2	No	UL, CSA
169	Universal MATE-N-LOK	1-15	(.250) 6.35	30-10	(.200) 5.08	19	600 VAC or VDC	-55° to +105°**	V-0 & V-2	Yes	UL, CSA, designed and tested to meet VDE 380 V requirements, except 6 Position Circular
189	Universal MATE-N-LOK II	2-15	(.250) 6.35	30-10	(.200) 5.08	19	600 VAC or VDC	-55° to +105°	V-0	No	UL, CSA, VDE
203	.156 MATE-N-LOK	3-4	(.390) 9.91	20-10	(.185) 4.70	32.5	600 VAC	-55° to +105°	V-2	No	UL

*Current Rating is application dependent
** 125°C Available

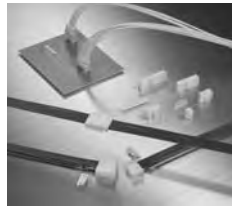
Table of Contents (Continued)

High Density

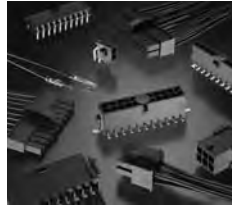
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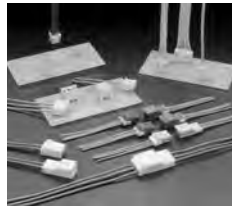
Technical Support is staffed with specialists well versed in Tyco Electronics products.



2.5 mm Signal Double Lock (2.5 SDL) Connectors9-16
 Product Facts9
 Performance Characteristics9
 Quick Reference Chart for Mating Part Numbers and Future Product Plans10
 Mating Configurations (Wire-To-Wire and Wire-To-Board)11
 Contacts and Double Lock Plates12
 Plug Housings13
 Cap Housings14
 Headers, PC Board, Vertical: Standard-Profile15
 High-Profile16



Micro MATE-N-LOK 3 mm Connector System17-47
 Product Facts17
 Performance Characteristics17-18
 Connector Application19-21
 Contacts22
 Receptacle Housings23-24
 Plug Housings25-28
 Low Profile29
 Vertical Header Assemblies30-37
 Right-Angle Header Assemblies38-47



Grace Inertia Connectors (GIC), 3.549-52
 Product Facts49
 Performance Characteristics49
 Contacts and Double Lock Plates50
 Housings: Plug and Cap51-52



.062 [1.57] Commercial Pin and Socket Connectors53-57
 Product Facts53
 Performance Characteristics53-54
 Contacts55
 Housings: Free-Hanging or Panel Mount56-57
 Recommended Panel Cutouts57



Power Double Lock (PDL) Connectors59-81
 Product Facts59
 Performance Characteristics59
 Quick Reference Chart for Mating Part Numbers60
 Contacts61
 Housings: Free-Hanging Plug (3.96 mm centerline)62-64
 Free-Hanging Cap (3.96 mm centerline)65-66
 Panel Mount Cap (3.96 mm centerline)67-70
 Double Lock Plates (3.96 mm centerline)71
 Tab Headers, PC Board, Vertical: 3.96 mm centerline72-73
 7.92 mm centerline74
 Housings: Free-Hanging Plug (6.5 mm centerline)75-76
 Double Lock Plates (6.5 mm centerline)77
 Housings: Panel Mount Cap (6.5 mm centerline)78
 Tab Headers, PC Board, Vertical: 6.5 and 13 mm centerlines79-81



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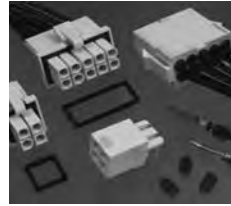
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Table of Contents (Continued)

High Density
(Continued)



Mini-Universal MATE-N-LOK Connectors83-94
 Product Facts.....83
 Performance Characteristics.....83-84
 Mating Combinations.....85
 Contacts, Keying Plug, Wire Seal and Test Probe Contact.....86
 Housings: Free-Hanging or Panel Mount.....87-88
 Hermaphroditic Free-Hanging.....89
 Headers, PC Board: Vertical Pin and Blindmate.....90-91
 Right-Angle Pin.....92
 Recommended PC Board Hole Layouts.....93
 Plug or Cap Housing Strain Reliefs.....94



Mini-Universal MATE-N-LOK Sealed Connectors95-97
 Product Facts.....95
 Performance Characteristics.....95
 Plug or Cap Housing.....96
 Individual Wire Seals.....96
 Gang Seals and Contacts.....97



Mini-Universal MATE-N-LOK 2 Connectors99-107
 Product Facts.....99
 Performance Characteristics.....99-100
 Contacts and Keying Plug.....101
 Housings: Free-Hanging.....101-102
 Headers, PC Board: Vertical Pin and Blindmate.....103-104
 Right-Angle Pin.....105
 Recommended PC Board Hole Layouts.....106
 Mating Combinations.....107



(MR) Miniature Rectangular Connectors109-118
 Product Facts.....109
 Performance Characteristics.....109-110
 Mating Combinations.....111
 Contacts and Keying Plug.....112
 Housings: Free-Hanging or Panel Mount.....113-114
 Recommended Panel Cutouts.....115
 Strain Reliefs, Adapting Grommets and Commoning Bars.....116
 Headers, PC Board: Vertical Pin.....117-118
 Recommended PC Board Hole Layouts.....117-118



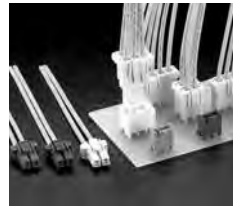
VAL-U-LOK Connector System119-124
 Product Facts.....119
 Performance Characteristics.....119
 Contacts.....120
 Housings (Single Row): Panel Mount Plug.....121
 Free-Hanging Plug.....121
 Receptacle.....121
 Housings (Double Row): Panel Mount Plug.....122
 Free-Hanging Plug.....122
 Colored.....122
 Receptacle.....122
 Pin Headers, PC Board: Vertical and Right-Angle.....123
 Blind Mate Headers.....124



AMP-DUAC Connectors125-133
 Product Facts.....125
 Performance Characteristics.....125
 Receptacle Housings and Female Contacts.....126
 Plug Housings and Male Contacts.....127
 Headers, PC Board: Vertical.....128-133
 Right-Angle.....133
 Strain Relief, 6 Position (for Receptacle or Plug Housing).....127

Table of Contents (Continued)

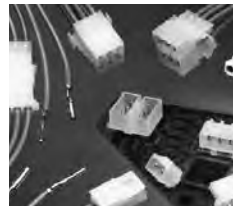
Standard Density



5.0 mm Power Key Connectors (5.0 PKC).....135-141
 Product Facts135
 Performance Characteristics135
 Quick Reference Chart for Mating Part Numbers136
 Contacts and Double Lock Plates137
 Plug Housings: 1 Row138
 2 Row139
 Headers, PC Board, Vertical: 1 Row140
 2 Row141



.093 [2.36] Commercial Pin and Socket Connectors143-149
 Product Facts143
 Performance Characteristics143-144
 Contacts145
 Housings: Free-Hanging or Panel Mount146-149



Commercial MATE-N-LOK Connectors151-164
 Product Facts151
 Performance Characteristics151-152
 Mating Combinations153-154
 Contacts, Commoning Tabs and Keying Plug155-156
 Housings: Free-Hanging157
 Positive Lock158
 Panel Mount159
 Flange Mount and Motor Mount160
 Headers, PC Board: Vertical Pin161
 Surface Mount Right-Angle Pin and Vertical Socket162
 Right-Angle Pin163
 Insulation Displacement Connectors (IDC) and Dust Covers163
 Right-Angle Pin Headers with Fix Belt164



.140 MATE-N-LOK Connectors165-167
 Product Facts165
 Performance Characteristics165
 Contacts166
 Housings: Free-Hanging166
 Panel Mount167

Table of Contents (Continued)

Standard Density
(Continued)



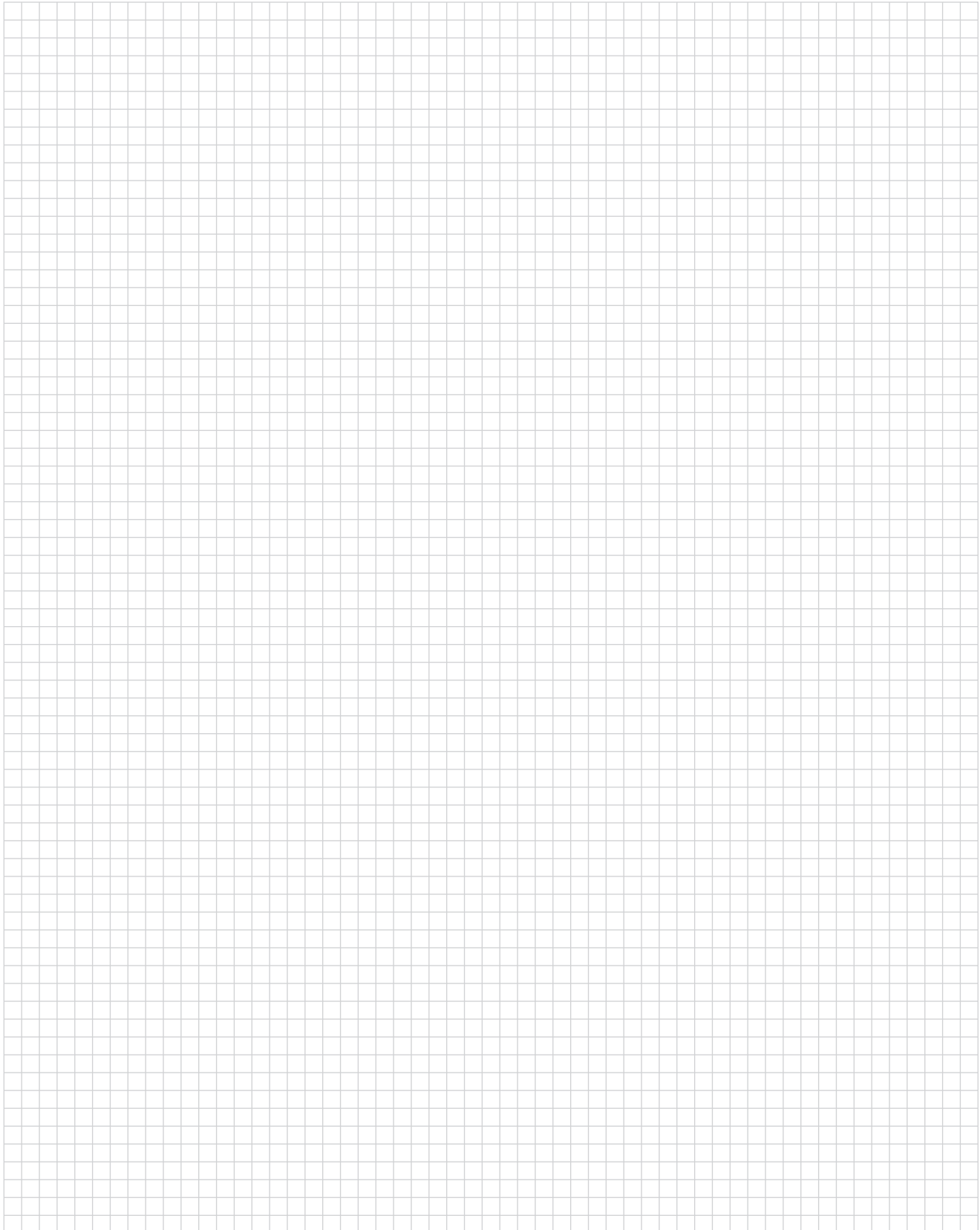
Universal MATE-N-LOK Connectors169-185
 Product Facts.....169
 Performance Characteristics.....169-170
 Mating Combinations171
 Contacts.....172-173
 Housings: Free-Hanging or Panel Mount.....174
 Cap Housing Panel Cutouts, Keying Plugs and
 Plug Housing Strain Reliefs.....175
 Plug or Cap Housing Strain Reliefs and Cap Housing Adapters.....176
 Flanged Cap Housings with Twist and Lock Feature.....177
 Sealed Bulkhead Connectors.....178-179
 Splash-Proof Seals.....180
 Contacts (used with Splash-Proof Seals).....181
 Headers, PC Board: Vertical Pin182
 Vertical Socket.....183
 Recommended PC Board Hole Layouts184
 PC Board Vertical Pin Headers with ACTION PIN Contacts184
 Right-Angle Pin and Socket.....185
 Test Connectors.....185
 Circular Connectors186-188
 Universal MATE-N-LOK Connectors — Available in Colors188

Universal MATE-N-LOK II Connectors189-202
 Product Facts.....189
 Performance Characteristics.....189-190
 Mating Combinations191
 Contacts192
 Housing Kits: Free-Hanging or Panel Mount193-194
 Housing Components: Free-Hanging or Panel Mount195
 Plug or Cap Housing Strain Reliefs and Keying Plug.....196
 Headers, PC Board: Vertical Pin197
 Vertical Socket.....198
 Recommended PC Board Hole Layouts199
 PC Board Vertical Pin Headers with ACTION PIN Contacts199
 Right-Angle Pin and Socket.....200
 High Current Contacts201
 High Current Vertical Pin Headers202

.156 MATE-N-LOK Connectors203-204
 Product Facts.....203
 Contacts203
 Housings: Free-Hanging.....204
 Panel Mount.....204




Technical Documents205-206
 Application Tooling207-210
 Applicator Options211-213
 Product Feature Comparisons.....214-215
 Non-Compliant to RoHS Compliant Part Number Cross Reference216-220
 Part Number Index221-226
 Tooling Part Number Index227
 Global Contacts229

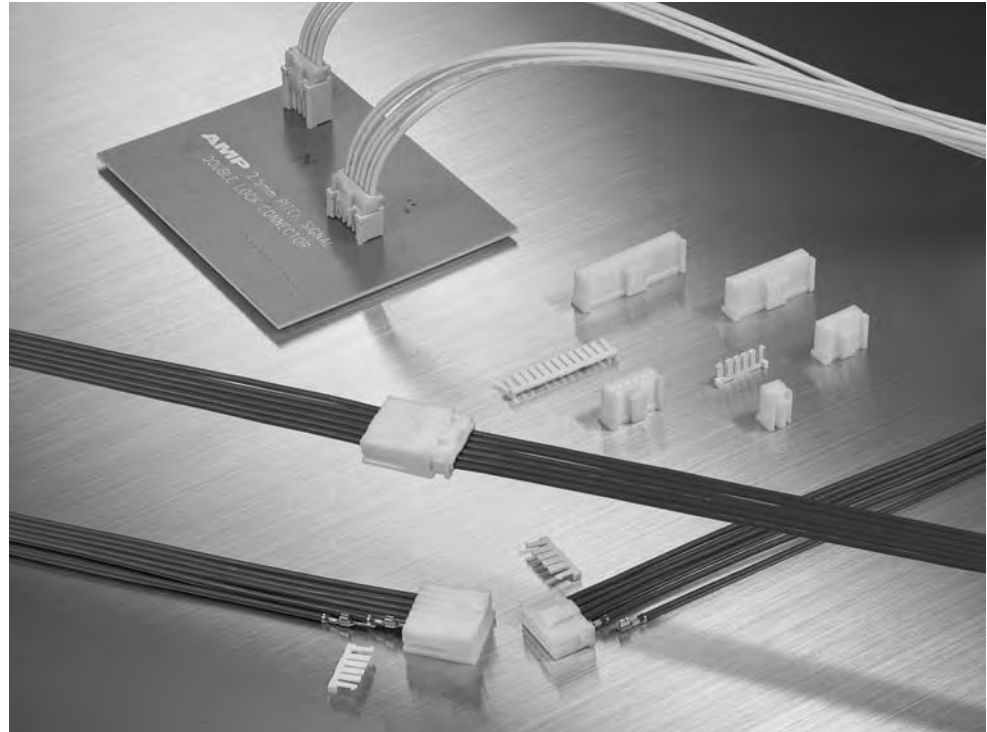
Engineering Notes



2.5 mm Signal Double Lock (2.5 SDL) Connectors (Wire-to-Board and Wire-to-Wire)

Product Facts

- Connector for signal circuits with one row of contacts on 2.5 mm centerline
- Wire-to-board and wire-to-wire connectors, consisting of plug and cap housings for wire termination and PC board-mount post headers
- Mounted to plug and cap housings for wire application, double lock plate provides for positive loading of contacts in the housing. It also helps contacts mate completely
- Double lock plate is contained within the plug and cap housing completely, which provides neat overall appearance
- Accepts 26-20 AWG wire (e.g. UL 1007, 1061, 1571, etc.) with insulation diameters of up to 1.8 mm
- PC board-mount post header is available in two styles: standard profile and high profile
- High-profile post header has locking feature at location fit to resin coating, which is applied onto the board for waterproof protection as in home appliances. It does not hamper mating and locking of post header with plug housing
- Locking structure is inner-lock type and has a clean surface
- Solder tail section of post header is provided with kinks to retain the header firmly on PC board during soldering
- Radial tape-mounted version of post header is also available that is applicable to radial mounting machines
- Recognized under the Component Program  of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association,  File No. LR7189
- VDE Approved, File No.  B 04 11 39175013



2.5 mm Signal Double Lock Connectors (2.5 SDL) are 2.5 mm centerline, compact, one-row connectors for signal circuits.

With contacts on 2.5 mm centerline, both wire-to-wire and wire-to-board connectors are available.

The connectors consist of plug and cap housings for wire termination, double lock plates for plug and cap housings, crimp snap-in contacts, and a PC board-mount post header. A double lock plate is available for both plug and wire-to-wire cap housing to provide for positive loading. It helps prevent contacts from coming off or mating halfway. The plate is contained within the plug and cap housing completely. The plug and cap housing can be used without a double lock plate.

The connector accepts 26-20 AWG wire (e.g. UL 1007, 1061, 1571, etc.) with insu-

lation diameters of up to 1.8 mm.

The PC board-mount post header is available in two styles: standard profile and high profile.

The high-profile type connectors can be used for home appliances, which require waterproof protection. It does not hamper mating and locking of the post header with the plug housing, even if the board has resin coating on it.

The locking structure is inner-lock type and has a clean surface.

The solder tail of the loose-piece post header has kinks to secure the connector on the PC board until it is soldered.

Radial tape-mounted version of post header is also available and this is applicable to radial mounting machines.

Performance Characteristics

Voltage Rating—50 VAC/DC

Current Rating—3 A

Overall Resistance—
10 mΩ max. (initial)
20 mΩ max. (final)

Insulation Resistance—
500 Ω (500 VDC)

Dielectric Withstanding Voltage—
1,100 VAC, one minute

Contact Resistance—20 mΩ max.

Operating Temperature—
-30° ~ +105°C
(The upper limit includes temperature rise from power carrying)

Applicable Wire—26-20 AWG (UL 1007, 1061, 1571)

Wire Insulation Range—
0.93-1.8 mm

PC Board Thickness—1.6 mm

Technical Documents

Product Specification

108-5459

Application Specification

114-5203

Note: Dimensions shown are metric.

2.5 mm Signal Double Lock (2.5 SDL) Connectors
(Wire-to-Board and Wire-to-Wire) (Continued)

Quick Reference Chart for Mating Part Numbers

No. of Pos.	Plug Connector Part No. (Wire Side)		Mating Connectors (PC Board Mount & Wire Side)			
	Housing	Double Lock Plate	Post Header Part No.		Cap Connector Part No.	
			Standard-Profile Type*	High-Profile Type	Cap Housing	Double Lock Plate
2	917686-1	917698-1	917780-1	917722-1	316086-1	917698-1
3	917687-1	917699-1	917781-1	917723-1	316087-1	917699-1
4	917688-1	917700-1	917782-1	917724-1	316088-1	917700-1
5	917689-1	917701-1	917783-1	917725-1	316089-1	917701-1
6	917690-1	917702-1	917784-1	917726-1	316090-1	917702-1
7	917691-1	917703-1	917785-1	917727-1	316091-1	917703-1
8	917692-1	917704-1	917786-1	917728-1	316092-1	917704-1
9	917693-1	917705-1	917787-1	917729-1	—	917705-1
10	917694-1	917706-1	917788-1	917730-1	316094-1	917706-1
11	917695-1	917707-1	917789-1	917731-1	—	917707-1
12	917696-1	917708-1	917790-1	917732-1	—	917708-1
13	917697-1	917709-1	917791-1	917733-1	—	917709-1

*Included in Standard-Profile Post Header line are Radial Tape-Mounted version (2 to 8 positions).
Refer to appropriate description in the catalog.

Note: All part numbers are RoHS Compliant.

Product Family List (Including Production Plans)

Description	Number of Positions												
	2	3	4	5	6	7	8	9	10	11	12	13	
Plug Housing	●	●	●	●	●	●	●	●	●	●	●	●	
Vertical Board Mount Post Header	Standard-Profile Type		Loose Piece	●	●	●	●	●	●	●	●	●	
	Standard-Profile Type		Radial Tape-Mounted	●	●	●	●	●	●	—	—	—	
Vertical Board Mount Post Header	High-Profile Type		Loose Piece	●	●	●	●	●	●	●	●	●	
	High-Profile Type		Radial Tape-Mounted	●	●	●	●	●	●	—	—	—	
Cap Housing	●	●	●	●	●	●	●	○	●	○	○	○	
Double Lock Plate	●	●	●	●	●	●	●	●	●	●	●	●	
Horizontal Board Mount Post Header	○	○	○	○	○	○	○	○	○	○	○	○	
Horizontal Mount Post Header (Radial Tape-Mounted)	○	○	○	○	○	○	○	—	—	—	—	—	

Note: ● indicates products currently available; ○ indicates products planned for production.

Note: Dimensions shown are metric.

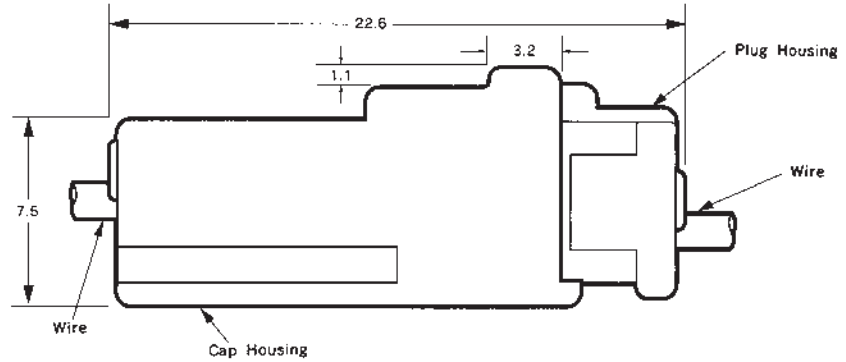
High Density
2.5 mm Signal Double Lock
.098 [2.50] Centerline

2.5 mm Signal Double Lock (2.5 SDL) Connectors
(Wire-to-Board and Wire-to-Wire) (Continued)

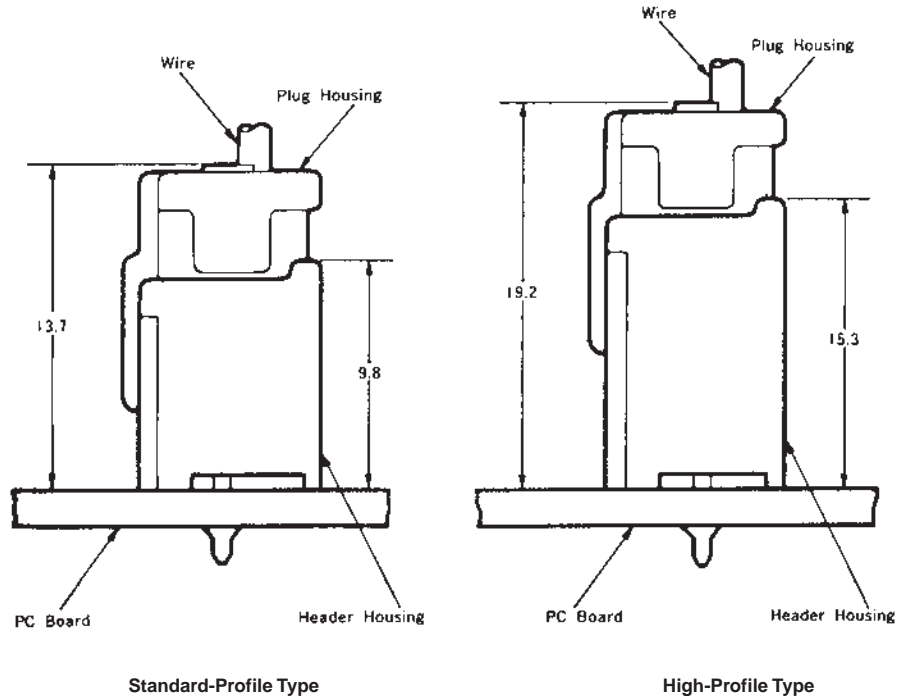
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2.5 mm Signal Double Lock
.098 [2.50] Centerline

Mating Configurations

Wire-to-Wire Connections



Wire-to-PC Board Connections



Note: Dimensions shown are metric.

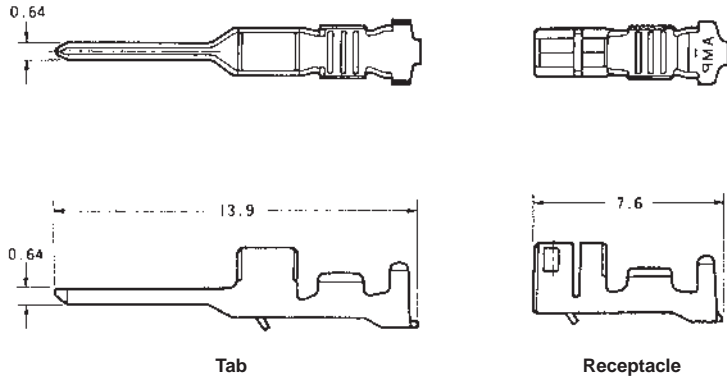
2.5 mm Signal Double Lock (2.5 SDL) Connectors
(Wire-to-Board and Wire-to-Wire) (Continued)

Contacts

Material and Finish

Pre-tinned phosphor bronze
(0.2 mm thick)

Receptacle for Plug Housing,
Tab for Cap Housing



High Density
2.5 mm Signal Double Lock
.098 [2.50] Centerline

Wire Range		Wire Ins. Dia.	Contact Part Number				Applicator Part Number
AWG	mm ²		Tab		Receptacle		
			Strip Form	Loose Piece	Strip Form	Loose Piece	
26-22	0.12-0.35	0.93-1.50	917765-1	316399-1	917684-1	316401-1	*
22-20	0.30-0.53	1.40-1.80	917764-1	316398-1	917683-1	316400-1	*

Hand Tool Part No.: for 26-22 AWG = 234604-1 (Instruction Sheet 411-5736)
22-20 AWG = 234603-1 (Instruction Sheet 411-5735)

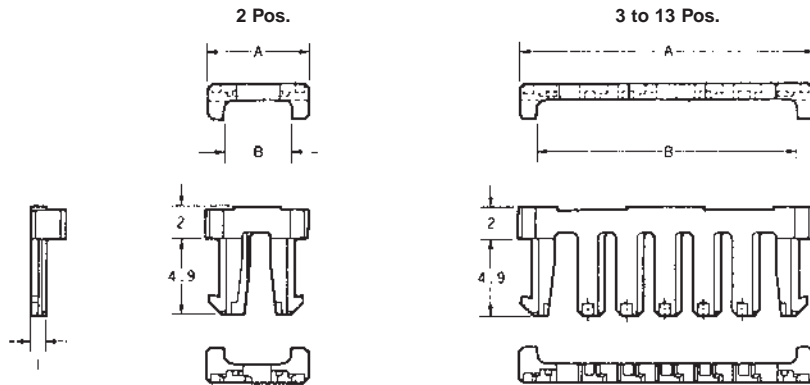
Extraction Tool Part No.: 234605-1 (Instruction Sheet 411-5737)

* Contact the Tooling Assistance Center (TAC) at 1-800-722-1111 for Applicator Part Number.

Double Lock Plates

Material

UL94V-0, 6/6 Nylon, glass filled,
natural color



No. of Pos.	Dimensions of Double Lock Plate		Double Lock Plate Part Number	Applicable Housing Part Number	
	A	B		Plug	Cap
2	06.5	04.3	917698-1	917686-1	316086-1
3	09.0	06.8	917699-1	917687-1	316087-1
4	11.5	09.3	917700-1	917688-1	316088-1
5	14.0	11.8	917701-1	917689-1	316089-1
6	16.5	14.3	917702-1	917690-1	316090-1
7	19.0	16.8	917703-1	917691-1	316091-1
8	21.5	19.3	917704-1	917692-1	316092-1
9	24.0	21.8	917705-1	917693-1	—
10	26.5	24.3	917706-1	917694-1	316094-1
11	29.0	26.8	917707-1	917695-1	—
12	31.5	29.3	917708-1	917696-1	—
13	34.0	31.8	917709-1	917697-1	—

Extraction Tool Part No. for Double Lock Plate: 234605-1 (Instruction Sheet 411-5737)

Note: All part numbers are RoHS Compliant.

Note: Dimensions shown are metric.

2.5 mm Signal Double Lock (2.5 SDL) Connectors
(Wire-to-Board and Wire-to-Wire) (Continued)

High Density
2.5 mm Signal Double Lock
.098 [2.50] Centerline

Plug Housings
(For Receptacle Contacts)

2 to 13 Positions

Material

UL94V-0, 6/6 Nylon, color (see chart)

Related Product Data

Receptacle Contact Part No.

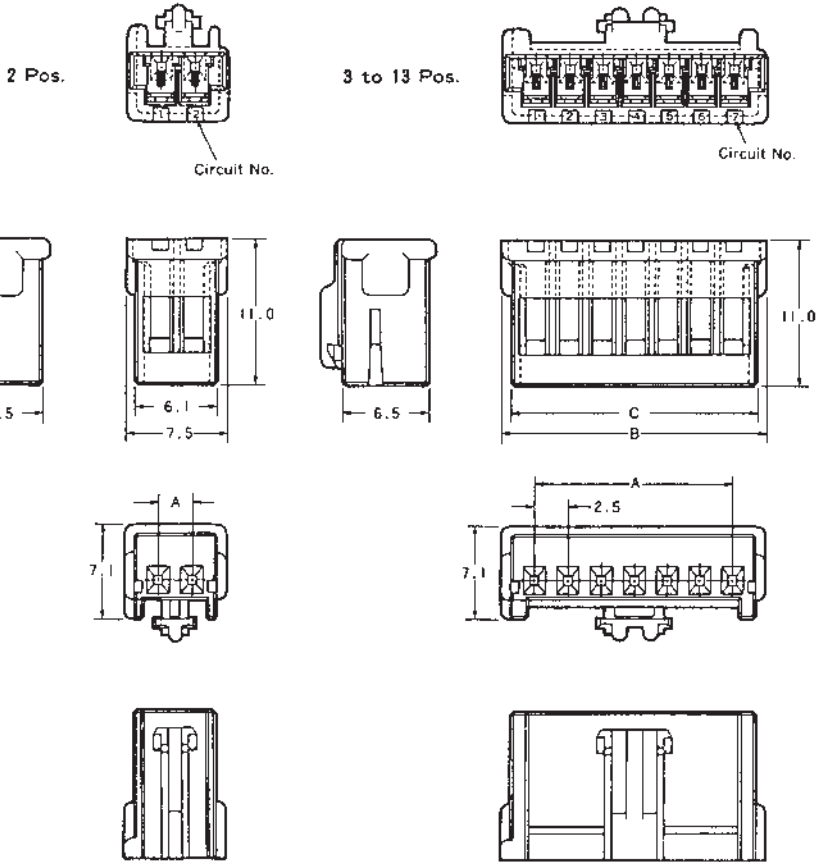
917684-1 (26-22 AWG)

917683-1 (22-20 AWG)

Double Lock Plate—page 12

Mating Cap Housings—page 14

Mating Post Headers—pages 15-16



No. of Pos.	Dimensions			Plug Housing Part Number					
	A	B	C	Natural	Red	Yellow	Green	Blue	Black
2	02.5	07.5	06.1	917686-1	917686-2	917686-4	917686-5	917686-6	917686-9
3	05.0	10.0	08.6	917687-1	917687-2	917687-4	—	917687-6	917687-9
4	07.5	12.5	11.1	917688-1	917688-2	917688-4	—	—	917688-9
5	10.0	15.0	13.6	917689-1	917689-2	—	—	917689-6	—
6	12.5	17.5	16.1	917690-1	917690-2	917690-4	—	917690-6	917690-9
7	15.0	20.0	18.6	917691-1	917691-2	917691-4	—	—	917691-9
8	17.5	22.5	21.1	917692-1	—	—	—	917692-6	—
9	20.0	25.0	23.6	917693-1	917693-2	917693-4	—	—	—
10	22.5	27.5	26.1	917694-1	—	917694-4	—	—	—
11	25.0	30.0	28.6	917695-1	—	—	—	—	—
12	27.5	32.5	31.1	917696-1	917696-2	—	—	—	—
13	30.0	35.0	33.6	917697-1	917697-2	—	—	—	—

Note: All part numbers are RoHS Compliant.

**2.5 mm Signal Double Lock (2.5 SDL) Connectors
(Wire-to-Wire)**

**Cap Housings
(For Tab Contacts)**

2 to 10 Positions

Material

UL94V-0, 6/6 Nylon, color (see chart)

Related Product Data

Tab Contact Part No.

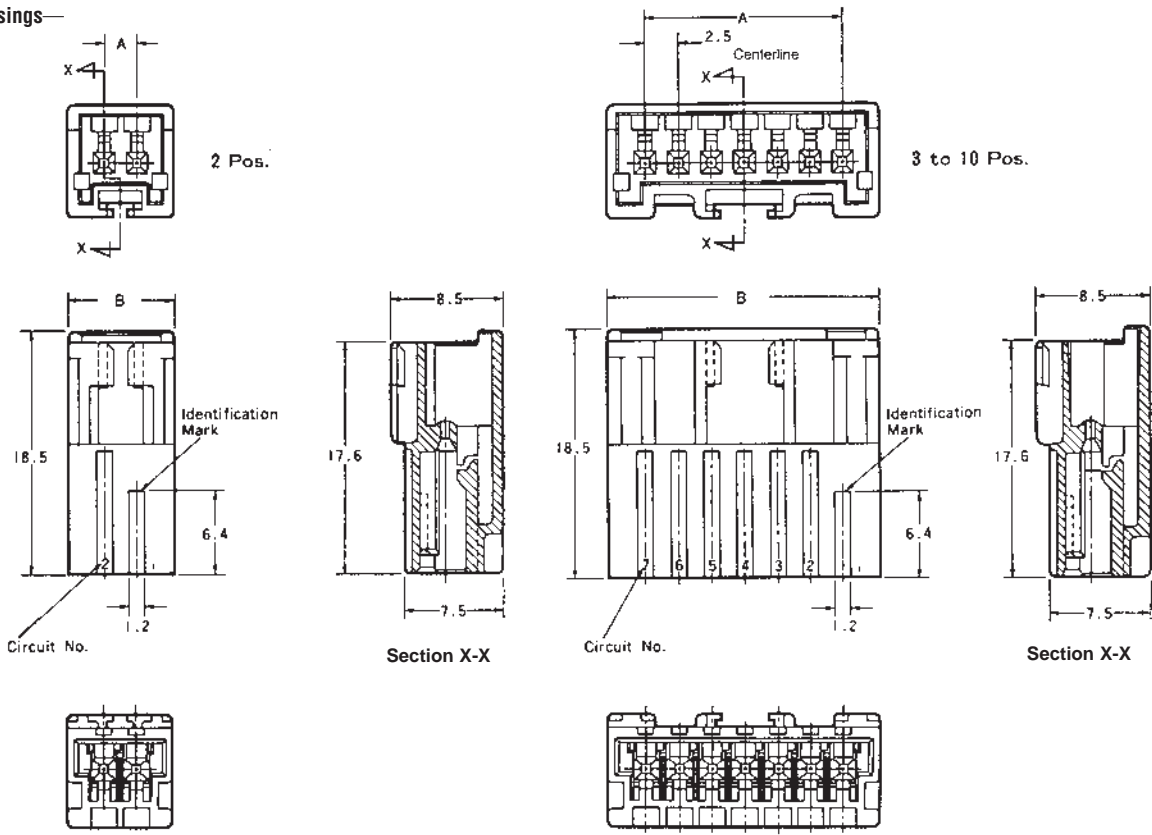
917765-1 (26-22 AWG)

917764-1 (22-20 AWG)

Double Lock Plate—page 12

Mating Plug Housings—
page 13

2.5 mm Signal Double Lock .098 [2.50] Centerline High Density



No. of Pos.	Dimensions		Cap Housing Part Number				
	A	B	Natural	Red	Yellow	Blue	Black
2	02.5	08.1	316086-1	316086-2	316086-4	316086-6	316086-9
3	05.0	10.6	316087-1	—	316087-4	—	316087-9
4	07.5	13.1	316088-1	316088-2	306088-4	—	316088-9
5	10.0	15.6	316089-1	316089-2	—	—	—
6	12.5	18.1	316090-1	—	—	—	—
7	15.0	20.6	316091-1	—	—	—	316091-9
8	17.5	23.1	316092-1	—	—	—	—
10	22.5	28.1	316094-1	—	316094-4	—	—

Note: All part numbers are RoHS Compliant.

Note: Dimensions shown are metric.

**2.5 mm Signal Double Lock (2.5 SDL) Connectors
(Wire-to-Wire) (Continued)**

High Density

2.5 mm Signal Double Lock
.098 [2.50] Centerline

**Vertical Post Headers
(For PC Board Mount)**

Standard-Profile Type

Material and Finish

Header Housings

UL94V-0, 6/6 Nylon, glass filled, color (see chart)

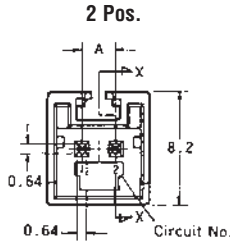
Post Contact

Pre-tinned copper alloy

Related Product Data

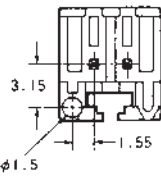
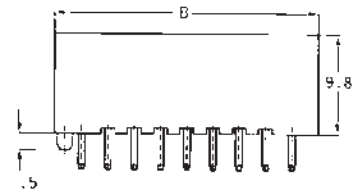
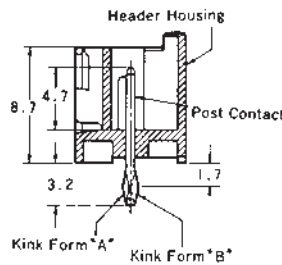
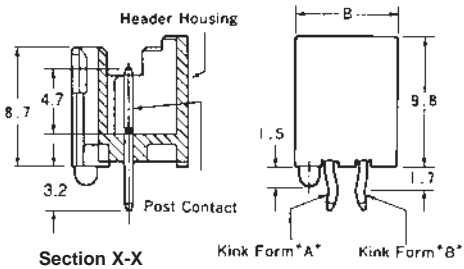
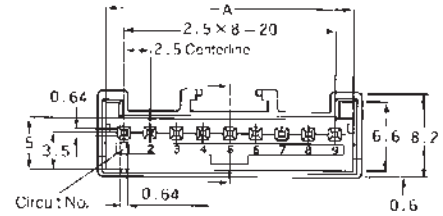
Mating Plug Housings—

page 13

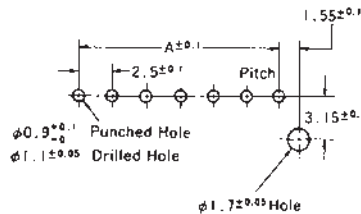
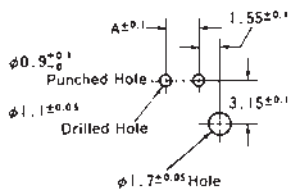
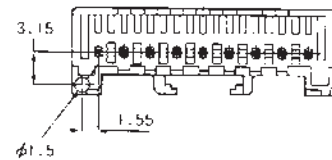


3 to 13 Pos.

Designs of 5 pos. to 8 pos. header housings are slightly different, please request the drawings.



Section X-X



No. of Pos.	Dimensions		Post Header Part Number						(Qty.)		
	A	B	Loose Piece			Radial Tape-Mounted					
			Natural	Red	Yellow	Blue	Black	Natural		Red	Yellow
2	02.5	07.5	□-917780-1*1	□-917780-2*1	—	—	□-917780-9*1	□-917894-1*3	—	—	(900)
3	05.0	10.0	□-917781-1*1	□-917781-2*1	—	—	□-917781-9*1	□-917895-1*4	□-917895-2	—	(900)
4	07.5	12.5	□-917782-1*1	□-917782-2*1	□-917782-4*1	—	□-917782-9*1	□-917896-1	—	—	(450)
5	10.0	15.0	□-917783-1*1	□-917783-2*1	—	□-917783-6	—	□-917897-1	□-917897-2	—	(450)
6	12.5	17.5	□-917784-1*1	□-917784-2*1	—	—	□-917784-9*1	□-917898-1	—	—	(450)
7	15.0	20.0	□-917785-1*1	□-917785-2	□-917785-4*1	—	—	□-917899-1*5	3-917899-2*6	□-917899-4	(450)
8	17.5	22.5	□-917786-1*1	—	—	□-917786-6*	—	□-917900-1	—	—	(450)
9	20.0	25.0	□-917787-1*1	□-917787-2	—	—	—	—	—	—	
10	22.5	27.5	□-917788-1*1	—	—	—	—	—	—	—	
11	25.0	30.0	□-917789-1*1	—	—	—	—	—	—	—	
12	27.5	32.5	□-917790-1*1	□-917790-2	—	—	—	—	—	—	
13	30.0	35.0	□-917791-1*1	□-917791-2	—	—	—	—	—	—	

*1 Leave the □ blank, meaning it is with the boss. Enter 2 meaning it is without the boss.
 *2 Leave the □ blank, meaning it is with the boss and the kink. Enter 1 meaning it is without the boss and the kink. Enter 2 meaning it is with the boss and with the kink.

*3 The blue housing 917894-6 is also available.
 *4 The blue housing 917895-6 and the black housing 917895-9 are also available.
 *5 Leave the □ blank, meaning it is without the boss. Enter 3 meaning it is with the boss.
 *6 It is without the boss.

Note: All part numbers are RoHS Compliant.

Note: Dimensions shown are metric.

2.5 mm Signal Double Lock (2.5 SDL) Connectors
(Wire-to-Wire) (Continued)

Vertical Post Headers
(For PC Board Mount)

High-Profile Type

Material and Finish

Header Housing—UL94V-0, 6/6 Nylon, glass filled, color (see chart)

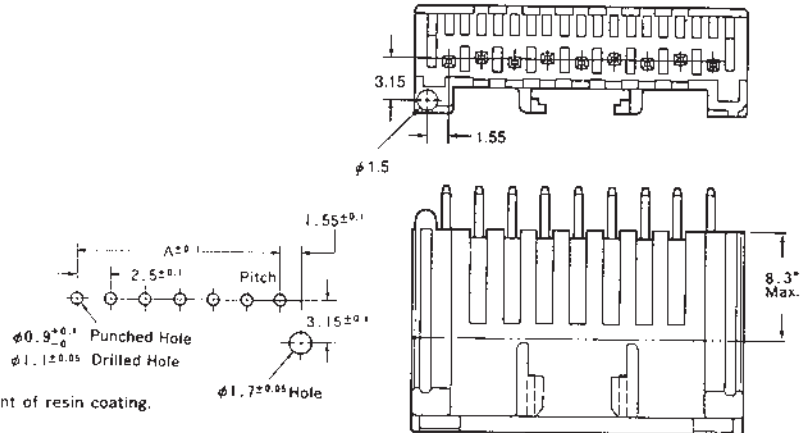
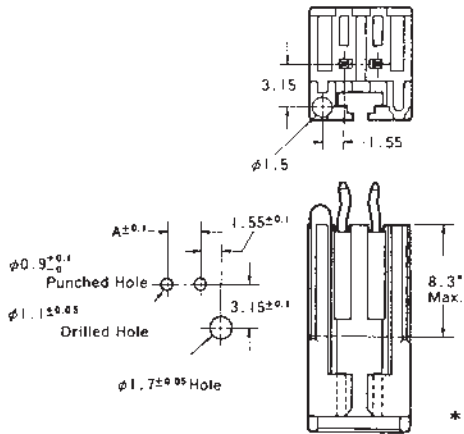
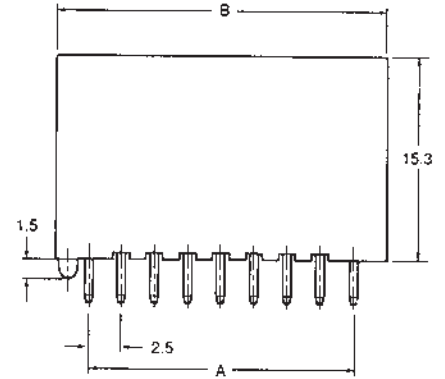
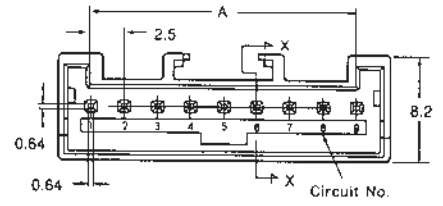
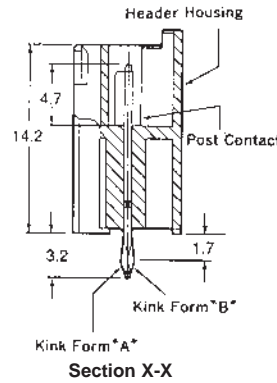
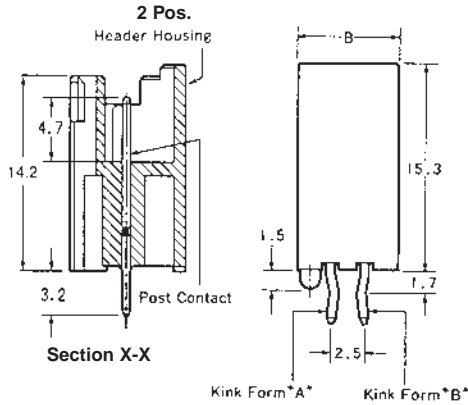
Post Contact—Pre-tinned copper alloy

Related Product Data

Mating Plug Housings—page 13

3 to 13 Pos.

Designs of 5 pos. to 8 pos. header housings are slightly different, please request the drawings.



Note: Dimensions shown are metric.

No. of Pos.	Dimensions		Post Header Part Number							Radial Tape-Mounted	(Qty.)
			Loose Piece								
	A	B	Natural	Red	Yellow	Green	Blue	Black			
2	02.5	07.5	□-917722-1*1	□-917722-2*1	□-917722-4*1	□-917722-5*1	□-917722-6*1	□-917722-9*1	316221-1	(900) ²	
3	05.0	10.0	□-917723-1*1	—	—	—	—	—	316222-1	(900)	
4	07.5	12.5	□-917724-1*1	—	—	—	—	—	316223-1	(450)	
5	10.0	15.0	□-917725-1*1	—	—	—	—	—	316224-1	(450)	
6	12.5	17.5	□-917726-1*1	—	□-917726-4*1	—	□-917726-6*1	—	316225-1	(450)	
7	15.0	20.0	□-917727-1*1	—	—	—	—	—	316226-1	(450)	
8	17.5	22.5	□-917728-1*1	—	—	—	—	—	316227-1	(450)	
9	20.0	25.0	□-917729-1*1	—	—	—	—	—	—	—	
10	22.5	27.5	□-917730-1*1	—	—	—	—	—	—	—	
11	25.0	30.0	□-917731-1*1	—	—	—	—	—	—	—	
12	27.5	32.5	□-917732-1*1	—	—	—	—	—	—	—	
13	30.0	35.0	□-917733-1*1	—	—	—	—	—	—	—	



*1 Leave the □ blank, meaning it is with the boss. Enter 2 meaning it is without the boss.

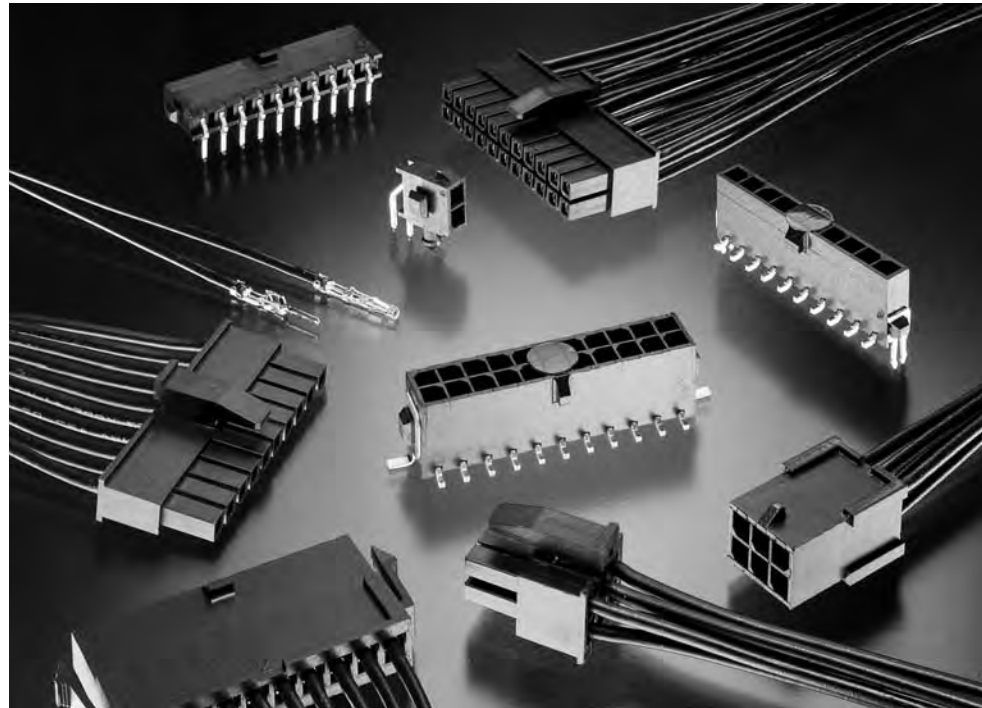
*2 The red housing 316221-2 and the yellow housing 316221-4 and the green housing 316221-5 and the blue housing 316221-6 and the black housing 316221-9 are also available.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System

Product Facts

- Wire-to-wire and wire-to-board pin and receptacle connector system
- Contacts are on 3 mm [.118] centerline spacing
- 2-12 contact positions – single row
- 2-24 contact positions – dual row
- Panel mount or free-hanging wire-to-wire configurations
- Dual beam contact design for reliable interconnection
- Contacts accept 24-20 [0.2-0.6] and 30-26 [0.05-0.15] AWG wire with insulation diameter of .060 [1.52] maximum
- Contacts available in strip form or loose piece
- Pcb mount pin header assemblies in both vertical and right-angle styles
- Surface mount or through-hole pcb pin header attachment
- Pcb headers are IR reflow process compatible
- Recognized under the Component Program of Underwriters Laboratories Inc.  to US and Canadian Standards, File No. E28476
- Passed Tests for VDE under Registration Number 40005280/Continuous Surveillance 



The Micro MATE-N-LOK 3 mm Connector System is a wire-to-wire and wire-to-board connector system with contacts on a 3 mm [.118] centerline. Both single-row and dual-row configurations are available. Crimp, snap-in pin and receptacle contacts are used to terminate 24-20 [0.2-0.6] and 30-26 [0.05-0.15] AWG wire. Plug and receptacle housings allow wire-to-wire and wire-to-panel configurations.

Header assemblies for wire-to-board interconnections include vertical and right-angle components. These IR reflow process compatible headers are available in through-hole and surface mount configurations.

Typical uses of the Micro MATE-N-LOK 3 mm Connector System include the appliance, instrumentation, industrial machinery, home equipment, and security system industries.

Technical Documents

Application Specification

114-13000 Micro MATE-N-LOK Connectors

Product Specification

108-1836 3 mm Micro MATE-N-LOK Connector

Performance Characteristics

Voltage Rating—250 vac

Current Rating—5 amp max. on 20 AWG wire

Contact Resistance—20 milliohms max. final

Dielectric Withstanding Voltage—1500 VAC

Insulation Resistance—1000 megohms min.

Operating Temperature—-40°C to +105°C

Mating Force—1.5lb [6.67N] max per contact

Micro MATE-N-LOK 3 mm Connector System (Continued)

Connector Application 19-21
Crimp, Snap-In Contacts 22

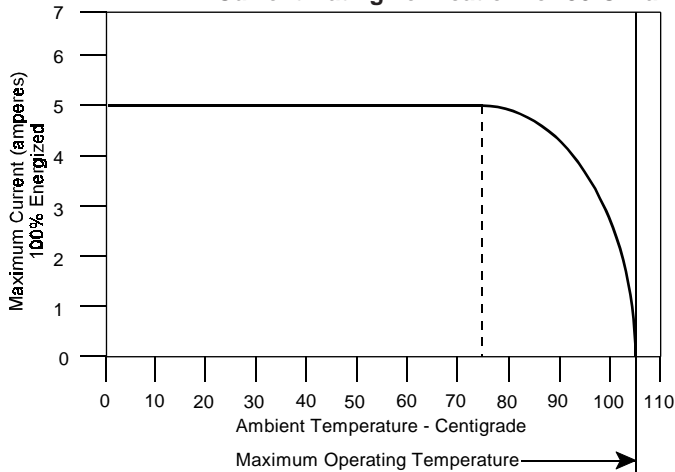
Receptacle Housings
Single Row 23
Dual Row 24

Plug Housings
Single Row, Free-Hanging 25
Single Row, Panel Mount 26
Dual Row, Free-Hanging 27
Dual Row, Panel Mount 28

Vertical Header Assemblies
Low Profile Receptacle Housings,
Right Angle Surface Mount Housings. 29
Single Row, Through-Hole, with Retention Feature
on Solder-tail and Polarization Feature to PCB 30
Single Row, Through-Hole, with Metal Through-Hole Hold-down 31
Single Row, Surface Mount, with Metal Through-Hole Hold-down 32
Single Row, Surface Mount, with Surface Mount Hold-down 33
Dual Row, Through-Hole, with Retention Feature on Solder-tail 34
Dual Row, Through-Hole, with Retention Feature
on Solder-tail and Metal Through-Hole Hold-down 35
Dual Row, Surface Mount, with Metal Through-Hole Hold-down. 36
Dual Row, Surface Mount, with Surface Mount Hold-down 37

Right-Angle Header Assemblies
Single Row, Through-Hole, with Metal Through-Hole Hold-down 38
Single Row, Through-Hole, with Plastic Boardlock 39
Single Row, Surface Mount, with Metal Through-Hole Hold-down 40
Single Row, Surface Mount, with Surface Mount Hold-down 41
Single Row, Surface Mount, with Plastic Boardlock. 42
Dual Row, Through-Hole, with Metal Through-Hole Hold-down 43
Dual Row, Through-Hole, with Plastic Boardlock. 44
Dual Row, Surface Mount, with Metal Through-Hole Hold-down. 45
Dual Row, Surface Mount, with Plastic Boardlock. 46
Dual Row, Surface Mount, with Surface Mount Hold-down 47

Current Rating Verification for 30°C Maximum Temperature Rise 100% Energized



Number of Circuit Positions	Multiplication Factor	
	Wire Size (AWG)	
2 to 6	0.40	1
8 to 20	0.40	0.85
22 to 24	0.36	0.85

To determine acceptable current carrying capacity for connector size and wire gage indicated, use the Multiplication Factor from the chart above and multiply it times the Base rated Current at the maximum ambient operating temperature shown in the current rating figure.


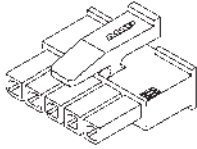

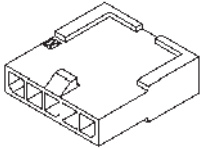
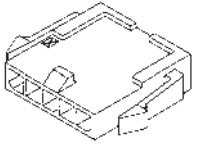
High Density

Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline


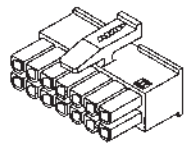

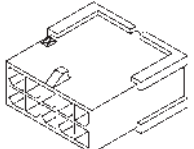
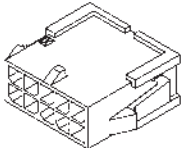
Micro MATE-N-LOK 3 mm Connector System (Continued)

**Connector Application —
Wire-to-Wire and
Wire-to-Panel**

Single Row

Receptacle		Plug	
Contact	Housing	Contact	Housing
 <p>□-794606-□, □-794607-□, □-794610-□, □-794611-□ Page 22</p>	 <p>□-1445022-□ Page 23</p>	 <p>□-794608-□, □-794609-□, □-794612-□, □-794613-□ Page 22</p>	 <p>Free-Hanging □-1445049-□ Page 25</p>  <p>Panel Mount □-1445048-□ Page 26</p>

Dual Row

Receptacle		Plug	
Contact	Housing	Contact	Housing
 <p>□-794606-□, □-794607-□, □-794610-□, □-794611-□ Page 22</p>	 <p>□-794617-□ Page 24</p>	 <p>□-794608-□, □-794609-□, □-794612-□, □-794613-□ Page 22</p>	 <p>Free-Hanging □-794616-□ Page 27</p>  <p>Panel Mount □-794615-□ Page 28</p>


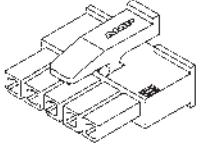
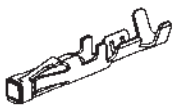
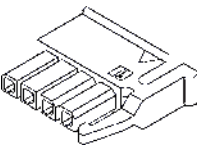
High Density

Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

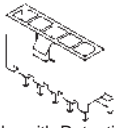
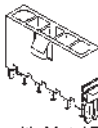
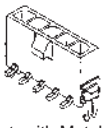
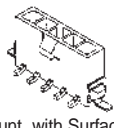
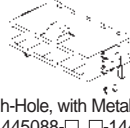
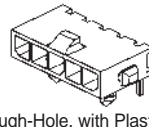
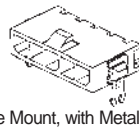
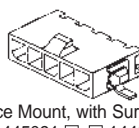

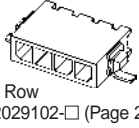
Micro MATE-N-LOK 3 mm Connector System (Continued)

**Connector Application —
Wire-to-PCB**

Single Row

Receptacle	
Contact	Housing
 <p>□-794606-□, □-794607-□, □-794610-□, □-794611-□ (Page 22)</p>	 <p>□-1445022-□ (Page 23)</p>
 <p>□-794606-□, □-794607-□, □-794610-□, □-794611-□ (Page 29)</p>	 <p>□-2029047-□, □-2029102-□, □-2029030-□, □-2029104-□, (Page 29)</p>

Low Profile, Single Row

Header
 <p>Vertical Through-Hole, with Retention Feature on Solder-tail and Polarization Feature to PCB □-1445050-□, □-1445084-□, □-1445093-□ (Page 30)</p>
 <p>Vertical Through-Hole, with Metal Through-Hole Hold-down □-1445051-□, □-1445085-□, □-1445094-□ (Page 31)</p>
 <p>Vertical Surface Mount, with Metal Through-Hole Hold-down □-1445052-□, □-1445086-□, □-1445095-□ (Page 32)</p>
 <p>Vertical Surface Mount, with Surface Mount Hold-down □-1445053-□, □-1445087-□, □-1445096-□ (Page 33)</p>
 <p>Right-angle, Through-Hole, with Metal Through-Hole Hold-down □-1445054-□, □-1445088-□, □-1445097-□ (Page 38)</p>
 <p>Right-angle, Through-Hole, with Plastic Boardlock □-1445055-□, □-1445089-□, □-1445098-□ (Page 39)</p>
 <p>Right-angle, Surface Mount, with Metal Through-Hole Hold-down □-1445056-□, □-1445090-□, □-1445099-□ (Page 40)</p>
 <p>Right-angle, Surface Mount, with Surface Mount Hold-down □-1445057-□, □-1445091-□, □-1445100-□ (Page 41)</p>
 <p>Right-angle, Surface Mount, and Plastic Boardlock □-1445058-□, □-1445092-□, □-1445101-□ (Page 42)</p>
 <p>Low Profile, Single Row □-2029030-□, □-2029102-□ (Page 29)</p>




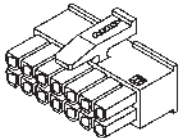
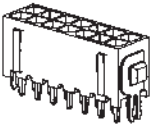
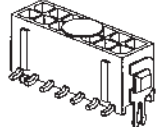
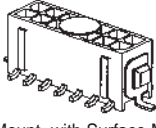

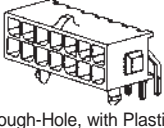
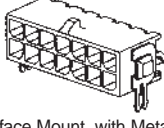
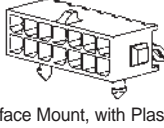
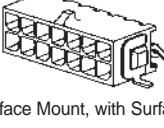
High Density

Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

Micro MATE-N-LOK 3 mm Connector System (Continued)

**Connector Application —
Wire-to-PCB**

Dual Row

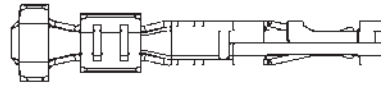
Receptacle		Header
Contact	Housing	
 <p>□-794606-□, □-794607-□, □-794610-□, □-794611-□ (Page 22)</p>	 <p>□-794617-□ (Page 24)</p>	<div style="text-align: center;">  <p>Vertical Through-Hole, with Retention Feature on Solder-tail and Optional Metal Through-Hole Hold-down □-794630-□, □-794631-□, □-794632-□, (Page 34) □-794680-□, □-794681-□, □-794682-□ (Page 35)</p> </div> <div style="text-align: center;">  <p>Vertical Surface Mount, with Metal Through-Hole Hold-down □-794633-□, □-794634-□, □-794635-□ (Page 36)</p> </div> <div style="text-align: center;">  <p>Vertical Surface Mount, with Surface Mount Hold-down □-794636-□, □-794637-□, □-794638-□ (Page 37)</p> </div> <div style="text-align: center;">  <p>Right-angle, Through-Hole, with Metal Through-Hole Hold-down □-794677-□, □-794678-□, □-794679-□ (Page 43)</p> </div> <div style="text-align: center;">  <p>Right-angle, Through-Hole, with Plastic Boardlock □-794618-□, □-794619-□, □-794620-□ (Page 44)</p> </div> <div style="text-align: center;">  <p>Right-angle, Surface Mount, with Metal Through-Hole Hold-down □-794624-□, □-794625-□, □-794626-□ (Page 45)</p> </div> <div style="text-align: center;">  <p>Right-angle, Surface Mount, with Plastic Boardlock □-794621-□, □-794622-□, □-794623-□ (Page 46)</p> </div> <div style="text-align: center;">  <p>Right-angle, Surface Mount, with Surface Mount Hold-down □-794627-□, □-794628-□, □-794629-□ (Page 47)</p> </div>

High Density

Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

Micro MATE-N-LOK 3 mm Connector System (Continued)

Crimp, Snap-In Contacts



Material and Finish

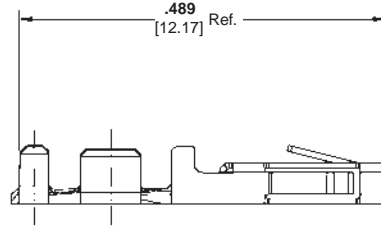
Receptacle — Phosphor Bronze

Plug — Brass

Plating A — .000100 (.000254) minimum bright tin entire stock over .000050 (.000127) minimum nickel entire stock

Plating B — .000015 (.000038) minimum gold in localized gold plate area. .000100 (.000254) minimum bright tin in localized tin plate area, both over .000050 (.000127) minimum nickel on entire stock

Plating C — .000030 (.000076) minimum gold in localized gold plate area. .000100 (.000254) minimum bright tin in localized tin plate area, both over .000050 (.000127) minimum nickel on entire stock



Receptacle Contacts

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Contact Part Numbers		Tooling Part Numbers	
			Strip Form	Loose Piece	Applicator	Hand Tool
20-24 0.50 - 0.20	.035 - .060 0.89-1.52	Plating A	794606-1	794610-1	680893-□*	91501-1
		Plating B	1-794606-1	1-794610-1		
		Plating C	1-794606-2	1-794610-2		
26-30 0.12 - 0.05	.035 - .060 0.89-1.52	Plating A	794607-1	794611-1	680894-□*	91502-1
		Plating B	1-794607-1	1-794611-1		
		Plating C	1-794607-2	1-794611-2		

*1=AMPOMATOR CLS Machine, 2=AMP-O-LECTRIC Model K Terminator, 3=AMP-O-LECTRIC Model G Terminator

Note: All part numbers are RoHS Compliant.

Related Product Data

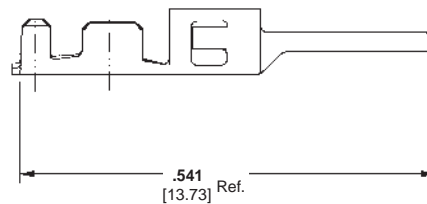
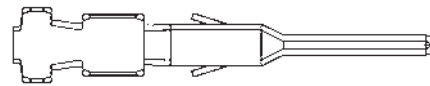
Connectors used with:

Receptacle Contacts used with Receptacle Housings — pages 23-24

Plug Contacts used with Plug Housings — pages 25-28

Application Tooling—

pages 207-210



Plug Contacts

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Contact Part Numbers		Tooling Part Numbers	
			Strip Form	Loose Piece	Applicator	Hand Tool
20-24 0.50 - 0.20	.035 - .060 0.89-1.52	Plating A	1-794608-0	1-794612-0	1385194-□*	91501-1
		Plating B	1-794608-1	1-794612-1		
		Plating C	1-794608-2	1-794612-2		
26-30 0.12 - 0.05	.035 - .060 0.89-1.52	Plating A	1-794609-0	1-794613-0	1385377-□*	91502-1
		Plating B	1-794609-1	1-794613-1		
		Plating C	1-794609-2	1-794613-2		

*1=AMPOMATOR CLS Machine, 2=AMP-O-LECTRIC Model K Terminator, 3=AMP-O-LECTRIC Model G Terminator

Note: All part numbers are RoHS Compliant.

Contact Extraction Tools

Part Number 843996-6 for Receptacle Contacts Part Number 1586344-1 for Plug Contacts

Micro MATE-N-LOK 3 mm Connector System (Continued)

High Density

Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

Receptacle Housings

Single Row

Material

Nylon, Black
Flammability Rating—UL 94V-0

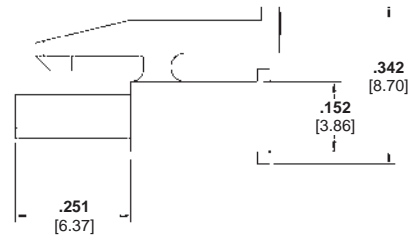
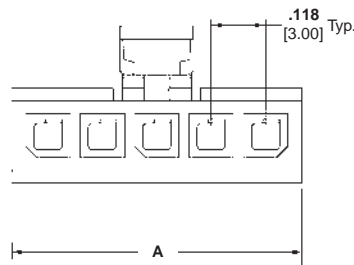
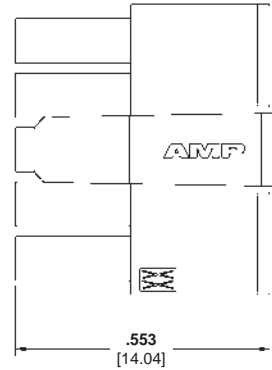
Related Product Data

Contacts:

Receptacle Contacts—page 22

Mateable Housings and Headers:

Single Row Plug Housings—
pages 25-26
Single Row Vertical Pin Header
Assemblies—pages 30-37
Single Row Right-Angle Pin Header
Assemblies—pages 38-47



Number of Circuits	Dimension A	Part Numbers
2	.276 7.00	1445022-2
3	.394 10.00	1445022-3
4	.512 13.00	1445022-4
5	.630 16.00	1445022-5
6	.748 19.00	1445022-6
7	.866 22.00	1445022-7
8	.984 25.00	1445022-8
9	1.102 28.00	1445022-9
10	1.220 31.00	1-1445022-0
11	1.339 34.00	1-1445022-1
12	1.457 37.00	1-1445022-2

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

Receptacle Housings
(Continued)

Dual Row

Material

Nylon, Black
Flammability Rating—UL 94V-0

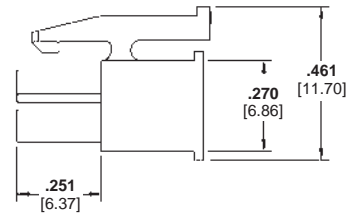
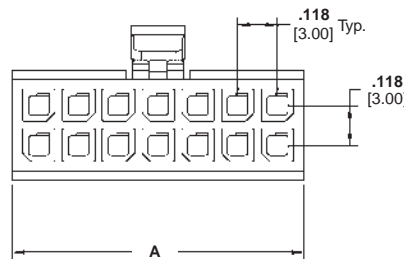
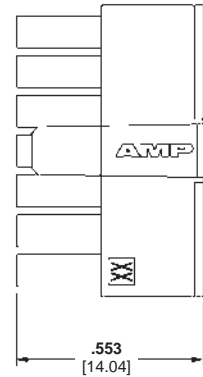
Related Product Data

Contacts:

Receptacle Contacts—page 22

Mateable Housings and Headers:

Dual Row Plug Housings—pages 27-28
Dual Row Vertical Pin Header Assemblies—pages 34-37
Dual Row Right-Angle Pin Header Assemblies—pages 43-47



Number of Circuits	Dimension A	Part Numbers
2	.157 4.00	794617-2
4	.276 7.00	794617-4
6	.394 10.00	794617-6
8	.512 13.00	794617-8
10	.630 16.00	1-794617-0
12	.748 19.00	1-794617-2
14	.866 22.00	1-794617-4
16	.984 25.00	1-794617-6
18	1.102 28.00	1-794617-8
20	1.220 31.00	2-794617-0
22	1.339 34.00	2-794617-2
24	1.457 37.00	2-794617-4

Note: All part numbers are RoHS Compliant.

High Density
Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

Micro MATE-N-LOK 3 mm Connector System (Continued)

Plug Housings

Single Row, Free-Hanging

Material

Nylon, Black
Flammability Rating—UL 94V-0

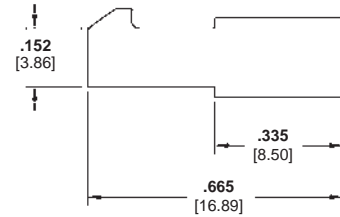
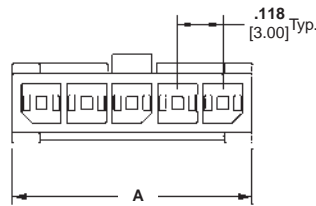
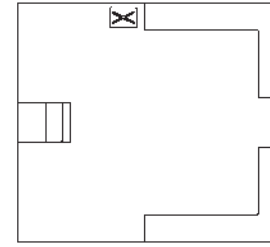
Related Product Data

Contacts:

Plug Contacts—page 22

Mateable Housings:

Single Row Receptacle Housings—
page 23



Number of Circuits	Dimension A	Part Numbers
2	.270 6.85	1445049-2
3	.388 9.85	1445049-3
4	.506 12.85	1445049-4
5	.624 15.85	1445049-5
6	.742 18.85	1445049-6
7	.860 21.85	1445049-7
8	.978 24.85	1445049-8
9	1.096 27.85	1445049-9
10	1.215 30.85	1-1445049-0
11	1.333 33.85	1-1445049-1
12	1.451 36.85	1-1445049-2

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

Plug Housings (Continued)

Single Row, Panel Mount

Material

Nylon, Black
Flammability Rating—UL 94V-0

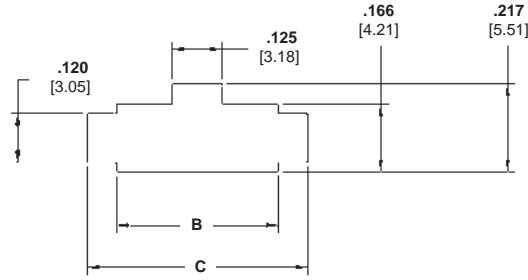
Related Product Data

Contacts:

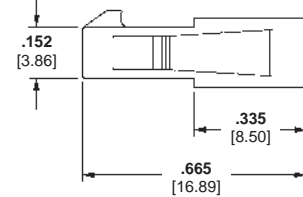
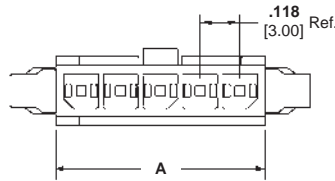
Plug Contacts—page 22

Mateable Housings:

Single Row Receptacle Housings—
page 23



Recommended Panel Cutout*



Number of Circuits	Dimensions			Part Numbers
	A	B	C	
2	.270 6.85	.283 7.20	.428 10.88	1445048-2
3	.388 9.85	.402 10.20	.546 13.88	1445048-3
4	.506 12.85	.520 13.20	.665 16.88	1445048-4
5	.624 15.85	.638 16.20	.783 19.88	1445048-5
6	.742 18.85	.756 19.20	.901 22.88	1445048-6
7	.860 21.85	.874 22.20	1.019 25.88	1445048-7
8	.978 24.85	.992 25.20	1.137 28.88	1445048-8
9	1.096 27.85	1.110 28.20	1.255 31.88	1445048-9
10	1.215 30.85	1.228 31.20	1.373 34.88	1-1445048-0
11	1.333 33.85	1.346 34.20	1.491 37.88	1-1445048-1
12	1.451 36.85	1.465 37.20	1.609 40.88	1-1445048-2

*Recommended panel thickness .062-.091 [1.57-2.30]. Always consult customer drawing for panel cutout dimensions.

Note: All part numbers are RoHS Compliant.

High Density

Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

Micro MATE-N-LOK 3 mm Connector System (Continued)

Plug Housings (Continued)

Dual Row, Free-Hanging

Material

Nylon, Black
Flammability Rating—UL 94V-0

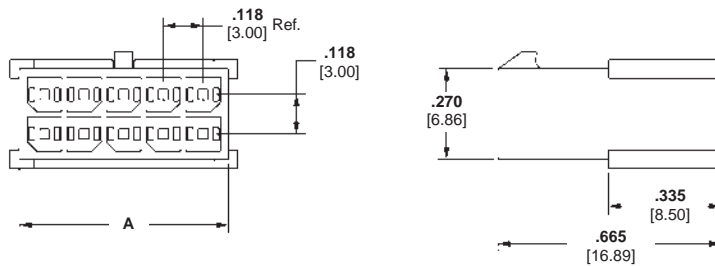
Related Product Data

Contacts:

Plug Contacts—page 22

Mateable Housings:

Dual Row Receptacle Housings—
page 24



High Density

Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

Number of Circuits	Dimension A	Part Numbers
2	.157 3.85	794616-2
4	.276 6.85	794616-4
6	.394 9.85	794616-6
8	.512 12.85	794616-8
10	.630 15.85	1-794616-0
12	.748 18.85	1-794616-2
14	.866 21.85	1-794616-4
16	.984 24.85	1-794616-6
18	1.102 27.85	1-794616-8
20	1.220 30.85	2-794616-0
22	1.339 33.85	2-794616-2
24	1.457 36.85	2-794616-4

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

Plug Housings (Continued)

Dual Row, Panel Mount

Material

Nylon, Black
Flammability Rating—UL 94V-0

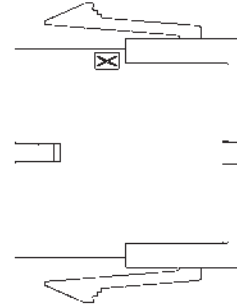
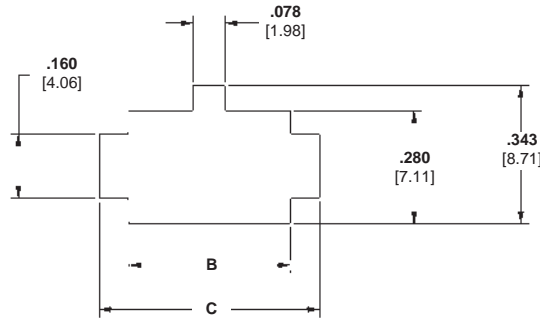
Related Product Data

Contacts:

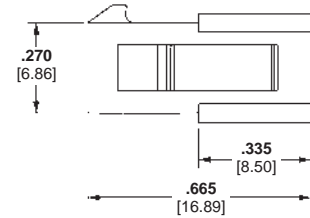
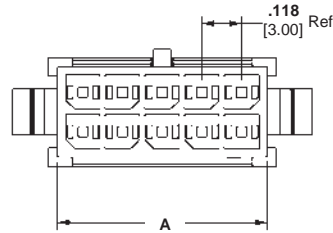
Plug Contacts—page 22

Mateable Housings:

Dual Row Receptacle Housings—
page 24



Recommended Panel Cutout*



Number of Circuits	Dimensions			Part Numbers
	A	B	C	
2	.157 3.85	.165 4.20	.310 7.88	794615-2
4	.276 6.85	.285 7.20	.428 10.88	794615-4
6	.394 9.85	.402 10.20	.546 13.88	794615-6
8	.512 12.85	.520 13.20	.665 16.88	794615-8
10	.630 15.85	.638 16.20	.783 19.88	1-794615-0
12	.748 18.85	.756 19.20	.901 22.88	1-794615-2
14	.866 21.85	.874 22.20	1.019 25.88	1-794615-4
16	.984 24.85	.992 25.20	1.137 28.88	1-794615-6
18	1.102 27.85	1.110 28.20	1.255 31.88	1-794615-8
20	1.220 30.85	1.228 31.20	1.373 34.88	2-794615-0
22	1.339 33.85	1.346 34.20	1.491 37.88	2-794615-2
24	1.457 36.85	1.469 37.20	1.609 40.88	2-794615-4

*Recommended panel thickness .062-.091 [1.57-2.30]. Always consult customer drawing for panel cutout dimensions.

Note: All part numbers are RoHS Compliant.

High Density
Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

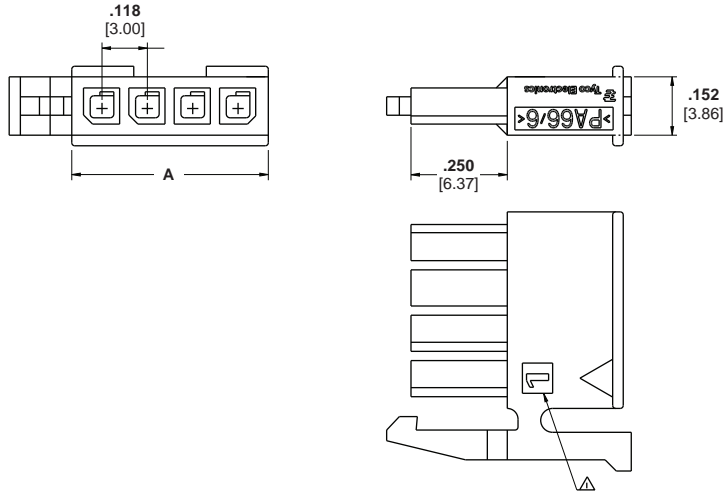
Micro MATE-N-LOK 3 mm Connector System (Continued)

New: Low Profile

Low Profile Receptacle Housings

Material

Nylon, Black
Flammability Rating—V0



Positions	Color	Dimension A	Part Numbers
2	Black	.276 7	2029047-2
3	Black	.394 10	2029047-3
4	Black	.512 13	2029047-4
2	Natural	.276 7	2029102-2
3	Natural	.394 10	2029102-3
4	Natural	.512 13	2029102-4

Low Profile Right Angle Surface Mount Housings

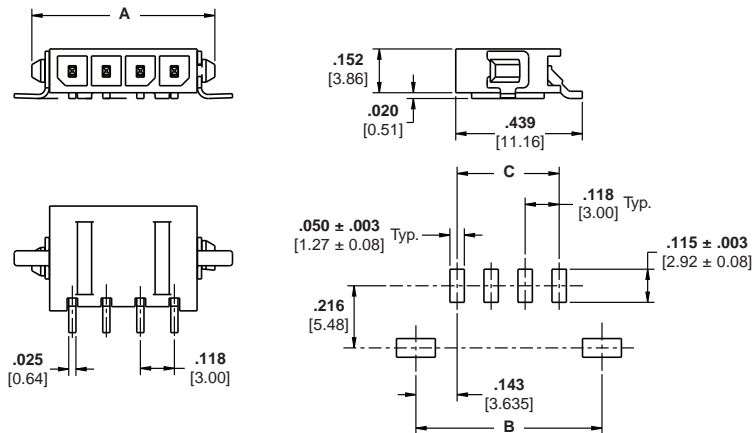
Material

Hight Temp Nylon, Black
Flammability Rating—V0

Contacts:

Brass

Plating A — .0001100 (.00254)
minimum tin over .000050 [0.00127]
minimum nickel



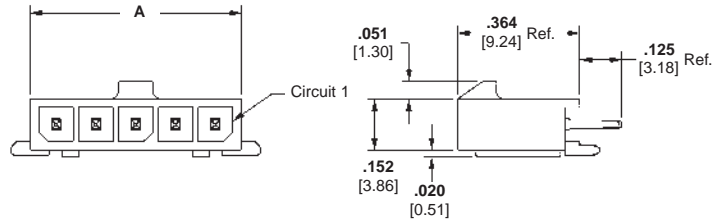
Positions	Color	Dimensions			Part Numbers
		A	B	C	
2	Black	.394 10	.410 10.4	.118 3	2029030-2
3	Black	.512 13	.528 13.4	.263 6	2029030-3
4	Black	.630 16	.646 16.4	.354 9	2029030-4
2	Natural	.394 10	.410 10.4	.118 3	2029104-2
3	Natural	.512 13	.52 13.4	.263 6	2029104-3
4	Natural	.630 16	.646 16.4	.354 9	2029104-4

Note: Less than 4.7mm in vertical board surface height required!

Micro MATE-N-LOK 3 mm Connector System (Continued)

Vertical Header Assemblies

Single Row, Through-Hole, with Retention Feature on Soldertail and Polarization Feature to PCB



Material and Finish

Housing — High Temperature Nylon, Black

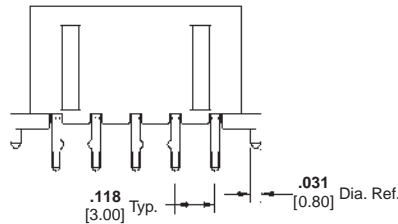
Flammability Rating — UL 94V-0

Contacts — Brass

Plating A—.000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B—.000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

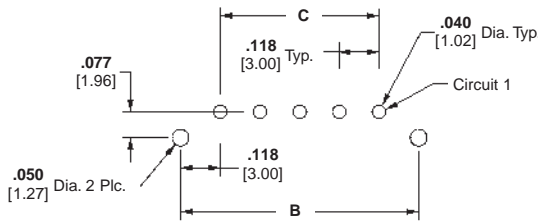
Plating C—.000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel



Related Product Data

Mateable Housings:

Single Row Receptacle Housings—page 23



Recommended PC Board Layout*

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.276 7.00	.360 9.14	.118 3.00	2-1445050-2	2-1445084-2	2-1445093-2	1445022-2
3	.394 10.00	.478 12.14	.236 6.00	2-1445050-3	2-1445084-3	2-1445093-3	1445022-3
4	.512 13.00	.596 15.14	.354 9.00	2-1445050-4	2-1445084-4	2-1445093-4	1445022-4
5	.630 16.00	.714 18.14	.472 12.00	2-1445050-5	2-1445084-5	2-1445093-5	1445022-5
6	.748 19.00	.832 21.14	.591 15.00	2-1445050-6	2-1445084-6	2-1445093-6	1445022-6
7	.866 22.00	.950 24.14	.709 18.00	2-1445050-7	2-1445084-7	2-1445093-7	1445022-7
8	.984 25.00	1.069 27.14	.827 21.00	2-1445050-8	2-1445084-8	2-1445093-8	1445022-8
9	1.102 28.00	1.187 30.14	.945 24.00	2-1445050-9	2-1445084-9	3-1445093-9	1445022-9
10	1.220 31.00	1.304 33.14	1.063 27.00	3-1445050-0	3-1445084-0	3-1445093-0	1-1445022-0
11	1.339 34.00	1.423 36.14	1.181 30.00	3-1445050-1	3-1445084-1	3-1445093-1	1-1445022-1
12	1.457 37.00	1.541 39.14	1.299 33.00	3-1445050-2	3-1445084-2	3-1445093-2	1-1445022-2

*Recommended PC Board thickness .062 [1.57]. Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

High Density

Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

Micro MATE-N-LOK 3 mm Connector System (Continued)

Vertical Header Assemblies

(Continued)

Single Row, Through-Hole, with Metal Through-Hole Hold-down

Material and Finish

Housing — High Temperature Nylon, Black

Flammability Rating — UL 94V-0

Contacts — Brass

Plating A — .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B — .000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

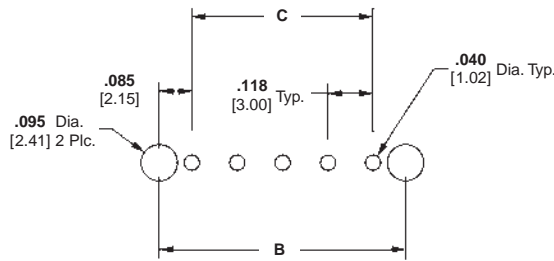
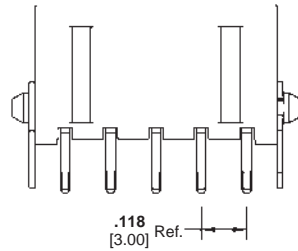
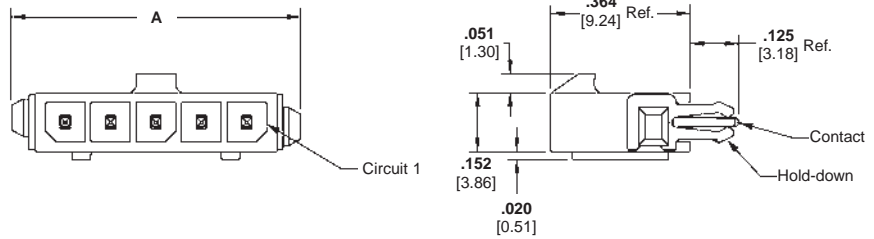
Plating C — .000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Hold-downs — Phosphor Bronze, .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Related Product Data

Mateable Housings:

Single Row Receptacle Housing— page 23



Recommended PC Board Layout*

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.399 10.14	.293 7.43	.118 3.00	2-1445051-2	2-1445085-2	2-1445094-2	1445022-2
3	.517 13.14	.411 10.43	.236 6.00	2-1445051-3	2-1445085-3	2-1445094-3	1445022-3
4	.635 16.14	.529 13.43	.354 9.00	2-1445051-4	2-1445085-4	2-1445094-4	1445022-4
5	.754 19.14	.647 16.43	.472 12.00	2-1445051-5	2-1445085-5	2-1445094-5	1445022-5
6	.871 22.14	.765 19.43	.591 15.00	2-1445051-6	2-1445085-6	2-1445094-6	1445022-6
7	.990 25.14	.883 22.43	.709 18.00	2-1445051-7	2-1445085-7	2-1445094-7	1445022-7
8	1.108 28.14	1.001 25.43	.827 21.00	2-1445051-8	2-1445085-8	2-1445094-8	1445022-8
9	1.226 31.14	1.119 28.43	.945 24.00	2-1445051-9	2-1445085-9	2-1445094-9	1445022-9
10	1.344 34.14	1.237 31.43	1.063 27.00	3-1445051-0	3-1445085-0	3-1445094-0	1-1445022-0
11	1.462 37.14	1.356 34.43	1.181 30.00	3-1445051-1	3-1445085-1	3-1445094-1	1-1445022-1
12	1.580 40.14	1.474 37.43	1.299 33.00	3-1445051-2	3-1445085-2	3-1445094-2	1-1445022-2

*Recommended PC Board thickness .062 [1.57]. Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

Vertical Header Assemblies

(Continued)

Single Row, Surface Mount, with Metal Through-Hole Hold-down

Material and Finish

Housing — High Temperature Nylon, Black

Flammability Rating — UL 94V-0

Contacts—Brass

Plating A— .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B— .000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

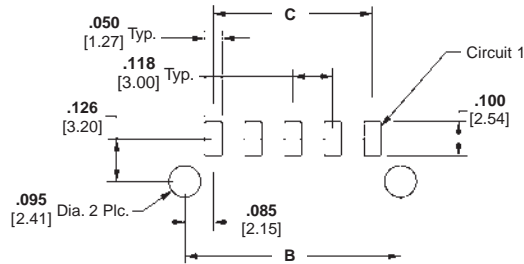
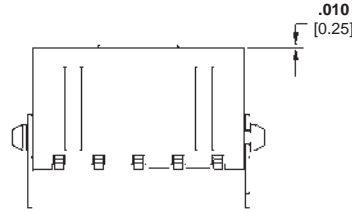
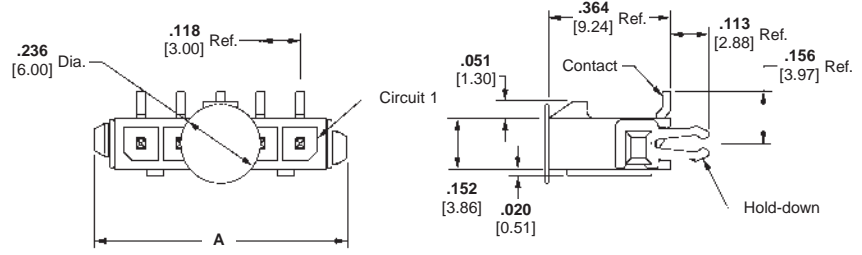
Plating C— .000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Hold-downs—Phosphor Bronze, .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Related Product Data

Mateable Housings:

Single Row Receptacle Housing— page 23



Recommended PC Board Layout*

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.394 10.00	.293 7.43	.118 3.00	2-1445052-2	2-1445086-2	2-1445095-2	1445022-2
3	.512 13.00	.411 10.43	.236 6.00	2-1445052-3	2-1445086-3	2-1445095-3	1445022-3
4	.630 16.00	.529 13.43	.354 9.00	2-1445052-4	2-1445086-4	2-1445095-4	1445022-4
5	.748 19.00	.647 16.43	.472 12.00	2-1445052-5	2-1445086-5	2-1445095-5	1445022-5
6	.866 22.00	.765 19.43	.591 15.00	2-1445052-6	2-1445086-6	2-1445095-6	1445022-6
7	.984 25.00	.883 22.43	.709 18.00	2-1445052-7	2-1445086-7	2-1445095-7	1445022-7
8	1.102 28.00	1.001 25.43	.827 21.00	2-1445052-8	2-1445086-8	2-1445095-8	1445022-8
9	1.220 31.00	1.119 28.43	.945 24.00	2-1445052-9	2-1445086-9	2-1445095-9	1445022-9
10	1.339 34.00	1.237 31.43	1.063 27.00	3-1445052-0	3-1445086-0	3-1445095-0	1-1445022-0
11	1.457 37.00	1.356 34.43	1.181 30.00	3-1445052-1	3-1445086-1	3-1445095-1	1-1445022-1
12	1.575 40.00	1.474 37.43	1.299 33.00	3-1445052-2	3-1445086-2	3-1445095-2	1-1445022-2

*Recommended PC Board thickness .062 [1.57]. Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

Vertical Header Assemblies

(Continued)

Single Row, Surface Mount, with Surface Mount Hold-down

Material and Finish

Housing — High Temperature Nylon, Black

Flammability Rating — UL 94V-0

Contacts—Brass

Plating A— .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B— .000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

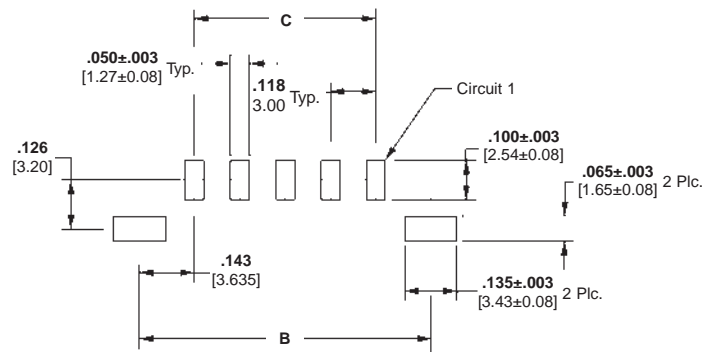
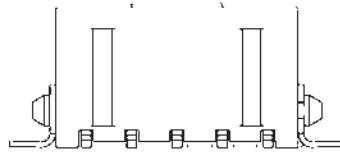
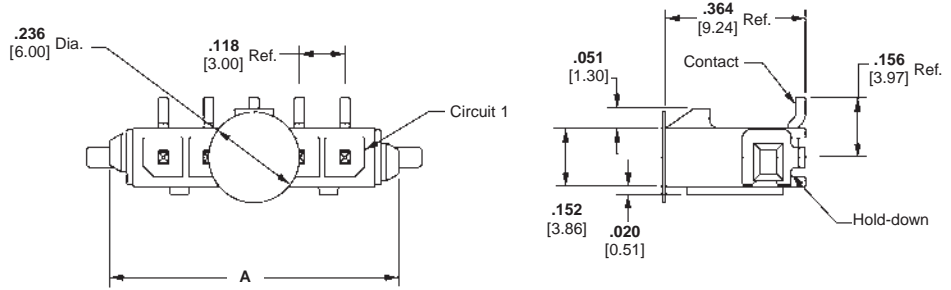
Plating C— .000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Hold-downs—Phosphor Bronze, .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Related Product Data

Mateable Housings:

Single Row Receptacle Housing— page 23



Recommended PC Board Layout*

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.394 10.00	.410 10.41	.118 3.00	2-1445053-2	2-1445087-2	2-1445096-2	1445022-2
3	.512 13.00	.528 13.41	.236 6.00	2-1445053-3	2-1445087-3	2-1445096-3	1445022-3
4	.630 16.00	.646 16.41	.354 9.00	2-1445053-4	2-1445087-4	2-1445096-4	1445022-4
5	.748 19.00	.765 19.41	.472 12.00	2-1445053-5	2-1445087-5	2-1445096-5	1445022-5
6	.866 22.00	.882 22.41	.591 15.00	2-1445053-6	2-1445087-6	2-1445096-6	1445022-6
7	.984 25.00	1.001 25.41	.709 18.00	2-1445053-7	2-1445087-7	2-1445096-7	1445022-7
8	1.102 28.00	1.119 28.41	.827 21.00	2-1445053-8	2-1445087-8	2-1445096-8	1445022-8
9	1.220 31.00	1.237 31.41	.945 24.00	2-1445053-9	2-1445087-9	2-1445096-9	1445022-9
10	1.339 34.00	1.355 34.41	1.063 27.00	3-1445053-0	3-1445087-0	3-1445096-0	1-1445022-0
11	1.457 37.00	1.473 37.41	1.181 30.00	3-1445053-1	3-1445087-1	3-1445096-1	1-1445022-1
12	1.575 40.00	1.591 40.41	1.299 33.00	3-1445053-2	3-1445087-2	3-1445096-2	1-1445022-2

*Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

Vertical Header Assemblies

(Continued)

Dual Row, Through-Hole, with Retention Feature on Solder Tail

Material and Finish

Housing — High Temperature Nylon, Black

Flammability Rating — UL 94V-0

Contacts—Brass

Plating A— .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B— .000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

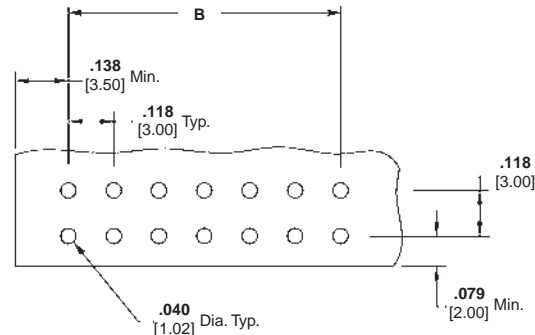
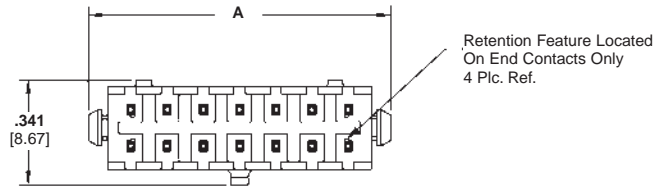
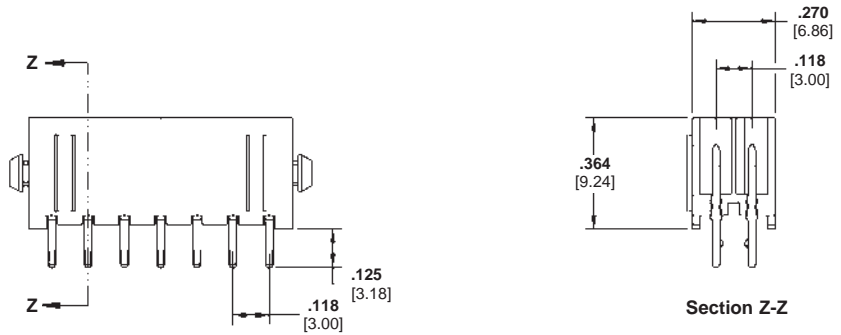
Plating C— .000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Hold-downs—Phosphor Bronze, .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Related Product Data

Mateable Housings:

Dual Row Receptacle Housing—page 24



Recommended PC Board Layout*

Number of Circuits	Dimensions		Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	Plating A	Plating B	Plating C	
2	.276 7.00	—	3-794630-2	3-794631-2	3-794632-2	794617-2
4	.394 10.00	.118 3.00	3-794630-4	3-794631-4	3-794632-4	794617-4
6	.512 13.00	.236 6.00	3-794630-6	3-794631-6	3-794632-6	794617-6
8	.630 16.00	.354 9.00	3-794630-8	3-794631-8	3-794632-8	794617-8
10	.748 19.00	.472 12.00	4-794630-0	4-794631-0	4-794632-0	1-794617-0
12	.866 22.00	.591 15.00	4-794630-2	4-794631-2	4-794632-2	1-794617-2
14	.984 25.00	.709 18.00	4-794630-4	4-794631-4	4-794632-4	1-794617-4
16	1.102 28.00	.827 21.00	4-794630-6	4-794631-6	4-794632-6	1-794617-6
18	1.220 31.00	.945 24.00	4-794630-8	4-794631-8	4-794632-8	1-794617-8
20	1.339 34.00	1.063 27.00	5-794630-0	5-794631-0	5-794632-0	2-794617-0
22	1.457 37.00	1.181 30.00	5-794630-2	5-794631-2	5-794632-2	2-794617-2
24	1.575 40.00	1.299 33.00	5-794630-4	5-794631-4	5-794632-4	2-794617-4

*Recommended PC Board thickness .062 [1.57]. Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

Vertical Header Assemblies

(Continued)

Dual Row, Through-Hole, with Retention Feature on Soldertail and Metal Through-Hole Hold-down

Material and Finish

Housing—High Temperature Nylon, Black

Flammability Rating—UL 94V-0

Contacts—Brass

Plating A— .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B— .000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

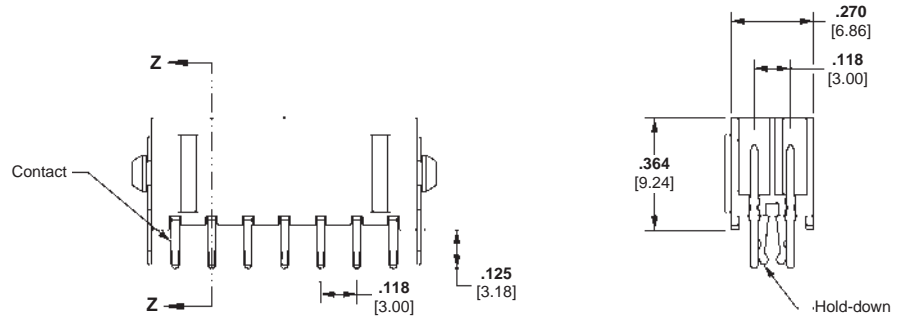
Plating C— .000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Hold-downs—Phosphor Bronze, .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

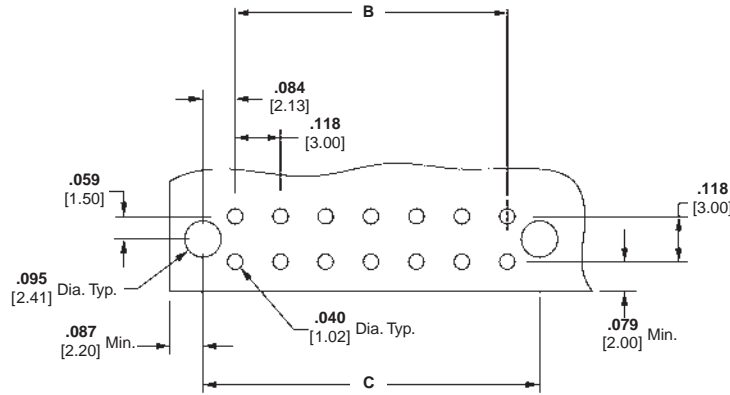
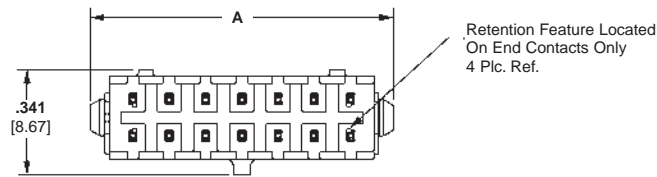
Related Product Data

Mateable Housings:

Dual Row Receptacle Housing—page 24



Section Z-Z



Recommended PC Board Layout*

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.276 7.00	—	.169 4.30	3-794680-2	3-794681-2	3-794682-2	794617-2
4	.394 10.00	.118 3.00	.287 7.30	3-794680-4	3-794681-4	3-794682-4	794617-4
6	.512 13.00	.236 6.00	.406 10.30	3-794680-6	3-794681-6	3-794682-6	794617-6
8	.630 16.00	.354 9.00	.524 13.30	3-794680-8	3-794681-8	3-794682-8	794617-8
10	.748 19.00	.472 12.00	.642 16.30	4-794680-0	4-794681-0	4-794682-0	1-794617-0
12	.866 22.00	.591 15.00	.760 19.30	4-794680-2	4-794681-2	4-794682-2	1-794617-2
14	.984 25.00	.709 18.00	.878 22.30	4-794680-4	4-794681-4	4-794682-4	1-794617-4
16	1.102 28.00	.827 21.00	.996 25.30	4-794680-6	4-794681-6	4-794682-6	1-794617-6
18	1.220 31.00	.945 24.00	1.114 28.30	4-794680-8	4-794681-8	4-794682-8	1-794617-8
20	1.339 34.00	1.063 27.00	1.232 31.30	5-794680-0	5-794681-0	5-794682-0	2-794617-0
22	1.457 37.00	1.181 30.00	1.350 34.30	5-794680-2	5-794681-2	5-794682-2	2-794617-2
24	1.575 40.00	1.299 33.00	1.469 37.30	5-794680-4	5-794681-4	5-794682-4	2-794617-4

*Recommended PC Board thickness .062 [1.57]. Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

Vertical Header Assemblies

(Continued)

Dual Row, Surface Mount, with Metal Through-Hole Hold-down

Material and Finish

Housing—High Temperature Nylon, Black

Flammability Rating—UL 94V-0

Contacts—Brass

Plating A—.000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B—.000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Plating C—.000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

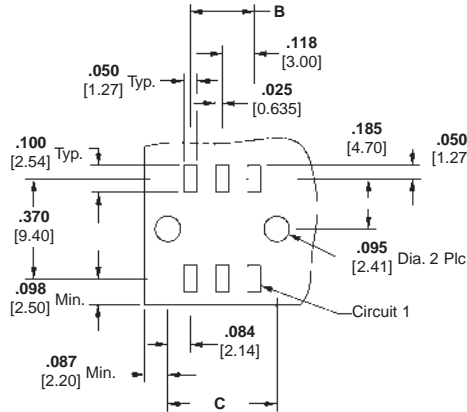
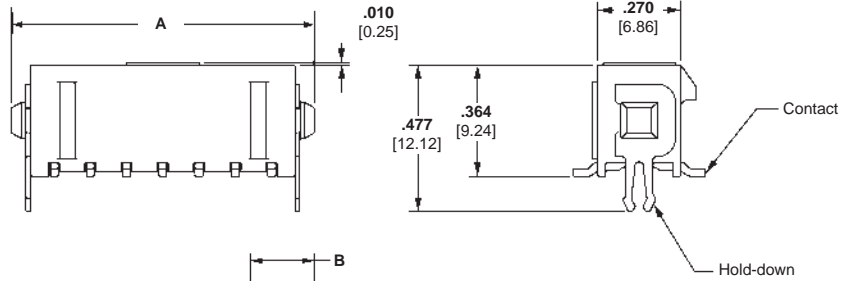
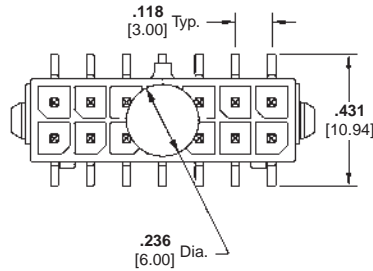
Hold-downs—Phosphor Bronze, .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Pick-up Button—Kapton

Related Product Data

Mateable Housings:

Dual Row Receptacle Housing—page 24



Recommended PC Board Layout*

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.276 7.00	—	.169 4.30	3-794633-2	3-794634-2	3-794635-2	794617-2
4	.394 10.00	.118 3.00	.287 7.30	3-794633-4	3-794634-4	3-794635-4	794617-4
6	.512 13.00	.236 6.00	.406 10.30	3-794633-6	3-794634-6	3-794635-6	794617-6
8	.630 16.00	.354 9.00	.524 13.30	3-794633-8	3-794634-8	3-794635-8	794617-8
10	.748 19.00	.472 12.00	.642 16.30	4-794633-0	4-794634-0	4-794635-0	1-794617-0
12	.866 22.00	.591 15.00	.760 19.30	4-794633-2	4-794634-2	4-794635-2	1-794617-2
14	.984 25.00	.709 18.00	.878 22.30	4-794633-4	4-794634-4	4-794635-4	1-794617-4
16	1.10 28.00	2.827 21.00	.996 25.30	4-794633-6	4-794634-6	4-794635-6	1-794617-6
18	1.220 31.00	0.945 24.00	1.114 28.30	4-794633-8	4-794634-8	4-794635-8	1-794617-8
20	1.339 34.00	1.063 27.00	1.232 31.30	5-794633-0	5-794634-0	5-794635-0	2-794617-0
22	1.457 37.00	1.181 30.00	1.350 34.30	5-794633-2	5-794634-2	5-794635-2	2-794617-2
24	1.575 40.00	1.299 33.00	1.469 37.30	5-794633-4	5-794634-4	5-794635-4	2-794617-4

*Recommended PC Board thickness .062 [1.57]. Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

High Density

Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

Vertical Header Assemblies

(Continued)

Dual Row, Surface Mount, with Surface Mount Hold-down

Material and Finish

Housing — High Temperature Nylon, Black

Flammability Rating — UL 94V-0

Contacts — Brass

Plating A — .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B — .000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Plating C — .000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

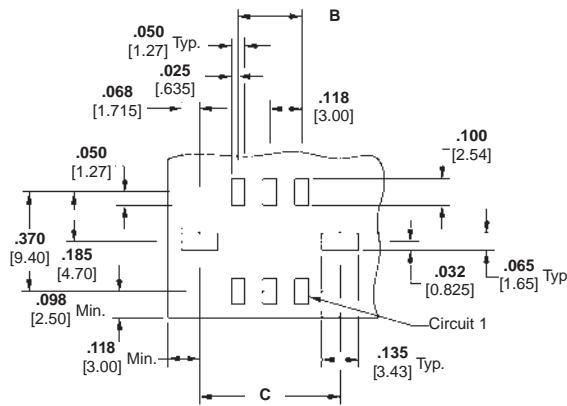
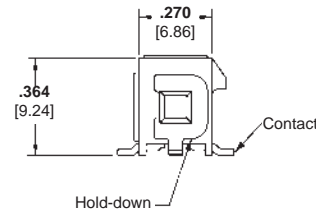
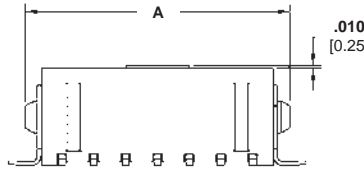
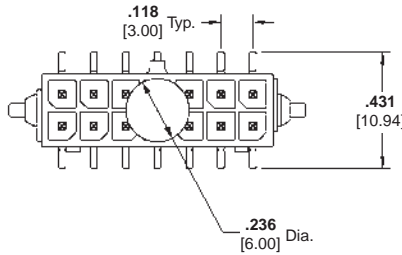
Hold-downs — Phosphor Bronze, .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Pick-up Button — Kapton

Related Product Data

Mateable Housings:

Dual Row Receptacle Housing—page 24



Recommended PC Board Layout*

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.276 7.00	—	.286 7.27	3-794636-2	3-794637-2	3-794638-2	794617-2
4	.394 10.00	.118 3.00	.404 10.27	3-794636-4	3-794637-4	3-794638-4	794617-4
6	.512 13.00	.236 6.00	.522 13.27	3-794636-6	3-794637-6	3-794638-6	794617-6
8	.630 16.00	.354 9.00	.640 16.27	3-794636-8	3-794637-8	3-794638-8	794617-8
10	.748 19.00	.472 12.00	.758 19.27	4-794636-0	4-794637-0	4-794638-0	1-794617-0
12	.866 22.00	.591 15.00	.876 22.27	4-794636-2	4-794637-2	4-794638-2	1-794617-2
14	.984 25.00	.709 18.00	.994 25.27	4-794636-4	4-794637-4	4-794638-4	1-794617-4
16	1.102 28.00	.827 21.00	1.112 28.27	4-794636-6	4-794637-6	4-794638-6	1-794617-6
18	1.220 31.00	.945 24.00	1.230 31.27	4-794636-8	4-794637-8	4-794638-8	1-794617-8
20	1.339 34.00	1.063 27.00	1.349 34.27	5-794636-0	5-794637-0	5-794638-0	2-794617-0
22	1.457 37.00	1.181 30.00	1.467 37.27	5-794636-2	5-794637-2	5-794638-2	2-794617-2
24	1.575 40.00	1.299 33.00	1.585 40.27	5-794636-4	5-794637-4	5-794638-4	2-794617-4

*Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

Right-Angle Header Assemblies

Single Row, Through-Hole, with Metal Through-Hole Hold-down

Material and Finish

Housing—High Temperature Nylon, Black

Flammability Rating—UL 94V-0

Contacts—Brass

Plating A—.000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B—.000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

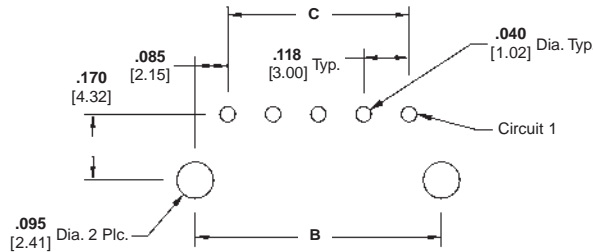
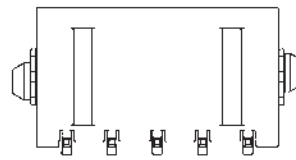
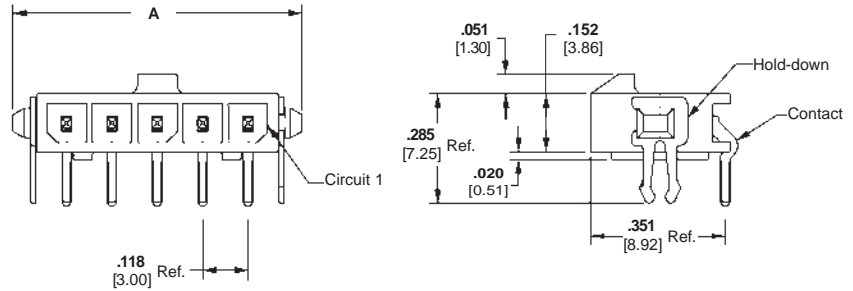
Plating C—.000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Hold-downs—Phosphor Bronze, .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Related Product Data

Mateable Housings:

Single Row Receptacle Housing—
page 23



Recommended PC Board Layout*

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.399 10.14	.293 7.43	.118 3.00	2-1445054-2	2-1445088-2	2-1445097-2	1445022-2
3	.517 13.14	.411 10.43	.236 6.00	2-1445054-3	2-1445088-3	2-1445097-3	1445022-3
4	.635 16.14	.529 13.43	.354 9.00	2-1445054-4	2-1445088-4	2-1445097-4	1445022-4
5	.754 19.14	.647 16.43	.472 12.00	2-1445054-5	2-1445088-5	2-1445097-5	1445022-5
6	.871 22.14	.765 19.43	.591 15.00	2-1445054-6	2-1445088-6	2-1445097-6	1445022-6
7	.990 25.14	.883 22.43	.709 18.00	2-1445054-7	2-1445088-7	2-1445097-7	1445022-7
8	1.108 28.14	1.001 25.43	.827 21.00	2-1445054-8	2-1445088-8	2-1445097-8	1445022-8
9	1.226 31.14	1.119 28.43	.945 24.00	2-1445054-9	2-1445088-9	2-1445097-9	1445022-9
10	1.344 34.14	1.237 31.43	1.063 27.00	3-1445054-0	3-1445088-0	3-1445097-0	1-1445022-0
11	1.462 37.14	1.356 34.43	1.181 30.00	3-1445054-1	3-1445088-1	3-1445097-1	1-1445022-1
12	1.580 40.14	1.474 37.43	1.299 33.00	3-1445054-2	3-1445088-2	3-1445097-2	1-1445022-2

*Recommended PC Board thickness .062 [1.57]. Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

Right-Angle Header Assemblies (Continued)

Single Row, Through-Hole, with Plastic Boardlock

Material and Finish

Housing — High Temperature Nylon, Black

Flammability Rating — UL 94V-0

Contacts—Brass

Plating A—.000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

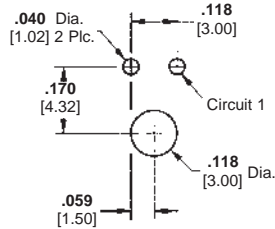
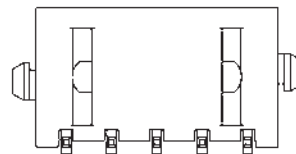
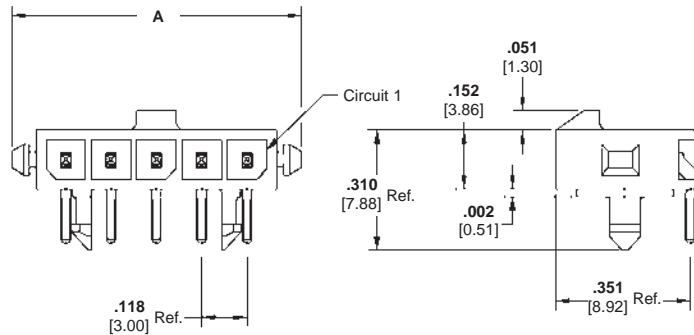
Plating B—.000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Plating C—.000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

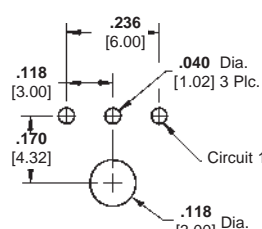
Related Product Data

Mateable Housings:

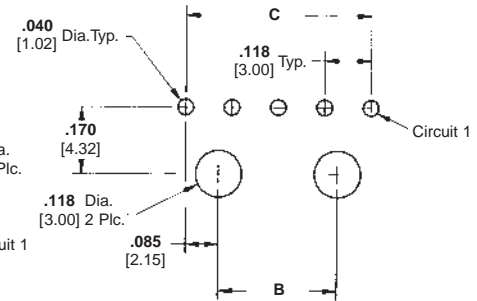
Single Row Receptacle Housing—page 23



Recommended PC Board Layout 2 Position*



Recommended PC Board Layout 3 Position*



Recommended PC Board Layout 4-12 Position*

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.399 10.14	—	—	2-1445055-2	2-1445089-2	2-1445098-2	1445022-2
3	.517 13.14	—	—	2-1445055-3	2-1445089-3	2-1445098-3	1445022-3
4	.635 16.14	.185 4.70	.354 9.00	2-1445055-4	2-1445089-4	2-1445098-4	1445022-4
5	.754 19.14	.303 7.70	.472 12.00	2-1445055-5	2-1445089-5	2-1445098-5	1445022-5
6	.871 22.14	.421 10.70	.591 15.00	2-1445055-6	2-1445089-6	2-1445098-6	1445022-6
7	.990 25.14	.539 13.70	.709 18.00	2-1445055-7	2-1445089-7	2-1445098-7	1445022-7
8	1.108 28.14	.657 16.70	.827 21.00	2-1445055-8	2-1445089-8	2-1445098-8	1445022-8
9	1.226 31.14	.775 19.70	.945 24.00	2-1445055-9	2-1445089-9	2-1445098-9	1445022-9
10	1.344 34.14	.894 22.70	1.063 27.00	3-1445055-0	3-1445089-0	3-1445098-0	1-1445022-0
11	1.462 37.14	1.012 25.70	1.181 30.00	3-1445055-1	3-1445089-1	3-1445098-1	1-1445022-1
12	1.580 40.14	1.300 28.70	1.299 33.00	3-1445055-2	3-1445089-2	3-1445098-2	1-1445022-2

*Recommended PC Board thickness .062 [1.57]. Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

Right-Angle Header Assemblies (Continued)

Single Row, Surface Mount, with Metal Through-Hole Hold-down

Material and Finish

Housing — High Temperature Nylon, Black

Flammability Rating — UL 94V-0

Contacts — Brass

Plating A — .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B — .000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

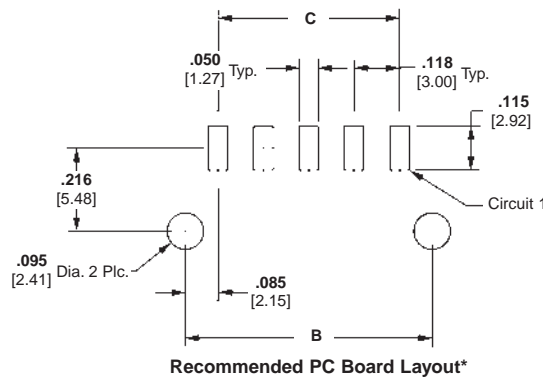
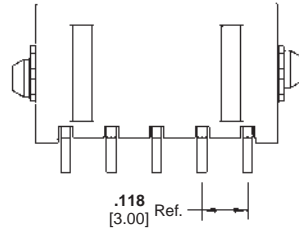
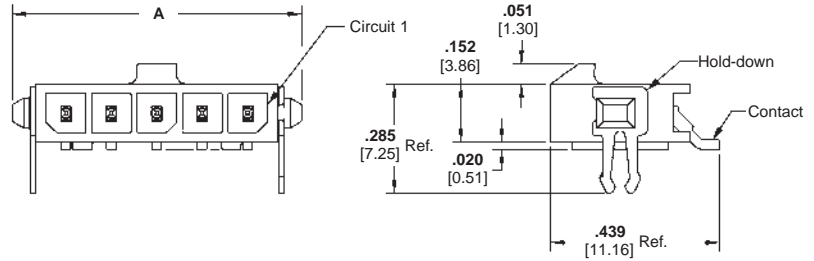
Plating C — .000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Hold-downs — Phosphor Bronze, .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Related Product Data

Mateable Housings:

Single Row Receptacle Housing—
page 23



Recommended PC Board Layout*

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.394 10.00	.293 7.43	.118 3.00	2-1445056-2	2-1445090-2	2-1445099-2	1445022-2
3	.512 13.00	.411 10.43	.236 6.00	2-1445056-3	2-1445090-3	2-1445099-3	1445022-3
4	.630 16.00	.529 13.43	.354 9.00	2-1445056-4	2-1445090-4	2-1445099-4	1445022-4
5	.748 19.00	.647 16.43	.472 12.00	2-1445056-5	2-1445090-5	2-1445099-5	1445022-5
6	.866 22.00	.765 19.43	.591 15.00	2-1445056-6	2-1445090-6	2-1445099-6	1445022-6
7	.984 25.00	.883 22.43	.709 18.00	2-1445056-7	2-1445090-7	2-1445099-7	1445022-7
8	1.102 28.00	1.001 25.43	.827 21.00	2-1445056-8	2-1445090-8	2-1445099-8	1445022-8
9	1.220 31.00	1.119 28.43	0.945 24.00	2-1445056-9	2-1445090-9	2-1445099-9	1445022-9
10	1.339 34.00	1.237 31.43	1.063 27.00	3-1445056-0	3-1445090-0	3-1445099-0	1-1445022-0
11	1.457 37.00	1.356 34.43	1.181 30.00	3-1445056-1	3-1445090-1	3-1445099-1	1-1445022-1
12	1.575 40.00	1.474 37.43	1.299 33.00	3-1445056-2	3-1445090-2	3-1445099-2	1-1445022-2

*Recommended PC Board thickness .062 [1.57]. Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

High Density

Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

Right-Angle Header Assemblies (Continued)

Single Row, Surface Mount, with Surface Mount Hold-down

Material and Finish

Housing — High Temperature Nylon, Black

Flammability Rating — UL 94V-0

Contacts—Brass

Plating A—.000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B—.000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

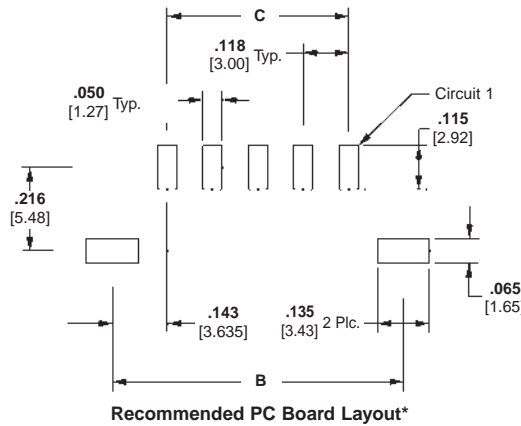
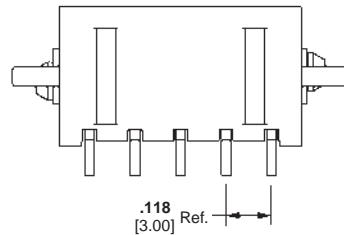
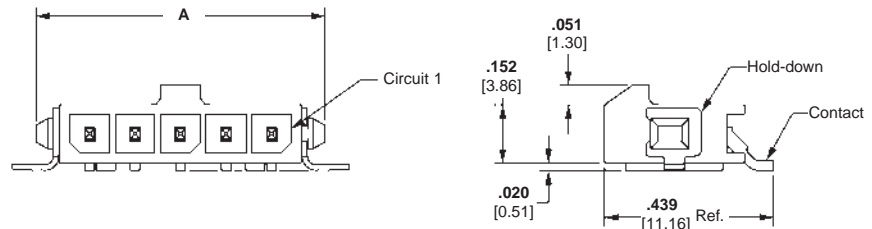
Plating C—.000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Hold-downs—Phosphor Bronze, .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Related Product Data

Mateable Housings:

Single Row Receptacle Housing—page 23



Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.394 10.00	.410 10.41	.118 3.00	2-1445057-2	2-1445091-2	2-1445100-2	1445022-2
3	.512 13.00	.528 13.41	.236 6.00	2-1445057-3	2-1445091-3	2-1445100-3	1445022-3
4	.630 16.00	.646 16.41	.354 9.00	2-1445057-4	2-1445091-4	2-1445100-4	1445022-4
5	.748 19.00	.764 19.41	.472 12.00	2-1445057-5	2-1445091-5	2-1445100-5	1445022-5
6	.866 22.00	.882 22.41	.591 15.00	2-1445057-6	2-1445091-6	2-1445100-6	1445022-6
7	.984 25.00	1.000 25.41	.709 18.00	2-1445057-7	2-1445091-7	2-1445100-7	1445022-7
8	1.102 28.00	1.119 28.41	.827 21.00	2-1445057-8	2-1445091-8	2-1445100-8	1445022-8
9	1.220 31.00	1.237 31.41	.945 24.00	2-1445057-9	2-1445091-9	2-1445100-9	1445022-9
10	1.339 34.00	1.355 34.41	1.063 27.00	3-1445057-0	3-1445091-0	3-1445100-0	1-1445022-0
11	1.457 37.00	1.472 37.41	1.181 30.00	3-1445057-1	3-1445091-1	3-1445100-1	1-1445022-1
12	1.575 40.00	1.591 40.41	1.299 33.00	3-1445057-2	3-1445091-2	3-1445100-2	1-1445022-2

*Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

Right-Angle Header Assemblies (Continued)

Single Row, Surface Mount, with Plastic Boardlock

Material and Finish

Housing — High Temperature Nylon, Black

Flammability Rating — UL 94V-0

Contacts — Brass

Plating A — .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

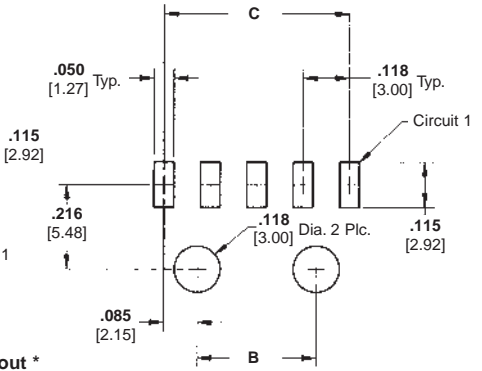
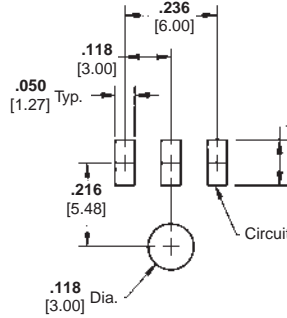
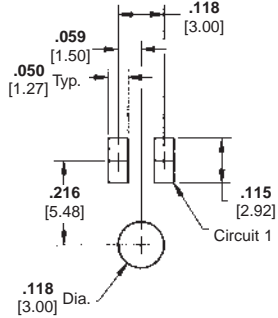
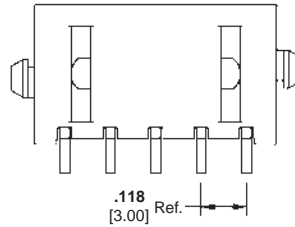
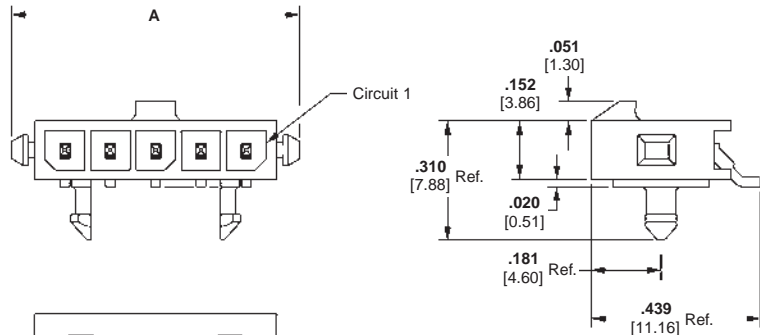
Plating B — .000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Plating C — .000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Related Product Data

Mateable Housings:

Single Row Receptacle Housing— page 23



Recommended PC Board Layout * 2 Position

Recommended PC Board Layout * 3 Position

Recommended PC Board Layout* 4-12 Positions

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.394 10.00	—	—	2-1445058-2	2-1445092-2	2-1445101-2	1445022-2
3	.512 13.00	—	—	2-1445058-3	2-1445092-3	2-1445101-3	1445022-3
4	.630 16.00	.185 4.70	.354 9.00	2-1445058-4	2-1445092-4	2-1445101-4	1445022-4
5	.748 19.00	.303 7.70	.472 12.00	2-1445058-5	2-1445092-5	2-1445101-5	1445022-5
6	.866 22.00	.421 10.70	.591 15.00	2-1445058-6	2-1445092-6	2-1445101-6	1445022-6
7	.984 25.00	.539 13.70	.709 18.00	2-1445058-7	2-1445092-7	2-1445101-7	1445022-7
8	1.102 28.00	.657 16.70	.827 21.00	2-1445058-8	2-1445092-8	2-1445101-8	1445022-8
9	1.220 31.00	.776 19.70	.945 24.00	2-1445058-9	2-1445092-9	2-1445101-9	1445022-9
10	1.339 34.00	.894 22.70	1.063 27.00	3-1445058-0	3-1445092-0	3-1445101-0	1-1445022-0
11	1.457 37.00	1.012 25.70	1.181 30.00	3-1445058-1	3-1445092-1	3-1445101-1	1-1445022-1
12	1.575 40.00	1.130 28.70	1.299 33.00	3-1445058-2	3-1445092-2	3-1445101-2	1-1445022-2

*Recommended PC Board thickness .062 [1.57]. Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

High Density

Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

Right-Angle Header Assemblies (Continued)

Dual Row, Through-Hole, with Metal Through-Hole Hold-down

Material and Finish

Housing — High Temperature Nylon, Black

Flammability Rating — UL 94V-0

Contacts — Brass

Plating A — .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B — .000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

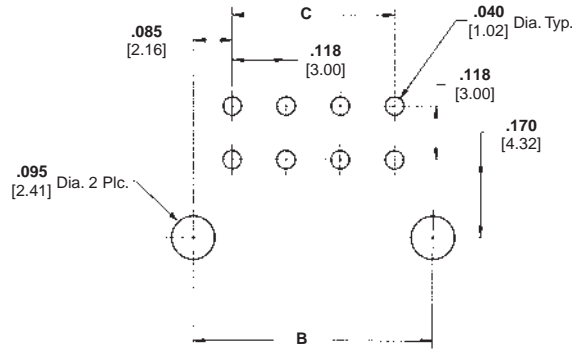
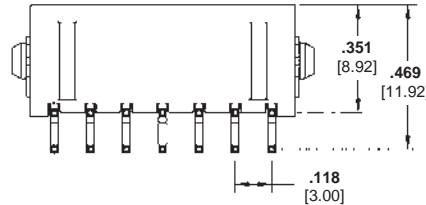
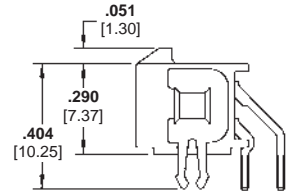
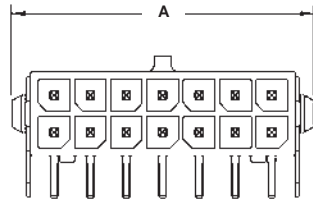
Plating C — .000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Hold-downs — Phosphor Bronze, .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Related Product Data

Mateable Housings:

Dual Row Receptacle Housing—page 24



Recommended PC Board Layout*

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.276 7.00	.169 4.30	—	3-794677-2	3-794678-2	3-794679-2	794617-2
4	.394 10.00	.287 7.30	.118 3.00	3-794677-4	3-794678-4	3-794679-4	794617-4
6	.512 13.00	.406 10.30	.236 6.00	3-794677-6	3-794678-6	3-794679-6	794617-6
8	.630 16.00	.524 13.30	.354 9.00	3-794677-8	3-794678-8	3-794679-8	794617-8
10	.748 19.00	.642 16.30	.472 12.00	4-794677-0	4-794678-0	4-794679-0	1-794617-0
12	.866 22.00	.760 19.30	.591 15.00	4-794677-2	4-794678-2	4-794679-2	1-794617-2
14	.984 25.00	.878 22.30	.709 18.00	4-794677-4	4-794678-4	4-794679-4	1-794617-4
16	1.102 28.00	.996 25.30	.827 21.00	4-794677-6	4-794678-6	4-794679-6	1-794617-6
18	1.220 31.00	1.114 28.30	.945 24.00	4-794677-8	4-794678-8	4-794679-8	1-794617-8
20	1.339 34.00	1.232 31.30	1.063 27.00	5-794677-0	5-794678-0	5-794679-0	2-794617-0
22	1.457 37.00	1.350 34.30	1.181 30.00	5-794677-2	5-794678-2	5-794679-2	2-794617-2
24	1.575 40.00	1.469 37.30	1.299 33.00	5-794677-4	5-794678-4	5-794679-4	2-794617-4

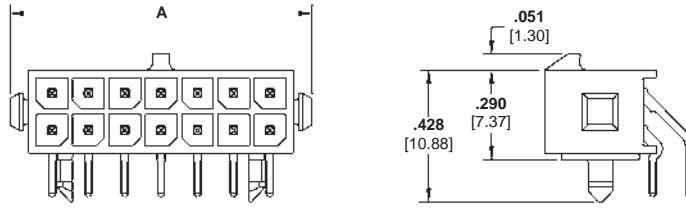
*Recommended PC Board thickness .062 [1.57]. Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

Right-Angle Header Assemblies (Continued)

Dual Row, Through-Hole, with Plastic Boardlock



Material and Finish

Housing — High Temperature Nylon, Black

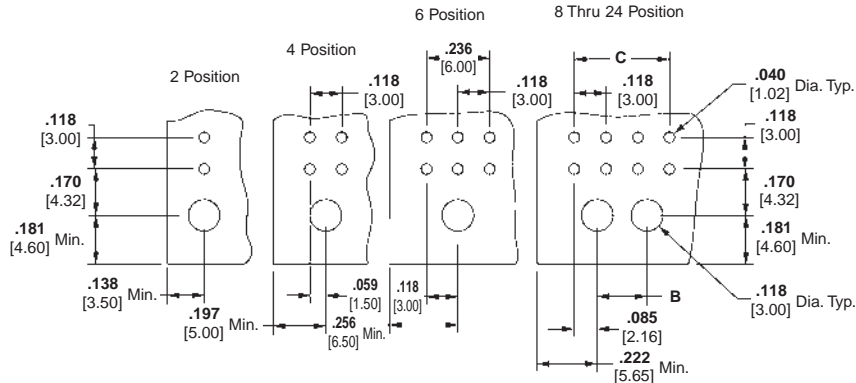
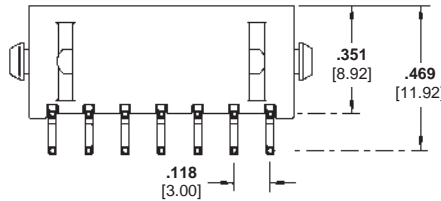
Flammability Rating — UL 94V-0

Contacts—Brass

Plating A—.000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B—.000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Plating C—.000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel



Recommended PC Board Layout*

Related Product Data

Mateable Housings:

Dual Row Receptacle Housing—page 24

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.276 7.00	—	—	3-794618-2	3-794619-2	3-794620-2	794617-2
4	.394 10.00	—	.118 3.00	3-794618-4	3-794619-4	3-794620-4	794617-4
6	.512 13.00	—	.236 6.00	3-794618-6	3-794619-6	3-794620-6	794617-6
8	.630 16.00	.185 4.70	.354 9.00	3-794618-8	3-794619-8	3-794620-8	794617-8
10	.748 19.00	.303 7.70	.472 12.00	4-794618-0	4-794619-0	4-794620-0	1-794617-0
12	.866 22.00	.421 10.70	.591 15.00	4-794618-2	4-794619-2	4-794620-2	1-794617-2
14	.984 25.00	.539 13.70	.709 18.00	4-794618-4	4-794619-4	4-794620-4	1-794617-4
16	1.102 28.00	.657 16.70	.827 21.00	4-794618-6	4-794619-6	4-794620-6	1-794617-6
18	1.220 31.00	.776 19.70	.945 24.00	4-794618-8	4-794619-8	4-794620-8	1-794617-8
20	1.339 34.00	.894 22.70	1.063 27.00	5-794618-0	5-794619-0	5-794620-0	2-794617-0
22	1.457 37.00	1.012 25.70	1.181 30.00	5-794618-2	5-794619-2	5-794620-2	2-794617-2
24	1.575 40.00	1.130 28.70	1.299 33.00	5-794618-4	5-794619-4	5-794620-4	2-794617-4

*Recommended PC Board thickness .062 [1.57]. Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

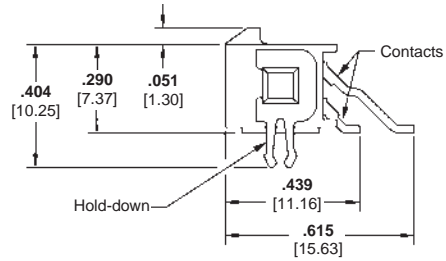
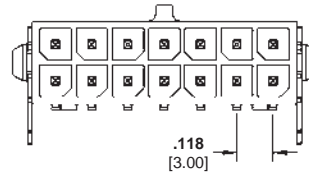
Micro MATE-N-LOK 3 mm Connector System (Continued)

High Density

Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

Right-Angle Header Assemblies (Continued)

Dual Row, Surface Mount, with Metal Through-Hole Hold-down



Material and Finish

Housing — High Temperature Nylon, Black

Flammability Rating — UL 94V-0

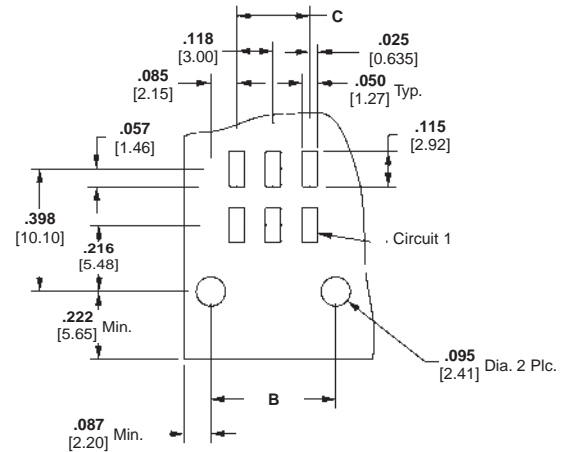
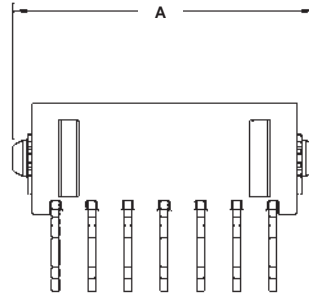
Contacts—Brass

Plating A—.000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B—.000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Plating C—.000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Hold-downs—Phosphor Bronze, .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel



Recommended PC Board Layout*

Related Product Data

Mateable Housings:

Dual Row Receptacle Housing—page 24

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.276 7.00	.169 4.30	—	3-794624-2	3-794625-2	3-794626-2	794617-2
4	.394 10.00	.287 7.30	.118 3.00	3-794624-4	3-794625-4	3-794626-4	794617-4
6	.512 13.00	.406 10.30	.236 6.00	3-794624-6	3-794625-6	3-794626-6	794617-6
8	.630 16.00	.524 13.30	.354 9.00	3-794624-8	3-794625-8	3-794626-8	794617-8
10	.748 19.00	.642 16.30	.472 12.00	4-794624-0	4-794625-0	4-794626-0	1-794617-0
12	.866 22.00	.760 19.30	.591 15.00	4-794624-2	4-794625-2	4-794626-2	1-794617-2
14	.984 25.00	.878 22.30	.709 18.00	4-794624-4	4-794625-4	4-794626-4	1-794617-4
16	1.102 28.00	.996 25.30	.827 21.00	4-794624-6	4-794625-6	4-794626-6	1-794617-6
18	1.220 31.00	1.114 28.30	.945 24.00	4-794624-8	4-794625-8	4-794626-8	1-794617-8
20	1.339 34.00	1.232 31.30	1.063 27.00	5-794624-0	5-794625-0	5-794626-0	2-794617-0
22	1.457 37.00	1.350 34.30	1.181 30.00	5-794624-2	5-794625-2	5-794626-2	2-794617-2
24	1.575 40.00	1.469 37.30	1.299 33.00	5-794624-4	5-794625-4	5-794626-4	2-794617-4

*Recommended PC Board thickness .062 [1.57]. Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

Micro MATE-N-LOK 3 mm Connector System (Continued)

Right-Angle Header Assemblies (Continued)
Dual Row, Surface Mount, with Plastic Boardlock

Material and Finish

Housing — High Temperature Nylon, Black

Flammability Rating — UL 94V-0

Contacts — Brass

Plating A — .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

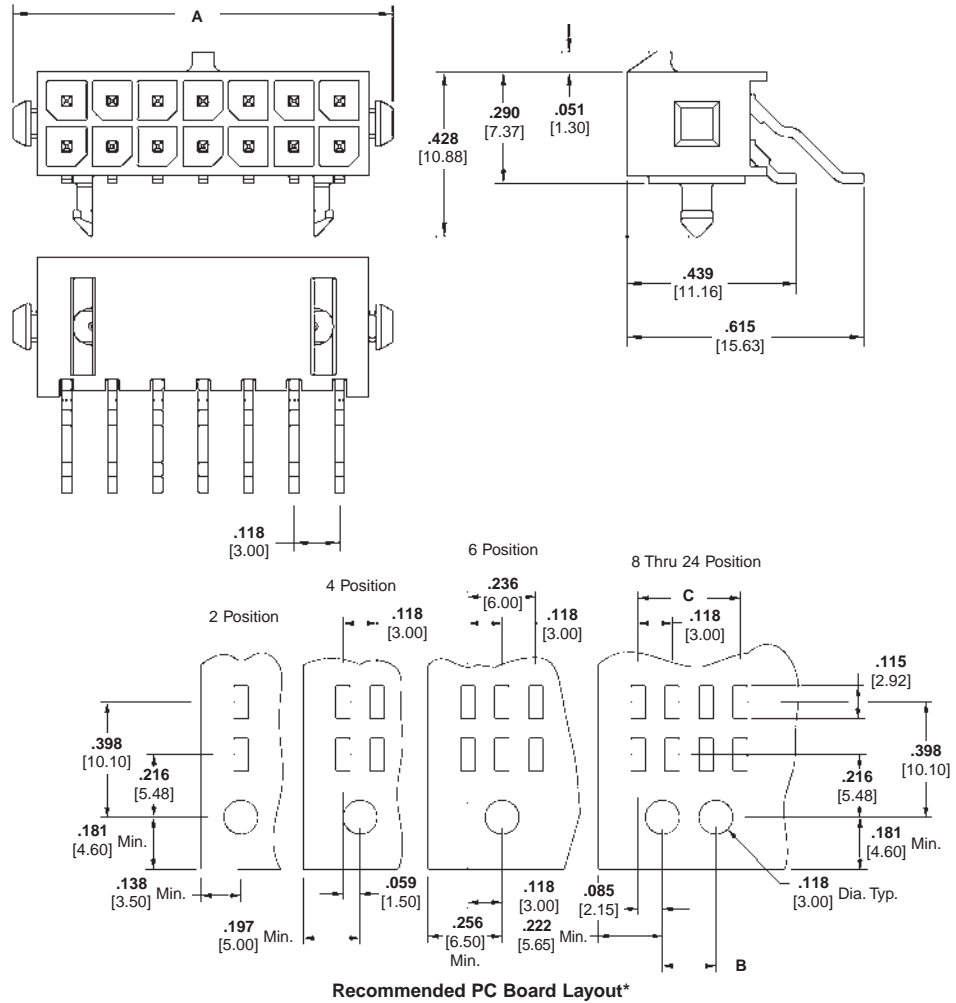
Plating B — .000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Plating C — .000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Related Product Data

Mateable Housings:

Dual Row Receptacle Housing—page 24



Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.276 7.00	—	—	3-794621-2	3-794622-2	3-794623-2	794617-2
4	.394 10.00	—	.118 3.00	3-794621-4	3-794622-4	3-794623-4	794617-4
6	.512 13.00	—	.236 6.00	3-794621-6	3-794622-6	3-794623-6	794617-6
8	.630 16.00	.185 4.70	.354 9.00	3-794621-8	3-794622-8	3-794623-8	794617-8
10	.748 19.00	.303 7.70	.472 12.00	4-794621-0	4-794622-0	4-794623-0	1-794617-0
12	.866 22.00	.421 10.70	.591 15.00	4-794621-2	4-794622-2	4-794623-2	1-794617-2
14	.984 25.00	.539 13.70	.709 18.00	4-794621-4	4-794622-4	4-794623-4	1-794617-4
16	1.102 28.00	.657 16.70	.827 21.00	4-794621-6	4-794622-6	4-794623-6	1-794617-6
18	1.220 31.00	.776 19.70	.945 24.00	4-794621-8	4-794622-8	4-794623-8	1-794617-8
20	1.339 34.00	.894 22.70	1.063 27.00	5-794621-0	5-794622-0	5-794623-0	2-794617-0
22	1.457 37.00	1.012 25.70	1.181 30.00	5-794621-2	5-794622-2	5-794623-2	2-794617-2
24	1.575 40.00	1.130 28.70	1.299 33.00	5-794621-4	5-794622-4	5-794623-4	2-794617-4

*Recommended PC Board thickness .062 [1.57]. Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

High Density
Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

Micro MATE-N-LOK 3 mm Connector System (Continued)

High Density

Micro MATE-N-LOK 3 mm Connector System
.118 [3.00] Centerline

Right-Angle Header Assemblies (Continued)

Dual Row, Surface Mount, with Surface Mount Hold-down

Material and Finish

Housing — High Temperature Nylon, Black

Flammability Rating — UL 94V-0

Contacts—Brass

Plating A— .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Plating B— .000015 [0.00038] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

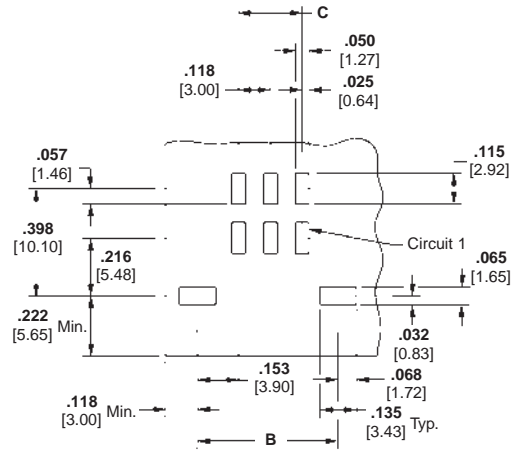
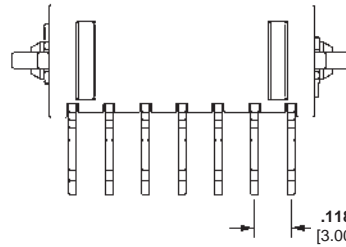
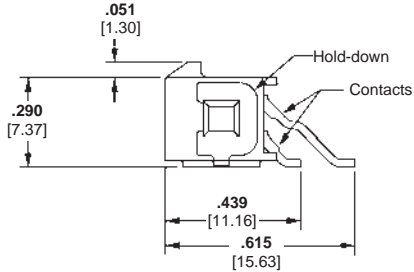
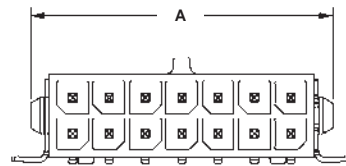
Plating C— .000030 [0.00076] gold in mating area, .000100 [0.00254] min. tin in solder area, with entire contact underplated .000050 [0.00127] min. nickel

Hold-downs—Phosphor Bronze, .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel

Related Product Data

Mateable Housings:

Dual Row Receptacle Housing—page 24



Recommended PC Board Layout*

Number of Circuits	Dimensions			Header Part Numbers			Mates with Receptacle Housing Part Number
	A	B	C	Plating A	Plating B	Plating C	
2	.276 7.00	.276 7.27	—	3-794627-2	3-794628-2	3-794629-2	794617-2
4	.394 10.00	.394 10.27	.118 3.00	3-794627-4	3-794628-4	3-794629-4	794617-4
6	.512 13.00	.512 13.27	.236 6.00	3-794627-6	3-794628-6	3-794629-6	794617-6
8	.630 16.00	.630 16.27	.354 9.00	3-794627-8	3-794628-8	3-794629-8	794617-8
10	.748 19.00	.748 19.27	.472 12.00	4-794627-0	4-794628-0	4-794629-0	1-794617-0
12	.866 22.00	.866 22.27	.591 15.00	4-794627-2	4-794628-2	4-794629-2	1-794617-2
14	.984 25.00	.984 25.27	.709 18.00	4-794627-4	4-794628-4	4-794629-4	1-794617-4
16	1.102 28.00	1.102 28.27	.827 21.00	4-794627-6	4-794628-6	4-794629-6	1-794617-6
18	1.220 31.00	1.220 31.27	.945 24.00	4-794627-8	4-794628-8	4-794629-8	1-794617-8
20	1.339 34.00	1.339 34.27	1.063 27.00	5-794627-0	5-794628-0	5-794629-0	2-794617-0
22	1.457 37.00	1.457 37.27	1.181 30.00	5-794627-2	5-794628-2	5-794629-2	2-794617-2
24	1.575 40.00	1.575 40.27	1.299 33.00	5-794627-4	5-794628-4	5-794629-4	2-794617-4

*Always consult customer drawing for PC Board layout dimensions.

Note: All part numbers are RoHS Compliant.

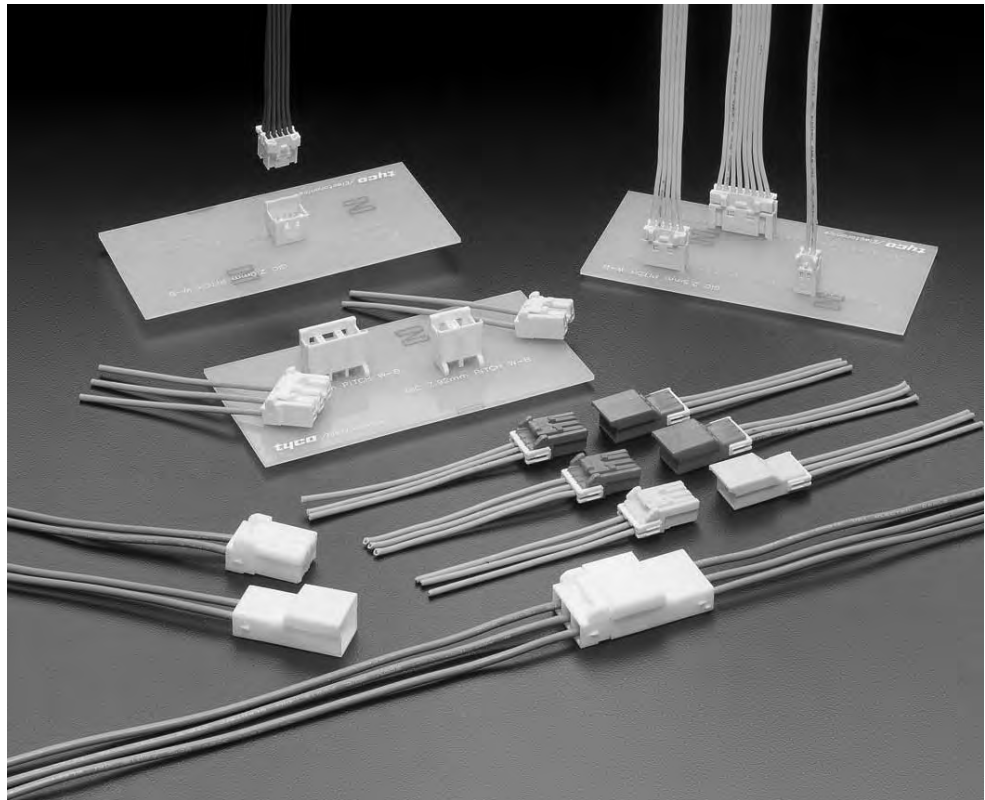
Engineering Notes



**Grace Inertia Connectors (GIC), 3.5 mm Centerline
(Wire-to-Wire Connectors)**

Product Facts

- Small wire-to-wire connectors (3.5 mm centerline) can handle 18 AWG wire
- Locking mechanism helps prevent connectors from being disconnected during movement or transportation
- Four kinds of keying per color-coded housing
- Improved housing shape offers easier mating
- Complies with lead free requirements
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. E28476



Performance Characteristics

- Voltage Rating**—300 VAC
- Current Rating**—7 A (max.)
- Centerline**—3.5 mm
- Applicable Wire**—26 to 18 AWG
- Temperature Rating**—
-30°C to 105°C

This connector employs the inertia locking mechanism, which simultaneously locks when mated to help prevent mismating. It is widely used for large-sized household electric appliances, such as refrigerators, washing machines, or dispensers. Depending on the working environment, a locking sound is difficult to confirm during mating of a connector. However, this connector supports secure mating operation even in such a working environment.

Material and Finish

- Housing**—6/6 Nylon UL94V-0 (CTI 600 V or more)
- Terminal**—Pre-tin Copper alloy

Technical Documents

- Product Specification**
108-5810
- Application Specification**
114-5306

Note: All dimensions shown are metric.

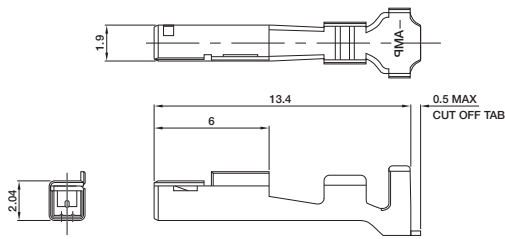
**Grace Inertia Connectors (GIC), 3.5 mm Centerline
(Wire-to-Wire Connectors)** (Continued)

Contacts

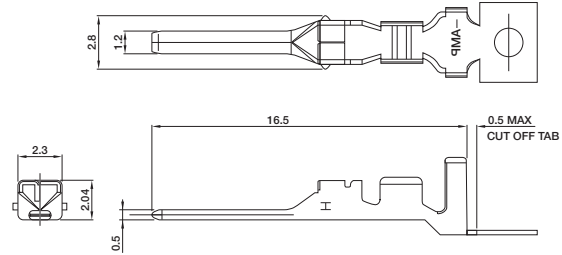
Material and Finish

Pre-tinned Copper Alloy

Receptacle Contact (For Plug Housing)



Tab Contact (For Cap Housing)



Wire Range		Insulation Dia. mm	Contact Part Number		Tool Part Number	
AWG	mm ²		Receptacle	Tab	Terminator/Applicator	CERTI-CRIMP Hand Tool
26-22	0.13-0.34	1.3-2.0	1612334-1	1612335-1	**	—
22-18	0.3-0.9	1.5-2.7	1565079-1	1565080-1	**	1596277-1

*Cut the contact carrier strip when using a hand tool.

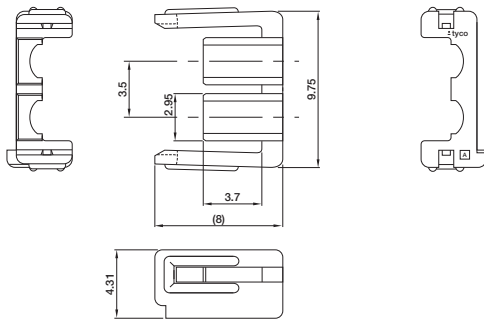
** Contact the Tooling Assistance Center (TAC) at 1-800-722-1111 for Terminator or Applicator Part Numbers.

Double Lock Plates

Material

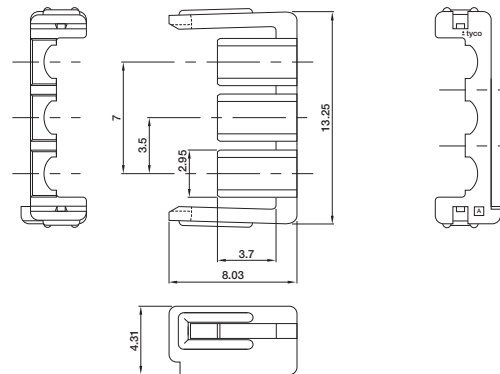
6/6 Nylon glass filled (UL94V-0)

2 Position



P/N 1565089-1
*Two four-positions are used.

3 Position



P/N 1565090-1
*Two six-positions are used.

Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

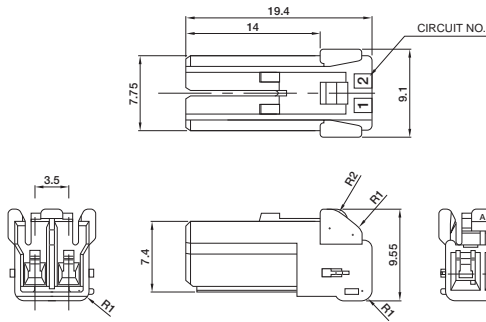
**Grace Inertia Connectors (GIC), 3.5 mm Centerline
(Wire-to-Wire Connectors)** (Continued)

2 Position

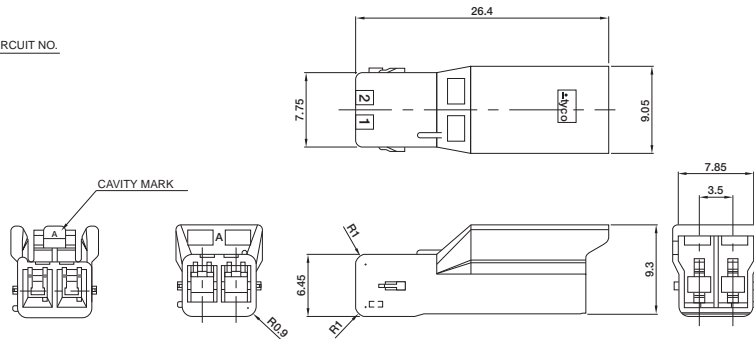
Material

6/6 Nylon, UL94V-0 (CTI 600 V or more)

Plug Housing (For Receptacles)



Cap Housing (For Tabs)



Related Product Data

Receptacle and Tab Contacts—page 50

Double Lock Plate—page 50

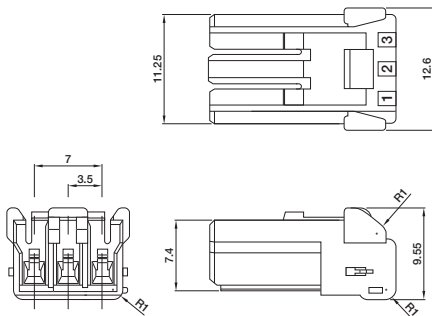
Color	Keying	Part Number	
		Plug Housing	Cap Housing
Natural	A	1565081-1	1565085-1
Red	B	1-1565081-2	1-1565085-2
Blue	C	2-1565081-3	2-1565085-3
Yellow	D	3-1565081-4	3-1565085-4

3 Position

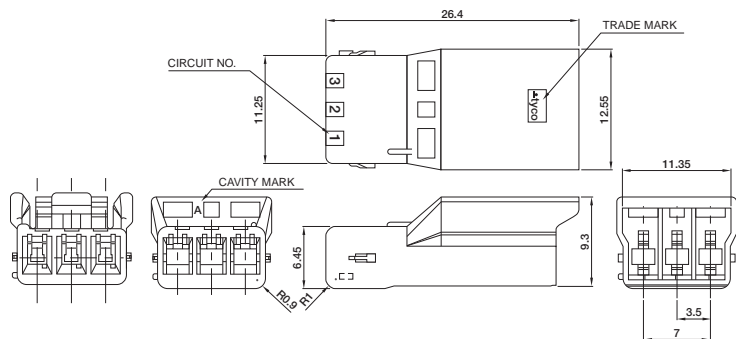
Material

6/6 Nylon, UL94V-0 (CTI 600 V or more)

Plug Housing (For Receptacles)



Cap Housing (For Tabs)



Color	Keying	Part Number	
		Plug Housing	Cap Housing
Natural	A	1565082-1	1565086-1
Red	B	1-1565082-2	1-1565086-2
Blue	C	2-1565082-3	2-1565086-3
Yellow	D	3-1565082-4	3-1565086-4

Note: All dimensions shown are metric.

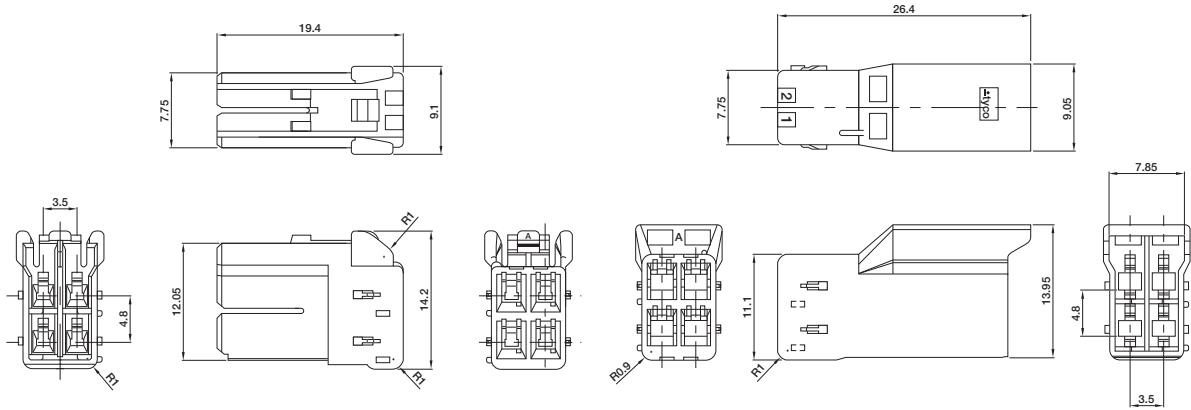
Note: All part numbers are RoHS Compliant.

**Grace Inertia Connectors (GIC), 3.5 mm Centerline
(Wire-to-Wire Connectors)** (Continued)

4 Position

Plug Housing (For Receptacles)

Cap Housing (For Tabs)



Material

6/6 Nylon, UL94V-0 (CTI 600 V or more)

Related Product Data

Receptacle and Tab Contacts—page 50

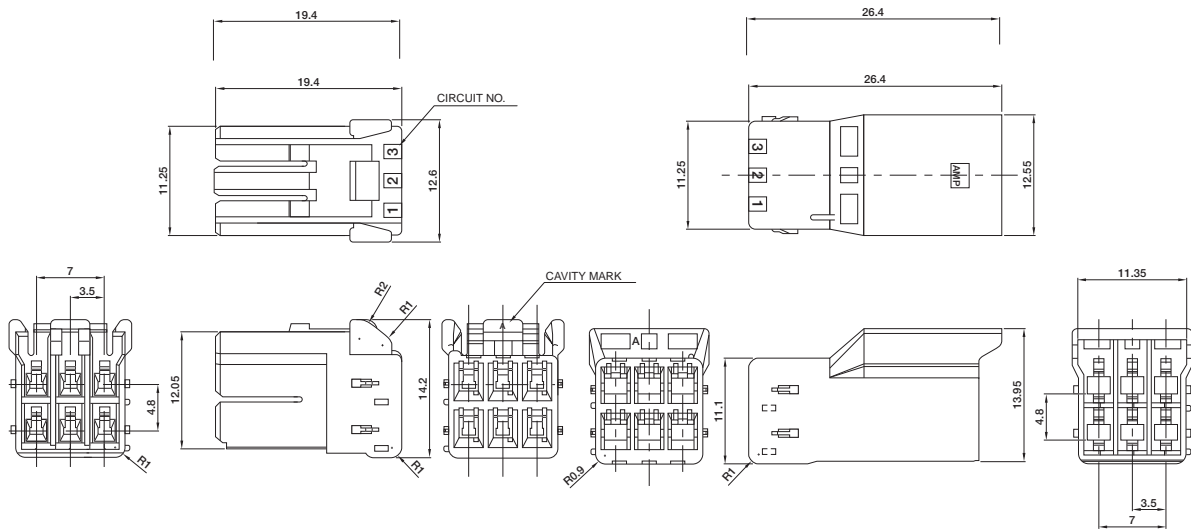
Double Lock Plate—page 50

Color	Keying	Part Number	
		Plug Housing	Cap Housing
Natural	A	1565083-1	1565087-1
Red	B	1-1565083-2	1-1565087-2
Blue	C	2-1565083-3	2-1565087-3
Yellow	D	3-1565083-4	3-1565087-4

6 Position

Plug Housing (For Receptacles)

Cap Housing (For Tabs)



Material

6/6 Nylon, UL94V-0 (CTI 600 V or more)

Color	Keying	Part Number	
		Plug Housing	Cap Housing
Natural	A	1565084-1	1565088-1
Red	B	1-1565084-2	1-1565088-2
Blue	C	2-1565084-3	2-1565088-3
Yellow	D	3-1565084-4	3-1565088-4

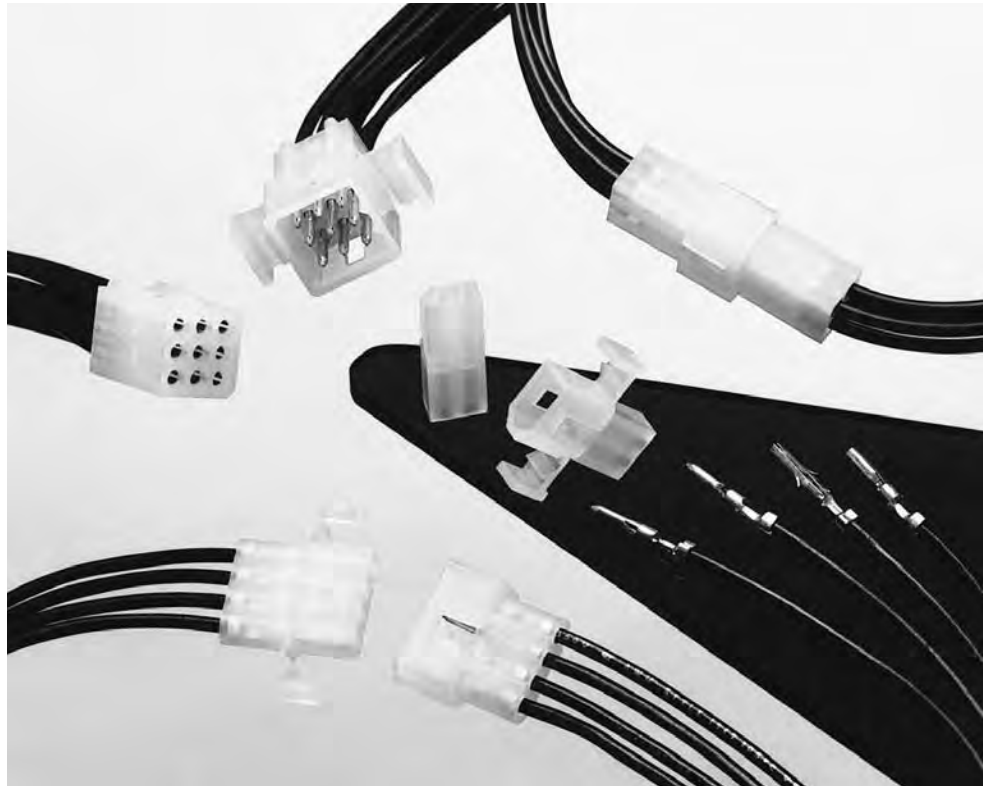
Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

.062 [1.57] Commercial Pin and Socket Connectors

Product Facts

- Polarized
- Cavity identification
- Low contact-mating force
- Dual locking lances
- Detent and positive locking
- Contacts available in brass and phosphor bronze with tin and gold plating
- Panel mount and free-hanging styles
- “F” crimp contacts
- Applicator and hand tool available
- Economical commercial-grade connectors
- Compatible with high-speed application machinery and most other manufacturers’ soft shells
- Wire range 30 to 18 AWG [0.05 to 0.9 mm²]
- Accepts wires with insulation diameters as large as .110 [2.79]
- Housings available in 1 to 9 positions
- **.062 plug and receptacle housings accept pin or socket contacts. The preferred convention is to use socket contacts with receptacle housings**
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189



Performance Characteristics

The .062 Commercial Pin and Socket Connectors performance characteristics found on pages 53-54 are based on free-hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

- Durability**—10 mating cycles
- Dielectric Withstanding Voltage**—1.0 kVAC
- Insulation Resistance**—1000 megohms min. initial
- Voltage Rating**—250 V AC or DC
- Connector Mating**—2.5 lb. [11.1 N] max. per contact
- Connector Unmating**—0.3 lb. [1.3 N] min. per contact
- Contact Insertion Force**—4.0 lb. [17.8 N] max. per contact
- Contact Retention**—7 lb. [31.1 N] min.
15 lb. [66.6 N] min. for contacts 770983-1 and 794380-1

Technical Documents

- Product Specification**
108-1037 .062 Commercial Pin and Socket Connectors
- Application Specification**
114-1013 .062 Commercial Pin and Socket Connectors

High Density

.062 [1.57] Commercial Pin and Socket Connectors
.145 [3.68] Centerline

.062 [1.57] Commercial Pin and Socket Connectors (Continued)

Performance Characteristics
(Continued)

Maximum Current—Maximum current rating of .062 Commercial Pin and Socket connectors is limited by the maximum operating temperature of the housings which is 105°C including the temperature rise of the contacts which is a maximum of 30°C. There are several variables which have a direct effect on this maximum current-carrying capability for a given connector and must be considered for each application. These variables are:

Wire Size—Larger wire will carry more current since it has less internal resistance to current flow and thus generates less heat. Longer wire lengths also enhance current-carrying capabilities since the wire conducts heat away from the connector.

Connector Size—In general, the more circuits in a connector, the less current can be carried.

Ambient Temperature—The higher the ambient temperature, the less current can be carried in any given connector.

Related Product Data

Product Specification —
108-1037

Application Specification —
114-1013

Current Rating Verification for 30°C Maximum Temperature Rise 100% Energized

Wire-to-Wire

.062 Commercial Pin and Socket Connectors Calculated Current Table

Number of Circuits	Wire Gauge			
	18	20	22	24
2	7.00	6.00	5.00	4.00
3	7.00	6.00	5.00	4.00
4	6.00	6.00	5.00	4.00
4	6.00	5.00	4.00	3.00
6	6.00	5.00	4.00	3.00
9	5.00	4.00	4.00	3.00

Values are based on initial Temperature Rise versus Current Testing and are intended to be a guide in the selection of a connector family. All applications should be tested by the end user. The values listed are per circuit for fully loaded housings being 100% energized. **Note:** All combinations were not tested, and this chart contains interpolated and extrapolated values.

Minimum Wire Lengths for T-Rise vs. Current Testing

AWG	Min. Length (in.)	AWG	Min. Length (in.)
30	2.6	18	9.4
28	3.2	16	11.3
26	4.1	14	13.7
24	5.1	12	16.4
20	7.8	10	19.3

Note: If wire lengths used are less than those listed above, the current-carrying ability of the system will be reduced due to less heat being conducted away from the connector. The customer should fully test all applications.

Termination Resistance/Contact Crimp Tensile Force

Wire Size		Termination Resistance		Contact Crimp Tensile Force	
AWG	mm ²	Test Current (Amps)	Resistance Milliohms (Max. Init.)	Force (Min.)	
				lbs.	N
24	0.2	1.5	3.50	10	44.5
22	0.3–0.4	3.0	3.50	10	44.5
20	0.5–0.6	4.5	3.00	13	57.8
18	0.8–0.9	6.0	3.00	14	62.3

Note: This is the total resistance between wire crimps of a mated pin and socket.

High Density

.062 [1.57] Commercial Pin and Socket Connectors
.145 [3.68] Centerline

.062 [1.57] Commercial Pin and Socket Connectors (Continued)

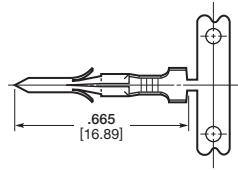
Contacts

Pin Diameter .062 [1.57]

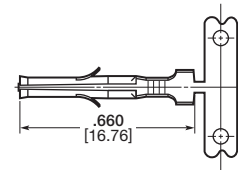
Material

.008 [0.20] Stock Thickness

Pin and socket contacts can be used in either plug or receptacle housings. It is preferred to use socket contacts in receptacle housings.



Pin



Socket

Related Product Data

Performance Characteristics—pages 53-54

Housings—pages 56-57

Panel Cutouts—page 57

Technical Documents—pages 53 and 205-206

Application Tooling—pages 207-210

Product Specification—108-1037-1

Wire Size		Ins. Dia.	Material & Finish	Contact Part Numbers				HDM Applicator Part No.	Hand Tool Part No.
AWG	mm ²			Pin		Socket			
				Strip Form	Loose Pieces	Strip Form	Loose Pieces		
30-24	0.05-0.2	.060 1.52 Max.	Brass Pre-tin	640391-1	794018-1	640392-1	794019-1	466686-1 ³ 466686-2 ³ 466686-3 ³	90870-1
			Brass, Select Gold ¹	640391-5 ¹	—	640392-5 ¹	—		
			Phos. Brz., Pre-tin	—	—	640392-2	—		
24-18	0.2-0.9	.050-.110 1.27-2.79	Brass Pre-tin	350629-1	794017-1	350628-1	794016-1	687996-1 ³ 687996-2 ³ 687996-3 ³	90869-1
			Phos. Brz., Pre-tin	350629-8	—	350628-2	—		
			Brass, Select Gold ¹	350629-5 ¹	—	350628-5 ¹	—		
			Phos. Brz., Select Gold ¹	—	—	350628-6 ¹	—		

¹Select Gold—.000030 [.000762] min. in mating area over .000050 [.00127] nickel.

²Lanceless Socket for Overmolding.

³HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3 is used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

⁴Contact Retention 15 lbs. [66.6 N] min.

Note: Phosphor bronze contacts should be used in high-temperature/humidity cycling applications.

Note: All part numbers are RoHS Compliant.



Contact Insertion Tool
(for Pins and Sockets)
Part No. 91002-1
IS 408-7347



Contact Extraction Tool
Part No. 318831-1
IS 408-4370

.062 [1.57] Commercial Pin and Socket Connectors (Continued)

Housings

Free-Hanging or Panel Mount

.145 [3.68] Centerline spacing

Material

Housing—Nylon, natural color

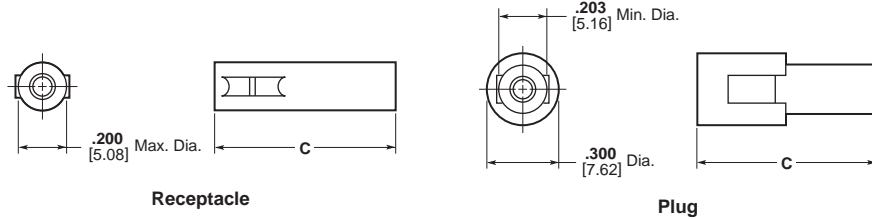
Flammability Rating—UL94V-2

Related Product Data

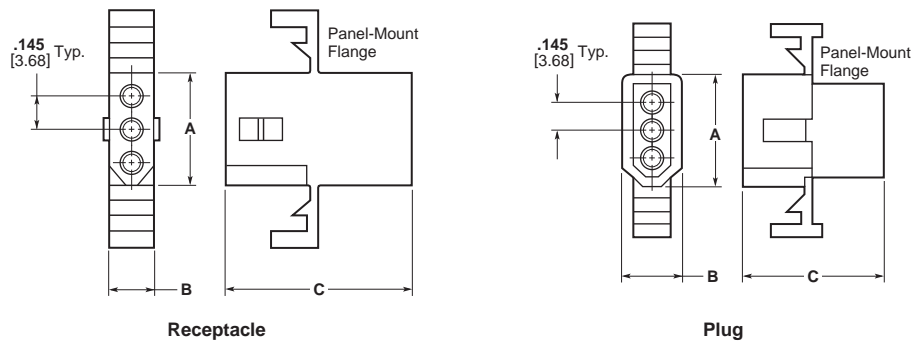
Contacts—page 55

Product Specification—
108-1037

1 Circuit



2, 3, and 4 Circuit, In-Line



No. of Circuits	Dimensions						Receptacle Part Numbers		Plug Part Numbers	
	Receptacle			Plug			Panel Mount	Free-Hanging	Panel Mount	Free-Hanging
	A	B	C	A	B	C				
1	—	—	.785 19.94	—	—	.750 19.05	—	770277-1	—	770278-1
2	.340 8.64	.199 5.05	.820 20.83	.440 11.18	.300 7.62	.780 19.81	770343-1	770342-1 770419-1 ¹	770341-1	770340-1
3	.490 12.45	.199 5.05	.785 19.94	.590 14.99	.300 7.62	.750 19.05	770326-1	770333-1	770332-1	770331-1
4 (In-Line)	.635 16.13	.199 5.05	.785 19.94	.733 18.62	.300 7.62	.750 19.05	770335-1	770274-1	770334-1	770275-1
4 (Matrix)	.345 8.76	.345 8.76	.878 22.30	.445 11.30	.445 11.30	.868 22.04	770441-1	770442-1	770443-1	770433-1
6	.345 8.76	.495 12.57	.785 19.94	.445 11.30	.600 15.24	.750 19.05	770354-1	770356-1	770353-1	770355-1
9	.490 12.45	.495 12.57	.790 20.07	.590 14.99	.600 15.24	.750 19.05	770427-1	770429-1	770426-1	770428-1

¹Positive Lock

Note: All part numbers are RoHS Compliant.

High Density
Commercial Pin and Socket Connectors
.145 [3.68] Centerline

.062 [1.57] Commercial Pin and Socket Connectors (Continued)

Housings

Free-Hanging or Panel Mount

.145 [3.68] Centerline spacing

Material

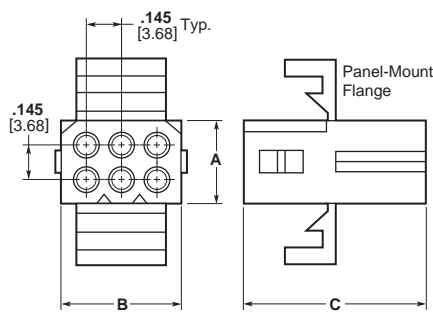
Housing — Nylon, natural color

Flammability Rating — UL94V-2

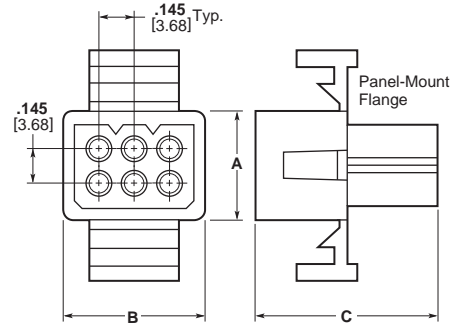
Related Product Data

Contacts — page 55

4, 6, and 9 Circuit, Matrix



Receptacle



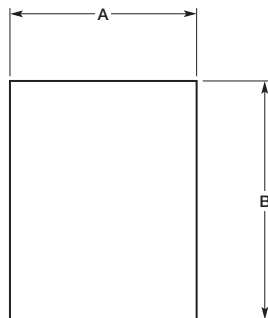
Plug

Recommended Panel Cutouts

Maximum panel thickness is .060 [1.52].

Related Product Data

Product Specification — 108-1037



No. of Circuits	Panel Cutout Dimensions			
	Receptacle		Plug	
	A	B	A	B
2	.265	.505	.318	.609
	6.73	12.83	8.08	15.47
3	.265	.650	.318	.754
	6.73	16.51	8.08	19.15
4 (In-Line)	.260	.785	.312	.865
	6.60	19.94	7.92	21.97
4 (Matrix)	.400	.506	.465	.615
	10.16	12.85	11.81	15.62
6	.505	.552	.607	.615
	12.83	14.02	15.42	15.62
9	.552	.650	.615	.752
	14.02	16.51	15.62	19.10

Note: The panel should be punched so that the housing enters in the same direction as the punch.

Note: All part numbers are RoHS Compliant.

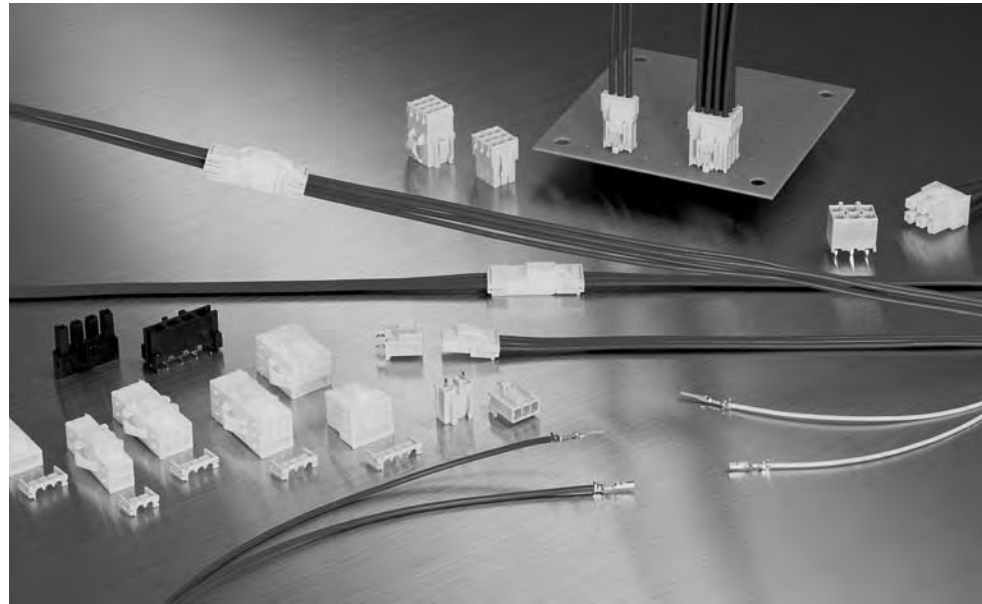
Engineering Notes



Power Double Lock (PDL) Connectors (Wire-to-Board and Wire-to-Wire)

Product Facts

- Power circuit connectors of compact design
- Uses double lock plate on the wire side that helps prevent partial mating of contacts
- Double lock plate compatible with high-count positions of more than 3 rows
- Tab and receptacle contacts resist scooping of contacts at mating / unmating
- Locking of plug to cap housings and plug to board-mounted headers made by the semi-inner locking system that helps preclude the possibility of disengagement by external pressure
- Both wire-to-wire and wire-to-board applications available from the same Series lineup
- Board-mounted header compatible with resin coating, causing no hindrance with the plug locking function
- Design complies with a range of safety standards
- The housing lance design provides no lance on contacts and helps prevent entanglement of contacts with one another
- Fully polarized
- The following contact centerline by row centerline arrangements available:
 - For wire-to-wire application:
3.96 mm x 4.6 mm
6.5 mm x 6.5 mm
 - For wire-to-board application:
3.96 mm x 4.6 mm
7.92 mm x 4.6 mm
6.5 mm x 6.5 mm
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR7189
- VDE Approved, File No. B 04 11 39175010



Power Double Lock Connectors are compact connectors designed for use in power circuit applications and are ideally suited for wiring in refrigerators, air conditioners, washing machines, gas equipment, copying machines and automatic vending machines. These connectors can be used alone by inserting wire-terminated crimp snap-in contacts into the housing. However, to achieve more positive contact mounting, plug and cap housings can be equipped with a double lock plate that helps to completely insert contacts. There are three contact centerline spacings available: 3.96 mm, 6.5 mm and 7.92 mm. Of these, the 7.92 mm centerline contact arrangement is for 2-position board-mounted headers. The mating wire-mounted plug connector uses the second circuit of the 3-position 3.96 mm centerline housing with no contact loaded. Available with the 3.96 mm centerline contact arrangement are wire-mounted plug housings and the mating wire-mounted cap housings (for free-hanging and panel mounted

applications) and board-mounted tab headers. The 6.5 mm centerline contact arrangement is used in wire-mounted plug housings and the mating board-mounted tab headers. The plug housings are loaded with receptacle contacts and the cap housings with tab contacts. The tab headers for board mounting are preloaded with solder-dipping tab contacts with tail. Contacts accept two wire size ranges: 28-22 AWG (with insulation outer diameter of 1.3 to 2.0 mm) and 20-18 AWG (with insulation outer diameter of 2.0 to 3.1 mm). The tab header for board mounting has a locking mechanism where it is compatible with resin coating that is applied to the board for waterproof. It is designed to work with the plug locking function. The solder tail section of tab contact has kink feature. Interacting with the mounting boss with kink feature, the solder tab secures the header on the board firmly during soldering.

The double lock plate is compatible with high-count positions of more than 3 rows. Also, the housing lance design of this connector, featuring no lance on contacts, makes handling of the connector very easy, as there is minimal entanglement of contacts with one another.

Performance Characteristics

- Voltage Rating**—300 VAC (for 3.96 mm wire-to-wire, 6.5 mm wire-to-board and 7.92 mm wire-to-board applications)
50 VAC (for 3.96 mm wire-to-board application)
- Current Rating**—14A max. (Based on initial I-rise vs. current testing using 16 AWG wire in a 2-position connector)
- Fine Rating**—1 mV, 1 α A min.
- Operating Temperature**— -30° ~ $+105^{\circ}$ C

Technical Documents

- Product Specifications**
108-5410
108-5439 (SMT)
- Application Specification**
114-5175
- Instruction Sheet**
411-5638

Power Double Lock (PDL) Connectors (Wire-to-Board and Wire-to-Wire) (Continued)

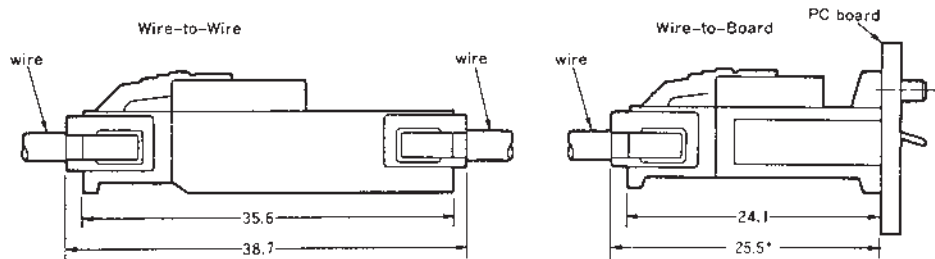
Quick Reference Chart for Mating Part Numbers

Quick Reference Chart

Plug Connector (Wire Side)			Mating Connectors (Wire and PC Board Mount Side)		
No. of Pos.	Housing Part No.	Part No. of Applicable Double Lock Plate	No. of Pos.	Part No. of Cap Housing and Tab Header	Part No. of Applicable Double Lock Plate
■ 3.96 mm and 7.92 mm Centerline					
1	316768-□	316770-1x1	1	316769-□ (Free-Hanging)	316770-1x1
2	177898-□	177918-1x1	2	179463-□ (Free-Hanging)	177918-1x1
				177906-□ (Panel Mount)	—
3	177899-□	177919-1x1	3	179838-□ (PC Board Mount)	—
				179464-□ (Free-Hanging)	177919-1x1
				177907-□ (Panel Mount)	—
4 (1 Row)	316501-□	177920-1x1	4	179839-□ (PC Board Mount)	—
				179444-□ (PC Board Mount 7.92 mm Centerline)	—
4 (2 Rows)	177900-□	177918-1x2	4	316502-□ (Panel Mount)	177920-1x1
				179465-□ (Free-Hanging)	177918-1x2
6	177901-□	177919-1x2	6	177908-□ (Panel Mount)	—
				179840-□ (PC Board Mount)	—
				179466-□ (Free-Hanging)	177919-1x2
8	177902-□	177920-1x2	8	177909-□ (Panel Mount)	—
				179841-□ (PC Board Mount)	—
9	177903-□	177919-1x3	9	179467-□ (Free-Hanging)	177920-1x2
10	177904-□	177921-1x2	10	917845-□ (PC Board Mount)	177919-1x3
12	177905-□	177920-1x3	12	177911-□ (Panel Mount)	177921-1x2
				177912-□ (Panel Mount)	177920-1x3
				177913-□ (Panel Mount)	—
■ 6.5 mm and 13.0 mm Centerline					
2	1939344-1	316061-1x1	2	179843-□ (PC Board Mount)	1903720-1 (Free-Hanging)
3	179938-□	316062-1x1	3	1939343-1 (Panel Mount)	—
—	—	—	2	179846-□ (PC Board Mount)	—
				179944-□ (PC Board Mount/SMT)	—
4 (1 Row)	179939-□	316063-1x1	4	917745-□ (PC Board Mount 13 mm Centerline)	—
				9139343-1-□ (Panel Mount)	—
4 (2 Rows)	179861-□	316061-1x2	4	179847-□ (PC Board Mount)	—
				179945-□ (PC Board Mount/SMT)	—
6	179862-□	316062-1x2	6	179848-□ (PC Board Mount)	—
				1903486-1 (Panel Mount)	—
12	917354-□	353891-1x2	12	179849-□ (PC Board Mount)	—
				1903487-1 (Panel Mount)	—
				917353-□ (PC Board Mount)	—

*For details on 6.5 mm and 13.0 mm Centerline products, contact Technical Support

Note: All part numbers are RoHS Compliant.



Note: All dimensions shown are metric.

High Density
Power Double Lock (PDL) Connectors
.156 [3.96], .256 [6.50], .312 [7.92] and .512 [13.00] Centerlines

Power Double Lock (PDL) Connectors (Wire-to-Board and Wire-to-Wire) (Continued)

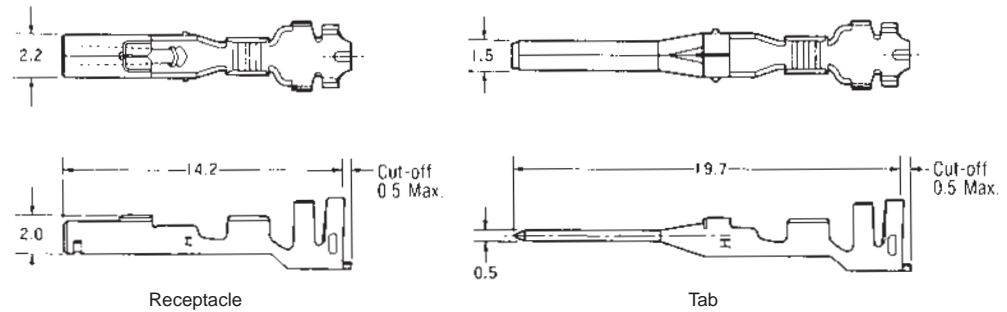
Contacts and Product Composition

Contacts

Material and Finish

Pre-tinned copper alloy

Receptacle for Plug Housing,
Tab for Cap Housing



Wire Range		Ins. Dia. (Note)	Contact Part No.				Applicator Part No.	CERTI-CRIMP II Hand Tool Part No.
AWG	mm ²		Receptacle		Tab			
			Strip Form	Loose Piece	Strip Form	Loose Piece		
26-22	0.14~0.34	1.30~2.00	177914-1	179592-1	177916-1	179594-1	680283-X	91567-1
			177914-2*	179592-2*				
20-16	0.51~1.38	2.00~3.10	177915-1	179593-1	177917-1	179595-1	680286-X	91569-1
			177915-2*	179593-2*				

Note: Maximum diameter is 2.8 mm when Double Lock Plate is used.

*Part Number suffix -2 represents high contact pressure type.

Extraction Tool P/N : 234912-1 (For receptacle contact)
234914-1 (For tab contact)

Note: Contact the Tooling Assistance Center (TAC) at 1-800-722-1111 for Applicator Part Number.

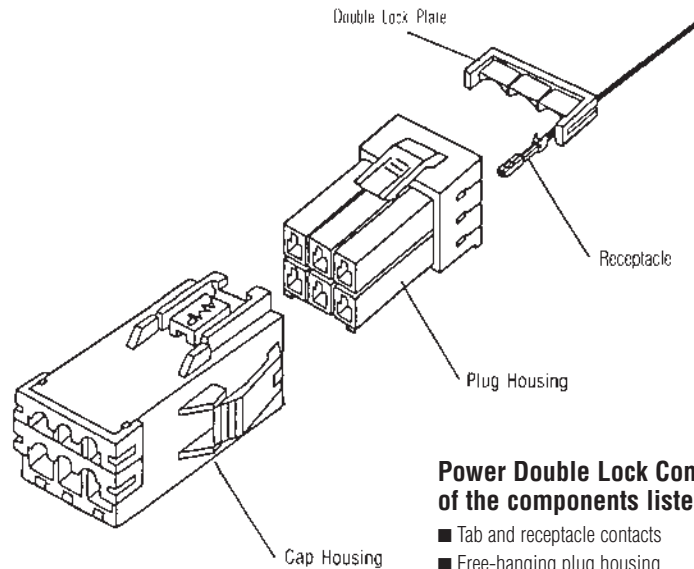
Positive mounting achieved with Double Lock mechanism.

① Contact is partially-mounted.

② Double Lock Plate is set.

③ Contact is fully pushed in as Double Lock Plate is pressed.

Product Composition



Power Double Lock Connector is composed of the components listed below:

- Tab and receptacle contacts
- Free-hanging plug housing
- Free-hanging cap housing
- Panel mount cap housing
- PC Board-mount tab header
- Double Lock Plate

Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors (Wire-to-Board and Wire-to-Wire) (Continued)

3.96 mm Centerline Free-Hanging Plug Housing

1 Circuit

Wire-to-Wire

Material—UL94V-0, 6/6 Nylon

Part Number

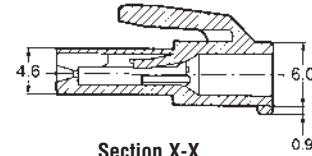
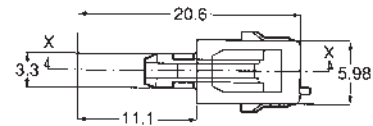
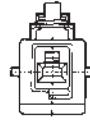
- 316768-1 (Natural)
- 316768-2 (Red)
- 316768-4 (Yellow)
- 316768-6 (Blue)
- 316768-9 (Black)

Related Product Data

Receptacle Contacts—page 61

Mating Cap Housings
(Free-Hanging)—pages 65-66

Double Lock Plate—page 71



Section X-X

2 Circuits

Wire-to-Board and Wire-to-Wire

Material—UL94V-0, 6/6 Nylon

Part Number

- 177898-1 (Natural)
- 177898-2 (Red)
- 177898-4 (Yellow)
- 177898-6 (Blue)
- 177898-9 (Black)

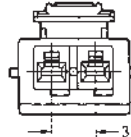
Related Product Data

Receptacle Contacts—page 61

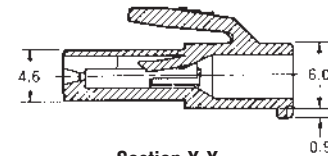
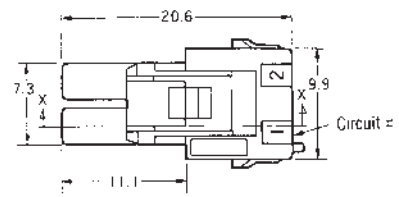
Mating Cap Housings
(Free-Hanging)—pages 65-66
(Panel Mount)—pages 67-70

Double Lock Plate—page 71

Mating Tab Headers—
pages 72-74



3.96 Centerline



Section X-X

3 Circuits

Wire-to-Board and Wire-to-Wire

Material—UL94V-0, 6/6 Nylon

Part Number

- 177899-1 (Natural)
- 177899-2 (Red)
- 177899-4 (Yellow)
- 177899-6 (Blue)
- 177899-9 (Black)

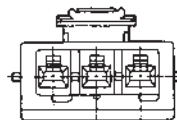
Related Product Data

Receptacle Contacts—page 61

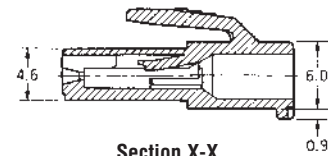
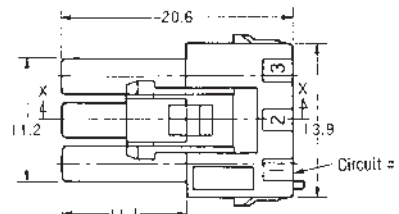
Mating Cap Housings
(Free-Hanging)—pages 65-66
(Panel Mount)—pages 67-70

Double Lock Plate—page 71

Mating Tab Headers—
pages 72-74 and
(2 circuit, 7.92 mm
centerline)—page 74



3.96 Centerline



Section X-X

4 Circuits (1 Row)

Wire-to-Wire

Material—UL94V-0, 6/6 Nylon

Part Number

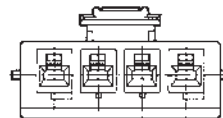
- 316501-1 (Natural)
- 316501-4 (Yellow)
- 316501-6 (Blue)

Related Product Data

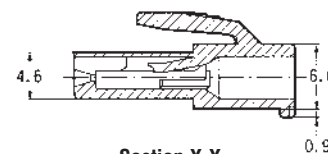
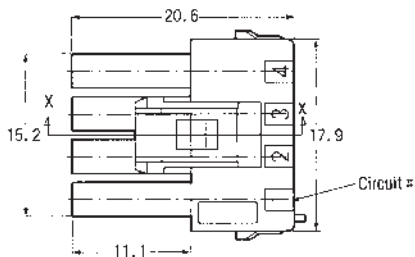
Receptacle Contacts—page 61

Mating Cap Housings
(Panel Mount)—pages 67-70

Double Lock Plate—page 71



3.96 Centerline



Section X-X

Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

High Density

Power Double Lock (PDL) Connectors
.156 [3.96] Centerlines

Power Double Lock (PDL) Connectors (Wire-to-Board and Wire-to-Wire) (Continued)

3.96 mm Centerline Free-Hanging Plug Housing

4 Circuits (2 Rows)

Wire-to-Board and Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

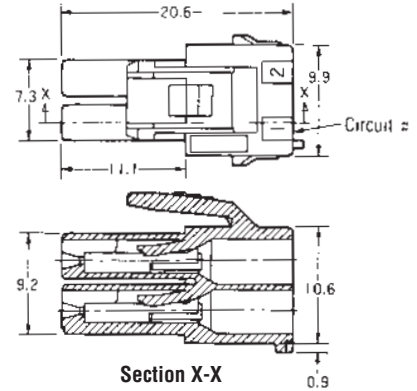
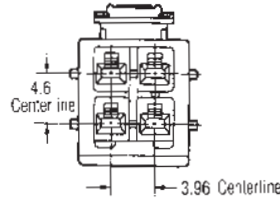
- 177900-1 (Natural)
- 177900-4 (Yellow)
- 177900-6 (Blue)

Lock Type II

3-177900-1 (Natural)

Related Product Data

- Receptacle Contacts**—page 61
- Mating Cap Housings**
(Free-Hanging)—pages 65-66
(Panel Mount)—pages 67-70
- Double Lock Plate**—page 71
- Mating Tab Headers**—
pages 72-74



6 Circuits

Wire-to-Board and Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

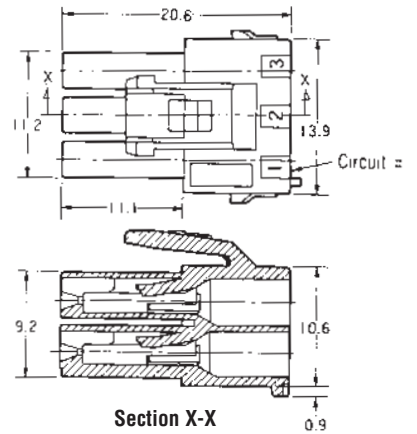
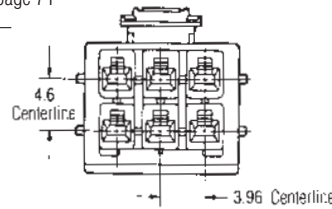
- 177901-1 (Natural)
- 177901-4 (Yellow)
- 177901-6 (Blue)

Lock Type II

3-177901-1 (Natural)

Related Product Data

- Receptacle Contacts**—page 61
- Mating Cap Housings**
(Free-Hanging)—pages 65-66
(Panel Mount)—pages 67-70
- Double Lock Plate**—page 71
- Mating Tab Headers**—
pages 72-74



8 Circuits

Wire-to-Board and Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

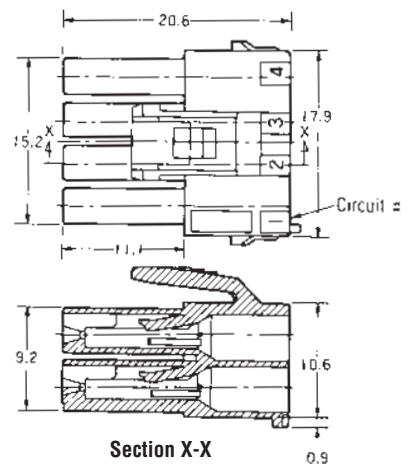
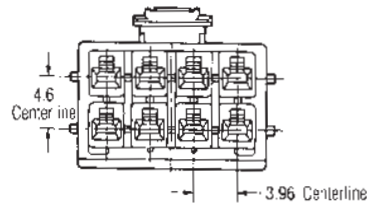
- 177902-1 (Natural)
- 177902-4 (Yellow)
- 177902-6 (Blue)

Lock Type II

3-177902-1 (Natural)

Related Product Data

- Receptacle Contacts**—page 61
- Mating Cap Housings**
(Free-Hanging)—pages 65-66
- Double Lock Plate**—page 71
- Mating Tab Headers**—pages 72-74



Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors (Wire-to-Board and Wire-to-Wire) (Continued)

3.96 mm Centerline Free-Hanging Plug Housing

9 Circuits

Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

177903-1 (Natural)
177903-4 (Yellow)
177903-6 (Blue)

Lock Type II

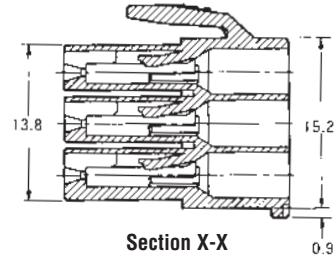
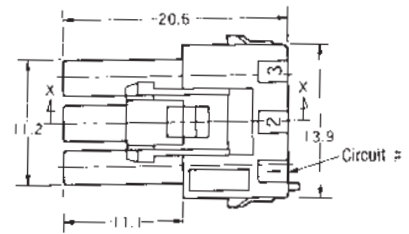
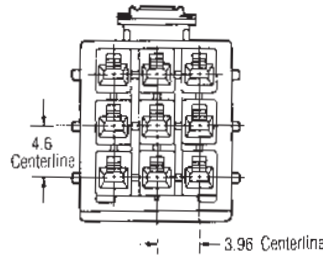
3-177903-1 (Natural)

Related Product Data

Receptacle Contacts—page 61

Mating Cap Housings
(Panel Mount)—pages 67-70

Double Lock Plate—page 71



10 Circuits

Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

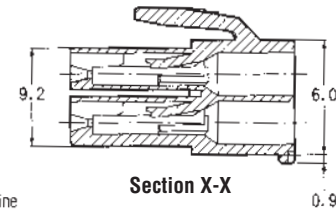
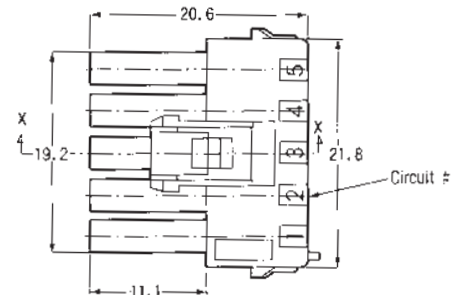
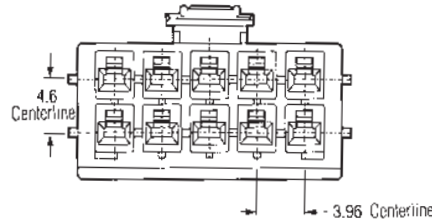
177904-1 (Natural)
177904-4 (Yellow)
177904-6 (Blue)

Related Product Data

Receptacle Contacts—page 61

Mating Cap Housings
(Panel Mount)—pages 67-70

Double Lock Plate—page 71



12 Circuits

Wire-to-Board and Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

177905-1 (Natural)
177905-4 (Yellow)
177905-6 (Blue)

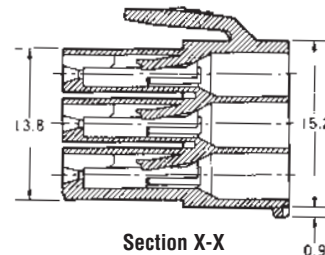
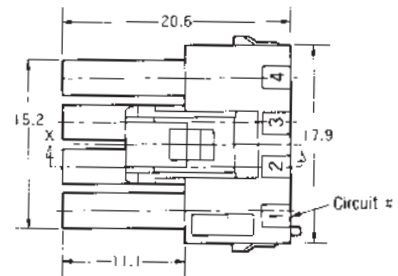
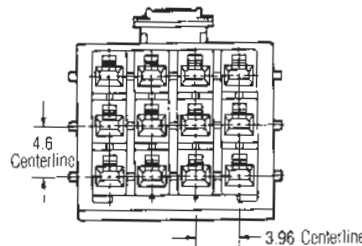
Related Product Data

Receptacle Contacts—page 61

Mating Cap Housings
(Panel Mount)—pages 67-70

Double Lock Plate—page 71

Mating Tab Headers—pages 72-74



Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

High Density
Power Double Lock (PDL) Connectors
.156 [3.96] Centerlines

Power Double Lock (PDL) Connectors (Wire-to-Wire)

High Density
Power Double Lock (PDL) Connectors
.156 [3.96] Centerlines

3.96 mm Centerline Free-Hanging Cap Housing

1 Circuit

Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

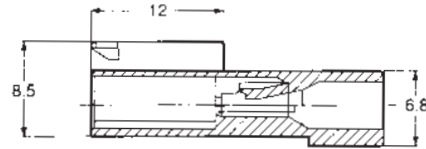
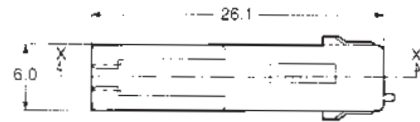
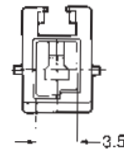
- 316769-1 (Natural)
- 316769-2 (Red)
- 316769-4 (Yellow)
- 316769-6 (Blue)
- 316769-9 (Black)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



Section X-X

2 Circuits

Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

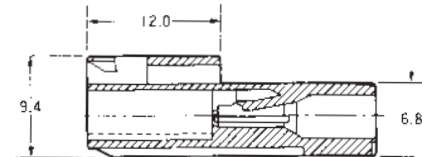
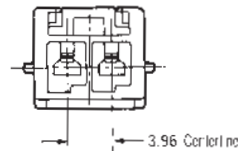
- 179463-1 (Natural)
- 179463-2 (Red)
- 179463-4 (Yellow)
- 179463-6 (Blue)
- 179463-9 (Black)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



Section X-X

3 Circuits

Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

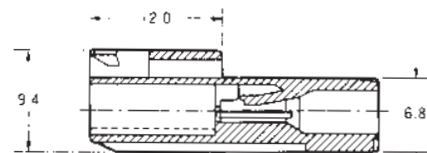
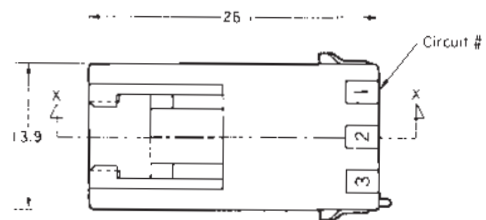
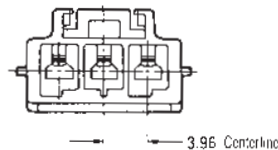
- 179464-1 (Natural)
- 179464-2 (Red)
- 179464-4 (Yellow)
- 179464-6 (Blue)
- 179464-9 (Black)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



Section X-X

Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors (Wire-to-Wire) (Continued)

3.96 mm Centerline Free-Hanging Cap Housing

4 Circuits (2 Rows)

Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

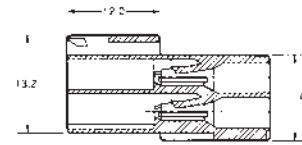
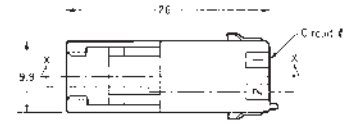
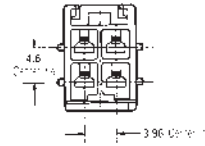
179465-1 (Natural)
179465-4 (Yellow)
179465-6 (Blue)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



Section X-X

6 Circuits

Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

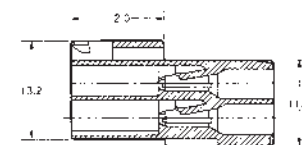
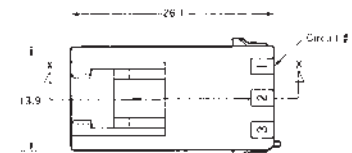
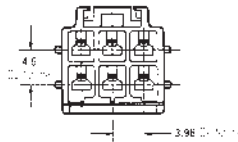
179466-1 (Natural)
179466-4 (Yellow)
179466-6 (Blue)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



Section X-X

8 Circuits

Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

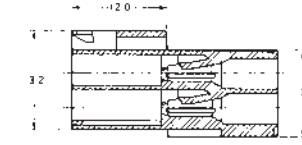
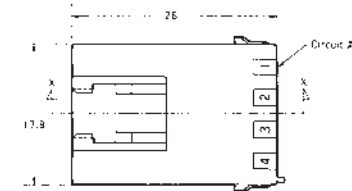
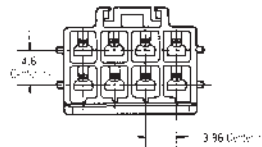
179467-1 (Natural)
179467-4 (Yellow)
179467-6 (Blue)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



Section X-X

12 Circuits

Wire-to-Board

Material

UL94V-0, 6/6 Nylon

Part Number

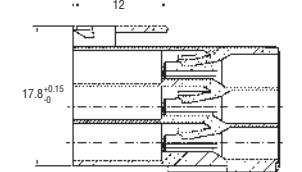
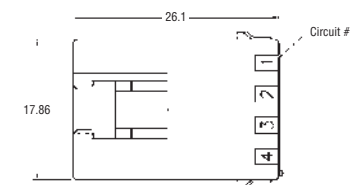
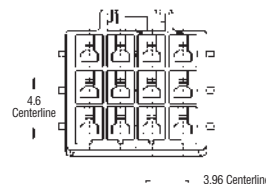
1903720-1 (Natural)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



Section X-X

Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

High Density

Power Double Lock (PDL) Connectors
.156 [3.96] Centerlines

Power Double Lock (PDL) Connectors (Wire-to-Wire) (Continued)

High Density

Power Double Lock (PDL) Connectors
.156 [3.96] Centerlines

3.96 mm Centerline Panel Mount Cap Housing

2 Circuits

Wire-to-Wire

Material—UL94V-0, 6/6 Nylon

Part Number

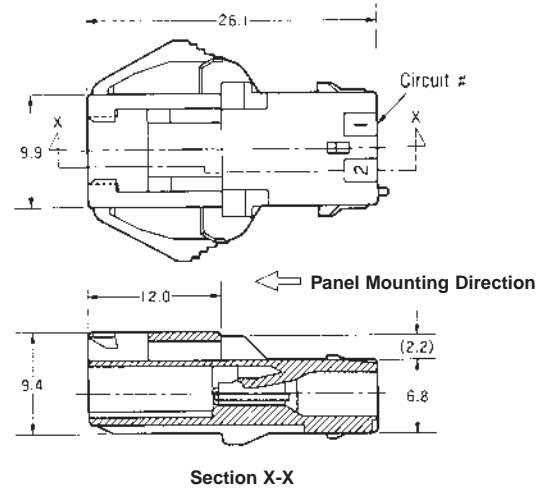
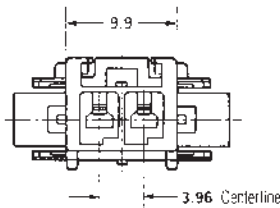
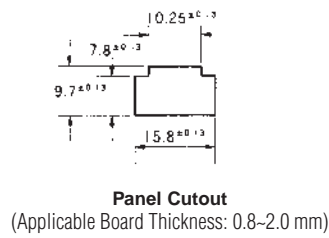
- 177906-1 (Natural)
- 177906-2 (Red)
- 177906-4 (Yellow)
- 177906-6 (Blue)
- 177906-9 (Black)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



3 Circuits

Wire-to-Wire

Material—UL94V-0, 6/6 Nylon

Part Number

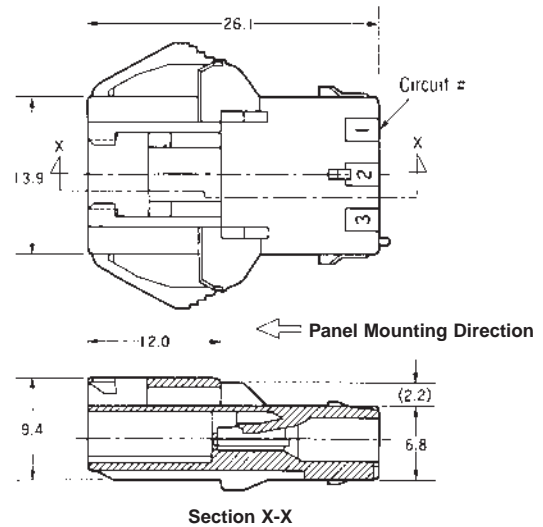
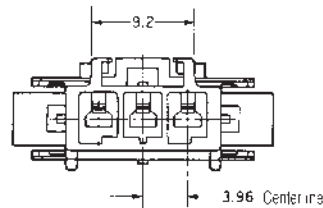
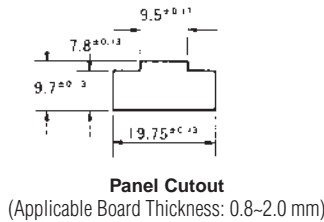
- 177907-1 (Natural)
- 177907-2 (Red)
- 177907-4 (Yellow)
- 177907-6 (Blue)
- 177907-9 (Black)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



4 Circuits (1 Row)

Wire-to-Wire

Material—UL94V-0, 6/6 Nylon

Part Number

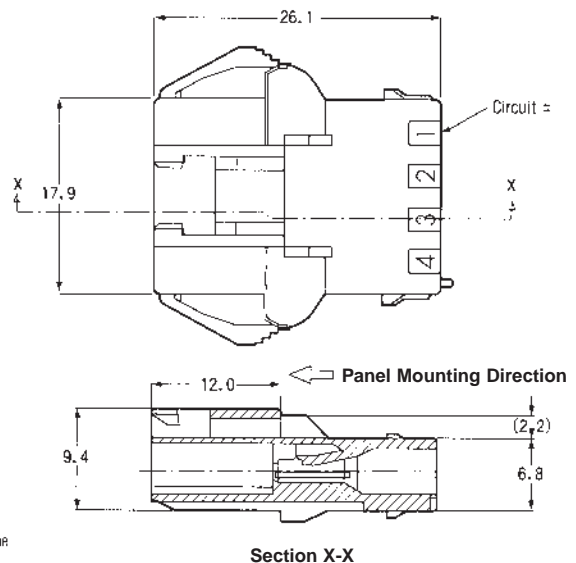
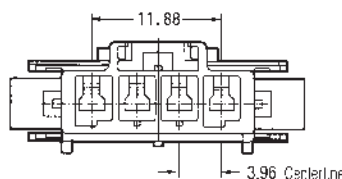
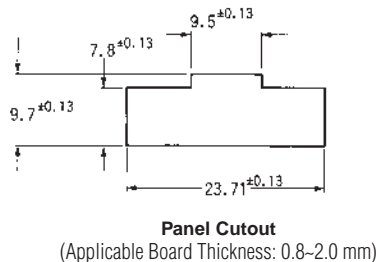
- 316502-1 (Natural)
- 316502-4 (Yellow)
- 316502-6 (Blue)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



Note: All dimensions shown are metric.
Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors (Wire-to-Wire) (Continued)

3.96 mm Centerline Panel Mount Cap Housing

4 Circuits (2 Rows)

Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

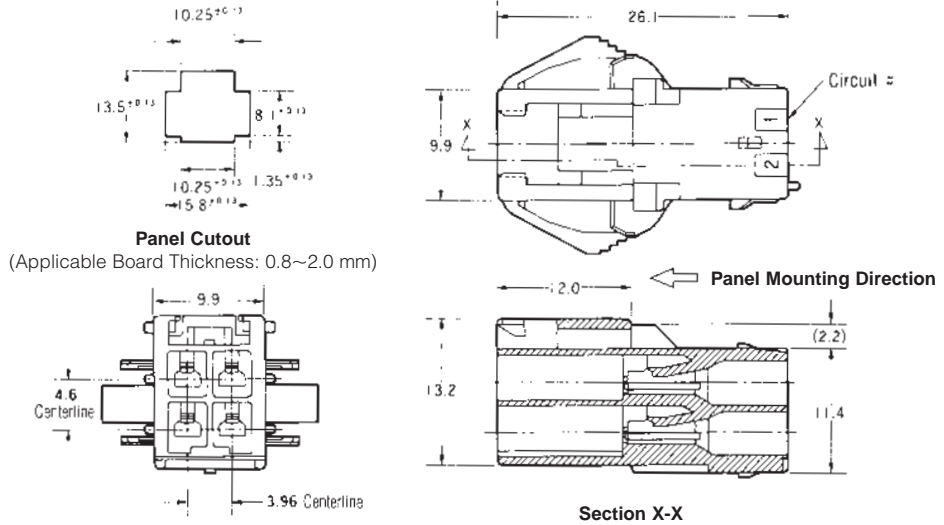
- 177908-1 (Natural)
- 177908-4 (Yellow)
- 177908-6 (Blue)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



6 Circuits

Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

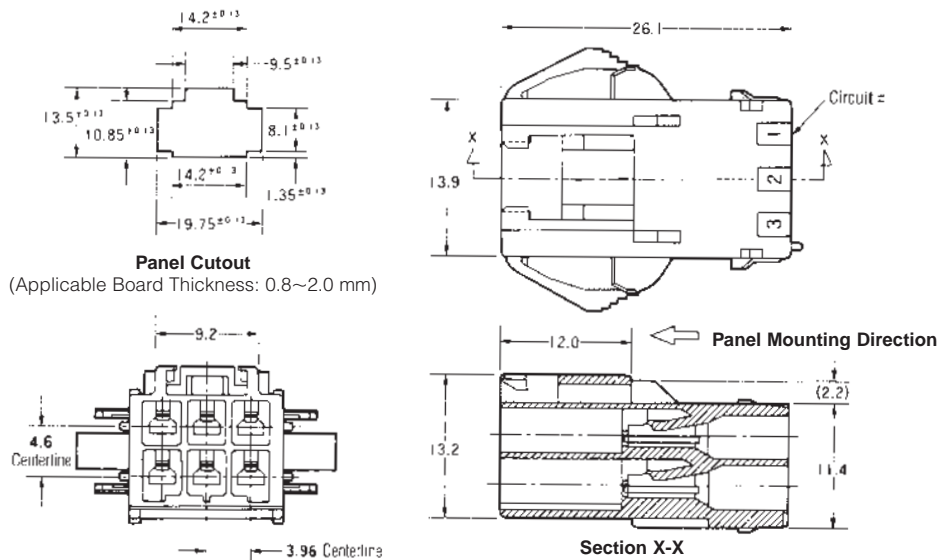
- 177909-1 (Natural)
- 177909-4 (Yellow)
- 177909-6 (Blue)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors .156 [3.96] Centerlines High Density

Power Double Lock (PDL) Connectors (Wire-to-Wire) (Continued)

3.96 mm Centerline Panel Mount Cap Housing

9 Circuits

Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

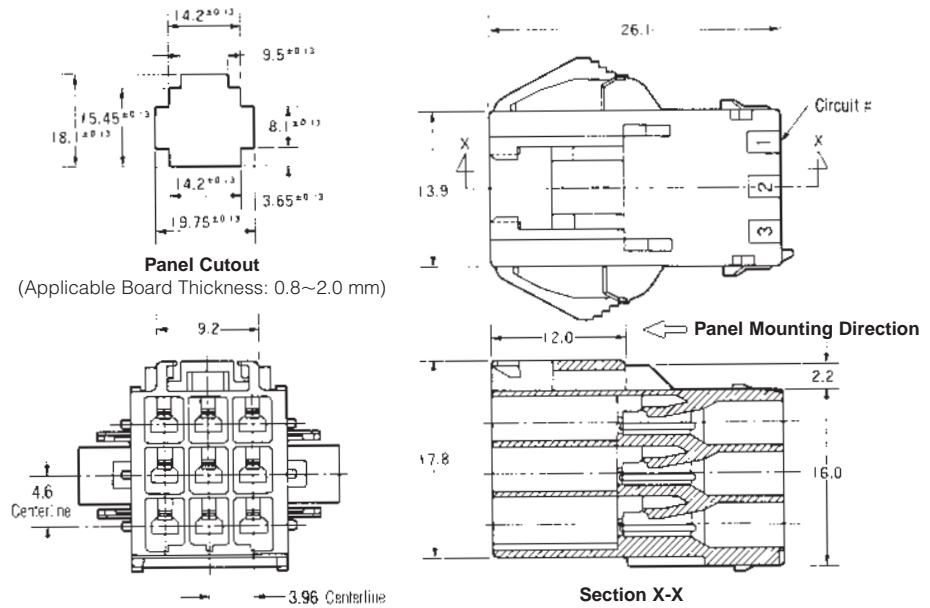
- 177911-1 (Natural)
- 177911-4 (Yellow)
- 177911-6 (Blue)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



For 10 Circuits

Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

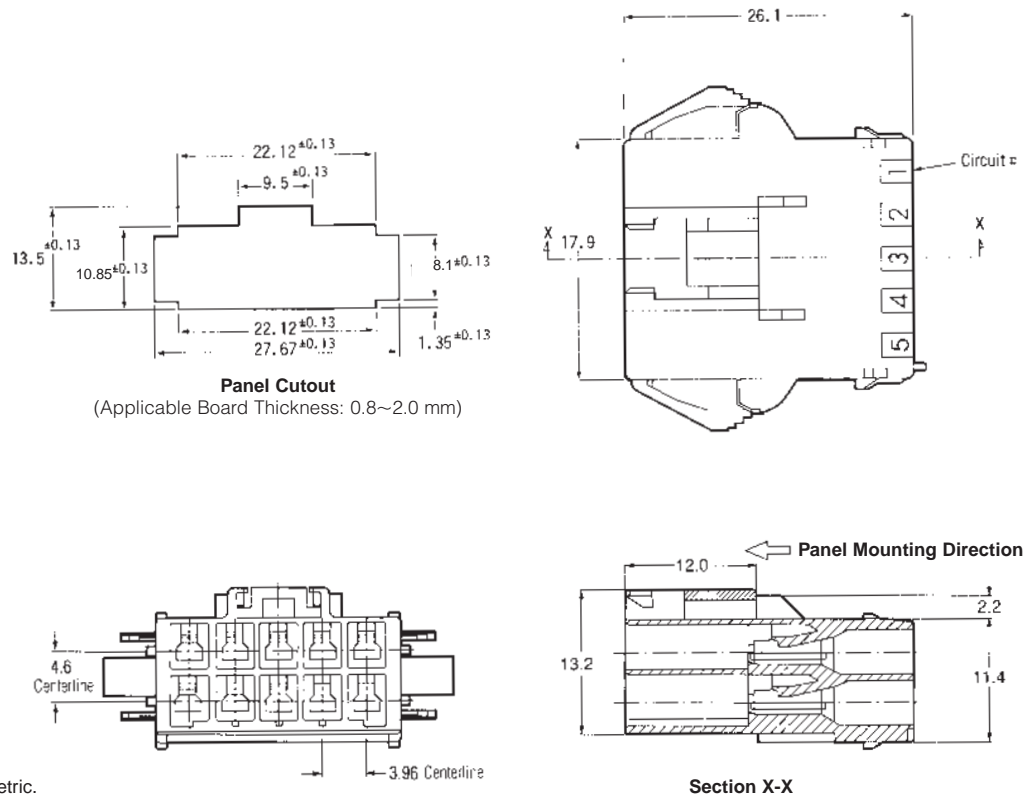
- 177912-1 (Natural)
- 177912-4 (Yellow)
- 177912-6 (Blue)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors (Wire-to-Wire) (Continued)

3.96 mm Centerline Panel Mount Cap Housing

12 Circuits

Wire-to-Wire

Material

UL94V-0, 6/6 Nylon

Part Number

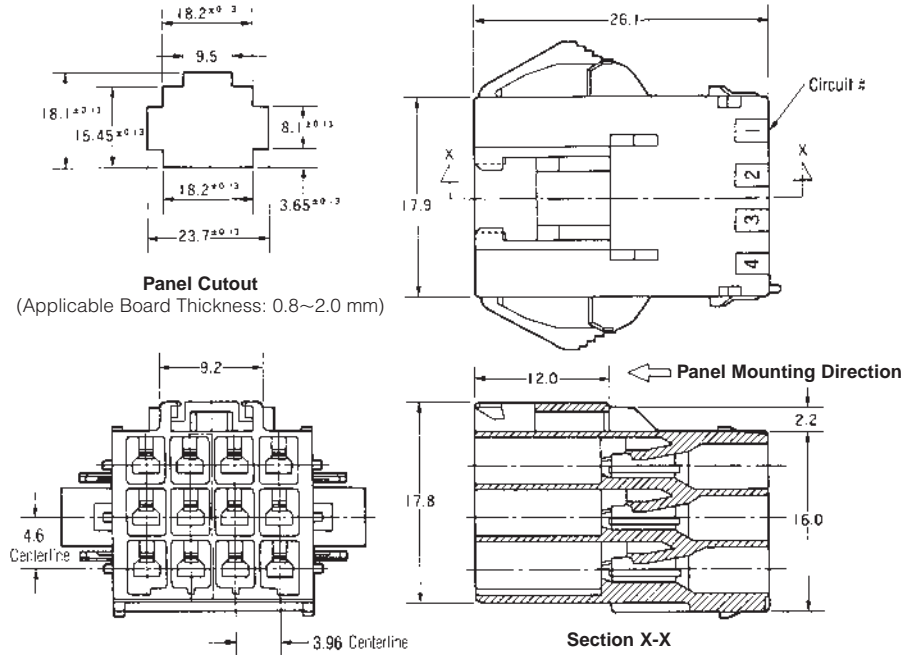
- 177913-1 (Natural)
- 177913-4 (Yellow)
- 177913-6 (Blue)

Related Product Data

Tab Contacts—page 61

Mating Plug Housings
(Free-Hanging)—pages 62-64

Double Lock Plate—page 71



Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors
.156 [3.96] Centerlines
High Density

Power Double Lock (PDL) Connectors (Wire-to-Board and Wire-to-Wire)

3.96 mm Centerline Double-Lock Plates

Double Lock Plates

Material

UL94V-0, glass filled 6/6 Nylon, natural color

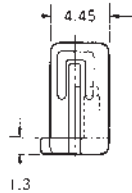
Part Number

- 316770-1 (1 Pos.)
- 177918-1 (2 Pos.)
- 177919-1 (3 Pos.)
- 177920-1 (4 Pos.)
- 177921-1 (5 Pos.)

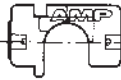
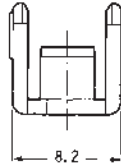
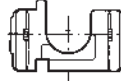
Related Product Data

Plug Housings—pages 62-64

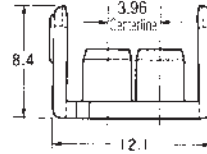
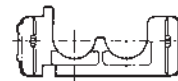
Cap Housings—pages 65-70



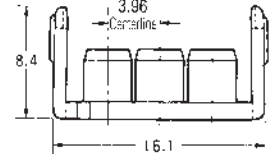
For 1 Circuit



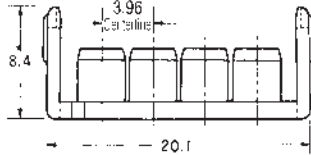
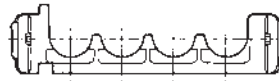
For 2 Circuits



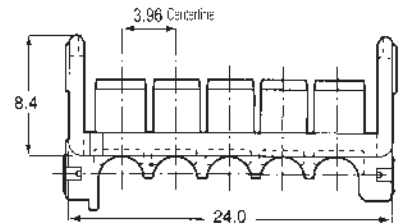
For 3 Circuits



For 4 Circuits



For 5 Circuits



No. of Pos.	Applicable Housing Part No.			Double Lock Plate	
	Plug Housing	Cap Housing		Part Number	Required Qty.
		Free-Hanging	Panel Mount		
1	316768-□	316769-□	—	316770-1 (1 Pos.)	1
2	177898-□	179463-□	177906-□	177918-1 (2 Pos.)	1
3	177899-□	179464-□	177907-□	177919-1 (3 Pos.)	1
4 (1 Row)	316501-□	—	316502-□	177920-1 (4 Pos.)	1
4 (2 Rows)	177900-□	179465-□	177908-□	177918-1 (2 Pos.)	2
6	177901-□	179466-□	177909-□	177919-1 (3 Pos.)	2
8	177902-□	179467-□	—	177920-1 (4 Pos.)	2
9	177903-□	—	177911-□	177919-1 (3 Pos.)	3
10	177904-□	—	177912-□	177921-1 (5 Pos.)	2
12	177905-□	—	177913-□	177920-1 (4 Pos.)	3

Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors (Wire-to-Board)

3.96 mm Centerline for PC Board Mount Tab Header, Vertical

2 Circuits

Wire-to-Board

Material and Finish

Housing—UL 94V-0, glass filled 6/6 Nylon

Contact—Copper alloy, Tin plated

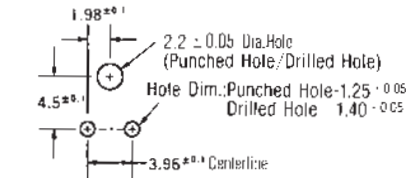
Part Number

- 179838-1 (Natural)
- 179838-2 (Red)
- 179838-4 (Yellow)
- 179838-6 (Blue)
- 179838-9 (Black)

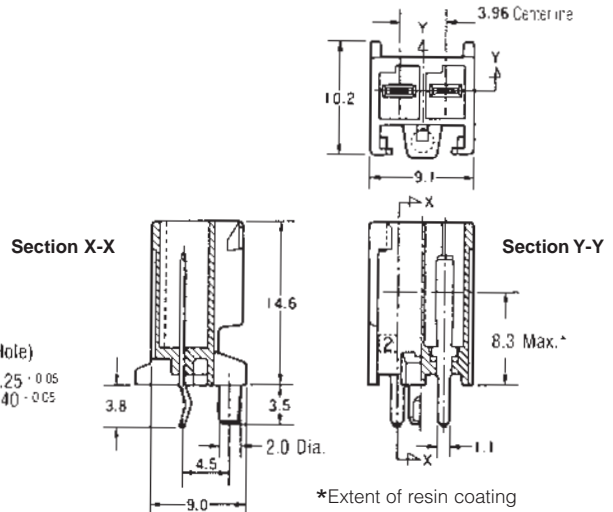
Tube (53 ea.)—316299-□

Related Product Data

Mating Plug Housing
(Free-Hanging)—pages 62-64



PC Board Layout
(Applicable Board Thickness: 1.6 mm)



3 Circuits

Wire-to-Board

Material and Finish

Housing—UL 94V-0, glass filled 6/6 Nylon

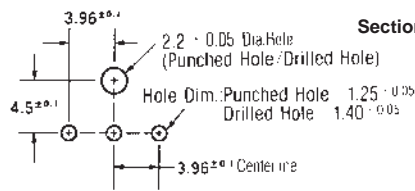
Contact—Copper alloy, Tin plated

Part Number

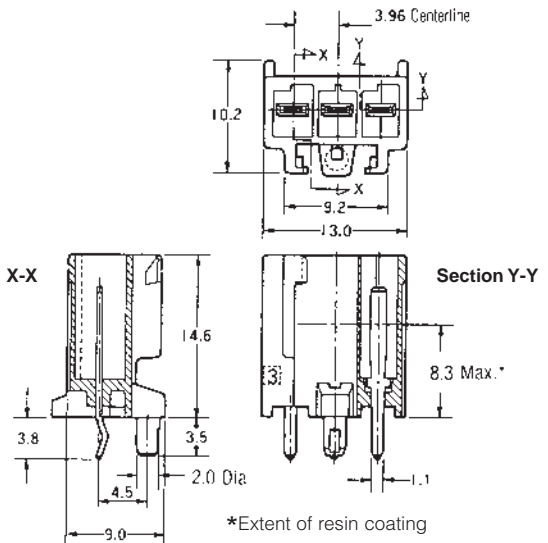
- 179839-1 (Natural)
- 179839-2 (Red)
- 179839-4 (Yellow)
- 179839-6 (Blue)
- 179839-9 (Black)

Related Product Data

Mating Plug Housing
(Free-Hanging)—pages 62-64



PC Board Layout
(Applicable Board Thickness: 1.6 mm)



Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors .156 [3.96] Centerlines High Density

Power Double Lock (PDL) Connectors (Wire-to-Board) (Continued)

3.96 mm Centerline for PC Board Mount Tab Header, Vertical (Continued)

4 Circuits (2 Rows)

Wire-to-Board

Material and Finish

Housing—UL 94V-0, glass filled 6/6 Nylon.

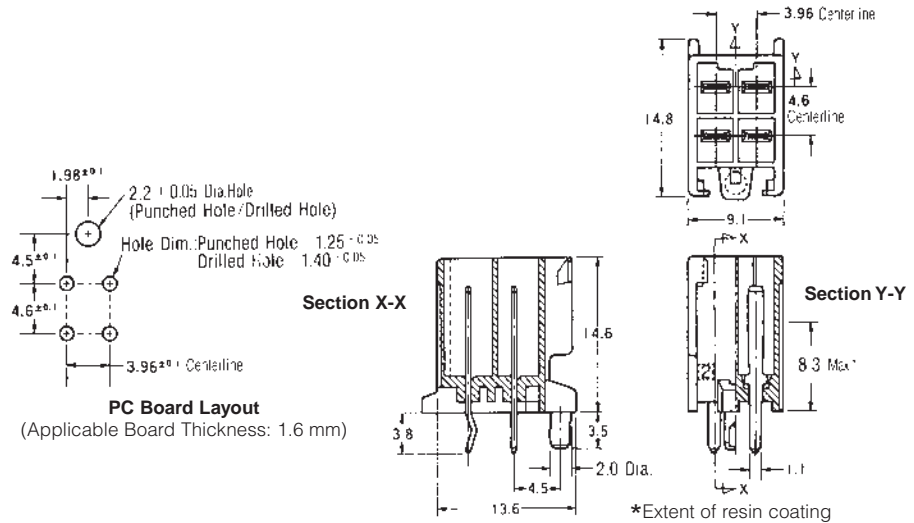
Contact—Copper alloy, Tin plated

Part Number

- 179840-1 (Natural)
- 179840-4 (Yellow)
- 179840-6 (Blue)

Related Product Data

Mating Plug Housings
(Free-Hanging)—pages 62-64



6 Circuits

Wire-to-Board

Material and Finish

Housing—UL 94V-0, glass filled 6/6 Nylon.

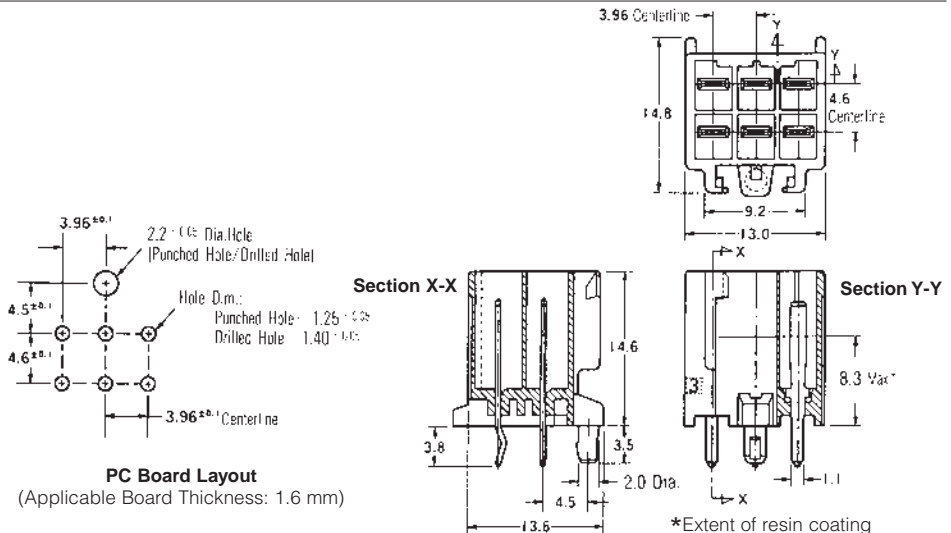
Contact—Copper alloy, Tin plated

Part Number

- 179841-1 (Natural)
- 179841-4 (Yellow)
- 179841-6 (Blue)

Related Product Data

Mating Plug Housings
(Free-Hanging)—pages 62-64



8 Circuits

Wire-to-Board

Material and Finish

Housing—UL 94V-0, glass filled 6/6 Nylon.

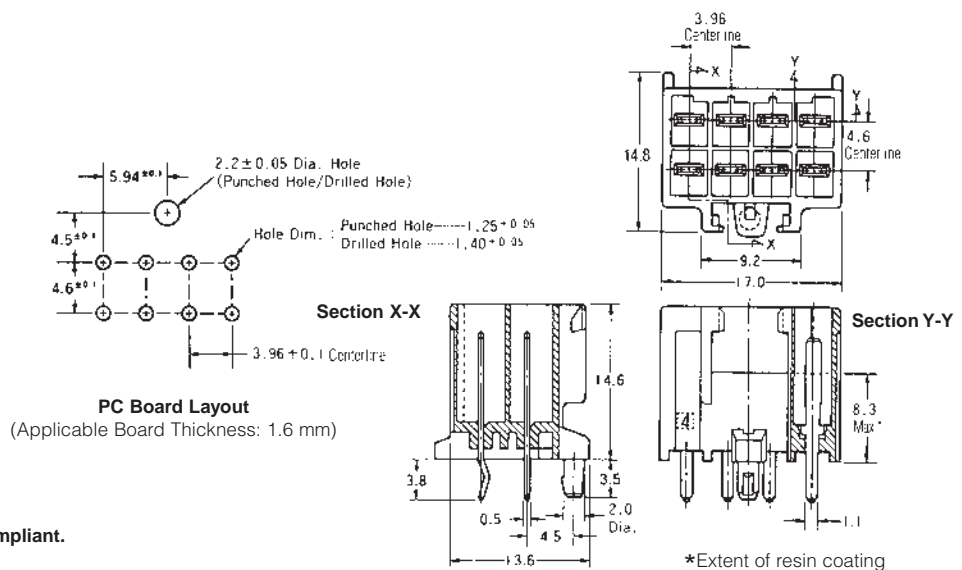
Contact—Copper alloy, Tin plated

Part Number

- 917845-1 (Natural)
- 917845-4 (Yellow)
- 917845-6 (Blue)

Related Product Data

Mating Plug Housings
(Free-Hanging)—pages 62-64



Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors (Wire-to-Board) (Continued)

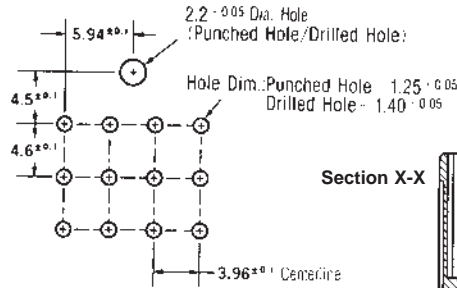
3.96 mm Centerline for PC Board Mount Tab Header, Vertical

12 Circuits
Wire-to-Board

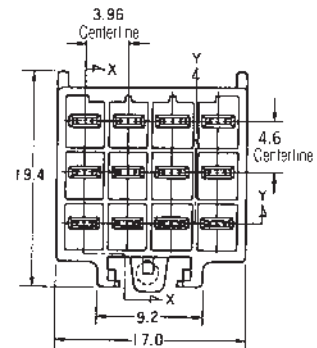
Material and Finish
Housing—UL 94V-0, glass filled 6/6 Nylon
Contact—Copper alloy, Tin plated

Part Number
179843-1 (Natural)
179843-4 (Yellow)
179843-6 (Blue)

Related Product Data
Mating Plug Housings
(Free-Hanging)—pages 62-64

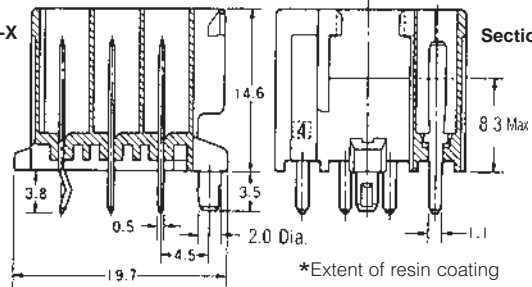


PC Board Layout
(Applicable Board Thickness: 1.6 mm)



Section X-X

Section Y-Y



3.96 mm Centerline (2 Pos. = 7.92 mm Centerline) for PC Board Mount Tab Header, Vertical

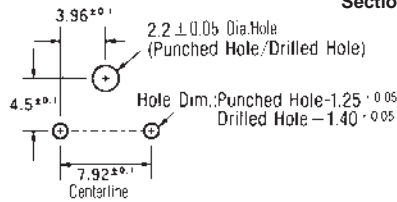
2 Circuits
Wire-to-Board

Material and Finish
Housing—UL 94V-0, glass filled 6/6 Nylon
Contact—Copper alloy, Tin plated

Part Number
With kink
179844-1 (Natural)
179844-2 (Red)
179844-4 (Yellow)
179844-6 (Blue)
179844-9 (Black)

Without kink
9-179844-1 (Natural)
9-179844-6 (Blue)

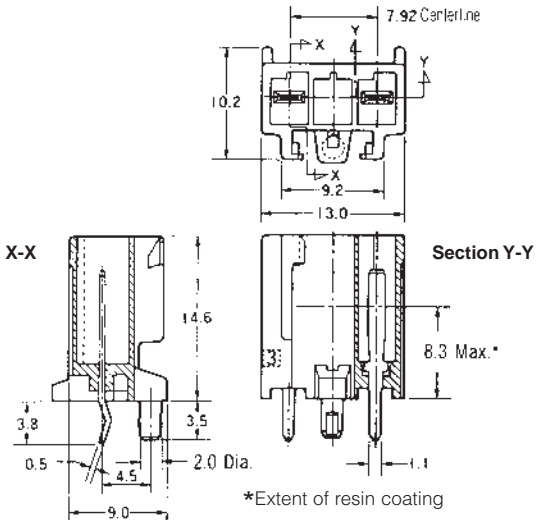
Related Product Data
Mating 3-Circuit Plug Housings
(Free-Hanging)—page 62



PC Board Layout
(Applicable Board Thickness: 1.6 mm)

Section X-X

Section Y-Y



Note: All dimensions shown are metric.
Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors .156 [3.96] and .312 [7.92] Centerlines High Density

Power Double Lock (PDL) Connectors (Wire-to-Board and Wire-to-Wire) (Continued)

High Density
Power Double Lock (PDL) Connectors
.256 [6.50] Centerlines

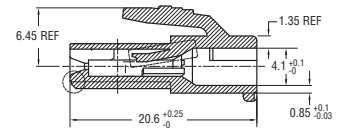
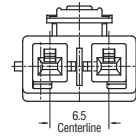
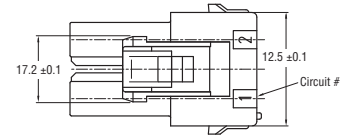
6.5 mm Centerline Free-Hanging Plug Housing

2 Circuits
Wire-to-Board

Material
UL 94V-0, 6/6 Nylon

Part Number
1939344-1 (Natural)

Related Product Data
Receptacle Contacts—page 61
Double Lock Plate—page 77
Mating Tab Headers—pages 79-81

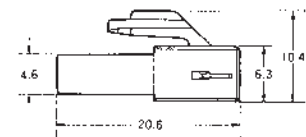
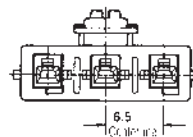
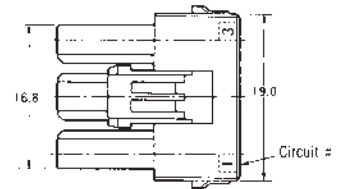


3 Circuits
Wire-to-Board

Material
UL 94V-0, 6/6 Nylon

Part Number
179938-1 (Natural)
179938-2 (Red)
179938-4 (Yellow)
179938-6 (Blue)
179938-9 (Black)

Related Product Data
Receptacle Contacts—page 61
Double Lock Plate—page 77
Mating Tab Headers—pages 79-81

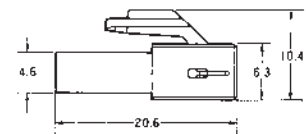
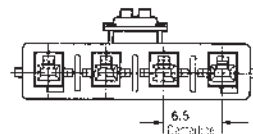
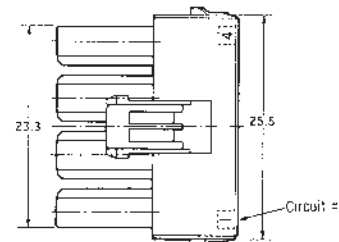


4 Circuits (1 Row)
Wire-to-Board

Material
UL 94V-0, 6/6 Nylon

Part Number
179939-1 (Natural)
179939-4 (Yellow)
179939-6 (Blue)
179939-9 (Black)

Related Product Data
Receptacle Contacts—page 61
Double Lock Plate—page 77
Mating Tab Headers—pages 79-81

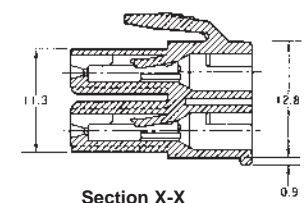
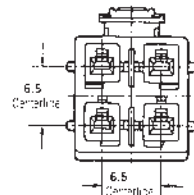
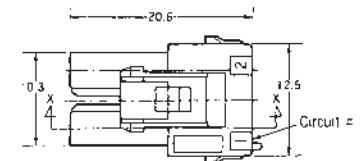
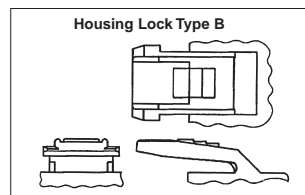


4 Circuits (2 Rows)
Wire-to-Board

Material
UL 94V-0, 6/6 Nylon

Part Number
Housing Lock Type A
179861-1 (Natural)
179861-4 (Yellow)
179861-6 (Blue)
Housing Lock Type B
2-179861-1 (Natural)
2-179861-4 (Yellow)
2-179861-6 (Blue)

Related Product Data
Receptacle Contacts—page 61
Double Lock Plate—page 77
Mating Tab Headers—pages 79-81



Note: All dimensions shown are metric.
Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors (Wire-to-Board and Wire-to-Wire) (Continued)

6.5 mm Centerline Free-Hanging Plug Housing

6 Circuits

Wire-to-Board

Material

UL 94V-0, 6/6 Nylon

Part Number

Housing Lock Type A
179862-1 (Natural)
179862-4 (Yellow)
179862-6 (Blue)

Housing Lock Type B

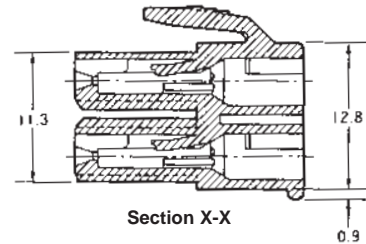
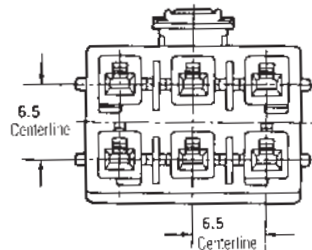
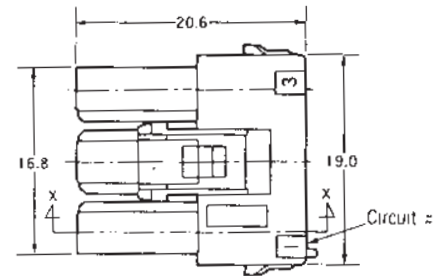
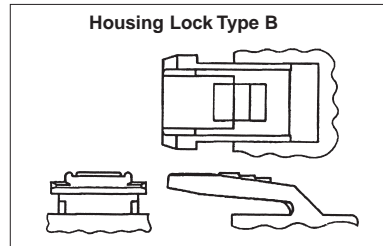
2-179862-1 (Natural)
2-179862-4 (Yellow)
2-179862-6 (Blue)

Related Product Data

Receptacle Contacts—page 61

Double Lock Plate—page 77

Mating Tab Headers—pages 79-81



12 Circuits

Wire-to-Board

Material

UL 94V-0, 6/6 Nylon.

Part Number

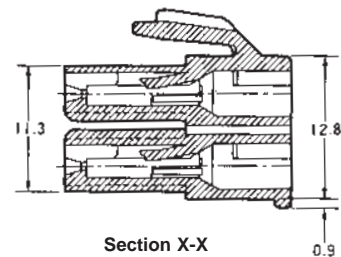
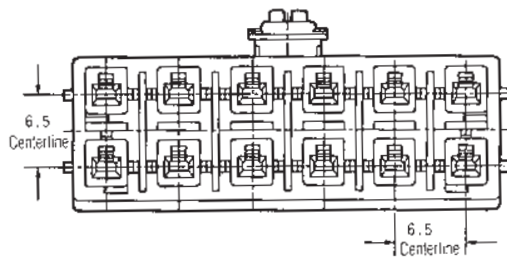
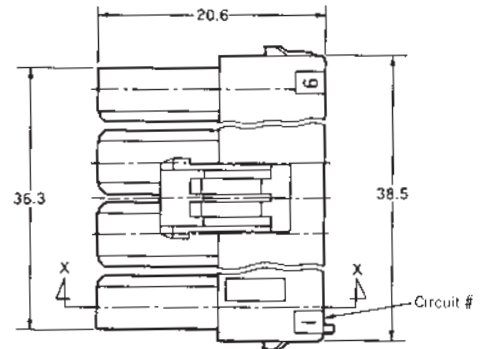
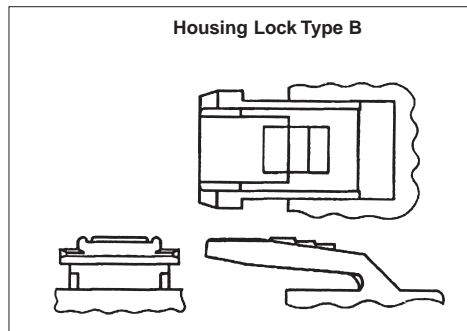
Housing Lock Type A
917354-1 (Natural)
Housing Lock Type B
2-917354-1 (Natural)

Related Product Data

Receptacle Contacts—page 61

Double Lock Plate—page 77

Mating Tab Headers—pages 79-81



Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors (Wire-to-Board and Wire-to-Wire) (Continued)

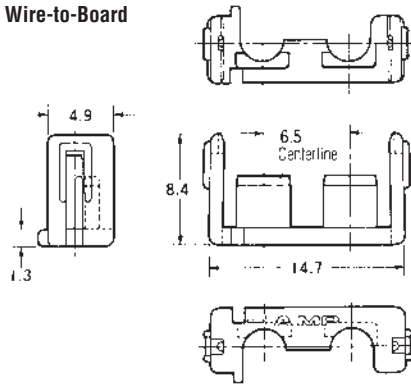
6.5 mm Centerline Double-Lock Plates

Material
UL94V-0, glass filled
6/6 Nylon, natural color

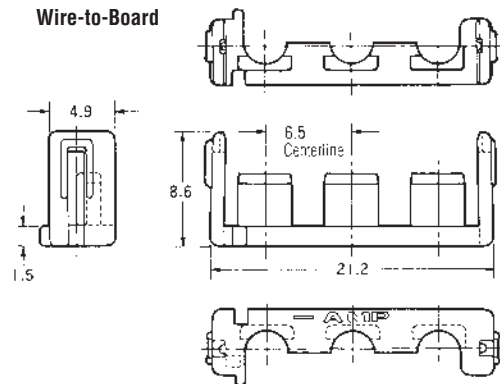
Part Number
316061-1 (2-Circuits)
316062-1 (3-Circuits)
316063-1 (4-Circuits)
353891-1 (6-Circuits)

Related Product Data
Plug Housings
(Free-Hanging)—pages 75-76

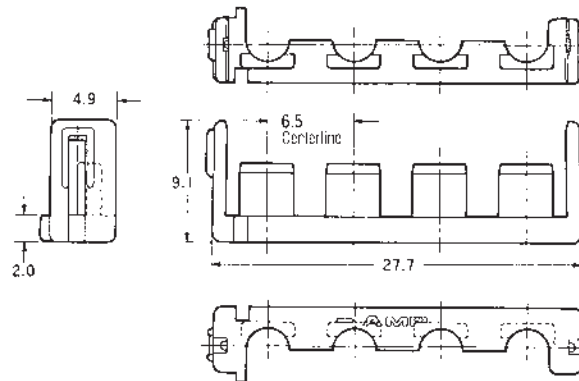
For 2 Circuits
Wire-to-Board



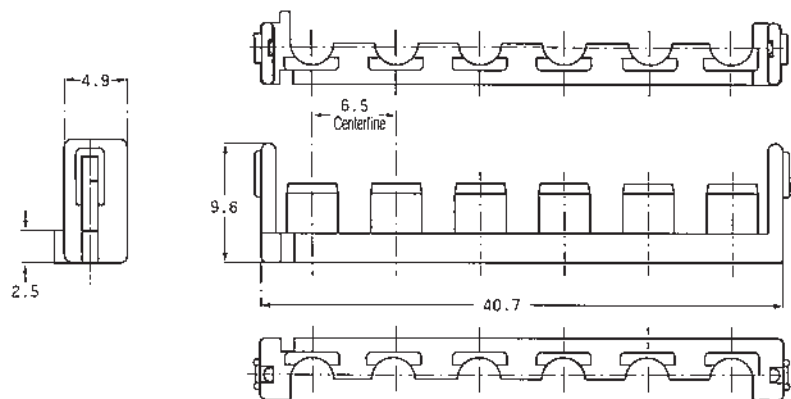
For 3 Circuits
Wire-to-Board



For 4 Circuits
Wire-to-Board



For 6 Circuits
Wire-to-Board



No. of Pos.	Applicable Plug Housing Part No.	Double Lock Plate	
		Part Number	Required Qty.
3	179938-□	316062-1	1
4 (1 Row)	179939-□	316063-1	1
4 (2 Rows)	179861-□	316061-1	2
6	179862-□	316062-1	2
12	917354-□	353891-1	2

Note: All dimensions shown are metric.
Note: All part numbers are RoHS Compliant.

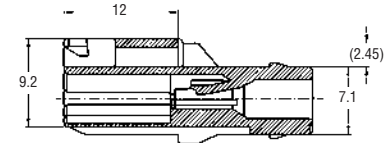
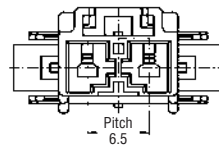
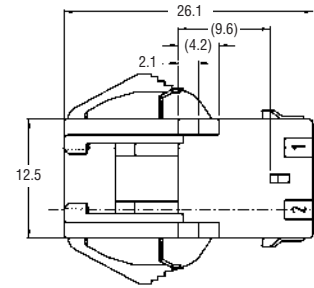
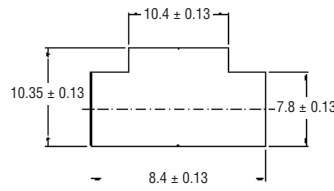
Power Double Lock (PDL) Connectors (Wire-to-Board) (Continued)

6.5 mm Centerline Panel Mount Cap Housing

2 Circuits
Wire-to-Wire

Material and Finish
Housing—UL 94V-0, glass filled 6/6 Nylon
Contact—Copper alloy, Tin plated

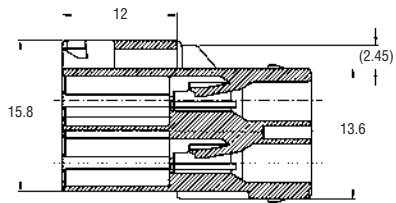
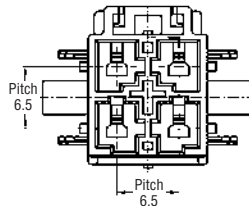
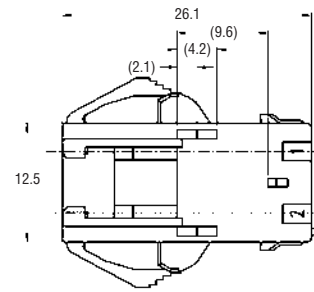
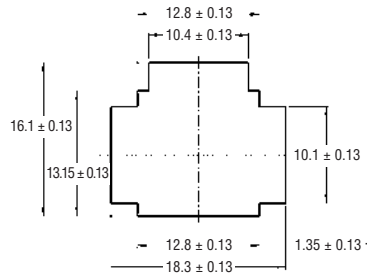
Part Number
1939343-1 (Natural)



4 Circuits
Wire-to-Wire

Material and Finish
Housing—UL 94V-0, glass filled 6/6 Nylon
Contact—Copper alloy, Tin plated

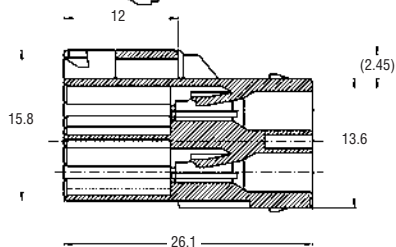
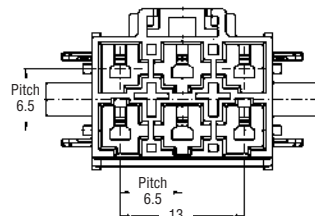
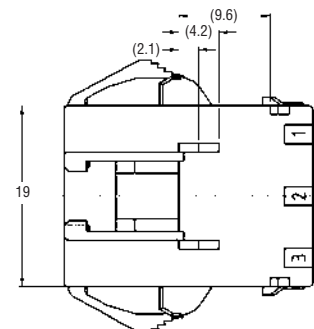
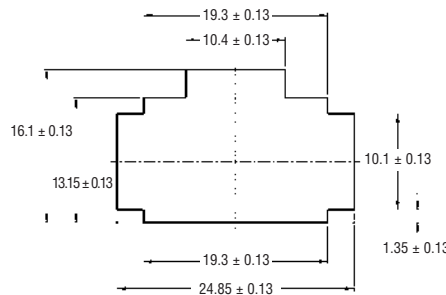
Part Number
1903486-1 (Natural)



6 Circuits
Wire-to-Wire

Material and Finish
Housing—UL 94V-0, glass filled 6/6 Nylon
Contact—Copper alloy, Tin plated

Part Number
1903487-1 (Natural)



Note: All dimensions shown are metric.
Note: All part numbers are RoHS Compliant

High Density

Power Double Lock (PDL) Connectors
2.56 [6.50] Centerlines

Power Double Lock (PDL) Connectors (Wire-to-Board) (Continued)

6.5 mm Centerline (2 Pos.=13 mm Centerline) PC Board Mount Tab Header, Vertical

3 Circuits

Wire-to-Board

Material and Finish

Housing—UL 94V-0, glass filled 6/6 Nylon

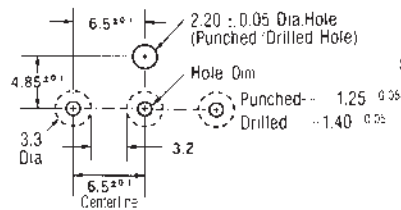
Contact—Copper alloy, Tin plated

Part Number

- 179846-1 (Natural)
- 179846-4 (Yellow)
- 179846-6 (Blue)

Related Product Data

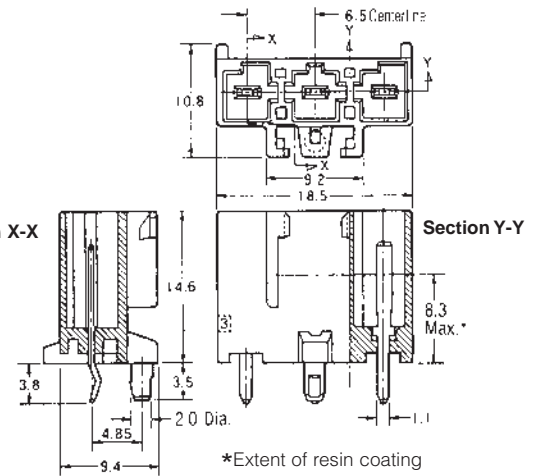
Mating Plug Housings
(Free-Hanging)—pages 75-76



PC Board Layout

(Applicable Board Thickness: 1.6 mm)

Section X-X



*Extent of resin coating

2 Circuits

(13 mm Centerline)

Wire-to-Board

Material and Finish

Housing—UL 94V-0, glass filled 6/6 Nylon

Contact—Copper alloy, Tin plated

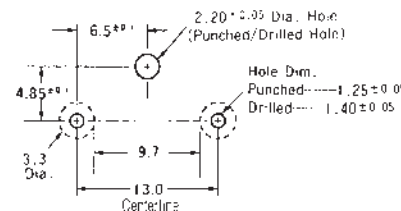
Part Number

- 917745-1 (Natural)
- 917745-4 (Yellow)
- 917745-6 (Blue)

Tube (26 ea.)—917746-□

Related Product Data

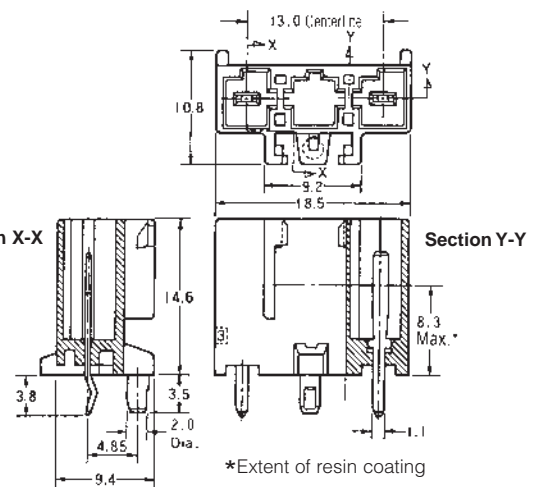
Mating 3-Circuit Plug Housings
(Free-Hanging)—page 75



PC Board Layout

(Applicable Board Thickness: 1.6 mm)

Section X-X



*Extent of resin coating

4 Circuits (1 Row)

Wire-to-Board

Material and Finish

Housing—UL 94V-0, glass filled 6/6 Nylon

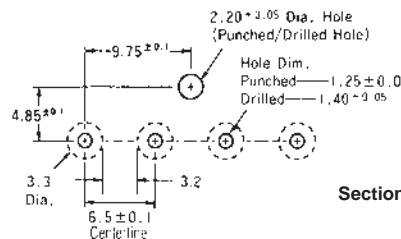
Contact—Copper alloy, Tin plated

Part Number

- 179847-1 (Natural)
- 179847-4 (Yellow)
- 179847-6 (Blue)

Related Product Data

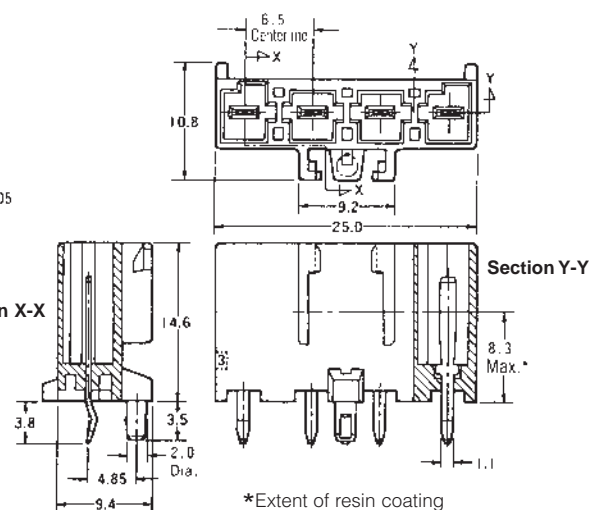
Mating Plug Housings
(Free-Hanging)—pages 75-76



PC Board Layout

(Applicable Board Thickness: 1.6 mm)

Section X-X



*Extent of resin coating

Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors (Wire-to-Board) (Continued)

6.5 mm Centerline PC Board Mount Tab Header, Vertical

4 Circuits (2 Rows)

Wire-to-Board

Material and Finish

Housing—UL 94V-0, glass filled 6/6 Nylon

Contact—Copper alloy, Tin plated

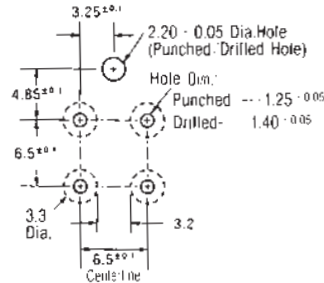
Part Number

- 179848-1 (Natural)
- 179848-4 (Yellow)
- 179848-6 (Blue)

Tube (40 ea.)—917747-□

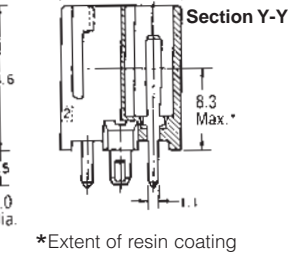
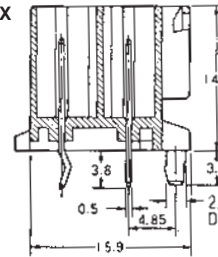
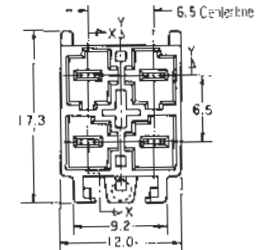
Related Product Data

Mating Plug Housings
(Free-Hanging)—pages 75-76



PC Board Layout

(Applicable Board Thickness: 1.6 mm)



6 Circuits

Wire-to-Board

Material and Finish

Housing—UL 94V-0, glass filled 6/6 Nylon

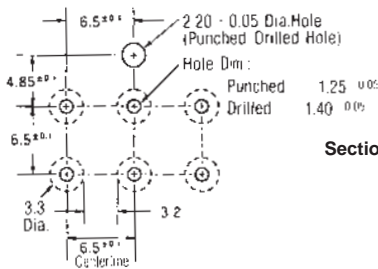
Contact—Copper alloy, Tin plated

Part Number

- 179849-1 (Natural)
- 179849-4 (Yellow)
- 179849-6 (Blue)

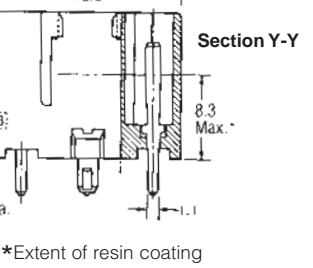
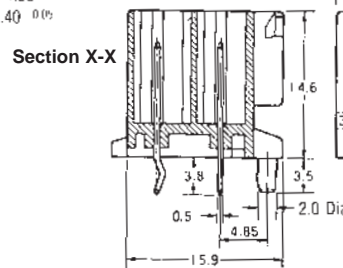
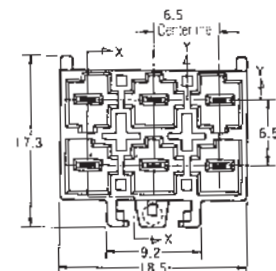
Related Product Data

Mating Plug Housings
(Free-Hanging)—pages 75-76



PC Board Layout

(Applicable Board Thickness: 1.6 mm)



Note: All dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

Power Double Lock (PDL) Connectors (Wire-to-Board) (Continued)

6.5 mm Centerline PC Board Mount Tab Header, Vertical

12 Circuits

Wire-to-Board

Material and Finish

Housing—UL 94V-0, glass filled 6/6 Nylon

Contact—Copper alloy, Tin plated

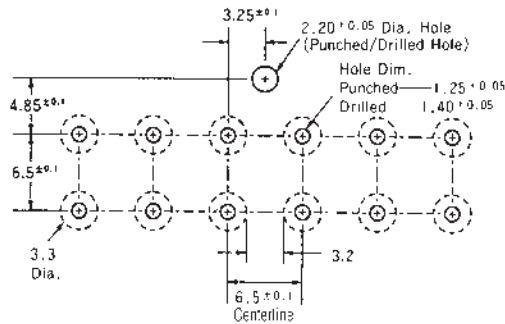
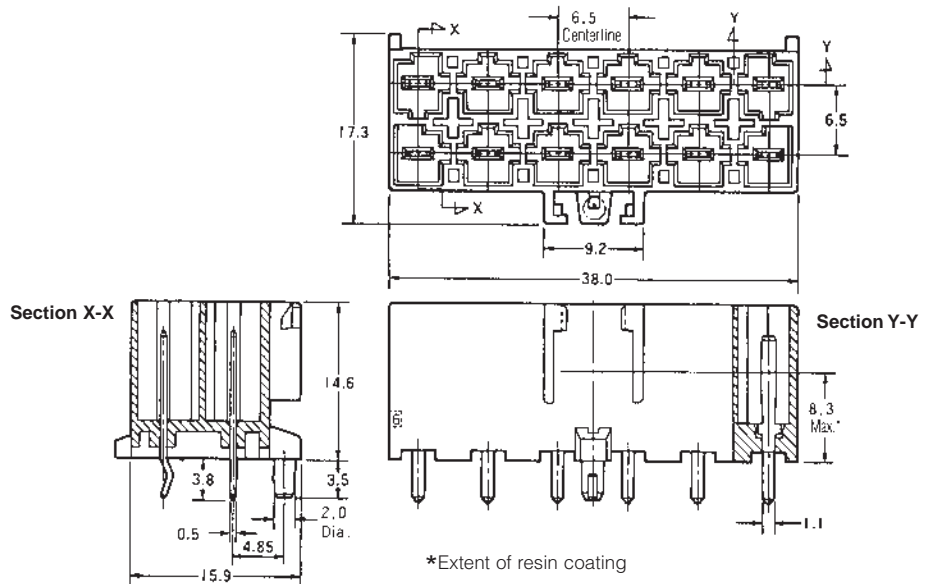
Part Number

With Boss, With kink
917353-1 (Natural)

Without Boss, Without kink
3-917353-1 (Natural)

Related Product Data

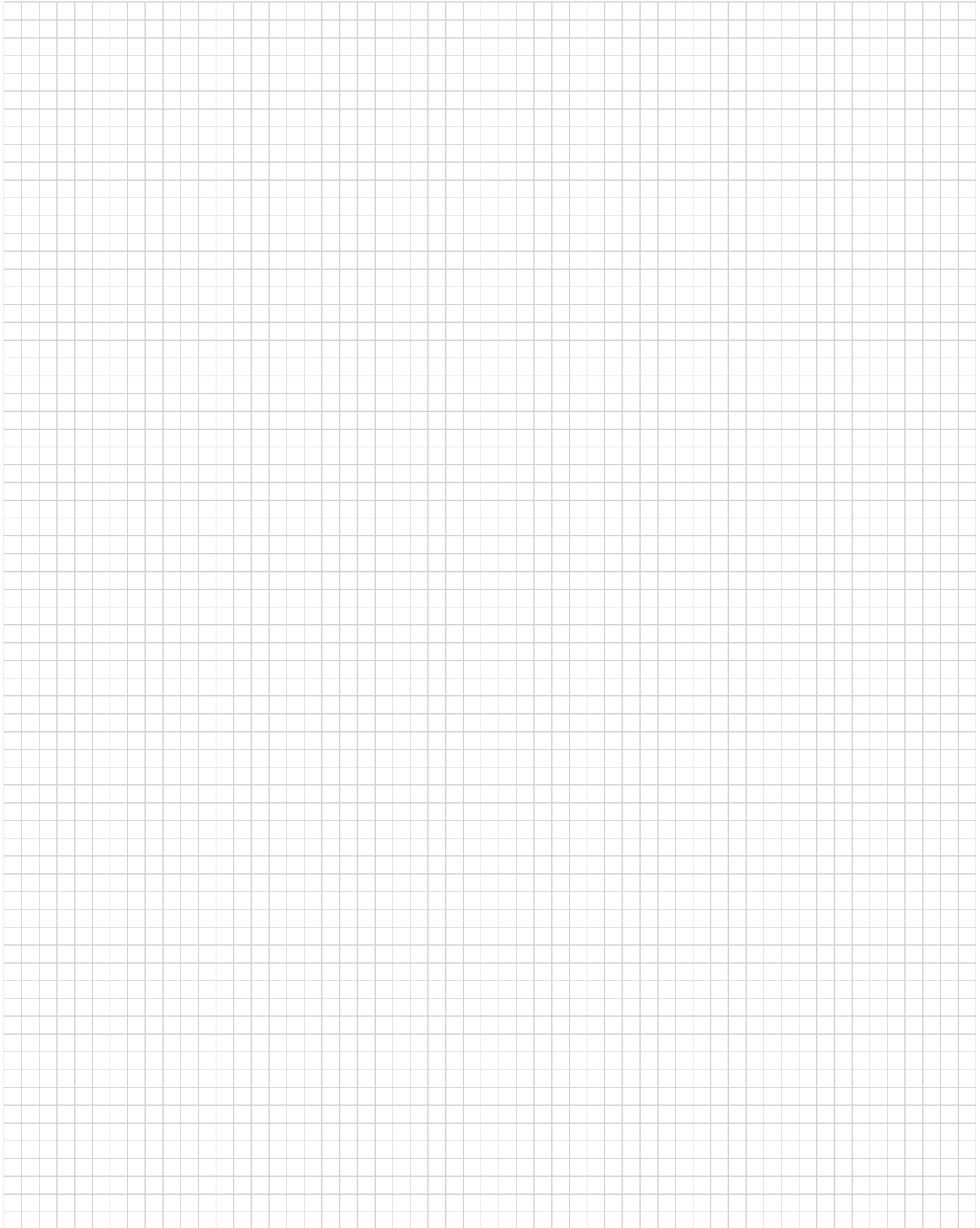
Mating Plug Housings
(Free-Hanging)—pages 75-76



PC Board Layout
(Applicable Board Thickness: 1.6 mm)

Note: All dimensions shown are metric.
Note: All part numbers are RoHS Compliant.

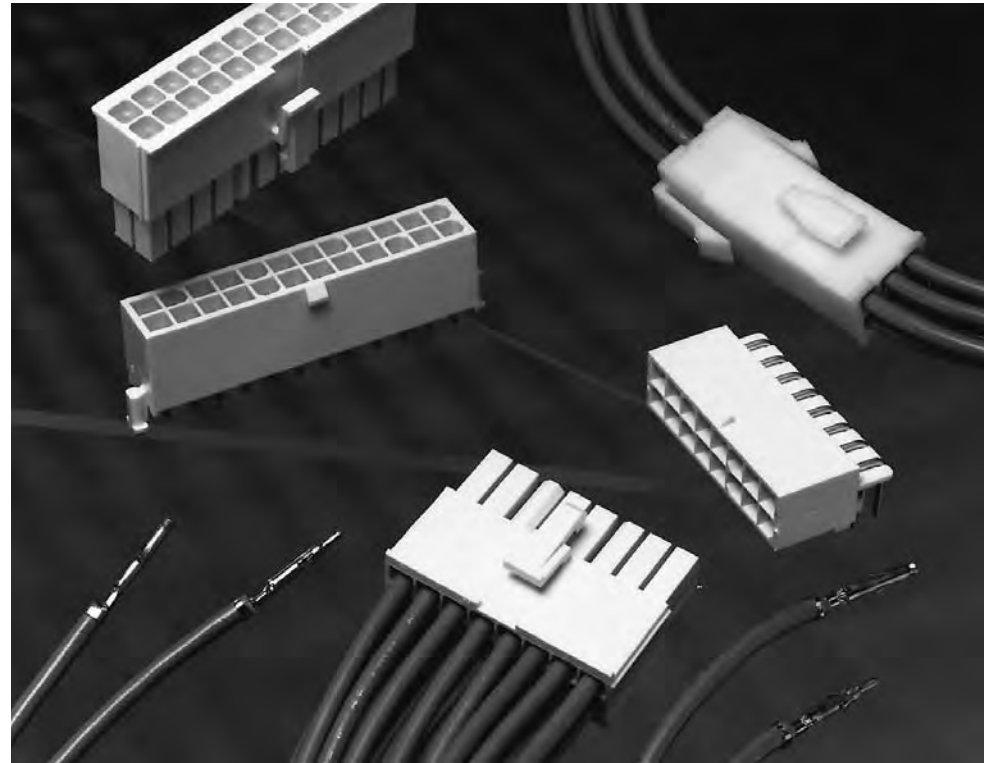
Engineering Notes



Mini-Universal MATE-N-LOK Connectors

Product Facts

- Compact, durable housings
- Pins and sockets can be accommodated in the same housings
- Contacts fully protected in the housings. Both pins and sockets can be used on the power supply wiring
- Fully polarized to provide proper plug-to-cap mating incorporating a positive locking mechanism to help prevent accidental disengagement of mated connectors. Also facilitates panel mounting
- Free-hanging or panel mount
- Housings available in 1, 2, 3, 4, 6, 9, 12 and 15 circuit configuration for wire-to-wire connection
- Connectors can be mounted to .031-.079 [0.79-2.00] thick panels
- Printed circuit board pin headers are available in 2 thru 24 circuit vertical and right-angle configurations
- Hermaphroditic housings available in 2, 3 and 4 circuits for free-hanging applications
- Low insertion/extraction forces
- Contacts accept wire size range 30-16 AWG [.05-1.2 mm²]
- Test probe contacts available
- .163 [4.14] centerline spacing
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189



Performance Characteristics

The Mini-Universal MATE-N-LOK Connector performance characteristics found on pages 83-84 are based on free-hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Low Level Termination Resistance
20 milliohms max. total resistance between wire crimps of a mated pin and socket

Dielectric Withstanding Voltage—
1.5 KVAC between adjacent circuits

Insulation Resistance—
1000 megohms minimum between adjacent circuits

Voltage Rating—600 V AC or DC

Contact Retention—8 lb. min. per contact

Durability—20 cycles, mating and unmating

Technical Documents

Product Specifications

- 108-1542 Mini-Universal MATE-N-LOK Connectors
- 108-1543 Mini-Universal MATE-N-LOK Headers
- 108-5151 Mini-Universal MATE-N-LOK Connectors (UL94V-2)
- 108-5138 Mini-Universal MATE-N-LOK Connectors (UL94V-0)

Application Specification

- 114-16017 Mini-Universal MATE-N-LOK Connectors

Instruction Sheets

- 408-3234 Mini-Universal MATE-N-LOK Connectors
- 411-5105 Mini-Universal MATE-N-LOK Connectors

Mini-Universal MATE-N-LOK Connectors (Continued)

Performance Characteristics (Continued)

Maximum Current—Maximum current rating of Mini-Universal MATE-N-LOK connectors is limited by the maximum operating temperature of the housings which is 105°C including the temperature rise of the contacts which is a maximum of 30°C. There are several variables which have a direct effect on this maximum current-carrying capability for a given connector and must be considered for each application. These variables are:

Wire Size—Larger diameter wire will carry more current since it has less internal resistance to current flow and thus generates less heat. Longer wire lengths also enhance current-carrying capabilities since the wire conducts heat away from the connector.

Connector Size—In general, the more circuits in a connector, the less current can be carried.

Ambient Temperature—The higher the ambient temperature, the less current can be carried in any given connector.

Printed Wiring Board Conductor Size—The finished trace conductor width and thickness should be maximized to allow for the greatest current-carrying capacity and heat dissipation.

Mini-Universal MATE-N-LOK connectors also will withstand the following tests:

Housing Panel Retention—
26 lb. min.

Housing Lock Strength—9 lb. min.

Thermal Shock— -55°C to +105°C

Temperature-Humidity Cycling—
25°C to 65°C at 95 RH

Vibration—10-55-10 cycles per minute at .06 inch total excursion

Physical Shock—18 drops, 50 G half-sine at 11 milliseconds

Current Rating Verification for 30°C Maximum Temperature Rise 100% Energized

Wire-to-Wire Mini-Universal MATE-N-LOK Connectors — Calculated Current Table

Number of Circuits	Wire AWG						
	16	18	20	22	24	26	30
2	9.50	9.00	7.50	6.00	5.00	4.00	3.00
3	8.50	8.00	7.00	5.50	4.50	4.00	3.00
4	8.00	7.00	6.00	5.00	4.50	3.50	2.50
6	7.00	6.50	5.50	4.50	4.00	3.00	2.50
9	6.00	5.50	4.50	4.00	3.50	3.00	2.00
12	6.00	5.50	4.50	3.50	3.00	2.50	2.00
15	5.50	5.00	4.00	3.50	3.00	2.50	2.00

Values are based on initial Temperature Rise versus Current Testing and are intended to be a guide in the selection of a connector family. All applications should be tested by the end user. The values listed are per circuit, for fully loaded housings being 100% energized. **Note:** All combinations above were not tested and this chart contains interpolated and extrapolated values.

Minimum Wire Lengths for T-Rise vs. Current Testing

AWG	Min. Length (in.)	AWG	Min. Length (in.)
30	2.6	18	9.4
28	3.2	16	11.3
26	4.1	14	13.7
24	5.1	12	16.4
20	7.8	10	19.3

Note: If wire lengths used are less than those listed above, the current-carrying ability of the system will be reduced due to less heat being conducted away from the connector. The customer should fully test all applications.

Wire-to-Board

Due to the vast differences in trace geometry and printed circuit board configurations, we are unable to provide a separate current carrying chart for our printed circuit board header products. However, the above Wire-to-Wire charts may be used as a guideline for headers if the trace width and thickness is equal to the listed wire gauge. For vertical headers, only 95% of the Wire-to-Wire value should be used. For right-angle headers, only 75% of the Wire-to-Wire value should be used. The chart values are only a tool for connector selection and will require the customer to fully test their application.

Termination Resistance/Contact Crimp Tensile Force

Wire Size		Termination Resistance		Contact Crimp Tensile Force	
AWG	mm ²	Test Current (Amps)	Resistance Milliohms (Max. Init.)	Force (Min.)	
				lbs.	N
30	.05	—	—	—	—
28	.08	—	—	—	—
26	.12	—	—	4	18
24	.2	—	—	7	31
22	.3	—	—	11	49
20	.5	—	—	13	58
18	.8	—	—	15	67
16	1.2	—	—	18	80

High Density

Mini-Universal MATE-N-LOK Connectors
.163 [4,14] Centerline

Mini-Universal MATE-N-LOK Connectors (Continued)

Mini-Universal MATE-N-LOK Connector Mating Combinations

Connector Part Number					Mating Connector Part Number				
Number of Circuits	Flammability Rating	Style	Plug ¹ Housing Part No.	Cap ¹ Housing Part No.	PC Board Pin Headers			Right-Angle With Board Lock	
					Plating	With Drain Holes	Vertical Without Drain Holes		Blindmate
1	UL94V-2	In-Line	172335-1	172327-14	—	—	—	—	
	UL94V-0	In-Line	172164-1	172156-14	Tin ⁶	—	—	1-794374-0	
2	UL94V-2	In-Line	172336-1	172328-12	Duplex ⁵	—	—	1-794374-1	
			172343-14	172807-13	—	—	—	—	
			172807-13	172807-13	—	—	—	—	
	UL94V-0	In-Line	172165-1	173956-13	—	—	—	—	
			172157-12	172157-12	Tin ⁶	1-770166-0	1-770872-0	—	1-770966-0
			172233-14	172233-14	Duplex ⁵	1-770166-1	1-770872-1	—	1-770966-1
			794894-17	794896-12,7	Tin/Duplex	1-770166-1	1-770872-1	—	1-770966-1
3	UL94V-2	In-Line	172808-13	172808-13	—	—	—	—	
			172329-12	172329-12	Tin	—	—	—	
			172344-14	172344-14	Duplex ⁵	—	—	—	
	UL94V-0	In-Line	173957-13	173957-13	—	—	—	—	
			172158-12	172158-12	Tin	1-770170-0	1-770873-0	—	1-770967-0
			172234-14	172234-14	Duplex ⁵	1-770170-1	1-770873-1	—	1-770967-1
			172809-13	172809-13	—	—	—	—	
4	UL94V-2	Dual Row	172338-1	172330-12	—	—	—	—	
			173958-13	173958-13	—	—	—	—	
			172167-1	172159-12	Tin	1-770174-0	1-770874-0	1-794325-0	1-770968-0
	UL94V-0	Dual Row	794805-17	794939-12,7	Duplex ⁵	1-770174-1	1-770874-1	1-794325-1	1-770968-1
			172339-1	172331-12	Tin/Duplex	1-770174-1	1-770874-1	—	1-770968-1
			172168-1	172160-12	—	—	—	—	
			794895-17	794940-12,7	Tin	1-770178-0	1-770875-0	1-794326-0	1-770969-0
6	UL94V-0	Dual Row	794895-17	794940-12,7	Duplex ⁵	1-770178-1	1-770875-1	1-794326-1	1-770969-1
			770579-1	—	Tin/Duplex	1-770178-1	1-770875-1	—	1-770969-1
			794821-17	794941-12,7	Tin	1-794065-0	1-794073-0	1-794327-0	1-770970-0
	UL94V-0	Dual Row	172340-1	172332-12	Duplex ⁵	1-794065-1	1-794073-1	1-794327-1	1-770970-1
			172169-1	172161-12	Tin/Duplex	1-794065-1	1-794073-1	—	1-770970-1
			770580-1	—	—	—	—	—	
			794781-17	794942-12,7	Tin	1-770182-0	1-770876-0	1-794432-0	—
172341-1			172333-12	Duplex ⁵	1-770182-1	1-770876-1	1-794432-1	—	
9	UL94V-0	Matrix	172170-1	172162-12	Tin	1-770743-0	1-770858-0	1-794328-0	1-770971-0
			172171-1	172163-12	Duplex ⁵	1-770743-1	1-770858-1	1-794328-1	1-770971-1
			794781-17	794942-12,7	Tin/Duplex	1-770743-1	1-770858-1	—	1-770971-1
	UL94V-2	Matrix	172342-1	172334-12	—	—	—	—	
			172170-1	172162-12	Tin	1-770186-0	1-794040-0	1-794329-0	—
			770581-1	—	Duplex ⁵	1-770186-1	1-794040-1	1-794329-1	—
			794895-17	794940-12,7	Tin	1-794066-0	1-770621-0	—	1-770972-0
12	UL94V-0	Dual Row	770581-1	—	Duplex ⁵	1-794066-1	1-770621-1	—	1-770972-1
			770582-1	—	Tin	1-794067-0	1-794074-0	—	1-770973-0
			172342-1	172334-12	Duplex ⁵	1-794067-1	1-794074-1	—	1-770973-1
	UL94V-0	Matrix	172171-1	172163-12	—	—	—	—	
			770583-1	—	Tin	1-770190-0	1-770859-0	1-794330-0	—
			794781-17	794942-12,7	Duplex ⁵	1-770190-1	1-770859-1	1-794330-1	—
			172341-1	172333-12	Tin	1-794068-0	1-794075-0	—	1-770974-0
15	UL94V-0	Dual Row	770583-1	—	Duplex ⁵	1-794068-1	1-794075-1	—	1-770974-1
			770584-1	—	Tin	1-794069-0	1-794076-0	—	1-794105-0
			172342-1	172334-12	Duplex ⁵	1-794069-1	1-794076-1	—	1-794105-1
	UL94V-0	Dual Row	770585-1	—	Tin	1-794070-0	1-794077-0	—	1-794106-0
			770586-1	—	Duplex ⁵	1-794070-1	1-794077-1	—	1-794106-1
			770587-1	—	Tin	1-794071-0	1-794078-0	—	1-794107-0
			770588-1	—	Duplex ⁵	1-794071-1	1-794078-1	—	1-794107-1
20	UL94V-0	Dual Row	770585-1	—	Tin	1-794072-0	1-794079-0	—	1-794108-0
			770586-1	—	Duplex ⁵	1-794072-1	1-794079-1	—	1-794108-1
			770587-1	—	—	—	—	—	

High Density
Mini-Universal MATE-N-LOK Connectors
.163 [4.14] Centerline

¹Mini-Universal MATE-N-LOK plug and cap housings accept pin or socket contacts. Use the appropriate contacts in the plug housing as required by the mating connector. All **Plugs** are **free-hanging** and **Caps** are **free-hanging or panel mount**, unless otherwise noted.

²Panel mount only.

³Hermaphroditic: Mates to itself.

⁴Free-hanging only.

⁵Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

⁶Tin Finish — Plated with .000150 [.00381] min. tin over .000050 [.00127] min. nickel underplate on entire contact.

⁷For Splash-Proof Sealing.

Note: All part numbers are RoHS Compliant.

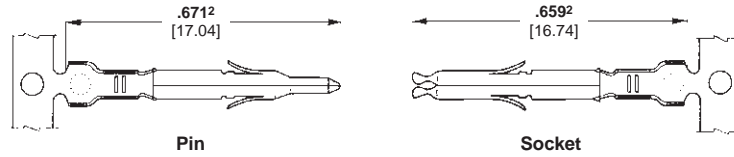
Mini-Universal MATE-N-LOK Connectors (Continued)

Contacts

Pin diameter .039 [0.99]

Material

Brass or Phosphor bronze
Stock Thickness .008 [0.20]
These contacts are to be used in Mini-Universal MATE-N-LOK Plug or Cap housings only.



Related Product Data

Product Specifications
108-1542 Mini-Universal MATE-N-LOK Connectors
108-1543 Mini-Universal MATE-N-LOK Headers

Application Specification

114-16017 Mini-Universal MATE-N-LOK Connectors

Performance Characteristics — pages 83-84

Housings — pages 87-89

Technical Documents — pages 83 and 205-206

Application Tooling — pages 207-210

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Material and Finish	Contact Part Numbers				HDM Applicator Part No.	Hand Tool Part No.
			Pin		Socket			
			Strip Form	Loose Pieces	Strip Form	Loose Pieces		
30-26 [.05-.12]	.035-.050 [.889-1.27]	Brass, Pre-tin	770835-1	794059-1	770834-1	794058-1	567418-1 ³	90717-2
		Phos. Brz., Pre-tin	—	—	770834-4	—	567418-2 ³	
		Brass, Duplex ¹	1-770835-0	1-794059-0	1-770834-0	1-794058-0	567418-3 ³	
26-22 [.12-.3]	.047-.069 [1.19-1.75]	Brass, Pre-tin	770901-1	770985-1	770902-1	770986-1	567066-3 ⁴	91529-1
		Phos. Brz., Pre-tin	—	—	770902-4	—	567066-4 ⁴	
		Brass, Duplex ¹	1-770901-0	1-770985-0	1-770902-0	1-770986-0	567066-5 ⁴	
22-18 [.3-.8] or 22 x (2) [.3]	.059-.094 1.50-2.39 or .067 x (2) 3.38	Brass, Pre-tin	770903-1	770987-1	770904-1	770988-1	567067-1 ³	91522-1
		Phos. Brz., Pre-tin	—	—	770904-4	—	567067-2 ³	
		Brass, Duplex ¹	1-770903-0	1-770987-0	1-770904-0	1-770988-0	567067-3 ³	
20-16 [.5-1.2] or 20 x (2) [.5]	.079-.126 2.01-3.20 or .075 x (2) 1.91	Brass, Pre-tin	794406-12	171638-12	794407-12	171639-12	680582-2 ³	91536-1
		Phos. Brz., Pre-tin	—	—	794407-4 ²	—	680582-3 ³	
		Brass, Duplex ¹	1-794406-0 ²	—	1-794407-0 ²	—	680582-3 ³	
		Phos. Brz., Duplex ¹	—	—	1-794407-12	—		

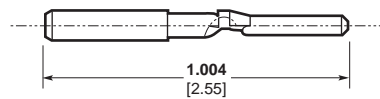
- Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and .000100 [.00254] min. tin in crimping area over .000050 [.00127] min. nickel underplate on entire contact.
- .671 [17.04] and .659 [16.74] dimensions are .689 [17.50] for indicated part numbers.
- HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3 is used on AMP-O-ELECTRIC Model G Machine. See pages 207-210 for further information.
- HDM Applicator part number ending in -3 is used on AMPOMATOR CLS Machine with T or G Terminators, -4 is used on AMP-O-LECTRIC Model K Machine, -5 is used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

Note: All part numbers are RoHS Compliant.

Keying Plug

Material

UL94V-0 Nylon, white color

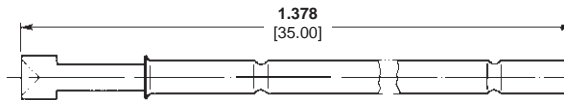


Part Number
174670-1

Test Probe Contact

Material and Finish

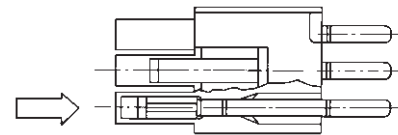
Phosphor bronze, nickel plated



Part Number
172971-1

Notes:

- The test probe is inserted into the housing in the same direction as indicated by the arrow shown to the right.
- The test probe can be used in the Cap or Plug Housing.
- Test probes are supplied unassembled.



Contact Extraction Tool
No. 189727-1
IS 408-4118



Contact Insertion Tool
(For inserting contacts applied to small diameter wire)
No. 91002-1
IS 408-7347

Mini-Universal MATE-N-LOK Connectors .163 [4.14] Centerline High Density

Mini-Universal MATE-N-LOK Connectors (Continued)

Housings

Free-Hanging or Panel Mount

.163 [4.14] Centerline spacing

Related Product Data

Product Specifications

- 108-1542 Mini-Universal MATE-N-LOK Connectors
- 108-1543 Mini-Universal MATE-N-LOK Headers
- 108-5151 Mini-Universal MATE-N-LOK Connectors (UL94V-2)
- 108-5138 Mini-Universal MATE-N-LOK Connectors (UL94V-0)

Performance Characteristics— pages 83-84

Contacts — page 86

Keying Plug — page 86

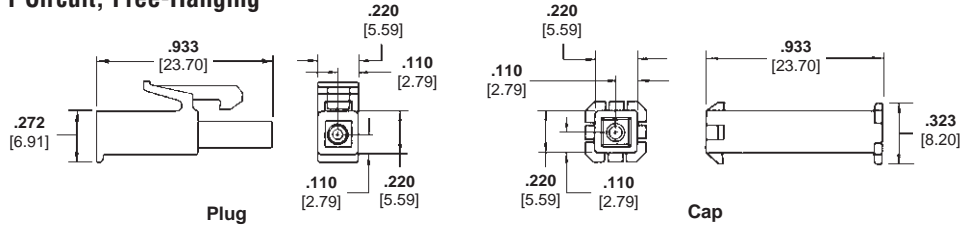
Test Probe Contact — page 86

Panel Cutout Recommendations— page 89

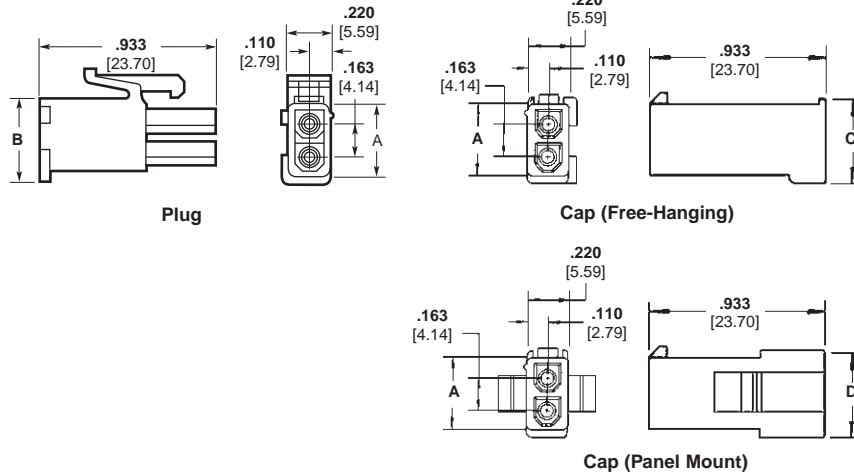
Technical Documents— pages 83 and 205-206

Mating Headers — pages 90-92

1 Circuit, Free-Hanging



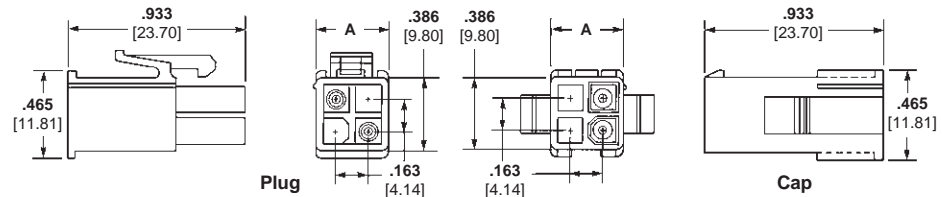
2 and 3 Circuit, In-Line



Number of Circuits	Dimensions				Housing Part Numbers ¹					
					UL94V-0 Nylon, White Color			UL94V-2 Nylon, Natural Color		
	A	B	C	D	Plug	Panel Mount	Free-Hanging	Plug	Panel Mount	Free-Hanging
1	—	—	—	—	172164-1	—	172156-1	172335-1	—	172327-1
2	.386 9.80	.425 10.79	.488 12.39	.464 11.78	172165-1	172157-1	172233-1	172336-1	172328-1	172343-1
3	.551 14.00	.591 15.01	.654 16.61	.630 16.00	172166-1	172158-1	172234-1	172337-1	172329-1	172344-1

Note: All part numbers are RoHS Compliant.

4 and 6 Circuit, Dual Row



Number of Circuits	A Dim.	Housing Part Numbers ¹			
		UL94V-0 Nylon, White Color		UL94V-2 Nylon, Natural Color	
		Plug	Cap	Plug	Cap
4	.386 9.80	172167-1	172159-1	172338-1	172330-1
6	.551 14.00	172168-1	172160-1	172339-1	172331-1

¹Housing part numbers shown in both charts (above) are also available in other colors: Red, Green, Blue, Black. To order connectors in these colors use the appropriate dash numbers as follows: Red 1-XXXXXX-2, Green 1-XXXXXX-5, Blue 1-XXXXXX-6, Black 1-XXXXXX-9

Note: All part numbers are RoHS Compliant.

Mini-Universal MATE-N-LOK Connectors (Continued)

Housings

.163 [4.14] Centerline spacing

Related Product Data

- Product Specifications**
 108-1542 Mini-Universal MATE-N-LOK Connectors
 108-1543 Mini-Universal MATE-N-LOK Headers
 108-5151 Mini-Universal MATE-N-LOK Connectors (UL94V-2)
 108-5138 Mini-Universal MATE-N-LOK Connectors (UL94V-0)

Performance Characteristics — pages 83-84

Contacts — page 86

Keying Plug — page 86

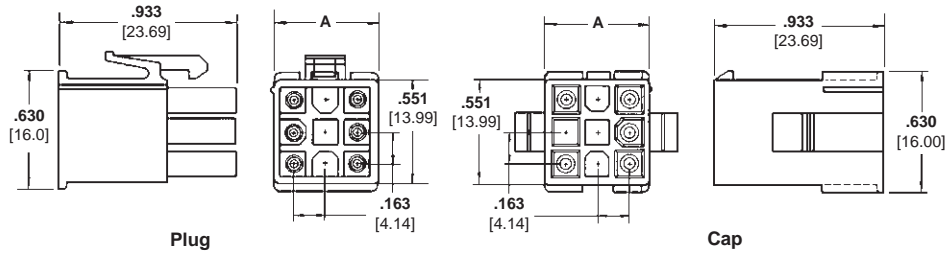
Test Probe Contact — page 86

Panel Cutout Recommendations — page 89

Technical Documents — pages 83 and 205-206

Mating Headers — pages 90-92

9, 12 and 15 Circuit, Free-Hanging or Panel Mount, Matrix

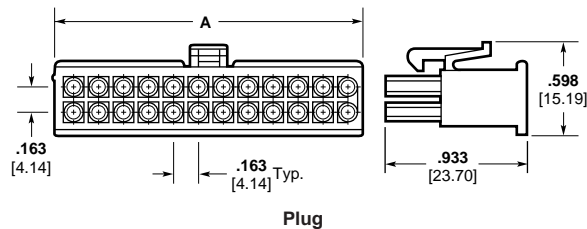


Number of Circuits	A Dim.	Housing Part Numbers ¹			
		UL94V-0 Nylon, White Color		UL94V-2 Nylon, Natural Color	
		Plug	Cap	Plug	Cap
9	.551 13.99	172169-1	172161-1	172340-1	172332-1
12	.716 18.19	172170-1	172162-1	172341-1	172333-1
15	.882 22.40	172171-1	172163-1	172342-1	172334-1

¹Housing part numbers shown in chart are also available in other colors: Red, Green, Blue, Black. To order connectors in these colors use the appropriate dash numbers as follows: Red 1-XXXXXX-2, Green 1-XXXXXX-5, Blue 1-XXXXXX-6, Black 1-XXXXXX-9

Note: All part numbers are RoHS Compliant.

8 thru 24 Circuit, Free-Hanging, Dual Row



Number of Circuits	A Dim.	Part Number UL94V-0 Nylon, White Color Plug
8	.714 18.14	770579-1
10	.877 22.28	770580-1
12	1.040 26.42	770581-1
14	1.203 30.56	770582-1
16	1.366 34.70	770583-1
18	1.529 38.84	770584-1
20	1.692 42.98	770585-1
22	1.855 47.12	770586-1
24	2.018 51.26	770587-1

Note: All part numbers are RoHS Compliant.

Mini-Universal MATE-N-LOK Connectors .163 [4.14] Centerline

High Density

Mini-Universal MATE-N-LOK Connectors (Continued)

Housings
Hermaphroditic
Free-Hanging

2, 3 and 4 Circuit

Related Product Data

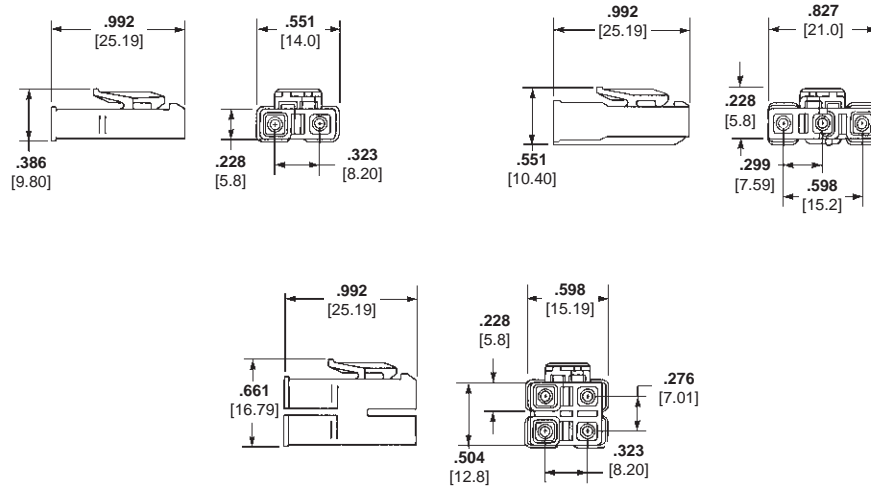
- Product Specifications**
108-1542 Mini-Universal MATE-N-LOK Connectors
108-1543 Mini-Universal MATE-N-LOK Headers
108-5151 Mini-Universal MATE-N-LOK Connectors (UL94V-2)
108-5138 Mini-Universal MATE-N-LOK Connectors (UL94V-0)

Performance Characteristics—
pages 83-84

Contacts — page 86

Cap Housings — pages 87-89

Technical Documents— pages 83 and 205-206



Number of Circuits	Part Numbers	
	UL94V-2 Nylon, Natural Color	UL94V-0 Nylon, White Color
2	172807-1	173956-1
3	172808-1	173957-1
4	172809-1	173958-1

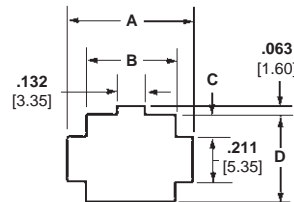
Note: Housing mates to itself; 2 required per wire-to-wire connection.

Note: All part numbers are RoHS Compliant.

Recommended Cap Housing Panel Cutouts

View is from cap entry side

Recommended Panel Thickness .031—.079 [.79 – 2.01]



Number of Circuits	Dimensions			
	A	B	C	D
2	.421 10.69	.242 6.15	.098 2.49	.407 10.3
3	.421 10.69	.242 6.15	.181 4.60	.573 14.55
4	.587 14.91	.407 10.34	.098 2.49	.407 10.3
6	.752 19.10	.573 14.55	.098 2.49	.407 10.3
9	.752 19.10	.573 14.55	.181 4.60	.573 14.55
12	.917 23.29	.738 18.75	.181 4.60	.573 14.55
15	1.080 27.43	.904 22.96	.181 4.60	.573 14.55

Mini-Universal MATE-N-LOK Connectors (Continued)

**Vertical PC Board
Pin Headers**

.163 [4.14] Centerline spacing

Material

Housing — Nylon, white

Flammability Rating — UL94V-0

Contacts — Brass

Solder tail diameter .039 [1.00]

Related Product Data

Product Specifications

108-1542 Mini-Universal MATE-N-LOK Connectors

108-1543 Mini-Universal MATE-N-LOK Headers

108-5151 Mini-Universal MATE-N-LOK Connectors (UL94V-2)

108-5138 Mini-Universal MATE-N-LOK Connectors (UL94V-0)

Performance Characteristics — pages 83-84

Recommended PC Board Hole Layouts — page 93

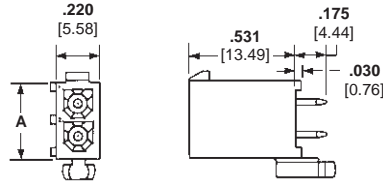
Technical Documents — pages 83 and 205-206

Mating Connectors

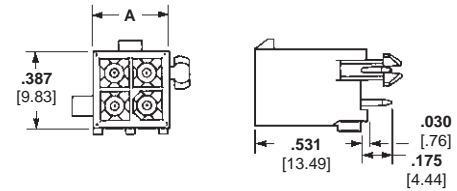
Mini-Universal MATE-N-LOK
Plug Housings — pages 87-89

Mini-Universal MATE-N-LOK 2
Plug Housings — pages 101-102

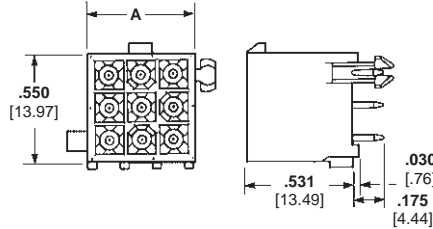
2 and 3 Circuit, In-Line



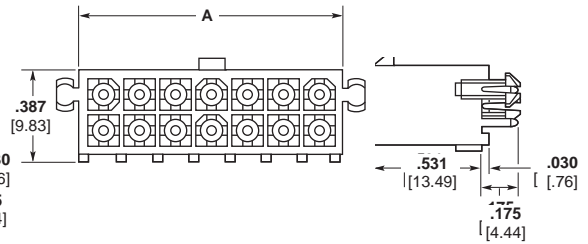
4, 6, 8, 10 and 12 Circuit, Dual Row



9, 12 and 15 Circuit, Matrix



14, 16, 18, 20, 22 and 24 Circuit, Dual Row



Number of Circuits	Style	A Dim.	Pin Finish	Vertical Pin Header Part Numbers		Mates with Plug Housing Part Number (Using Socket Contact)	
				With Drain Holes	Without Drain Holes	Mini-Universal MATE-N-LOK	Mini-Universal MATE-N-LOK 2
				2	In-Line	.387 9.83	Tin ¹ Duplex ²
3	In-Line	.550 13.97	Tin ¹ Duplex ²	1-770170-0 1-770170-1	1-770873-0 1-770873-1	172166-1	794186-1
4	Dual Row	.387 9.83	Tin ¹ Duplex ²	1-770174-0 1-770174-1	1-770874-0 1-770874-1	172167-1	794188-1
6	Dual Row	.550 13.97	Tin ¹ Duplex ²	1-770178-0 1-770178-1	1-770875-0 1-770875-1	172168-1	794190-1
8	Dual Row	.713 18.11	Tin ¹ Duplex ²	1-794065-0 1-794065-1	1-794073-0 1-794073-1	770579-1	794192-1
9	Matrix	.551 14.00	Tin ¹ Duplex ²	1-770182-0 1-770182-1	1-770876-0 1-770876-1	172169-1	794194-1
10	Dual Row	.877 22.28	Tin ¹ Duplex ²	1-770743-0 1-770743-1	1-770858-0 1-770858-1	770580-1	794196-1
12	Dual Row	1.039 26.39	Tin ¹ Duplex ²	1-794066-0 1-794066-1	1-770621-0 1-770621-1	770581-1	794198-1
	Matrix	.713 18.11	Tin ¹ Duplex ²	1-770186-0 1-770186-1	1-794040-0 1-794040-1	172170-1	794200-1
14	Dual Row	1.202 30.53	Tin ¹ Duplex ²	1-794067-0 1-794067-1	1-794074-0 1-794074-1	770582-1	794202-1
15	Matrix	.877 22.28	Tin ¹ Duplex ²	1-770190-0 1-770190-1	1-770859-0 1-770859-1	172171-1	794204-1
16	Dual Row	1.365 34.67	Tin ¹ Duplex ²	1-794068-0 1-794068-1	1-794075-0 1-794075-1	770583-1	794206-1
18	Dual Row	1.528 38.81	Tin ¹ Duplex ²	1-794069-0 1-794069-1	1-794076-0 1-794076-1	770584-1	794208-1
20	Dual Row	1.691 42.95	Tin ¹ Duplex ²	1-794070-0 1-794070-1	1-794077-0 1-794077-1	770585-1	794210-1
22	Dual Row	1.854 47.09	Tin ¹ Duplex ²	1-794071-0 1-794071-1	1-794078-0 1-794078-1	770586-1	794212-1
24	Dual Row	2.017 51.23	Tin ¹ Duplex ²	1-794072-0 1-794072-1	1-794079-0 1-794079-1	770587-1	794214-1

¹ Tin Finish—Plated with .000150 [.00381] min. tin over .000050 [.00127] min. nickel underplate on entire contact.
² Duplex Finish—Plated with .000030 [.000762] min. gold in mating area and matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

Note: All part numbers are RoHS Compliant.

High Density

Mini-Universal MATE-N-LOK Connectors
.163 [4.14] Centerline

Mini-Universal MATE-N-LOK Connectors (Continued)

**Vertical PC Board
Blindmate Pin Headers**

.163 [4.14] Centerline spacing

Material

Housing — Nylon, white

Flammability Rating — UL94V-0

Contacts — Brass

Solder tail diameter .039 [1.00]

Related Product Data

Product Specifications

108-1693 Mini-Universal MATE-N-LOK 2 Connectors

108-1694 Mini-Universal MATE-N-LOK 2 Headers

Performance Characteristics — pages 83-84

Recommended PC Board Hole Layouts — page 93

Technical Documents — pages 83 and 205-206

Mating Connectors

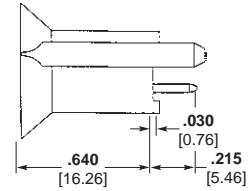
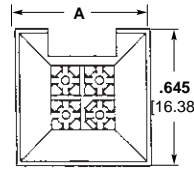
Mini-Universal MATE-N-LOK

Plug Housings — pages 87-89

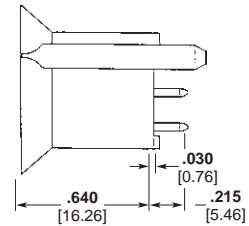
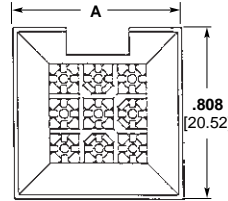
Mini-Universal MATE-N-LOK 2

Plug Housings — pages 101-102

**4, 6, 8 and 10 Circuit,
Dual Row**



**9, 12 and 15 Circuit,
Matrix**



Number of Circuits	Style	A Dim.	Pin Finish	Pin Header Part Numbers With Drain Holes	Mates with Plug Housing Part Number (Using Socket Contacts)	
					Mini-Universal MATE-N-LOK	Mini-Universal MATE-N-LOK 2
4	Dual Row	.645 16.38	Tin ¹	1-794325-0	172167-1	794188-1
			Duplex ²	1-794325-1		
6	Dual Row	.808 20.52	Tin ¹	1-794326-0	172168-1	794190-1
			Duplex ²	1-794326-1		
8	Dual Row	.971 24.66	Tin ¹	1-794327-0	770579-1	794192-1
			Duplex ²	1-794327-1		
9	Matrix	.808 20.52	Tin ¹	1-794432-0	172169-1	794194-1
			Duplex ²	1-794432-1		
10	Dual Row	1.134 28.80	Tin ¹	1-794328-0	770580-1	794196-1
			Duplex ²	1-794328-1		
12	Matrix	.971 24.66	Tin ¹	1-794329-0	172170-1	794200-1
			Duplex ²	1-794329-1		
15	Matrix	1.134 28.80	Tin ¹	1-794330-0	172171-1	794204-1
			Duplex ²	1-794330-1		

¹ Tin Finish — Plated with .000150 [.00381] min. tin over .000050 [.00127] min. nickel underplate on entire contact.

² Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

Note: All part numbers are RoHS Compliant.

High Density

Mini-Universal MATE-N-LOK Connectors
.163 [4.14] Centerline

Mini-Universal MATE-N-LOK Connectors (Continued)

**Right-Angle PC Board
Pin Headers**

.163 [4.14] Centerline spacing

Material

Housing— Nylon, white color

Flammability Rating— UL94V-0

Contacts— Brass

Solder tail diameter .039 [1.00]

Related Product Data

Product Specification

108-1694 Mini-Universal
MATE-N-LOK 2 Headers

Performance Characteristics—
pages 83-84

**Recommended PC Board Hole
Layouts**—page 93

Technical Documents— pages 83
and 205-206

Mating Connectors

Mini-Universal MATE-N-LOK

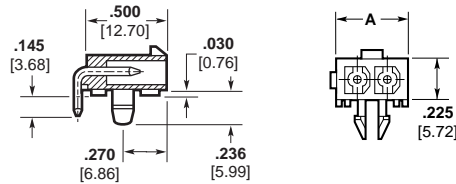
Plug Housings—pages 87-89

Mini-Universal MATE-N-LOK 2

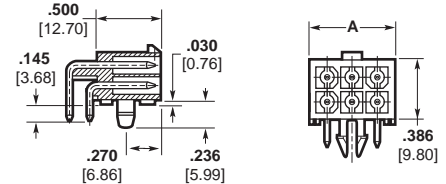
Plug Housings—pages 101-102

With Board Lock Feature

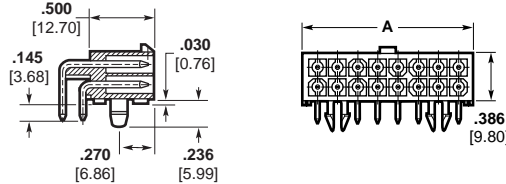
1, 2 and 3 Circuit, In-Line



4, 6, 8, 10 and 12 Circuit, Dual Row



14, 16, 18, 20, 22 and 24 Circuit, Dual Row



Number of Circuits	Style	A Dim.	Pin Finish	Pin Header Part Number With Board Lock	Mates with Plug Housing Part Number (Using Socket Contacts)	
					Mini-Universal MATE-N-LOK	Mini-Universal MATE-N-LOK 2
1	—	.225 5.72	Tin ¹	1-794374-0	172164-1	—
			Duplex ²	1-794374-1		
2	In-Line	.388 9.86	Tin ¹	1-770966-0	172165-1	794184-1
			Duplex ²	1-770966-1		
3	In-Line	.551 14.00	Tin ¹	1-770967-0	172166-1	794186-1
			Duplex ²	1-770967-1		
4	Dual Row	.388 9.86	Tin ¹	1-770968-0	172167-1	794188-1
			Duplex ²	1-770968-1		
6	Dual Row	.551 14.00	Tin ¹	1-770969-0	172168-1	794190-1
			Duplex ²	1-770969-1		
8	Dual Row	.714 18.14	Tin ¹	1-770970-0	770579-1	794192-1
			Duplex ²	1-770970-1		
10	Dual Row	.877 22.28	Tin ¹	1-770971-0	770580-1	794196-1
			Duplex ²	1-770971-1		
12	Dual Row	1.040 26.42	Tin ¹	1-770972-0	770581-1	794198-1
			Duplex ²	1-770972-1		
14	Dual Row	1.203 30.56	Tin ¹	1-770973-0	770582-1	794202-1
			Duplex ²	1-770973-1		
16	Dual Row	1.366 34.70	Tin ¹	1-770974-0	770583-1	794206-1
			Duplex ²	1-770974-1		
18	Dual Row	1.529 38.84	Tin ¹	1-794105-0	770584-1	794208-1
			Duplex ²	1-794105-1		
20	Dual Row	1.692 42.98	Tin ¹	1-794106-0	770585-1	794210-1
			Duplex ²	1-794106-1		
22	Dual Row	1.855 47.12	Tin ¹	1-794107-0	770586-1	794212-1
			Duplex ²	1-794107-1		
24	Dual Row	2.018 51.26	Tin ¹	1-794108-0	770587-1	794214-1
			Duplex ²	1-794108-1		

¹Tin Finish—Plated with .000150 [.00381] min. tin over .000050 [.00127] min. nickel underplate on entire contact.

²Duplex Finish—Plated with .000030 [.000762] min. gold in mating area and matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

Note: All part numbers are RoHS Compliant.

High Density

Mini-Universal MATE-N-LOK Connectors
.163 [4.14] Centerline

Mini-Universal MATE-N-LOK Connectors (Continued)

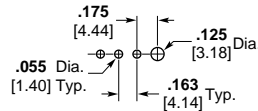
Recommended PC Board Hole Layouts for Vertical and Blindmate Headers

.062 [1.57] thick board, tolerances non-accumulative

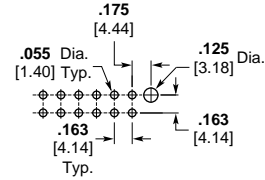
Related Product Data

Vertical Headers—pages 90-91

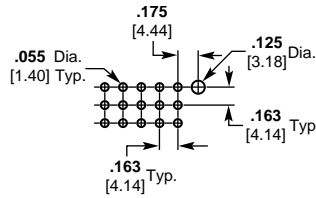
2 and 3 Circuit, In-Line



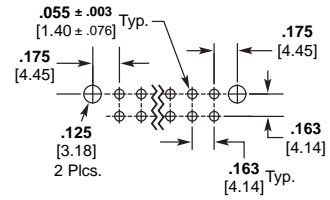
4, 6, 8, 10 and 12 Circuit, Dual Row



9, 12 and 15 Circuit, Matrix



14, 16, 18, 20, 22 and 24 Circuit, Dual Row



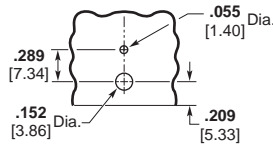
Recommended PC Board Hole Layouts for Right-Angle Headers

.062 [1.57] thick board, tolerances non-accumulative

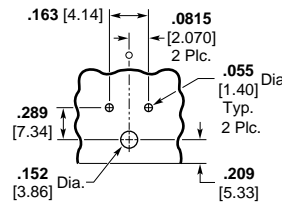
Related Product Data

Right-Angle Headers—page 92

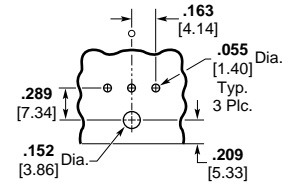
1 Circuit



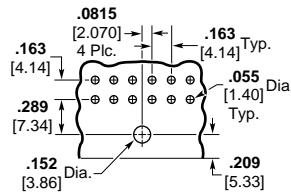
2 Circuit, In-Line



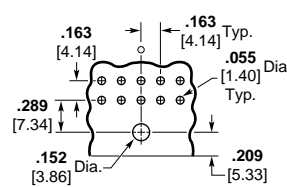
3 Circuit, In-Line



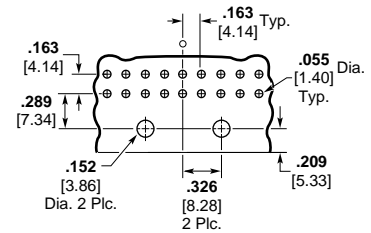
4, 8 and 12 Circuit, Dual Row



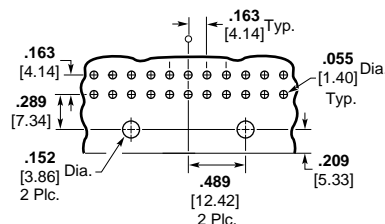
6 and 10 Circuit, Dual Row



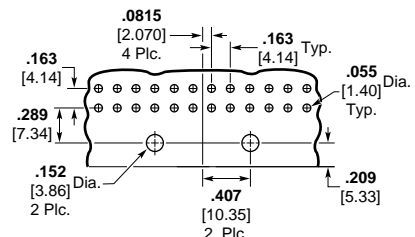
14 and 18 Circuit, Dual Row



22 Circuit, Dual Row



16, 20 and 24 Circuit, Dual Row



High Density

Mini-Universal MATE-N-LOK Connectors
.163 [4.14] Centerline

Mini-Universal MATE-N-LOK Connectors (Continued)

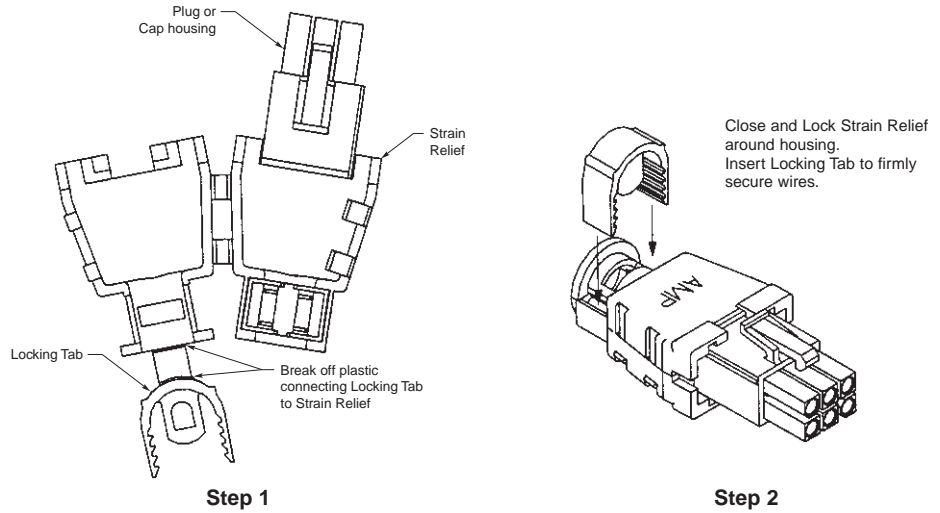
Strain Reliefs for Plug or Cap Housings

Related Product Data

Housings—pages 87-89
Technical Documents—pages 83 and 205-206

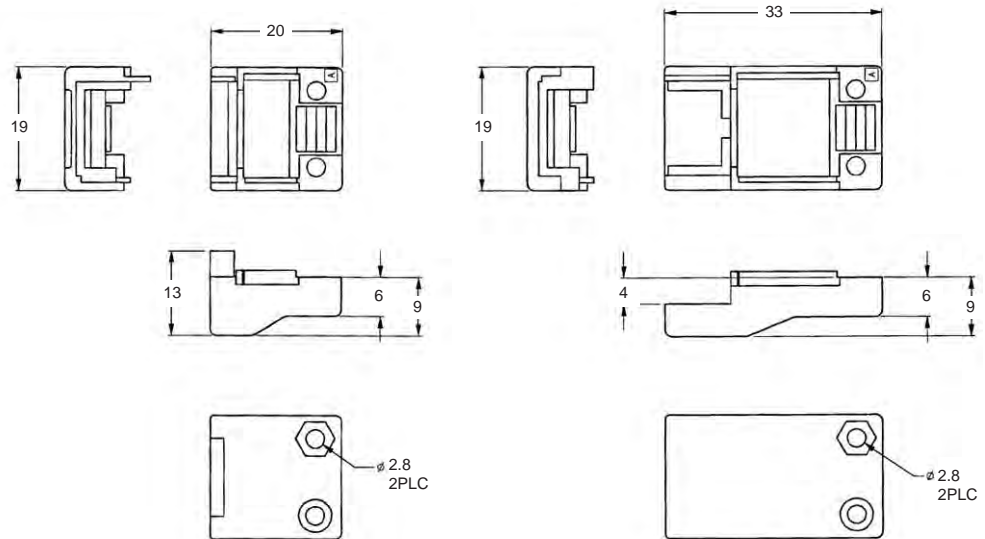
These Strain Reliefs may also be used with AMP-DUAC Receptacle housings on page 126.

6 and 8 Circuit



Style	Number of Circuits	A Dim.	Wire Bundle Dia. Range	Part Numbers	
				UL94V-0 Nylon, White Color	Use With
Dual Row	6	.920 23.36	.165-.220 4.19-5.59	794423-1	172168-1 172160-1 172339-1 172331-1
	8	.920 23.36	.180-.245 4.57-6.22	794370-1	770979-1

9 Circuit



Style	Number of Circuits	Part Numbers	
		Part Number	Use With
Matrix	9	Plug	316454-1 172169-1 172340-1
		Cap	316455-1 172161-1 172332-1

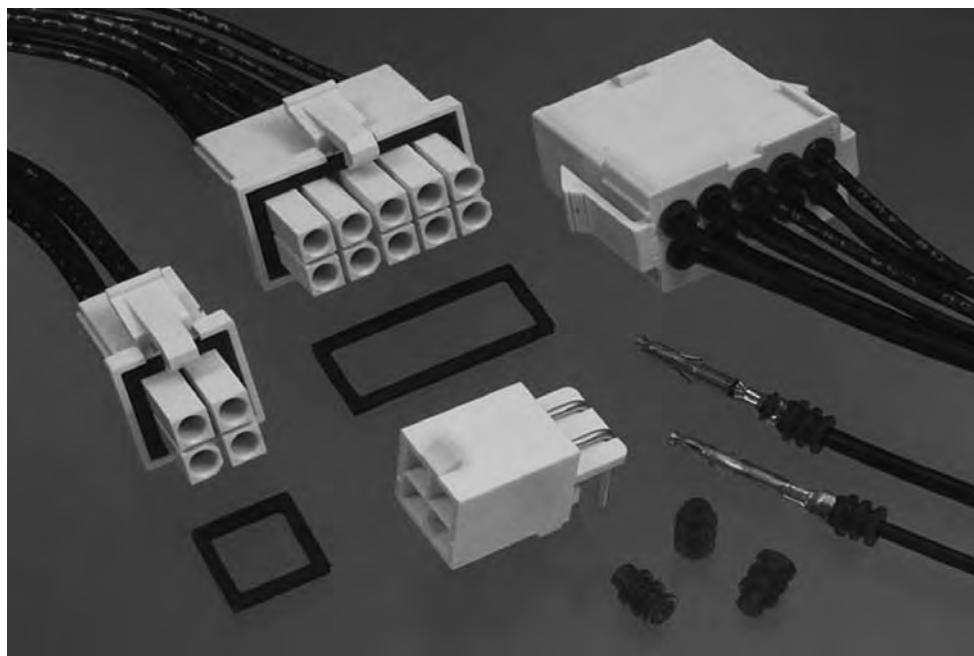
Note: All part numbers are RoHS Compliant.

High Density
Mini-Universal MATE-N-LOK Connectors
.163 [4.14] Centerline

Mini-Universal MATE-N-LOK Sealed Connector System

Product Facts — Sealed Connector System

- Splash-proof design allows use in areas where high humidity, intermittent liquid splashing or foam-in applications require a sealed connector for improved electrical performance
- Wire-to-wire and wire-to-board
- Dual row, 2 to 10 positions (even only) and 16 positions
- Mates with all standard Mini-Universal MATE-N-LOK connector housings and pin headers (except Blindmate)
- Positive, polarized keyed and latched orientation to ease application
- Utilizes proven Mini-Universal MATE-N-LOK contacts with existing application tooling
- Tested to Sealing Level of IP56 and IP57 per IEC 60529
- Primarily used in Appliance, Vending and HVAC applications
- Compact, durable housings
- Pins and sockets can be accommodated in the same housings
- Contacts fully protected in the housings. Both pins and sockets can be used on the power supply wiring
- Fully polarized to provide proper plug-to-cap mating incorporating a positive locking mechanism to help prevent accidental disengagement of mated connectors. Also facilitates panel mounting
- Free-hanging or panel mount
- Connectors can be mounted to .031-.079 [0.79-2.00] thick panels
- With seals, contacts accept wire size range 26-18 AWG [.12-.8 mm²] with insulation diameter of .040-.083 [1.02-2.11]
- .163 [4.14] centerline spacing
- Not for interrupting current



Performance Characteristics

The Mini-Universal MATE-N-LOK Connector performance characteristics found on pages 95-96 are based on free-hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Low Level Termination Resistance

20 milliohms max. total resistance between wire crimps of a mated pin and socket

Dielectric Withstanding Voltage—

1.5 KVAC between adjacent circuits

Insulation Resistance—

1000 megohms minimum between adjacent circuits

Voltage Rating—600 V AC or DC

Contact Retention—8 lb. min. per contact

Durability—20 cycles, mating and unmating

Technical Documents

Product Specifications

- 108-1542-2 Mini-Universal MATE-N-LOK Splash-Proof Seals
- 108-1542 Mini-Universal MATE-N-LOK Connectors
- 108-1543 Mini-Universal MATE-N-LOK Headers

Application Specification

- 114-13089 Mini-Universal MATE-N-LOK Sealed Connector

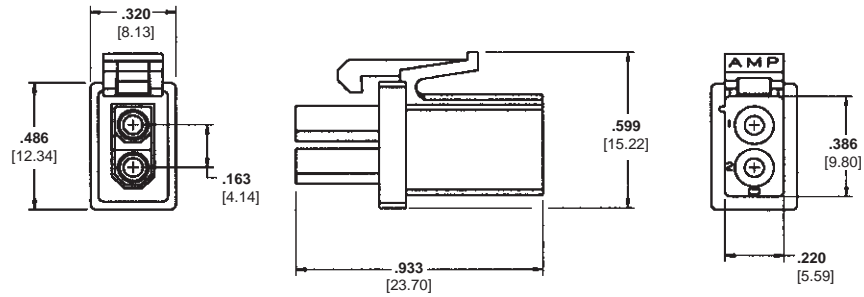
Instruction Sheets

- 408-3234 Mini-Universal MATE-N-LOK Connectors
- 411-5105 Mini-Universal MATE-N-LOK Connectors

Mini-Universal MATE-N-LOK Sealed Connector System (Continued)

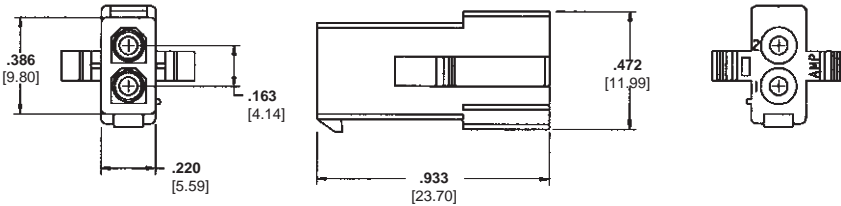
Plug

Part Number 794894-1
(2 position shown)



Cap

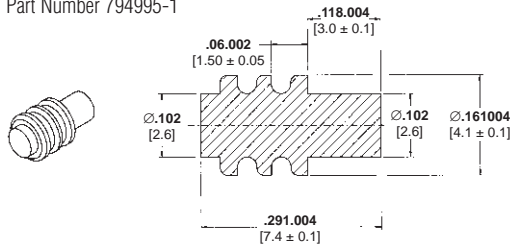
Part Number 794896-1
(2 position shown)



Individual Wire Seals

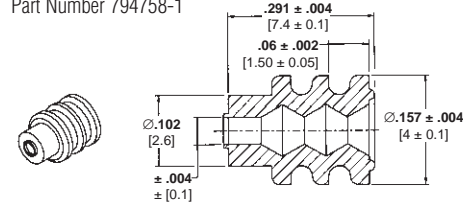
Single Housing Cavity Plug Seal

Part Number 794995-1

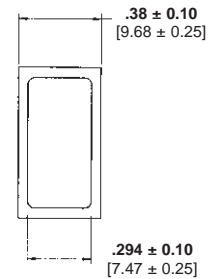


Single Wire Seal

Part Number 794758-1



Interface Seals



Mini-Universal MATE-N-LOK Sealed Connector System .163 [4.14] Centerline

Number of Positions	Interface Seals	Plug for Sealing	Cap for Sealing	Vertical Headers for Sealing	Right Angle Headers for Sealing
2	794772-2	794894-1	794896-1	1-770872-X	1-770966-X
4	794772-4	794805-1	794939-1	1-770874-X	1-770968-X
6	794772-6	794895-1	794940-1	1-770875-X	10770969-X
8	794772-8	794821-1	794941-1	1-794073-X	1-770970-X
10	1-794772-0	794781-1	794942-1	1-770858-X	1-770971-X
16	1-1586362-6	794824-1	—	1-794075-X	1-770974-X

-0 for tin finish, -1 for duplex. See Mini-Universal MATE-N-LOK section for details

Individual Wire Seal Contacts

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Material and Finish	Contact Part Numbers (for use with Single Wire Seals)				HDM Applicator Part No.	Hand Tool Part No.
			Pin		Socket			
			Strip Form	Loose Piece	Strip Form	Loose Piece		
26-22 [12-3]	.040-.060 1.02-1.52	Brass, Pre-tin Brass, Duplex ¹	770901-1	770985-1	770902-1	770986-1	567066-3 ³	91529-1
			1-770901-0	1-770985-0	1-770902-0	1-770986-0	567066-4 ³	
							567066-5 ³	
22-18 [3-8]	.050-.083 1.27-2.11	Brass, Pre-tin Brass, Duplex ¹	770903-1	770987-1	770904-1	770988-1	567067-1 ²	91522-1
			1-770903-0	1-770987-0	1-770904-0	1-770988-0	567067-2 ²	
							567067-3 ²	

¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and .000100 [.00254] min. tin in crimping area over .000050 [.00127] min. nickel underplate on entire contact.

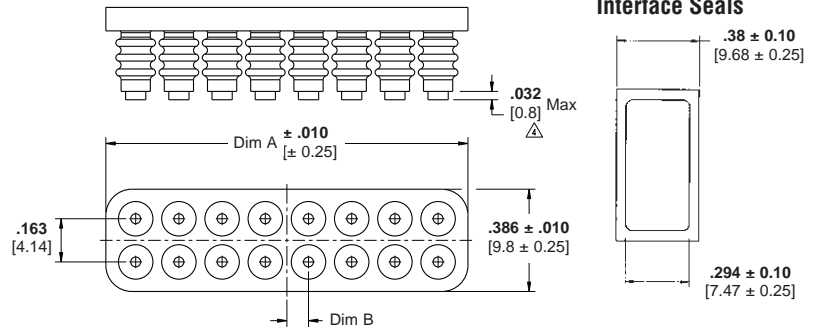
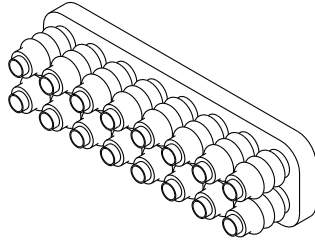
² HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3 is used on AMP-O-ELECTRIC Model G Machine. See pages 207-210 for further information.

³ HDM Applicator part number ending in -3 is used on AMPOMATOR CLS Machine with T or G Terminators, -4 is used on AMP-O-LECTRIC Model K Machine, -5 is used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

Note: Ganged Wire Seals are available; contact Technical Support.

Mini-Universal MATE-N-LOK Connectors (Continued)

**New: Mini Universal
Gang Seals
No Seal Crimping
Required!**



Number of Positions	Interface Seals	Gang Wire Seal	Plug for Sealing	Cap for Sealing	Vertical Headers for Sealing*	Right Angle Headers for Sealing*
2	794772-2	1586359-2	794894-1	794896-1	1-770872-X	1-770966-X
4	794772-4	1586359-4	794805-1	794939-1	1-770874-X	1-770968-X
6	794772-6	1586359-6	794895-1	794940-1	1-770875-X	1-770969-X
8	794772-8	1586359-8	794821-1	794941-1	1-794073-X	1-770970-X
10	1-794772-0	1-1586359-0	794781-1	794942-1	1-770858-X	1-770971-X
16	1-1586362-6	1-1586359-6	794824-1	—	1-794075-X	1-770974-X

*0 for tin finish, -1 for duplex. See Mini-Universal MATE-N-LOK section for details

Gang Wire Seal Contacts

Wire Size Range	Insulation Range	Material Finish	Pin		Socket	
			Strip Form	Loose Piece	Strip Form	Loose Piece
16 AWG	.050 - .083	Brass, Pre-tin Brass, Duplex ¹	1586537-1	—	1586538-1	—
			1586537-3	—	1586538-3	—
18 - 22 AWG	.050 - .083	Brass, Pre-tin Brass, Duplex	794440-1	—	794831-1	—
			794440-3	—	794831-3	—
22 - 26 AWG	.050 - .069	Brass, Pre-tin Brass, Duplex ¹	770901-1	770985-1	770902-1	770986-1
			1-770901-0	1-770985-0	1-770902-0	1-770986-0

¹ Duplex Finish—Plated with .000030 [.000762] min. gold in mating area and .000100 [.00254] min. tin in crimping area over .000050 [.00127] min. nickel underplate on entire contact.

High Density

Mini-Universal MATE-N-LOK Sealed Connector System
.163 [4.14] Centerline

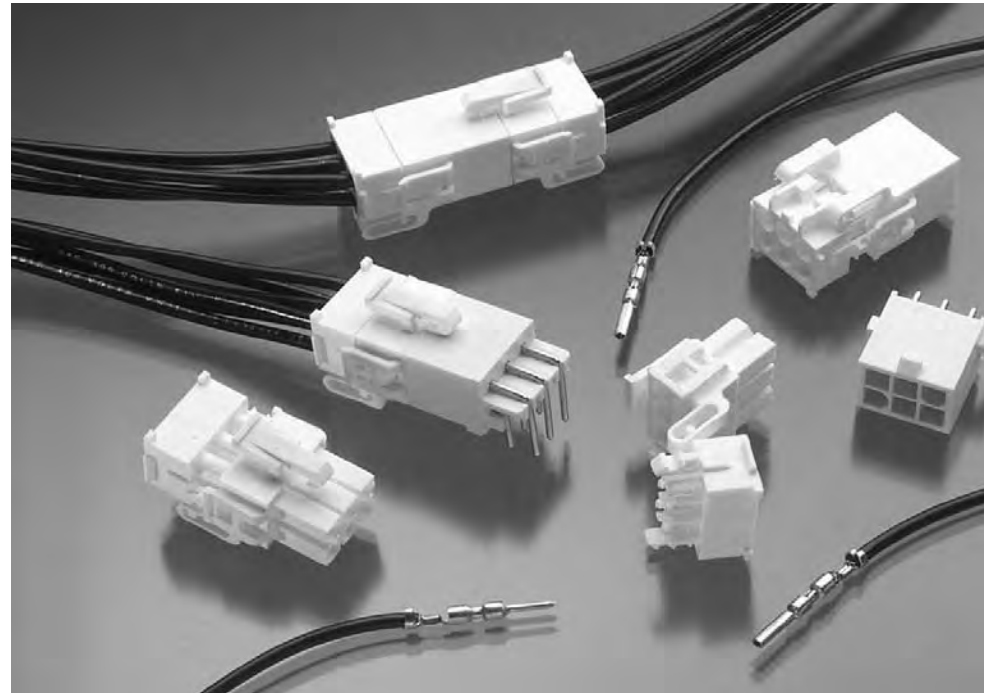
Engineering Notes



Mini-Universal MATE-N-LOK 2 Connectors

Product Facts

- One molded piece, secondary locking plug and cap housing assemblies
- Three-point stabilization to provide better terminal position
- Fully polarized to provide proper plug-to-cap mating
- Lanceless contacts for tangle-free handling
- Toolless contact removal
- Tin or duplex gold plated contacts
- Available in 2 through 24 circuit sizes wire-to-wire and wire-to-board
- Mates with standard Mini-Universal MATE-N-LOK headers and connectors
- Contacts available in strip and loose piece
- Polarized housings available in UL 94V-0 or UL 94V-2 flammability rated material
- Mini-Universal MATE-N-LOK 2 pins and sockets can be intermixed in Mini-Universal MATE-N-LOK 2 housings
- Mini-Universal MATE-N-LOK 2 pins and sockets can not be used in standard Mini-Universal MATE-N-LOK housings
- Contacts accept wire size range 30-16 AWG [.05-1.2 mm²]
- .163 [4.14] centerline spacing
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc. to US and Canadian Standards, File No. E28476



Performance Characteristics

The Mini-Universal MATE-N-LOK 2 Connector performance characteristics found on pages 99-100 are based on free-hanging connectors, loaded with contacts crimped on stranded wire.

Low Level Termination Resistance

20 milliohms max. total resistance between wire crimps of a mated pin and socket

Dielectric Withstanding Voltage

1500 V AC or DC between adjacent circuits at sea level

Insulation Resistance—

100 megohms minimum between adjacent circuits

Voltage Rating—600 V AC or DC

Contact Retention—15 lb. min. per contact

Durability—25 cycles, mating and unmating

Current Rating—up to 10.5 amps per circuit; 2 position

Mating Force—2.5 lb. max. per circuit

Unmating Force—0.25 lb. minimum per circuit

Wire Size		Termination Resistance		Contact Crimp Tensile Force	
AWG	mm ²	Test Current (Amps)	Resistance Milliohms (Max. Init.)	Force (Min.)	
				lbs.	N
30	.05	—	—	—	—
28	.08	—	—	—	—
26	.12	—	—	4	18
24	.2	—	—	—	—
22	.3	—	—	11	49
20	.5	—	—	13	58
18	.8	—	—	15	67
16	1.2	—	—	18	80

Technical Documents

Product Specifications

108-1693 Mini-Universal MATE-N-LOK 2 Connectors

108-1694 Mini-Universal MATE-N-LOK 2 Headers

Application Specification

114-1111 Mini-Universal MATE-N-LOK 2 Connectors

Instruction Sheet

408-3393 Mini-Universal MATE-N-LOK 2 Connectors

Mini-Universal MATE-N-LOK 2 connectors also will withstand the following tests:

Housing Lock Strength—6 lb. min.

Thermal Shock—-55°C to +105°C

Temperature-Humidity Cycling—25°C to 65°C at 95 RH

Vibration—10-55-10 cycles per minute at .06 inch total excursion

Physical Shock—18 drops, 50 G half-sine at 11 milliseconds

Mini-Universal MATE-N-LOK 2 Connectors (Continued)

Performance Characteristics (Continued)

Maximum Current—Maximum current rating of Mini-Universal MATE-N-LOK 2 connectors is limited by the maximum operating temperature of the housings which is 105°C (gold) or 85°C (tin) including the temperature rise of the contacts which is a maximum of 30°C. There are several variables which have a direct effect on this maximum current-carrying capability for a given connector and must be considered for each application. These variables are:

Wire Size—Larger diameter wire will carry more current since it has less internal resistance to current flow and thus generates less heat. Longer wire lengths also enhance current-carrying capabilities since the wire conducts heat away from the connector.

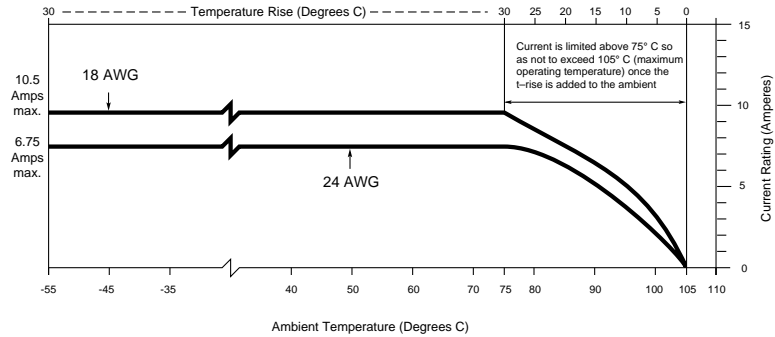
Connector Size—In general, the more circuits in a connector, the less current can be carried.

Ambient Temperature—The higher the ambient temperature, the less current can be carried in any given connector.

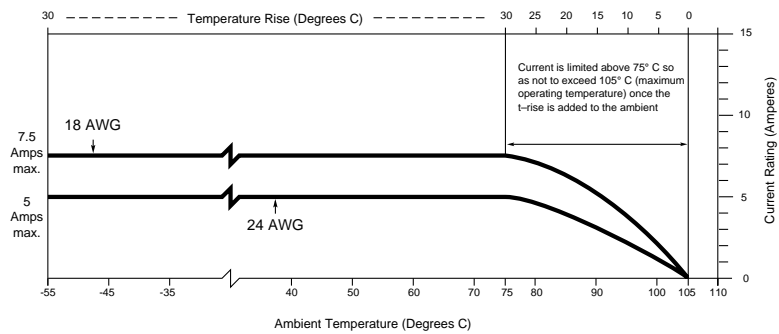
Printed Wiring Board Conductor Size—The finished trace conductor width and thickness should be maximized to allow for the greatest current-carrying capacity and heat dissipation.

Current Rating Verification for 30°C Maximum Temperature Rise 100% Energized

2 Circuit Connector (Wire-to-Wire)



6 Circuit Connector (Wire-to-Wire)



Contacts

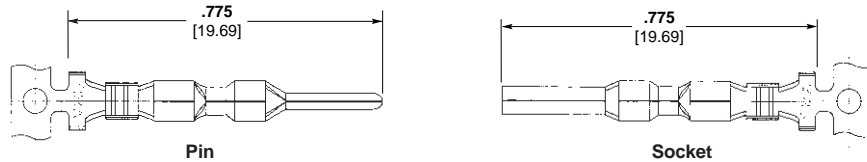
Pin diameter .039 [0.99]

Material

Brass

Stock Thickness .010 [0.25]

These contacts can be used in either Mini-Universal MATE-N-LOK 2 Plug or Cap housings **only**.



Not to be used with Mini-Universal MATE-N-LOK Connectors

Related Product Data

Product Specifications	Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Strip Form	Loose Piece	Strip Form	Loose Piece	HDM Applicator Part No.	Hand Tool Part No.
108-1693 Mini-Universal MATE-N-LOK 2 Connectors	30-26 [0.5-1.2]	.035-.050 .889-1.27	Pre-tin Duplex ¹	794216-1 1-794216-0	794224-1 1-794224-0	794217-1 1-794217-0	794225-1 1-794225-0	567418-12 567418-22 567418-32	90717-2
108-1694 Mini-Universal MATE-N-LOK 2 Headers	26-22 [1.2-3]	.047-.069 1.19-1.75	Pre-tin Duplex ¹	794218-1 1-794218-0	794226-1 1-794226-0	794219-1 1-794219-0	794227-1 1-794227-0	567066-33 567066-43 567066-53	91529-1
	22-18 [3-.8]	.059-.094 1.50-2.39	Pre-tin Duplex ¹	794220-1 1-794220-0	794228-1 1-794228-0	794221-1 1-794221-0	794229-1 1-794229-0	680854-12 680854-22 680854-32	91522-1
	20-16 [5-1.2]	.079-.126 2.01-3.20	Pre-tin Duplex ¹	794222-1 1-794222-0	794230-1 1-794230-0	794223-1 1-794223-0	794231-1 1-794231-0	680582-22 680582-32	91594-1

Application Specification

114-1111 Mini-Universal MATE-N-LOK 2 Connectors

Performance Characteristics— pages 99-100

Housings— pages 101-102

Technical Documents— pages 99 and 205-206

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Contact Part Numbers				HDM Applicator Part No.	Hand Tool Part No.
			Pin		Socket			
30-26 [0.5-1.2]	.035-.050 .889-1.27	Pre-tin Duplex ¹	794216-1 1-794216-0	794224-1 1-794224-0	794217-1 1-794217-0	794225-1 1-794225-0	567418-12 567418-22 567418-32	90717-2
26-22 [1.2-3]	.047-.069 1.19-1.75	Pre-tin Duplex ¹	794218-1 1-794218-0	794226-1 1-794226-0	794219-1 1-794219-0	794227-1 1-794227-0	567066-33 567066-43 567066-53	91529-1
22-18 [3-.8]	.059-.094 1.50-2.39	Pre-tin Duplex ¹	794220-1 1-794220-0	794228-1 1-794228-0	794221-1 1-794221-0	794229-1 1-794229-0	680854-12 680854-22 680854-32	91522-1
20-16 [5-1.2]	.079-.126 2.01-3.20	Pre-tin Duplex ¹	794222-1 1-794222-0	794230-1 1-794230-0	794223-1 1-794223-0	794231-1 1-794231-0	680582-22 680582-32	91594-1

¹Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and .000100 [.00254] min. tin in crimping area over .000050 [.00127] min. nickel underplate on entire contact.

²HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3 is used on AMP-O-ELECTRIC Model G Machine.

³HDM Applicator part number ending in -3 is used on AMPOMATOR CLS Machine with T or G Terminators, -4 is used on AMP-O-LECTRIC Model K Machine, -5 is used on AMP-O-LECTRIC Model G Machine.

See pages 207-210 for further information.

Note: All part numbers are RoHS Compliant.

Mini-Universal MATE-N-LOK 2 Connectors (Continued)

Housings

Free-Hanging

.163 [4.14] Centerline spacing

Related Product Data

Product Specifications
108-1693 Mini-Universal MATE-N-LOK 2 Connectors

108-1694 Mini-Universal MATE-N-LOK 2 Headers

Performance Characteristics—

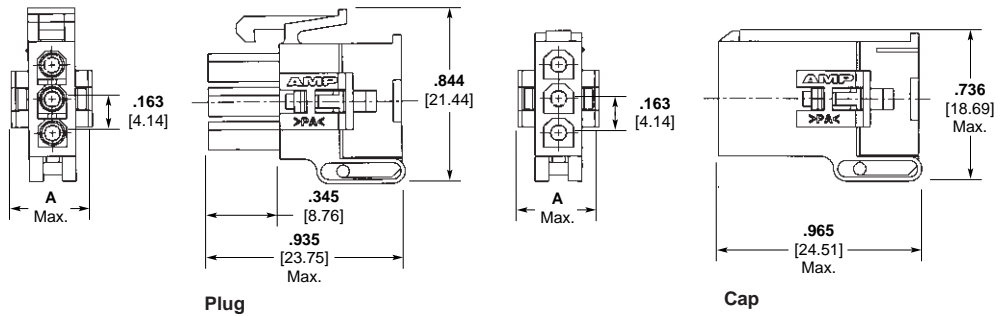
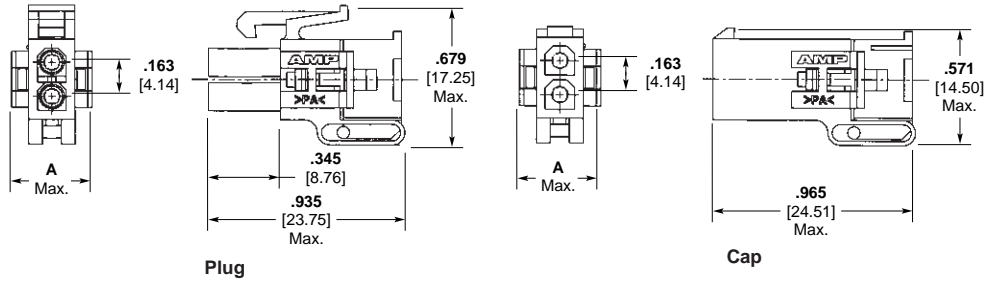
pages 99-100

Contacts — page 100

Technical Documents— pages 99 and 205-206

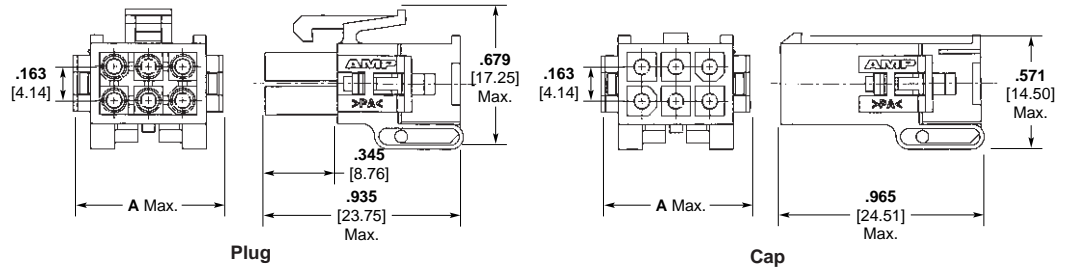
Mating Headers—pages 103-105

2 and 3 Circuit, In-Line



Number of Circuits	A Dimension	Housing Part Numbers			
		UL94V-0 Nylon, White Color		UL94V-2 Nylon, Natural Color	
		Plug	Cap	Plug	Cap
2	.405 10.29	794184-1	794185-1	794237-1	794238-1
3	.405 10.29	794186-1	794187-1	794239-1	794240-1

4 and 6 Circuit, Dual Row

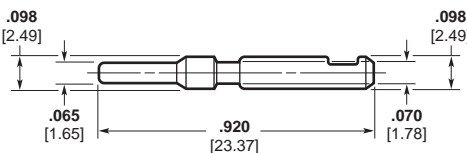


Number of Circuits	A Dimension	Housing Part Numbers			
		UL94V-0 Nylon, White Color		UL94V-2 Nylon, Natural Color	
		Plug	Cap	Plug	Cap
4	.571 14.50	794188-1	794189-1	794241-1	794242-1
6	.736 18.70	794190-1	794191-1	794243-1	794244-1

Keying Plug

Material

UL94V-0 Nylon, white color



Part Number 794369-1

Note: All part numbers are RoHS Compliant.

Mini-Universal MATE-N-LOK 2 Connectors (Continued)

Housings
Free-Hanging

.163 [4.14] Centerline spacing

Related Product Data

Product Specifications
108-1693 Mini-Universal MATE-N-LOK 2 Connectors

108-1694 Mini-Universal MATE-N-LOK 2 Headers

Performance Characteristics—
pages 99-100

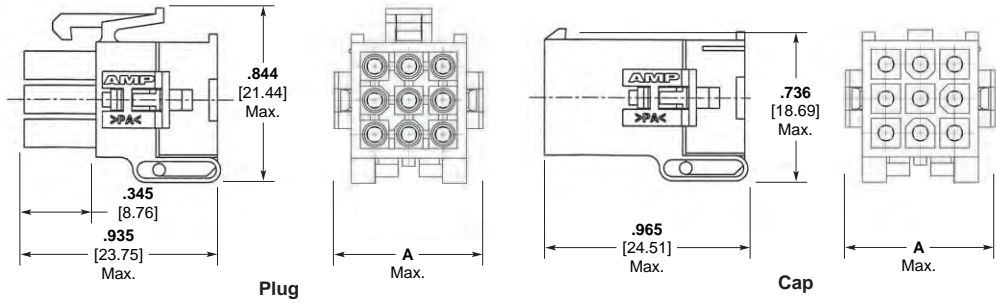
Contacts—page 100

Keying Plug—page 101

Technical Documents—pages 99 and 205-206

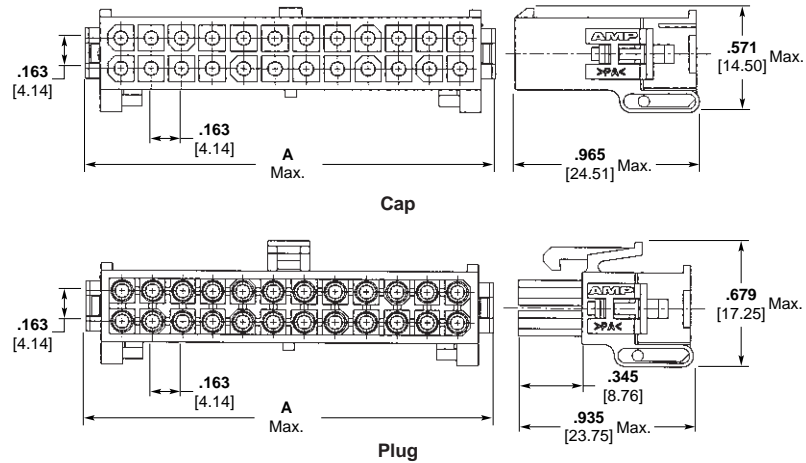
Mating Headers—pages 103-105

9, 12 and 15 Circuit, Matrix



Number of Circuits	A Dimension	Housing Part Numbers			
		UL94V-0 Nylon, White Color		UL94V-2 Nylon, Natural Color	
		Plug	Cap	Plug	Cap
9	.736 18.69	794194-1	794195-1	794247-1	794248-1
12	.901 22.89	794200-1	794201-1	794253-1	794254-1
15	1.067 27.10	794204-1	794205-1	794257-1	794258-1

8 through 24 Circuit, Dual Row



Number of Circuits	A Dimension	Housing Part Numbers			
		UL94V-0 Nylon, White Color		UL94V-2 Nylon, Natural Color	
		Plug	Cap	Plug	Cap
8	.899 22.84	794192-1	794193-1	794245-1	794246-1
10	1.062 26.98	794196-1	794197-1	794249-1	794250-1
12	1.225 31.12	794198-1	794199-1	794251-1	794252-1
14	1.388 35.26	794202-1	794203-1	794255-1	794256-1
16	1.551 39.40	794206-1	794207-1	794259-1	794260-1
18	1.714 43.54	794208-1	794209-1	794261-1	794262-1
20	1.877 47.68	794210-1	794211-1	794263-1	794264-1
22	2.040 51.82	794212-1	794213-1	794265-1	794266-1
24	2.203 55.96	794214-1	794215-1	794267-1	794268-1

Note: All part numbers are RoHS Compliant.

High Density

Mini-Universal MATE-N-LOK 2 Connectors
.163 [4.14] Centerline

Mini-Universal MATE-N-LOK 2 Connectors (Continued)

**Vertical PC Board
Pin Headers**

.163 [4.14] Centerline spacing

Material

Housing— Nylon, white

Flammability Rating—UL94V-0

Contacts— Brass

Solder tail diameter .039 [1.00]

Related Product Data

Product Specifications

108-1693 Mini-Universal MATE-N-LOK 2 Connectors

108-1694 Mini-Universal MATE-N-LOK 2 Headers

Performance Characteristics—
pages 99-100

Recommended PC Board Hole

Layout—page 106

Technical Documents—pages 99
and 205-206

Mating Connectors

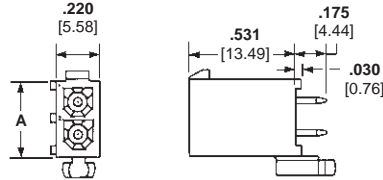
Mini-Universal MATE-N-LOK 2

Plug Housings—pages 101-102

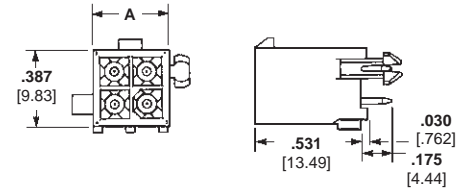
Mini-Universal MATE-N-LOK

Plug Housings—pages 87-89

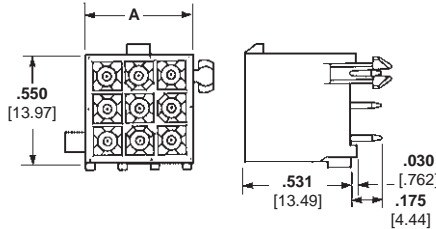
2 and 3 Circuit, In-Line



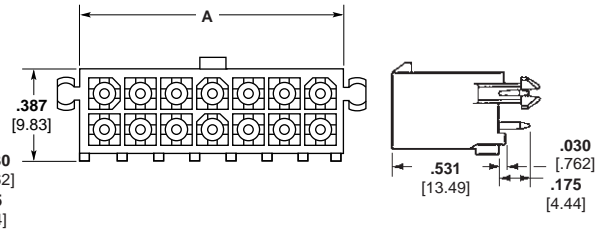
4, 6, 8, 10 and 12 Circuit, Dual Row



9, 12 and 15 Circuit, Matrix



14, 16, 18, 20, 22 and 24 Circuit, Dual Row



Number of Circuits	Style	A Dim.	Pin Finish	Vertical Pin Header Part Numbers		Mates with Plug Housing Part Number (Using Socket Contacts)	
				With Drain Holes	Without Drain Holes	Mini-Universal MATE-N-LOK	Mini-Universal MATE-N-LOK 2
2	In-Line	.387 9.83	Tin ¹	1-770166-0	1-770872-0	172165-1	794184-1
			Duplex ²	1-770166-1	1-770872-1		
3	In-Line	.550 13.97	Tin ¹	1-770170-0	1-770873-0	172166-1	794186-1
			Duplex ²	1-770170-1	1-770873-1		
4	Dual Row	.387 9.83	Tin ¹	1-770174-0	1-770874-0	172167-1	794188-1
			Duplex ²	1-770174-1	1-770874-1		
6	Dual Row	.550 13.97	Tin ¹	1-770178-0	1-770875-0	172168-1	794190-1
			Duplex ²	1-770178-1	1-770875-1		
8	Dual Row	.713 18.11	Tin ¹	1-794065-0	1-794073-0	770579-1	794192-1
			Duplex ²	1-794065-1	1-794073-1		
9	Matrix	.551 14.00	Tin ¹	1-770182-0	1-770876-0	172169-1	794194-1
			Duplex ²	1-770182-1	1-770876-1		
10	Dual Row	.877 22.28	Tin ¹	1-770743-0	1-770858-0	770580-1	794196-1
			Duplex ²	1-770743-1	1-770858-1		
12	Dual Row	1.039 26.39	Tin ¹	1-794066-0	1-770621-0	770581-1	794198-1
			Duplex ²	1-794066-1	1-770621-1		
	Matrix	.713 18.11	Tin ¹	1-770186-0	1-794040-0	172170-1	794200-1
			Duplex ²	1-770186-1	1-794040-1		
14	Dual Row	1.202 30.53	Tin ¹	1-794067-0	1-794074-0	770582-1	794202-1
			Duplex ²	1-794067-1	1-794074-1		
15	Matrix	.877 22.28	Tin ¹	1-770190-0	1-770859-0	172171-1	794204-1
			Duplex ²	1-770190-1	1-770859-1		
16	Dual Row	1.365 34.67	Tin ¹	1-794068-0	1-794075-0	770583-1	794206-1
			Duplex ²	1-794068-1	1-794075-1		
18	Dual Row	1.528 38.81	Tin ¹	1-794069-0	1-794076-0	770584-1	794208-1
			Duplex ²	1-794069-1	1-794076-1		
20	Dual Row	1.691 42.95	Tin ¹	1-794070-0	1-794077-0	770585-1	794210-1
			Duplex ²	1-794070-1	1-794077-1		
22	Dual Row	1.854 47.09	Tin ¹	1-794071-0	1-794078-0	770586-1	794212-1
			Duplex ²	1-794071-1	1-794078-1		
24	Dual Row	2.017 51.23	Tin ¹	1-794072-0	1-794079-0	770587-1	794214-1
			Duplex ²	1-794072-1	1-794079-1		

¹Tin Finish—Plated with .000150 [.00381] min. tin over .000050 [.00127] min. nickel underplate on entire contact.

²Duplex Finish—Plated with .000030 [.000762] min. gold in mating area and matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

Note: All part numbers are RoHS Compliant.

Mini-Universal MATE-N-LOK 2 Connectors (Continued)

**Vertical PC Board
Blindmate Pin Headers**

.163 [4.14] Centerline spacing

Material

Housing— Nylon, white

Flammability Rating— UL94V-0

Contacts— Brass
Solder tail diameter .039 [1.00]

Related Product Data

Product Specifications

108-1693 Mini-Universal MATE-N-LOK 2 Connectors

108-1694 Mini-Universal MATE-N-LOK 2 Headers

Performance Characteristics— pages 99-100

Recommended PC Board Hole Layout—page 106

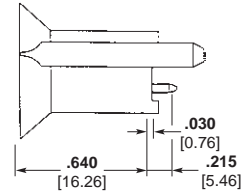
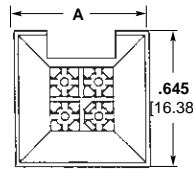
Technical Documents— pages 99 and 205-206

Mating Connectors

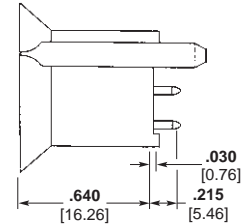
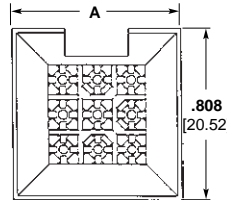
Mini-Universal MATE-N-LOK 2
Plug Housings—pages 101-102

Mini-Universal MATE-N-LOK
Plug Housings—pages 87-89

**4, 6, 8 and 10 Circuit,
Dual Row**



**9, 12 and 15 Circuit,
Matrix**



Number of Circuits	Style	A Dim.	Pin Finish	Pin Header Part Numbers with Drain Holes	Mates with Plug Housing Part Number (Using Socket Contacts)	
					Mini-Universal MATE-N-LOK	Mini-Universal MATE-N-LOK 2
4	Dual Row	.645 16.38	Tin ¹	1-794325-0	172167-1	794188-1
			Duplex ²	1-794325-1		
6	Dual Row	.808 20.52	Tin ¹	1-794326-0	172168-1	794190-1
			Duplex ²	1-794326-1		
8	Dual Row	.971 24.66	Tin ¹	1-794327-0	770579-1	794192-1
			Duplex ²	1-794327-1		
9	Matrix	.808 20.52	Tin ¹	1-794432-0	172169-1	794194-1
			Duplex ²	1-794432-1		
10	Dual Row	1.134 28.80	Tin ¹	1-794328-0	770580-1	794196-1
			Duplex ²	1-794328-1		
12	Matrix	.971 24.66	Tin ¹	1-794329-0	172170-1	794200-1
			Duplex ²	1-794329-1		
15	Matrix	1.134 28.80	Tin ¹	1-794330-0	172171-1	794204-1
			Duplex ²	1-794330-1		

¹Tin Finish—Plated with .000150 [.00381] min. tin over .000050 [.00127] min. nickel underplate on entire contact.

²Duplex Finish—Plated with .000030 [.000762] min. gold in mating area and matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

Note: All part numbers are RoHS Compliant.

High Density

Mini-Universal MATE-N-LOK 2 Connectors
.163 [4.14] Centerline

Mini-Universal MATE-N-LOK 2 Connectors (Continued)

**Right-Angle PC Board
Pin Headers**

.163 [4.14] Centerline spacing

Material

Housing— Nylon, white color

Flammability Rating— UL94V-0

Contacts— Brass

Solder tail diameter .039 [1.00]

Related Product Data

Product Specification

108-1694 Mini-Universal MATE-N-LOK 2
Headers

Performance Characteristics—
pages 99-100

**Recommended PC Board Hole
Layout**— page 106

Technical Documents— pages 99
and 205-206

Mating Connectors

Mini-Universal MATE-N-LOK 2

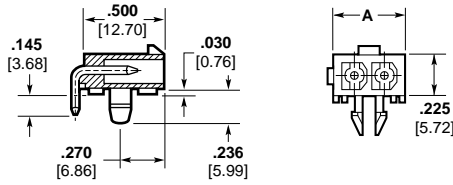
Plug Housings— pages 101-102

Mini-Universal MATE-N-LOK

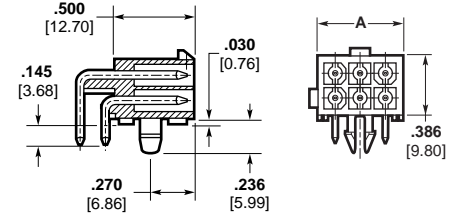
Plug Housings— pages 87-89

With Board Lock Feature

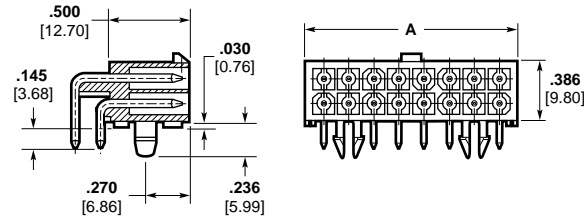
2 and 3 Circuit, In-Line



4, 6, 8, 10 and 12 Circuit, Dual Row



14, 16, 18, 20, 22 and 24 Circuit, Dual Row



Number of Circuits	Style	A Dim.	Pin Finish	Pin Header Part Number with Board Lock	Mates with Plug Housing Part Number (Using Socket Contacts)	
					Mini-Universal MATE-N-LOK	Mini-Universal MATE-N-LOK 2
2	In-line	.388 9.86	Tin ¹	1-770966-0	172165-1	794184-1
			Duplex ²	1-770966-1		
3	In-line	.551 14.00	Tin ¹	1-770967-0	172166-1	794186-1
			Duplex ²	1-770967-1		
4	Dual Row	.388 9.86	Tin ¹	1-770968-0	172167-1	794188-1
			Duplex ²	1-770968-1		
6	Dual Row	.551 14.00	Tin ¹	1-770969-0	172168-1	794190-1
			Duplex ²	1-770969-1		
8	Dual Row	.714 18.14	Tin ¹	1-770970-0	770579-1	794192-1
			Duplex ²	1-770970-1		
10	Dual Row	.877 22.28	Tin ¹	1-770971-0	770580-1	794196-1
			Duplex ²	1-770971-1		
12	Dual Row	1.040 26.42	Tin ¹	1-770972-0	770581-1	794198-1
			Duplex ²	1-770972-1		
14	Dual Row	1.203 30.56	Tin ¹	1-770973-0	770582-1	794202-1
			Duplex ²	1-770973-1		
16	Dual Row	1.366 34.70	Tin ¹	1-770974-0	770583-1	794206-1
			Duplex ²	1-770974-1		
18	Dual Row	1.529 38.84	Tin ¹	1-794105-0	770584-1	794208-1
			Duplex ²	1-794105-1		
20	Dual Row	1.692 42.98	Tin ¹	1-794106-0	770585-1	794210-1
			Duplex ²	1-794106-1		
22	Dual Row	1.855 47.12	Tin ¹	1-794107-0	770586-1	794212-1
			Duplex ²	1-794107-1		
24	Dual Row	2.018 51.26	Tin ¹	1-794108-0	770587-1	794214-1
			Duplex ²	1-794108-1		

¹Tin Finish— Plated with .000150 [.00381] min. tin over .000050 [.00127] min. nickel underplate on entire contact.
²Duplex Finish— Plated with .000030 [.000762] min. gold in mating area and matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

Note: All part numbers are RoHS Compliant.

Mini-Universal MATE-N-LOK 2 Connectors (Continued)

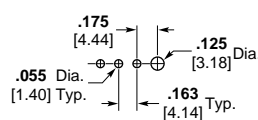
Recommended PC Board Hole Layouts for Vertical and Blindmate Headers

.062 [1.57] thick board, tolerances non-accumulative

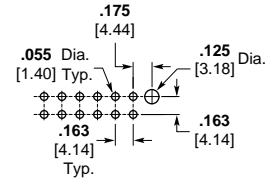
Related Product Data

Vertical Headers—pages 103-104

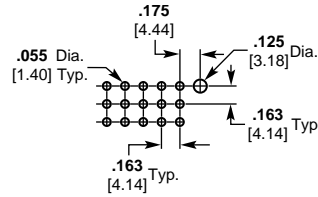
2 and 3 Circuit, In-Line



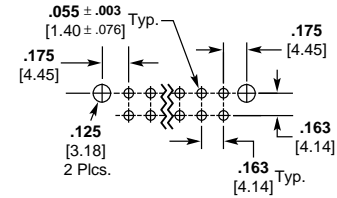
4, 6, 8, 10 and 12 Circuit, Dual Row



9, 12 and 15 Circuit, Matrix



14, 16, 18, 20, 22 and 24 Circuit, Dual Row



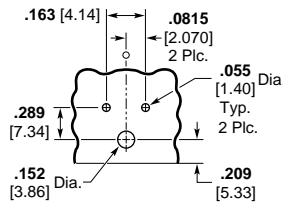
Recommended PC Board Hole Layouts for Right-Angle Headers

.062 [1.57] thick board, tolerances non-accumulative

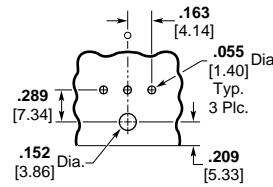
Related Product Data

Right-Angle Headers—page 105

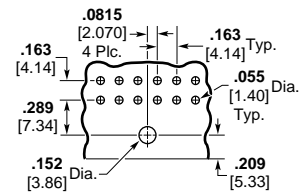
2 Circuit



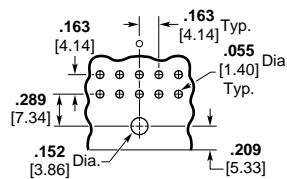
3 Circuit



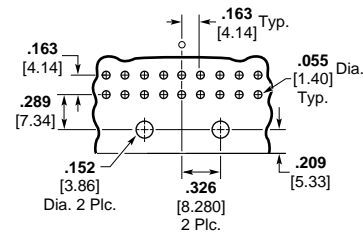
4, 8 and 12 Circuit



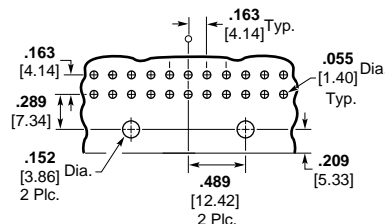
6 and 10 Circuit



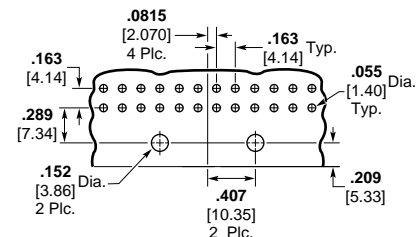
14 and 18 Circuit



22 Circuit



16, 20 and 24 Circuit



High Density

Mini-Universal MATE-N-LOK 2 Connectors
.163 [4.14] Centerline

Mini-Universal MATE-N-LOK 2 Connectors (Continued)

**Mini-Universal
MATE-N-LOK 2 Connector
Mating Combinations**

Number of Circuits	Connector Part Number				Mating Connector Part Number				
	Flammability Rating	Style	Plug ¹ Housing Part No.	Cap ¹ Housing Part No.	Plating	PC Board Pin Headers ⁴			Right-Angle Board Lock
						With Drain Holes	Vertical Without Drain Holes	Blindmate	
2	UL94V-2	In-Line	794237-1	794238-1	—	—	—	—	—
	UL94V-0	In-Line	794184-1	794185-1	Tin ³ Duplex ²	1-770166-0 1-770166-1	1-770872-0 1-770872-1	— —	1-770966-0 1-770966-1
3	UL94V-2	In-Line	794239-1	794240-1	—	—	—	—	—
	UL94V-0	In-Line	794186-1	794187-1	Tin ³ Duplex ²	1-770170-0 1-770170-1	1-770873-0 1-770873-1	— —	1-770967-0 1-770967-1
4	UL94V-2	Dual Row	794241-1	794242-1	—	—	—	—	—
	UL94V-0	Dual Row	794188-1	794189-1	Tin ³ Duplex ²	1-770174-0 1-770174-1	1-770874-0 1-770874-1	1-794325-0 1-794325-1	1-770968-0 1-770968-1
6	UL94V-2	Dual Row	794243-1	794244-1	—	—	—	—	—
	UL94V-0	Dual Row	794190-1	794191-1	Tin ³ Duplex ²	1-770178-0 1-770178-1	1-770875-0 1-770875-1	1-794326-0 1-794326-1	1-770969-0 1-770969-1
8	UL94V-2	Dual Row	794245-1	794246-1	—	—	—	—	—
	UL94V-0	Dual Row	794192-1	794193-1	Tin ³ Duplex ²	1-794065-0 1-794065-1	1-794073-0 1-794073-1	1-794327-0 1-794327-1	1-770970-0 1-770970-1
9	UL94V-2	Matrix	794247-1	794248-1	—	—	—	—	—
	UL94V-0	Matrix	794194-1	794195-1	Tin ³ Duplex ²	1-770182-0 1-770182-1	1-770876-0 1-770876-1	1-794432-0 1-794432-1	— —
10	UL94V-2	Dual Row	794249-1	794250-1	—	—	—	—	—
	UL94V-0	Dual Row	794196-1	794197-1	Tin ³ Duplex ²	1-770743-0 1-770743-1	1-770858-0 1-770858-1	1-794328-0 1-794328-1	1-770971-0 1-770971-1
12	UL94V-2	Matrix	794253-1	794254-1	—	—	—	—	—
	UL94V-2	Dual Row	794251-1	794252-1	—	—	—	—	—
	UL94V-0	Matrix	794200-1	794201-1	Tin ³ Duplex ²	1-770186-0 1-770186-1	1-794040-0 1-794040-1	1-794329-0 1-794329-1	— —
		Dual Row	794198-1	794199-1	Tin ³ Duplex ²	1-794066-0 1-794066-1	1-770621-0 1-770621-1	— —	1-770972-0 1-770972-1
14	UL94V-2	Dual Row	794255-1	794256-1	—	—	—	—	—
	UL94V-0	Dual Row	794202-1	794203-1	Tin ³ Duplex ²	1-794067-0 1-794067-1	1-794074-0 1-794074-1	— —	1-770973-0 1-770973-1
15	UL94V-2	Matrix	794257-1	794258-1	—	—	—	—	—
	UL94V-0	Matrix	794204-1	794205-1	Tin ³ Duplex ²	1-770190-0 1-770190-1	1-770859-0 1-770859-1	1-794330-0 1-794330-1	— —
16	UL94V-2	Dual Row	794259-1	794260-1	—	—	—	—	—
	UL94V-0	Dual Row	794206-1	794207-1	Tin ³ Duplex ²	1-794068-0 1-794068-1	1-794075-0 1-794075-1	— —	1-770974-0 1-770974-1
18	UL94V-2	Dual Row	794261-1	794262-1	—	—	—	—	—
	UL94V-0	Dual Row	794208-1	794209-1	Tin ³ Duplex ²	1-794069-0 1-794069-1	1-794076-0 1-794076-1	— —	1-794105-0 1-794105-1
20	UL94V-2	Dual Row	794263-1	794264-1	—	—	—	—	—
	UL94V-0	Dual Row	794210-1	794211-1	Tin ³ Duplex ²	1-794070-0 1-794070-1	1-794077-0 1-794077-1	— —	1-794106-0 1-794106-1
22	UL94V-2	Dual Row	794265-1	794266-1	—	—	—	—	—
	UL94V-0	Dual Row	794212-1	794213-1	Tin ³ Duplex ²	1-794071-0 1-794071-1	1-794078-0 1-794078-1	— —	1-794107-0 1-794107-1
24	UL94V-2	Dual Row	794267-1	794268-1	—	—	—	—	—
	UL94V-0	Dual Row	794214-1	794215-1	Tin ³ Duplex ²	1-794072-0 1-794072-1	1-794079-0 1-794079-1	— —	1-794108-0 1-794108-1

¹Mini-Universal MATE-N-LOK 2 plug and cap housings accept pin or socket contacts. Use the appropriate contacts in the plug housing as required by the mating connector. All **Plugs** and **Caps** are **free-hanging**.

²Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

³Tin Finish — Plated with .000150 [.00381] min. tin over .000050 [.00127] min nickel underplate on entire contact.

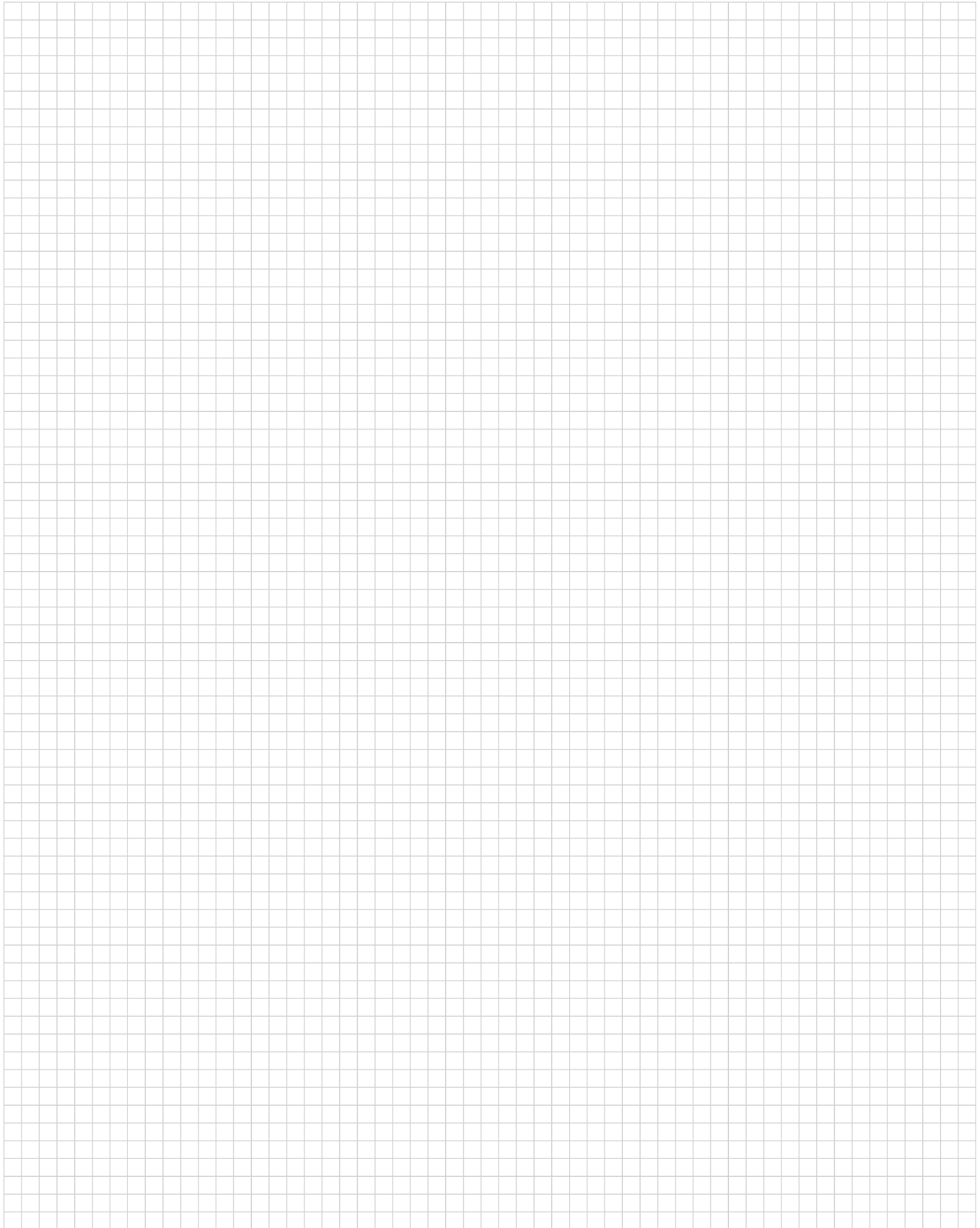
⁴All PC Board pin headers have 94V-0 flammability rating and can mate to V-0 or V-2 plug housings.

Note: All part numbers are RoHS Compliant.

High Density

Mini-Universal MATE-N-LOK 2 Connectors
.163 [4.14] Centerline

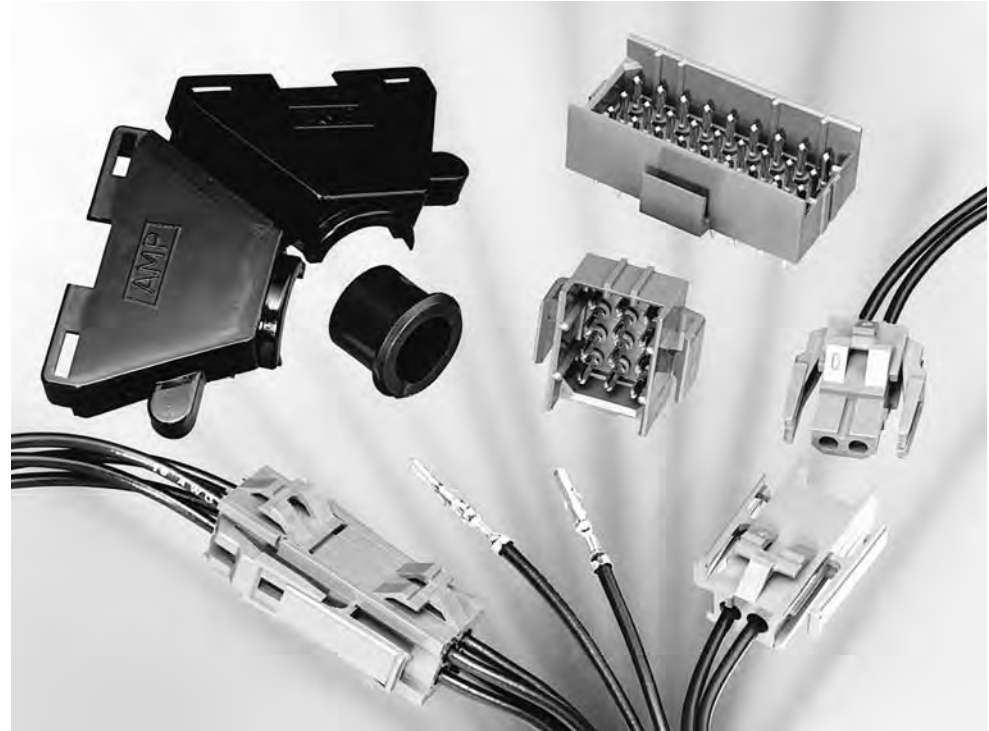
Engineering Notes



(MR) Miniature Rectangular Connectors

Product Facts

- Housings positively lock to help prevent accidental disengagement
- Either cap or plug housing can be mounted in same rectangular panel cutout without additional hardware
- UL94V-0 housings
- Plug and cap design includes molded-in polarizing feature for proper mating
- Numbered cavities for easy circuit identification
- Egg crate design of plug half fully encloses socket contacts, reducing shock hazard
- Molded skirt extension on cap protects pin contacts
- Strain reliefs for 6 through 36 positions are available
- Choice of tin or gold plated contacts
- Not for interrupting current
- Socket solder tail contacts available for hot side PC Board mounting
- High density achieved through .165 [4.19] contact centerline spacing
- Extraction tool removes both pins and sockets
- Contacts accept 26-18 AWG [.12-.8 mm²] wire sizes and insulation diameters of .025-.115 [.635-2.92]
- Same applicator crimps pins and sockets
- Vertical PC Board pin headers are available
- Pin header standoffs on housings at board interface facilitates gas venting and cooling during soldering
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189



Performance Characteristics

The Miniature Rectangular Connector performance characteristics found on pages 109-110 are based on free-hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Dielectric Withstanding Voltage—2.5 KVAC between adjacent circuits

Insulation Resistance—1500 megohms minimum initial between adjacent circuits

Voltage Rating—250 V AC

Connector Mating—Split Pin—1.0 lb. max. per circuit

Connector Unmating—Split Pin—.25 lb. min. per circuit

Contact Insertion Force—1.75 lb. max. per contact

Contact Retention—10 lb. min. per contact

Durability—25 cycles, mating and unmating

Technical Documents

Product Specifications

108-1022 (MR) Miniature Rectangular Connectors

108-1078 (MR) Miniature Rectangular Headers

Application Specification

114-1014 (MR) Miniature Rectangular Contacts

Instruction Sheet

408-3231 Pin, Socket, Housing, Contacts, and Accessories

High Density

(MR) Miniature Rectangular Connectors
.165 [4.20] Centerline

(MR) Miniature Rectangular Connectors (Continued)

Performance Characteristics

(Continued)

Maximum Current—Maximum current rating of Miniature Rectangular connectors is limited by the maximum operating temperature of the housings which is 105°C including the temperature rise of the contacts which is a maximum of 30°C. There are several variables which have a direct effect on this maximum current-carrying capability for a given connector and must be considered for each application. These variables are:

Wire Size—Larger diameter wire will carry more current since it has less internal resistance to current flow and thus generates less heat. Longer wire lengths also enhance current-carrying capabilities since the wire conducts heat away from the connector.

Connector Size—In general, the more circuits in a connector, the less current can be carried.

Ambient Temperature—The higher the ambient temperature, the less current can be carried in any given connector.

Printed Wiring Board Conductor Size—The finished trace conductor width and thickness should be maximized to allow for the greatest current-carrying capacity and heat dissipation.

Miniature Rectangular connectors also will withstand the following tests:

Vibration—10-55-10 cycles per minute at .06 inch total excursion

Physical Shock—18 drops, 50 G sawtooth at 10 milliseconds

Housing Panel Retention—50 lb. min.

Housing Lock Strength—20 lb. min.

Thermal Shock—-55°C to +85°C

Temperature-Humidity Cycling—25°C to 65°C at 95 RH

Corrosion—48 hr. at 5% salt concentration

Current Rating Verification for 30°C Maximum Temperature Rise 100% Energized

**Wire-to-Wire
MR Calculated Current Table**

Number of Circuits	Wire Gauge				
	18	20	22	24	26
2	9.00	8.00	6.50	5.50	5.00
3	8.50	7.00	6.00	5.00	4.50
4	7.00	6.50	5.50	5.00	4.00
6	6.00	6.00	5.00	4.00	4.00
9	5.00	5.00	4.00	4.00	3.50
12	4.50	4.50	4.00	3.50	3.00
15	4.50	4.00	3.50	3.00	2.50
20	4.00	4.00	3.50	3.00	2.50
24	4.00	3.50	3.00	2.50	2.00
36	3.50	3.00	2.50	2.00	2.00

Values are based on initial Temperature Rise versus Current Testing and are intended to be a guide in the selection of a connector family. All applications should be tested by the end user. The values listed are per circuit for fully loaded housings being 100% energized. **Note:** All combinations were not tested and this chart contains interpolated and extrapolated values.

Minimum Wire Lengths for T-Rise vs. Current Testing

AWG	Min. Length (in.)	AWG	Min. Length (in.)
30	2.6	18	9.4
28	3.2	16	11.3
26	4.1	14	13.7
24	5.1	12	16.4
20	7.8	10	19.3

Note: If wire lengths used are less than those listed above, the current-carrying ability of the system will be reduced due to less heat being conducted away from the connector. The customer should fully test all applications.

Wire-to-Board

Due to the vast differences in trace geometry and printed circuit board configurations, we are unable to provide a separate current carrying chart for our printed circuit board header products. However, the above Wire-to-Wire charts may be used as a guideline for headers if the trace width and thickness is equal to the listed wire gauge. For vertical headers, only 95% of the Wire-to-Wire value should be used. For right-angle headers, only 75% of the Wire-to-Wire value should be used. The charted values are only a tool for connector selection and will require the customer to fully test their application.

Termination Resistance/Contact Crimp Tensile Force

Wire Size	Termination Resistance	Contact Crimp Tensile Force			
		Test Current (Amps)	Resistance (Milliohms (Max. Init.))	lbs.	N
26	.12	1	5.00	5	22
24	.2	1.5	5.00	8	36
22	.3	3	4.50	14	62
20	.5	4.5	4.00	14	62
18	.8	6	4.00	30	133

Note: This is the total resistance between wire crimps of a mated pin and socket.

Related Product Data

- Product Specifications**
- 108-1022 (MR) Miniature Rectangular Connectors
 - 108-1078 (MR) Miniature Rectangular Headers

High Density
(MR) Miniature Rectangular Connectors
.165 [4.20] Centerline

(MR) Miniature Rectangular Connectors (Continued)

(MR) Miniature Rectangular Connector Mating Combinations

Connector Part Number				Mating Connector Part Number			
Number of Circuits	Flammability Rating	Style	Pin Housing (Cap) Part No.	Socket Housing (Plug) Part No.	PC Board Vertical Pin Headers		
					Plating	.062 Board	.120 Board
2	UL94V-0	In-Line	1-640507-0	1-640517-0	Tin	640497-1	640497-3
					Duplex ¹	2-640497-2	2-640497-4
3	UL94V-0	In-Line	1-640508-0	1-640518-0	Tin	640498-1	640498-3
					Duplex ¹	2-640498-2	2-640498-4
4	UL94V-0	Matrix	1-640509-0	1-640519-0	Tin	640499-1	640499-3
					Duplex ¹	2-640499-2	2-640499-4
6	UL94V-0	Matrix	1-640510-0	1-640520-0	Tin	640500-1	640500-3
					Duplex ¹	2-640500-2	2-640500-4
9	UL94V-0	Matrix	1-640511-0	1-640521-0	Tin	640501-1	640501-3
					Duplex ¹	2-640501-2	2-640501-4
12	UL94V-0	Matrix	1-640512-0	1-640522-0	Tin	640502-1	640502-3
					Duplex ¹	2-640502-2	2-640502-4
15	UL94V-0	Matrix	1-640513-0	1-640523-0	Tin	640503-1	640503-3
					Duplex ¹	2-640503-2	2-640503-4
20	UL94V-0	Matrix	1-640514-0	1-640524-0	Tin	640504-1	640504-3
					Duplex ¹	2-640504-2	2-640504-4
24	UL94V-0	Matrix	1-640515-0	1-640525-0	Tin	640505-1	640505-3
					Duplex ¹	2-640505-2	2-640505-4
36	UL94V-0	Matrix	1-640516-0	1-640526-0	Tin	640506-1	640506-3
					Duplex ¹	2-640506-2	2-640506-4

¹Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

Note: All part numbers are RoHS Compliant.

High Density
(MR) Miniature Rectangular Connectors
.165 [4.20] Centerline

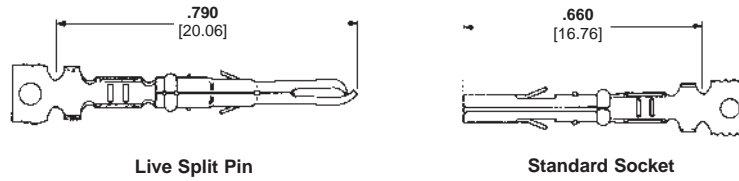
(MR) Miniature Rectangular Connectors (Continued)

Contacts

Pin diameter .068 [1.73]

Material

Phosphor bronze
Stock thickness .008 [.203]



Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Contact Part Numbers				HDM Applicator Part No.	Hand Tool Part No.
			Live Split Pin		Standard Socket			
			Strip Form	Loose Piece	Strip Form	Loose Piece		
26-24 [.12-.2]	.025-.050 .635-1.27	Pre-tin	350968-1	640579-1	794000-1	794001-1	466352-1 ³	91534-1
		Select Gold ¹	350968-2	640579-2	794000-2	794001-2	466352-3 ³	
26-18 ² [.12-.8]	.050-.115 1.27-2.92	Pre-tin	350967-1	640545-1	641294-1	641300-1	466351-1 ³	91526-1
		Select Gold ¹	350967-2	640545-2	641294-2	641300-2	466351-2 ³ 466351-4 ³	

¹Select Gold Finish—Plated with .000030 min. [.000762] gold in mating area over .000050 [.00127] min. nickel underplate on entire contact.

²1650 CMA maximum.

³HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3 or -4 is used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

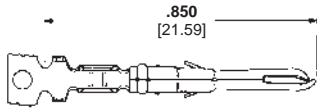
Grounding Pins

(Mate first, break last, not for interrupting current)

Pin diameter .068 [1.73]
Stock thickness .008 [.203]

Material

Phosphor bronze



Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Grounding Pin Part Numbers		HDM Applicator Part No.	Hand Tool Part No.
			Strip Form	Loose Piece		
26-18 ² [.12-.8]	.050-.115 1.27-2.92	Pre-tin	350969-1	640580-1	466351-1 ³	91526-1
		Select Gold ¹	350969-2	640580-2	466351-2 ³ 466351-4 ³	

¹Select Gold Finish—Plated with .000030 [.000762] min. gold in mating area over .000050 [.00127] min. nickel underplate on entire contact.

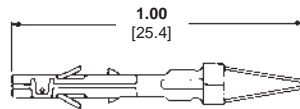
²1650 CMA maximum.

³HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3 or -4 is used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

Solder Tail Socket

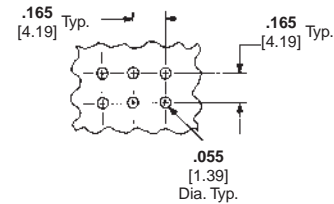
Material and Finish

Phosphor bronze, pre-tin
Stock thickness .008 [.203]



Part Number 350838-1

Note: Recommended for use with MR Socket Housings

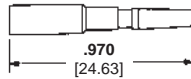


Recommended PC Board Hole Layout

.062 [1.57] or .093 [2.36] thick board

Keying Plug

IS 408-3231



Part Number 350591-1

UL94V-0 Nylon material

Note: Use in socket housings only.

Related Product Data

Product Specification

108-1022 (MR) Miniature Rectangular Connectors

Application Specification

114-1014 (MR) Miniature Rectangular Contacts

Performance Characteristics—pages 109-110

Housings—pages 113-114

Technical Documents—pages 109 and 205-206

Application Tooling—pages 207-210



Contact Extraction Tool
Part No. 455822-2
IS 408-9570



Contact Insertion Tool
(For inserting contacts applied to small diameter wire)
Part No. 455830-1
IS 408-7984

Note: All part numbers are RoHS Compliant.

(MR) Miniature Rectangular Connectors (Continued)

Housings

Free-Hanging or Panel Mount

.165 [4.19] Centerline spacing

Material

Nylon, Natural (Color—Brick Red)

Flammability Rating—UL94V-0

Related Product Data

Product Specification

108-1022 (MR) Miniature Rectangular Connectors

Performance Characteristics—pages 109-110

Panel Cutout Recommendations—page 115

Contacts—page 112

Keying Plug—page 112

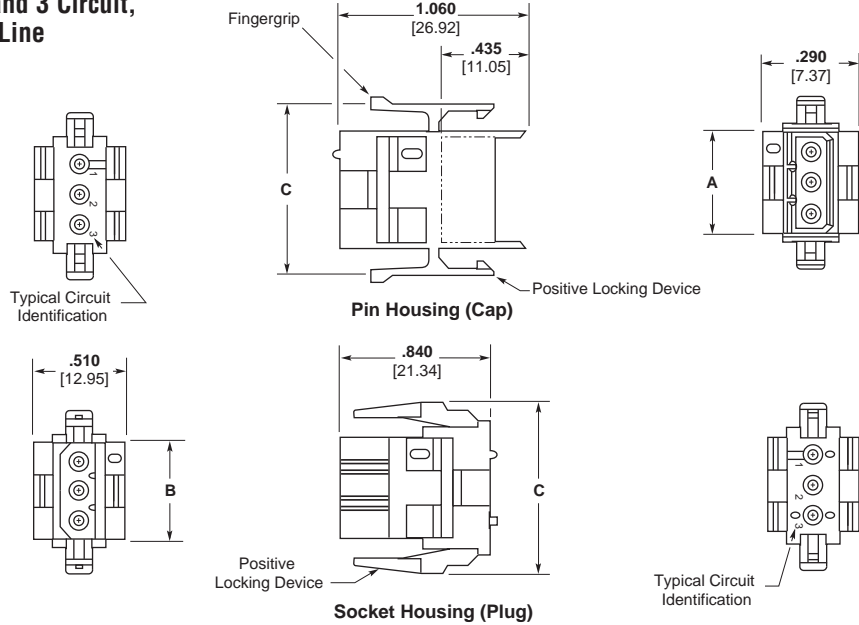
Strain Reliefs—page 116

Commoning Bars—page 116

Technical Documents—pages 109 and 205-206

Mating Headers—pages 117-118

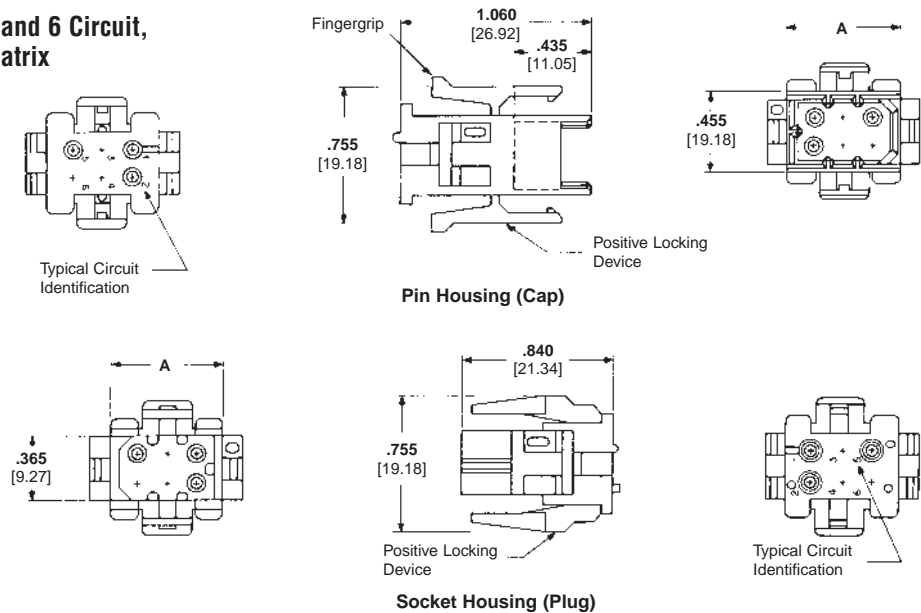
2 and 3 Circuit, In-Line



Number of Circuits	Dimensions			Part Numbers	
	A	B	C	Pin Housing (Cap)	Socket Housing (Plug)
2	.455 11.56	.365 9.27	.755 19.18	1-640507-0	1-640517-0
3	.620 15.75	.530 13.46	.920 23.37	1-640508-0	1-640518-0

Note: All part numbers are RoHS Compliant.

4 and 6 Circuit, Matrix



Number of Circuits	A Dim.	Part Numbers	
		Pin Housing (Cap)	Socket Housing (Plug)
4	.455 11.56	1-640509-0	1-640519-0
6	.620 15.75	1-640510-0	1-640520-0

Note: All part numbers are RoHS Compliant.

High Density
(MR) Miniature Rectangular Connectors
.165 [4.20] Centerline

(MR) Miniature Rectangular Connectors (Continued)

Housings

Free-Hanging or Panel Mount

.165 [4.19] Centerline spacing

Material

Nylon, Natural (Color—Brick Red)

Flammability Rating—UL94V-0

Related Product Data

Product Specification

108-1022 (MR) Miniature Rectangular Connectors

Performance Characteristics—pages 109-110

Panel Cutout Recommendations—page 115

Contacts—page 112

Keying Plug—page 112

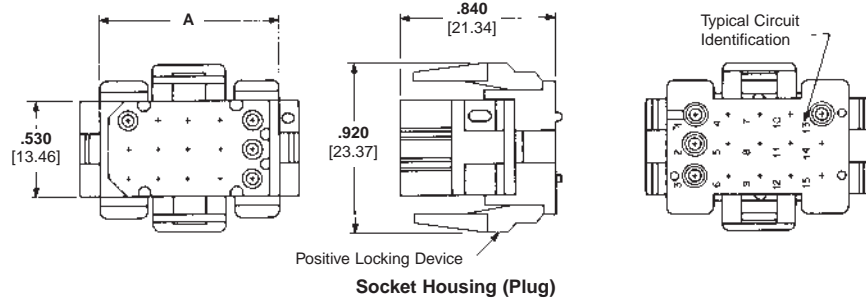
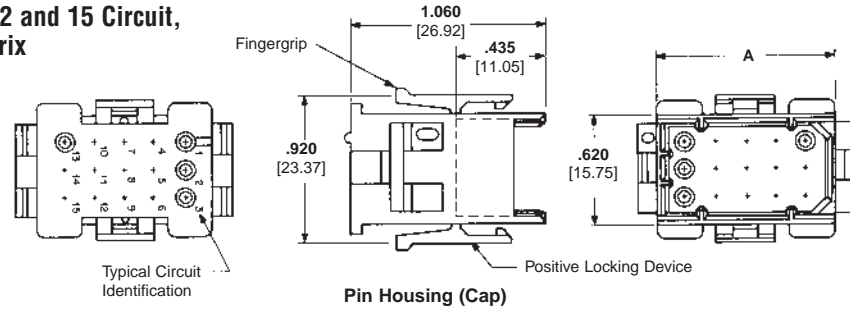
Strain Reliefs—page 116

Commoning Bars—page 116

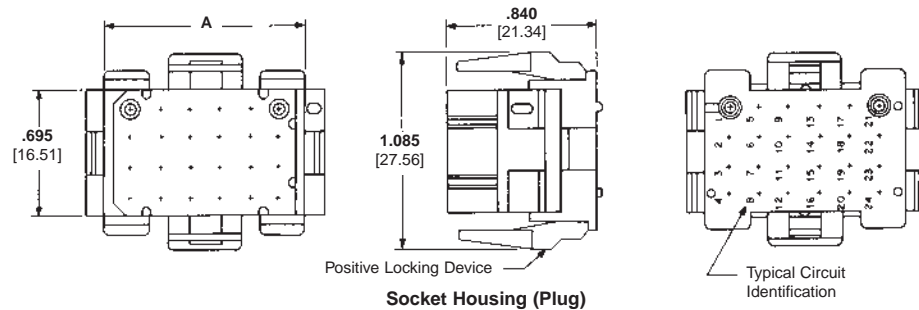
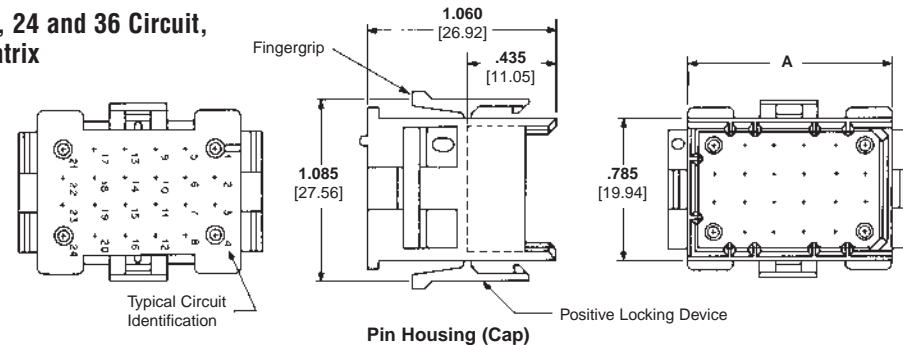
Technical Documents—pages 109 and 205-206

Mating Headers—pages 117-118

9, 12 and 15 Circuit, Matrix



20, 24 and 36 Circuit, Matrix



Number of Circuits	A Dim.	Part Numbers	
		Pin Housing (Cap)	Socket Housing (Plug)
9	.620 [15.75]	1-640511-0	1-640521-0
12	.785 [19.94]	1-640512-0	1-640522-0
15	.950 [24.13]	1-640513-0	1-640523-0
20	.950 [24.13]	1-640514-0	1-640524-0
24	1.115 [28.32]	1-640515-0	1-640525-0
36	1.610 [40.89]	1-640516-0	1-640526-0

Note: All part numbers are RoHS Compliant.

High Density

(MR) Miniature Rectangular Connectors
.165 [4.20] Centerline

(MR) Miniature Rectangular Connectors (Continued)

**Recommended Panel
Cutouts for Pin and Socket
Housings**

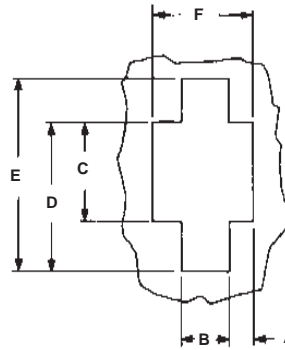
Related Product Data

Product Specification

108-1022 (MR) Miniature Rectangular
Connectors

Housings—pages 113-114

Technical Documents—pages 109
and 205-206



View is from housing entry side

Panel Thickness .068 [1.75] Max.

Number of Circuits	Panel Cutout Dimensions					
	A	B	C	D	E	F
2	.105 2.67	.220 5.59	.475 12.07	.630 16.00	.785 19.94	.430 10.92
3	.105 2.67	.220 5.59	.640 16.26	.795 20.19	.950 24.13	.430 10.92
4	.157 3.99	.280 5.28	.475 12.07	.630 16.00	.785 19.94	.595 15.11
6	.208 5.28	.345 8.76	.475 12.07	.630 16.00	.785 19.94	.760 19.30
9	.208 5.28	.345 8.76	.640 16.26	.795 20.19	.950 24.13	.760 19.30
12	.225 5.72	.475 12.07	.640 16.26	.795 20.19	.950 24.13	.925 23.50
15	.308 7.82	.475 12.07	.640 16.26	.795 20.19	.950 24.13	1.090 27.69
20	.308 7.82	.475 12.07	.805 20.45	.960 24.38	1.115 28.32	1.090 27.69
24	.390 9.91	.475 12.07	.805 20.45	.960 24.38	1.115 28.32	1.255 31.88
36	.625 15.86	.500 12.70	.800 20.32	.950 24.13	1.100 27.94	1.750 44.45

Notes:

1. When mounted in a .060 [1.52] thick panel, the cap's mating end extends .800 [20.32] beyond the panel front; wire end extends .220 [55.88] from the panel rear. Plug mating end extends .580 [14.73] beyond the panel front; wire end extends .220 [55.88] from the panel rear.
2. The panel should be punched so that the housing enters the panel in the same direction as the punch for ease of assembly.

High Density

(MR) Miniature Rectangular Connectors
.165 [4.20] Centerline

(MR) Miniature Rectangular Connectors (Continued)

Strain Reliefs

One Piece — Clam Shell

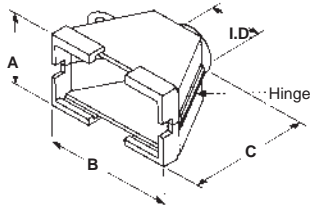
(Illustrated in closed position)

IS 408-3231

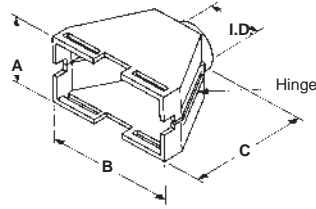
Material

Nylon, Natural (Color—Brick Red)

Flammability Rating—UL94V-0



6, 9, 12, 15 and 20 Circuit



24 and 36 Circuit

Number of Circuits	Dimensions				Part Numbers
	I.D.	A	B	C	
6	.374	.634	.760	1.000	350373-1
	9.50	16.10	19.30	25.4	
9	.420	.800	.760	1.000	350522-1
	10.67	20.32	19.30	25.4	
12	.420	.790	.925	1.000	350374-1
	10.67	20.07	23.50	25.4	
15	.420	.790	1.090	1.000	350523-1
	10.67	20.07	27.69	25.4	
20	.560	.960	1.090	1.280	480634-1
	14.22	24.38	27.69	23.51	
24	.560	.900	1.255	1.280	350524-1
	14.22	22.86	31.88	23.51	
36	.560	.900	1.750	1.280	480594-1
	14.22	22.86	44.45	23.51	

Notes:

1. These strain reliefs can be used with either pin or socket housings.
2. **Customer supplied:** One No. 6 Panhead Type B self-taping screw, 3/8 long. Plating is optional to conform to customer requirements.
3. Strain reliefs are also available in UL94V-2 nylon, black in color. To order strain reliefs in this material use the appropriate dash numbers: 1-XXXXXX-9.

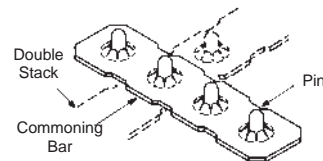
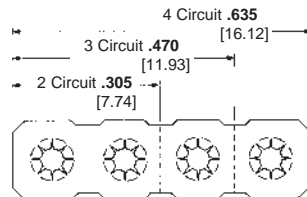
Commoning Bars

IS 408-3231

Material

Brass

Stock thickness .008 [.203]



Finish	Part Numbers		
	2 Circuit	3 Circuit	4 Circuit
Pre-tin	350020-1	350021-1	350022-1
Gold ¹	350020-2	350021-2	350022-2

¹Gold Finish—Plated with .000030 [.000762] min. gold over .000050 [.00127] min. nickel underplate on entire contact.

Related Product Data

Housings—pages 113-114

Notes:

1. Commoning bars can be used to common adjacent pin contacts in any column or row. Maximum stack per pin is two.
2. The above illustrates the proper insertion of the Commoning Bar.
3. Use the mating socket housing to assemble the Commoning Bar onto the pins.



Commoning Bar Extraction Tool
Part No. 457306-1
IS 408-3231

Note: All part numbers are RoHS Compliant.

High Density

(MR) Miniature Rectangular Connectors .165 [4.20] Centerline

(MR) Miniature Rectangular Connectors (Continued)

**PC Board Vertical
Pin Headers**

.165 [4.19] Centerline spacing

Material

Housing—Nylon, Natural (Color—
Brick Red)

Flammability Rating—UL94V-0

Contacts—Phosphor bronze
Solder tail diameter .040 [1.02]

Related Product Data

Product Specification

108-1078 (MR) Miniature Rectangular
Headers

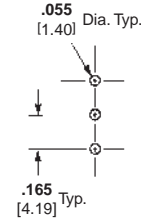
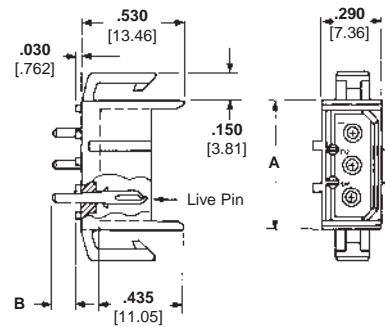
Dimensions A and B—page 118

Performance Characteristics—
pages 109-110

Technical Documents—pages 109
and 205-206

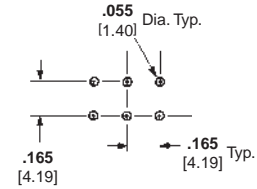
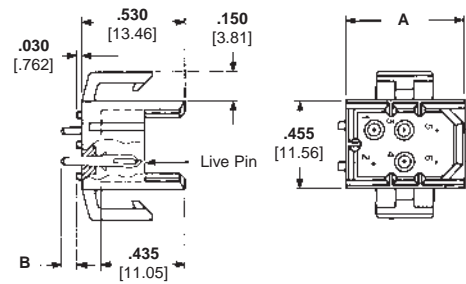
Mating Socket Housings—pages
113-114

2 and 3 Circuit, In-Line



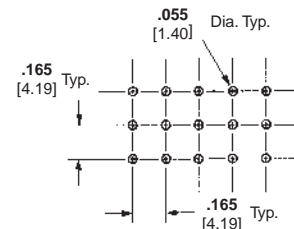
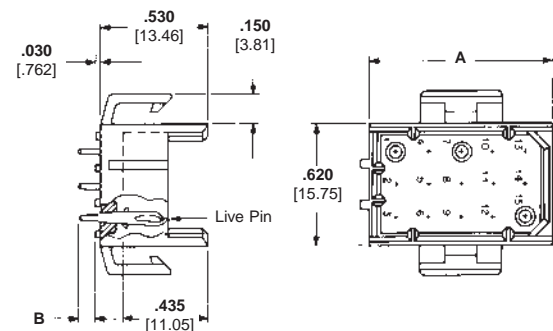
Recommended PC Board Hole Layout

4 and 6 Circuit, Matrix



Recommended PC Board Hole Layout

**9, 12 and 15 Circuit,
Matrix**



Recommended PC Board Hole Layout

High Density

(MR) Miniature Rectangular Connectors
.165 [4.20] Centerline

(MR) Miniature Rectangular Connectors (Continued)

PC Board Vertical Pin Headers

.165 [4.19] Centerline spacing

Material

Housing—Nylon, Natural (Color—Brick Red)

Flammability Rating—UL94V-0

Contacts—Phosphor bronze
Solder tail diameter .040 [1.02]

Related Product Data

Product Specification

108-1078 (MR) Miniature Rectangular Headers

Dimensions (2 and 3 Circuit, In-Line; 4, 6, 9, 12 and 15 Circuit, Matrix)
— page 118

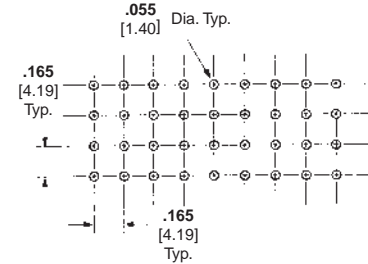
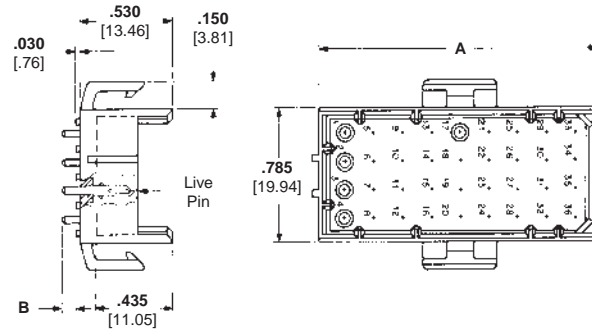
Performance Characteristics—
pages 109-110

Vertical Pin Headers and Recommended PC Board Hole Layouts—pages 117-118

Technical Documents—pages 109 and 205-206

Mating Socket Housings—pages 113-114

20, 24 and 36 Circuit, Matrix



Recommended PC Board Hole Layout

Number of Circuits	Board Thickness	Dimensions		Header Part Numbers		Mates with Socket Housing Part No.
		A	B	Tin Finish	Duplex Finish ¹	
2 In-Line	.062 1.57	.455 11.56	.120 3.05	640497-1	2-640497-2	1-640517-0
	.120 3.05	.455 11.56	.180 4.57	640497-3	2-640497-4	
3 In-Line	.062 1.57	.620 15.75	.120 3.05	640498-1	2-640498-2	1-640518-0
	.120 3.05	.620 15.75	.180 4.57	640498-3	2-640498-4	
4	.062 1.57	.455 11.56	.120 3.05	640499-1	2-640499-2	1-640519-0
	.120 3.05	.455 11.56	.180 4.57	640499-3	2-640499-4	
6	.062 1.57	.620 15.75	.120 3.05	640500-1	2-640500-2	1-640520-0
	.120 3.05	.620 15.75	.180 4.57	640500-3	2-640500-4	
9	.062 1.57	.620 15.75	.120 3.05	640501-1	2-640501-2	1-640521-0
	.120 3.05	.620 15.75	.180 4.57	640501-3	2-640501-4	
12	.062 1.57	.785 19.94	.120 3.05	640502-1	2-640502-2	1-640522-0
	.120 3.05	.785 19.94	.180 4.57	640502-3	2-640502-4	
15	.062 1.57	.950 24.13	.120 3.05	640503-1	2-640503-2	1-640523-0
	.120 3.05	.950 24.13	.180 4.57	640503-3	2-640503-4	
20	.062 1.57	.950 24.13	.120 3.05	640504-1	2-640504-2	1-640524-0
	.120 3.05	.950 24.13	.180 4.57	640504-3	2-640504-4	
24	.062 1.57	1.115 28.32	.120 3.05	640505-1	2-640505-2	1-640525-0
	.120 3.05	1.115 28.32	.180 4.57	640505-3	2-640505-4	
36	.062 1.57	1.610 40.89	.120 3.05	640506-1	2-640506-2	1-640526-0
	.120 3.05	1.610 40.89	.180 4.57	640506-3	2-640506-4	



¹Duplex Finish—Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

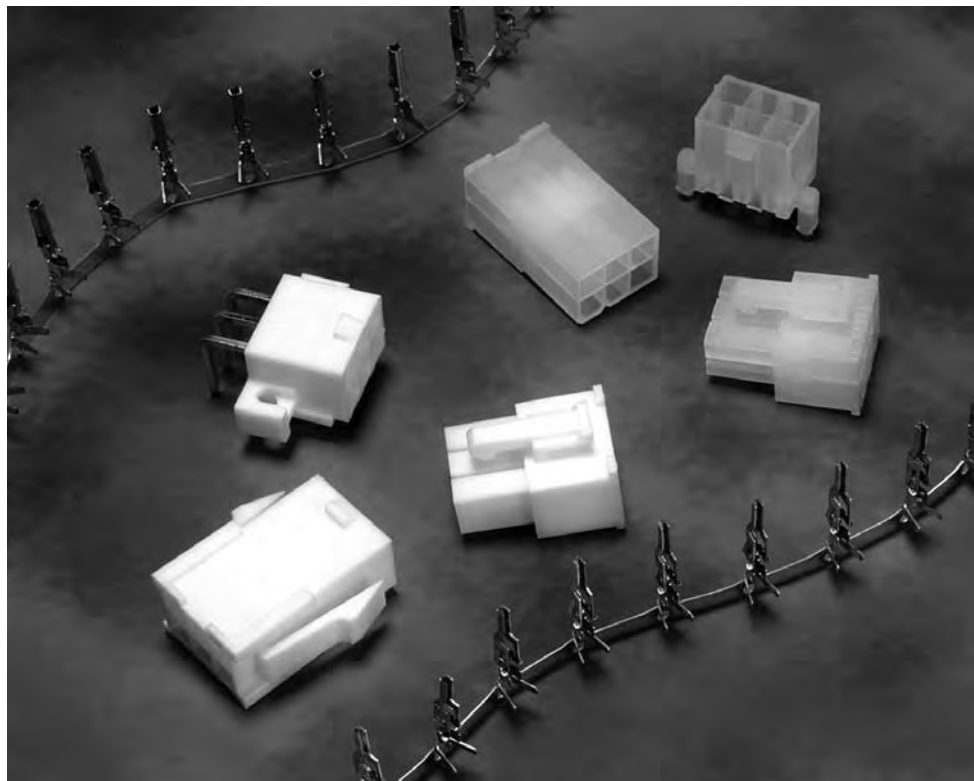
Note: All part numbers are RoHS Compliant.

High Density
(MR) Miniature Rectangular Connectors
.165 [4.20] Centerline

VAL-U-LOK Connector System (Wire-to-Wire, Wire-to-Board and Wire-to-Panel)

Product Facts

- Low cost, wire-to-wire, wire-to-board and wire-to-panel connectors with 4.2 mm centerline
- Easy mate and unmate with positive latch design
- Single row, 3-5 positions: receptacles, panel mount or free-hanging plugs
- Double row, 2-24 positions (even only): receptacles, panel mount or free-hanging plugs, and vertical or right-angle pin headers
- Available in UL 94V-2 or UL 94V-0 flammability rated nylon
- Products are lead free to help promote a cleaner environment
- Intermateable and interchangeable with Molex Mini-Fit, Jr. and intermateable AMP-DUAC connectors
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. 208567 
- Tyco Electronics Design For Environment (DFE) Standard 230-5



High Density

VAL-U-LOK Connector System
.165 [4.20] Centerline

Performance Characteristics

Electrical

- Voltage**—600 VAC
- Current**—9 amps max. in 2-position applications
- Dielectric Withstanding Voltage**—1500 VAC min.
- Insulation Resistance**—1000 megohms min.
- Operating Temperature**—-40°C to +105°C [-40°F to +221°F]

Mechanical

- Connector Mating**—1.55 lb. [6.90 N] max. per circuit
- Connector Unmating**—.11 lb. [.49 N] min. per circuit
- Contact Retention**—4.88 lb. [21.71 N] min. per contact
- Durability**—30 cycles, mating and unmating

Material and Finish

- Housings**—Nylon, UL 94V-2 and UL 94V-0
- Contacts**—Brass or Phos. Bronze with tin plating (Lead-Free) or gold plating

Technical Documents

- Design Objective**
108-2112
- Application Specification**
114-13172
- Engineering Test Report**
502-1204

Applications

- Computer motherboards/power supplies
- Harness assemblies used in the Vending, Gaming and Appliance industries
- Car alarm systems
- Heating systems

Molex and Mini-Fit are trademarks of Molex Incorporated.

VAL-U-LOK Connector System
(Wire-to-Wire, Wire-to-Board and Wire-to-Panel) (Continued)

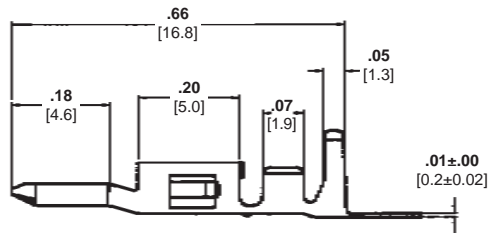
Contacts

Wire Range (AWG)	Insulation Range	Material & Finish	Pin		Socket		Applicator Part Number ¹	PRO-CRIMPER III Hand Tool Part Number
			Strip Form	Loose Piece	Strip Form	Loose Piece		
26-22	.047 - .069 [1.2 - 1.75]	Brass, Pre-Tin	794957-1	1586316-1	794958-1	1586317-1	1385448-X	91387-1
		Phos. Brz., Pre-Tin	794957-3	1586316-3	794958-3	1586317-3		
		Brass, Gold	794957-2	1586316-2	794958-2	1586317-2		
		Phos. Brz., Gold	794957-4	1586316-4	794958-4	1586317-4		
22-18	.060 - .122 [1.50 - 3.10]	Brass, Pre-Tin	794955-1	1586314-1	794956-1	1586315-1	1852668-X	91388-1
		Phos. Brz., Pre-Tin	794955-3	1586314-3	794956-3	1586315-3		
		Brass, Gold	794955-2	1586314-2	794956-2	1586315-2		
		Phos. Brz., Gold	794955-4	1586314-4	794956-4	1586315-4		
16	.071 - .122 [1.8 - 3.10]	Brass, Pre-Tin	1586054-1	1586840-1	1586055-1	1586841-1	1852294-X	1976444-1
		Phos. Brz., Pre-Tin	1586054-3	1586840-3	1586055-3	1586841-2		
		Brass, Gold	1586054-2	1586840-2	1586055-2	1586841-3		
		Phos. Brz., Gold	1586054-4	1586840-4	1586055-4	1586841-4		

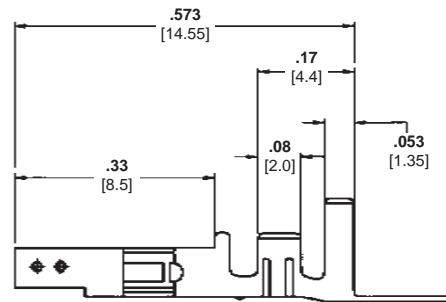
Extraction Tool Part Number 1586343-1

¹ For applicator and machine part numbers, contact Technical Support.

Pin — (used in Plug Housing)



Socket — (used in Receptacle Housing)



VAL-U-LOK Connector System
High Density
.165 [4.20] Centerline

VAL-U-LOK Connector System
(Wire-to-Wire, Wire-to-Board and Wire-to-Panel) (Continued)

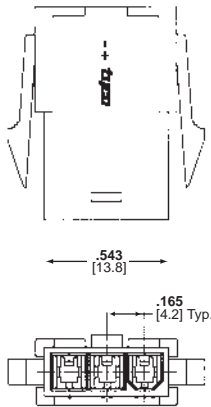
Housings — Single Row

No. of Positions	UL 94V-2 Housings			UL 94V-0 Housings		
	Panel Mount Plug	Free-Hanging Plug	Receptacle Housing	Panel Mount Plug	Free-Hanging Plug	Receptacle Housing
3*	1586101-3	1586103-3	1586105-3	1586102-3	1586104-3	1586106-3
4	1586022-4	1586024-4	1586026-4	1586023-4	1586025-4	1586027-4
5	1586022-5	1586024-5	1586026-5	1586023-5	1586025-5	1586027-5

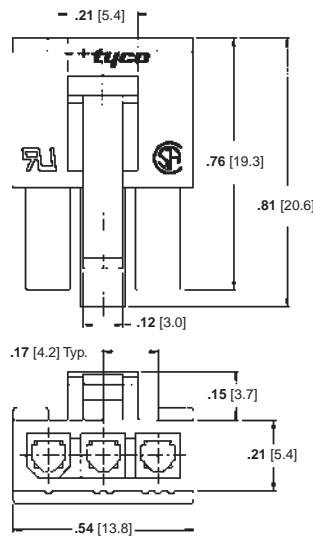
*Note: 3 position housings are First Mate/Last Break.

Note: All part numbers are RoHS Compliant.

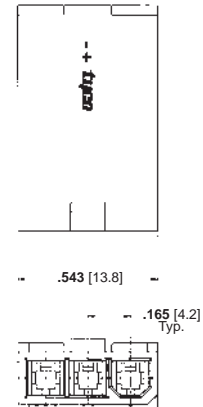
Panel Mount Plug Housing



Receptacle Housing



Free-Hanging Plug Housing

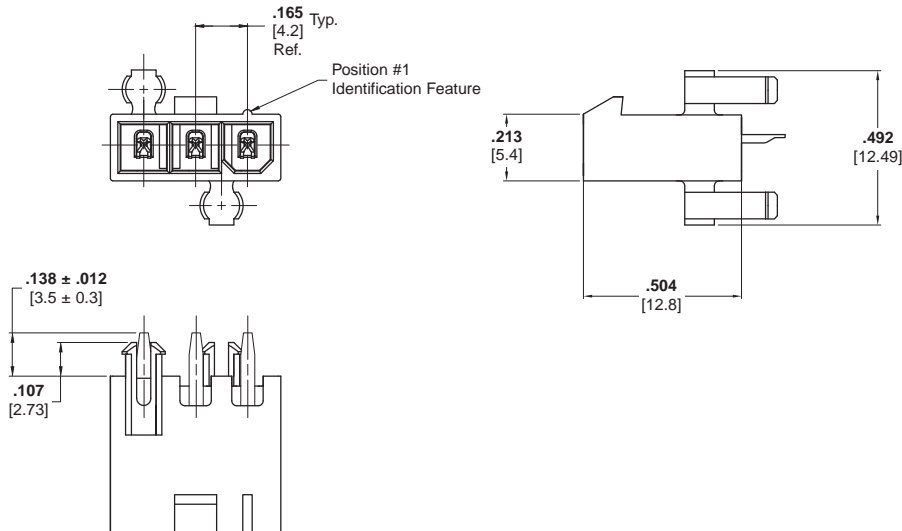


Headers — Single Row, Vertical

No. of	UL 94V-2 Housings		UL 94V-0 Housings
	With Drain Holes	Without Drain Holes	With Drain Holes
3*	2029054-3	2029058-3	2029056-3
4	2029054-4	2029058-4	2029056-4
5	2029054-5	2029058-5	2029056-5

*Note: 3 position housings are First Mate/Last Break.

Note: All part numbers are RoHS Compliant.



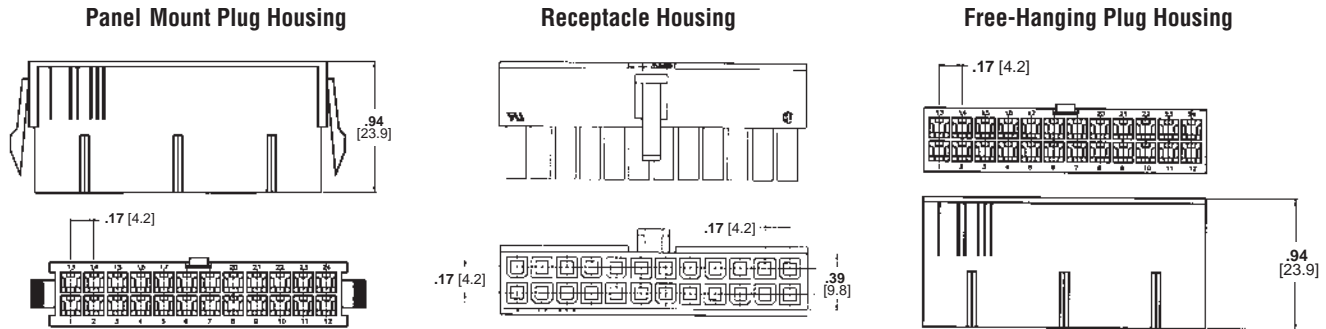
VAL-U-LOK Connector System
(Wire-to-Wire, Wire-to-Board and Wire-to-Panel) (Continued)

Housings — Double Row

No. of Positions	UL 94V-2 Housings			UL 94V-0 Housings		
	Panel Mount Plug	Free-Hanging Plug	Receptacle Housing	Panel Mount Plug	Free-Hanging Plug	Receptacle Housing
2	794953-2	1586000-2	794954-2	1586018-2	1586017-2	1586019-2
4	794953-4	1586000-4	794954-4	1586018-4	1586017-4	1586019-4
6	794953-6	1586000-6	794954-6	1586018-6	1586017-6	1586019-6
8	794953-8	1586000-8	794954-8	1586018-8	1586017-8	1586019-8
10	1-794953-0	1-1586000-0	1-794954-0	1-1586018-0	1-1586017-0	1-1586019-0
12	1-794953-2	1-1586000-2	1-794954-2	1-1586018-2	1-1586017-2	1-1586019-2
14	1-794953-4	1-1586000-4	1-794954-4	1-1586018-4	1-1586017-4	1-1586019-4
16	1-794953-6	1-1586000-6	1-794954-6	1-1586018-6	1-1586017-6	1-1586019-6
18	1-794953-8	1-1586000-8	1-794954-8	1-1586018-8	1-1586017-8	1-1586019-8
20	2-794953-0	2-1586000-0	2-794954-0	2-1586018-0	2-1586017-0	2-1586019-0
22	2-794953-2	2-1586000-2	2-794954-2	2-1586018-2	2-1586017-2	2-1586019-2
24	2-794953-4	2-1586000-4	2-794954-4	2-1586018-4	2-1586017-4	2-1586019-4

Note: Plug housings accept pin contacts and receptacle housings accept socket contacts on page 114.

Note: All part numbers are RoHS Compliant.



Housings — Colored

Color	No. of Positions	UL 94V-2 Housings			UL 94V-0 Housings		
		Panel Mount Plug	Free-Hanging Plug	Receptacle Housing	Panel Mount Plug	Free-Hanging Plug	Receptacle Housing
Black	2-24	X-2029088-X	X-2029027-X	X-1586075-X	X-2029035-X	X-2029028-X	X-2029029-X
Red	4-24	X-2029089-X	X-2029090-X	X-2029091-X	X-2029092-X	X-2029093-X	X-2029094-X
Blue	6-24	X-2029095-X	X-2029096-X	X-2029097-X	X-2029098-X	X-2029099-X	X-2029100-X

Note: Plug housings accept pin contacts and receptacle housings accept socket contacts on page 114.

Note: All part numbers are RoHS Compliant.

VAL-U-LOK Connector System
High Density
.165 [4.20] Centerline

VAL-U-LOK Connector System
(Wire-to-Wire, Wire-to-Board and Wire-to-Panel) (Continued)

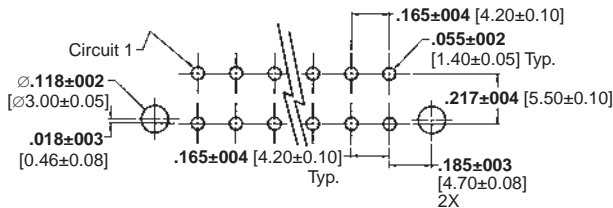
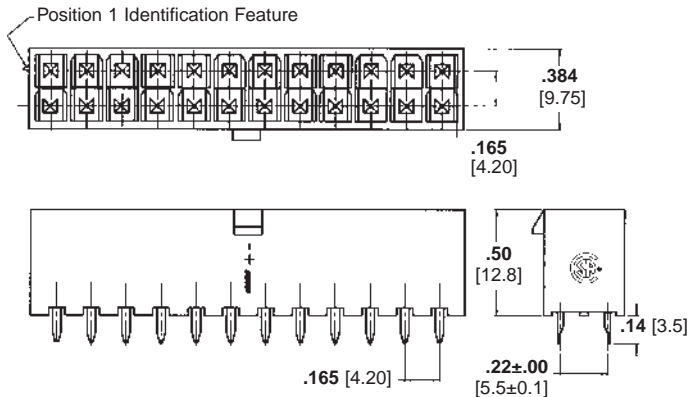
Pin Headers

No. of Positions	UL 94V-2 Pin Headers				UL 94V-0 Pin Headers			
	Vertical		Right-Angle		Vertical		Right-Angle	
	w/o Pegs	w/Pegs	w/o Pegs	Screw Mount	w/o Pegs	w/Pegs	w/o Pegs	Screw Mount
2	1586037-2	1586039-2	1586041-2	1586043-2	1586038-2	1586040-2	1586042-2	1586044-2
4	1586037-4	1586039-4	1586041-4	1586043-4	1586038-4	1586040-4	1586042-4	1586044-4
6	1586037-6	1586039-6	1586041-6	1586043-6	1586038-6	1586040-6	1586042-6	1586044-6
8	1586037-8	1586039-8	1586041-8	1586043-8	1586038-8	1586040-8	1586042-8	1586044-8
10	1-1586037-0	1-1586039-0	1-1586041-0	1-1586043-0	1-1586038-0	1-1586040-0	1-1586042-0	1-1586044-0
12	1-1586037-2	1-1586039-2	1-1586041-2	1-1586043-2	1-1586038-2	1-1586040-2	1-1586042-2	1-1586044-2
14	1-1586037-4	1-1586039-4	1-1586041-4	1-1586043-4	1-1586038-4	1-1586040-4	1-1586042-4	1-1586044-4
16	1-1586037-6	1-1586039-6	1-1586041-6	1-1586043-6	1-1586038-6	1-1586040-6	1-1586042-6	1-1586044-6
18	1-1586037-8	1-1586039-8	1-1586041-8	1-1586043-8	1-1586038-8	1-1586040-8	1-1586042-8	1-1586044-8
20	2-1586037-0	2-1586039-0	2-1586041-0	2-1586043-0	2-1586038-0	2-1586040-0	2-1586042-0	2-1586044-0
22	2-1586037-2	2-1586039-2	2-1586041-2	2-1586043-2	2-1586038-2	2-1586040-2	2-1586042-2	2-1586044-2
24	2-1586037-4	2-1586039-4	2-1586041-4	2-1586043-4	2-1586038-4	2-1586040-4	2-1586042-4	2-1586044-4

Note: All Headers have Brass, Tin-Plated contacts.

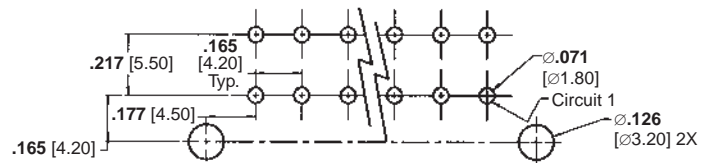
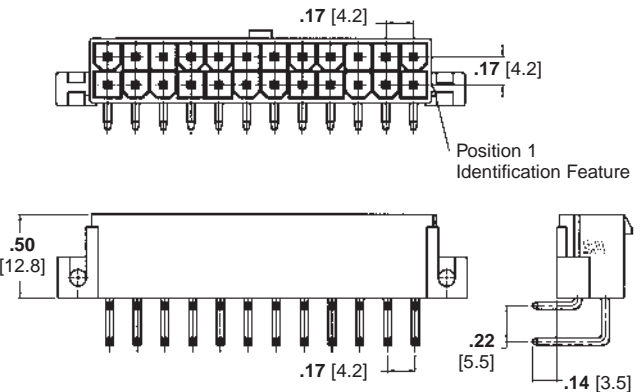
Note: All part numbers are RoHS Compliant.

Vertical Pin Headers (Part No. 1586037 shown w/o pegs)



PCB Layout: Component Side (shown with pegs)
Recommended Board Thickness .070 [1.78]

Right-Angle Pin Headers (Part No. 1586043 Screw Mount)



PCB Layout: Component Side (screw mount shown)
Recommended Board Thickness .063 [1.60]

High Density

VAL-U-LOK Connector System
.165 [4.20] Centerline

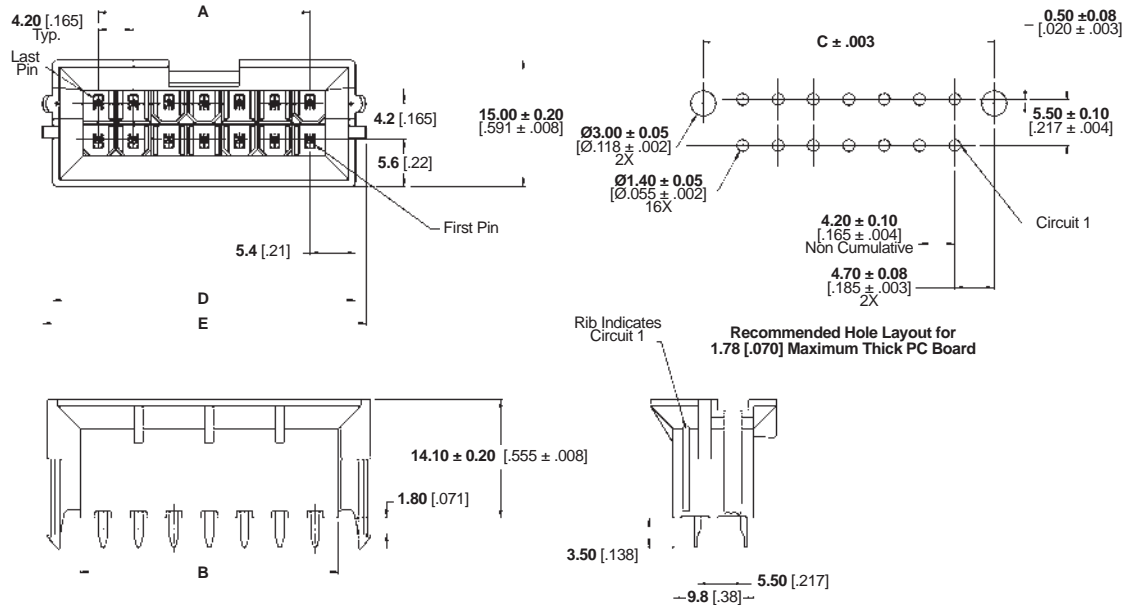
VAL-U-LOK Connector System
(Wire-to-Wire, Wire-to-Board and Wire-to-Panel) (Continued)

Blindmate Headers

No. of Pos.	Dimensions					UL 94V-2 Housings		UL 94V-0 Housings	
	A	B	C	D	E	With Drain Holes	Without Drain Holes	With Drain Holes	Without Drain Holes
2	—	5.4 [0.21]	9.4 [0.37]	10.8 [0.43]	13.2 [0.52]	1586585-2	1586586-2	1586587-2	1586588-2
4	4.2 [0.17]	9.6 [0.38]	13.6 [0.54]	15.0 [0.59]	17.4 [0.69]	1586585-4	1586586-4	1586587-4	1586588-4
6	8.4 [0.33]	13.8 [0.54]	17.8 [0.70]	19.2 [0.76]	21.6 [0.85]	1586585-6	1586586-6	1586587-6	1586588-6
8	12.6 [0.50]	18.0 [0.71]	22.0 [0.87]	23.4 [0.92]	25.8 [1.02]	1586585-8	1586586-8	1586587-8	1586588-8
10	16.8 [0.66]	22.2 [0.87]	26.2 [1.03]	27.6 [1.09]	30.0 [1.18]	1-1586585-0	1-1586586-0	1-1586587-0	1-1586588-0
12	21.0 [0.83]	26.4 [1.04]	30.4 [1.20]	31.8 [1.25]	34.2 [1.35]	1-1586585-2	1-1586586-2	1-1586587-2	1-1586588-2
14	25.2 [0.99]	30.6 [1.20]	34.6 [1.36]	36.0 [1.42]	38.4 [1.51]	1-1586585-4	1-1586586-4	1-1586587-4	1-1586588-4
16	29.4 [1.58]	34.8 [1.37]	38.8 [1.53]	40.2 [1.58]	42.6 [1.69]	1-1586585-6	1-1586586-6	1-1586587-6	1-1586588-6
18	33.6 [1.32]	39.0 [1.54]	43.0 [1.69]	44.4 [1.75]	46.8 [1.84]	1-1586585-8	1-1586586-8	1-1586587-8	1-1586588-8
20	37.8 [1.49]	43.2 [1.70]	47.2 [1.86]	48.6 [1.91]	51.0 [2.01]	2-1586585-0	2-1586586-0	2-1586587-0	2-1586588-0
22	42.0 [1.65]	47.4 [1.87]	51.4 [2.02]	52.0 [2.08]	55.2 [2.17]	2-1586585-2	2-1586586-2	2-1586587-2	2-1586588-2
24	46.2 [1.82]	51.6 [2.03]	55.6 [2.19]	57.0 [2.24]	59.4 [2.32]	2-1586585-4	2-1586586-4	2-1586587-4	2-1586588-4

Note: All part numbers are RoHS Compliant.

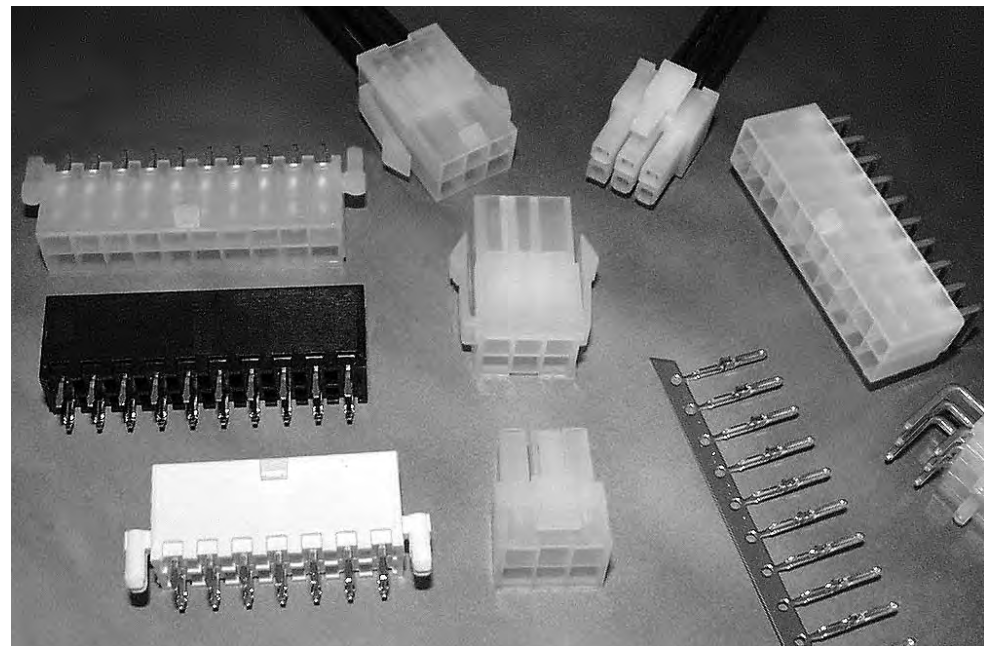
VAL-U-LOK Connector System
High Density
.165 [4.20] Centerline



AMP-DUAC Connectors

Product Facts

- Wire-to-board and wire-to-wire connector system
- Free-hanging or panel mount plug housings
- Vertical header with or without mounting pegs and with or without drain holes
- Selective loading available on vertical headers
- 4.2 mm x 4.2 mm centerline
- Male and female contacts designed for 26-22 AWG and 22-18 AWG wire
- Receptacle housings accept female contacts with less orientation than competitive product
- Right-angle headers
- Designed for power applications
- Positive latch feature helps prevent disconnection
- AMP-DUAC (dual action) receptacle contacts
- Anti-stubbing contact design
- Polarized housings
- Intermateable with Molex Mini-Fit Jr. connectors
- Recognized under Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR7189



AMP-DUAC Connectors, for power or signal applications, belong to the broad family of Tyco Electronics Soft Shell connectors.

The dual action design of the female receptacle contact provides for low insertion force, yet maintains high-performance current capacity. To help meet your production requirements, semiautomatic bench machines and hand tools are available for strip and loose piece contacts, respectively.

High density, 4.2 mm x 4.2 mm [.165 x .165] centerline, dual-row receptacle housings mate with plug housings (free-hanging or panel mount) or pc board headers (vertical or right-angle). Selective contact loading is available for vertical headers.

All housings are polarized for easier mating and locking latches help maintain reliable connections.

AMP-DUAC wire-to-board, wire-to-panel, and wire-to-wire connectors are intermateable with Molex Mini-Fit Jr. series connectors.

Technical Documents

- Product Specifications**
108-1699—Headers
108-19099—Receptacles
- Application Specification**
114-19048—Use of Receptacles
- Qualification Test Report**
501-434
501-576

Performance Data

- Voltage Rating**—600 VAC
- Current Rating**—9 amps maximum in 2 position applications
- Low Level Resistance**—10 megohms max.
- Dielectric Withstanding Voltage**—1500 VAC/min.
- Insulation Resistance**—1000 megohms minimum
- Operating Temperature**—-55°C to +105°C [-67°F to +221°F]

Need more information?

Call Technical Support.

Technical Support is staffed with specialists well versed in Tyco Electronics products. They can provide you with:

- Technical support
- Catalogs
- Technical Documents
- Product Samples
- Tyco Electronics Authorized Distributor Locations

AMP-DUAC Connectors (Continued)

Receptacle Housings

2-24 Position Housings

Accept female contacts.

Material

Housings—Nylon
UL 94V-2, Natural color
UL 94V-0, White color

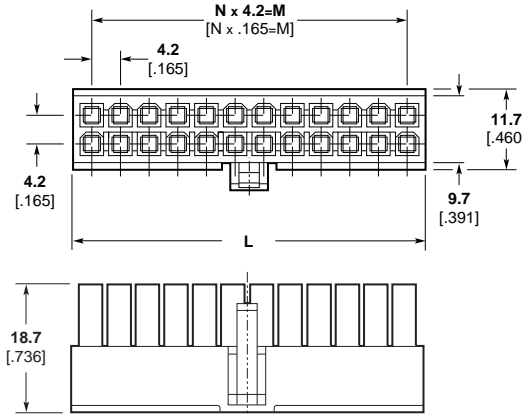
Related Product Data

Mate with—Vertical headers (pages 128-133), right-angle headers (page 128) and plug housings (page 127).

Contacts—See below.

Strain Relief—See below and page 127.

Technical Documents—pages 125 and 205-206



Number of Positions	Dimensions			Part Number	
	L	M	N	UL 94V-2 Natural	UL 94V-0 White
2	5.5 .216	—	1	106527-2	794657-2
4	9.7 .381	4.2 .165	1	106527-4	794657-4
6	13.9 .547	8.4 .330	2	106527-6	794657-6
8	18.1 .712	12.6 .496	3	106527-8	794657-8
10	22.3 .877	16.8 .661	4	1-106527-0	1-794657-0
12	26.5 1.043	21.0 .826	5	1-106527-2	1-794657-2
14	30.7 1.208	25.2 .992	6	1-106527-4	1-794657-4
16	34.9 1.374	29.4 1.157	7	1-106527-6	1-794657-6
18	39.1 1.539	33.6 1.322	8	1-106527-8	1-794657-8
20	43.3 1.704	37.8 1.488	9	2-106527-0	2-794657-0
22	47.5 1.870	42.0 1.653	10	2-106527-2	2-794657-2
24	51.7 2.035	46.2 1.818	11	2-106527-4	2-794657-4



**Strain Relief, 6 Position
Part Number 1375618-1**

Used with plug or receptacle housings.

Wire Bundle Range—4.19-5.59
[.165-.220]

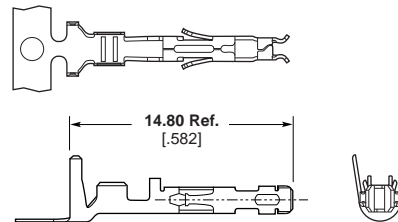
Material—Nylon,
UL 94V-2, Natural color

Female Contacts

Used in receptacle housings.

Material—Phos. Bronze

Application Tooling—See chart and pages 207-210



Technical Documents

Product Specifications
108-1699 AMP-DUAC Header
108-19099 AMP-DUAC Receptacle

Application Specification
114-19048 AMP-DUAC Receptacle Contact

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Plating	Part Number		Applicator Part Number		
			Strip Form	Loose Piece	for AMP-O-LECTRIC Bench Machine	for AMP-O-MATIC Stripper/Crimper Machine	CERTI-CRIMP Hand Tool Part Number
22-18 [.3-.8]	1.5-2.4 .059-.094	Tin	106529-2	1-106529-2	680308-□*	567959-1	734202-2
		Gold	1-794138-3	1-794141-3			
26-22 [.12-.3]	1.3-1.75 .047-.069	Tin	106528-2	1-106528-2	680307-□*	567960-1	—
		Gold	1-794139-3	1-794142-3			
2@18 or 16 [.8-.9] [1.29]	3.3 Total Max. .130	Tin	794418-1	794421-1	680350-□*	—	90714-1
		Gold	1-794140-3	1-794143-3			

Extraction Tool Part Number 188688-1

*Part Number suffix “-2” indicates Applicator for Model K Machine and “-3” for Model G Machine.

Note: All part numbers are RoHS Compliant.

High Density

AMP-DUAC Connectors
.165 [4.20] Centerline

AMP-DUAC Connectors (Continued)

Plug Housings

2-24 Position Housings

Accept male contacts.

Material

Housings—Nylon
UL 94V-2, Natural color
UL 94V-0, White color

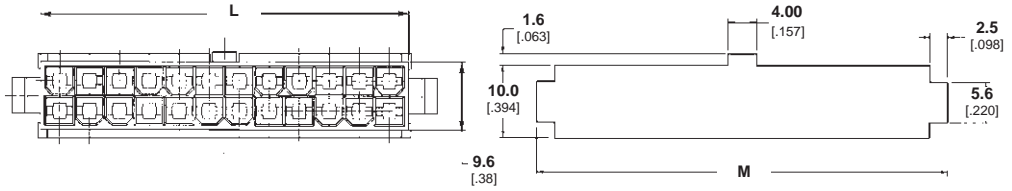
Related Product Data

Mate with—Receptacle housings (page 126)

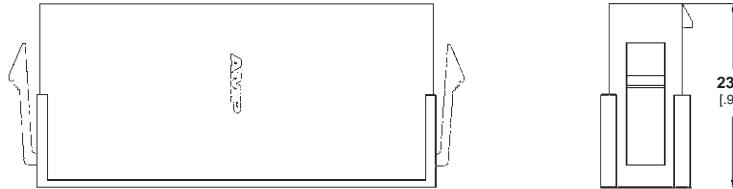
Contacts—See below.

Strain Relief—See below.

Technical Documents—pages 125 and 205-206



Recommended Cutout for 2.00 [.079] Max. Thick Panel



Strain Relief, 6 Position Part Number 1375618-1

Used with plug or receptacle housings.

Wire Bundle Range—4.19-5.59 [.165-.220]

Material—Nylon,
UL 94V-2, Natural color

Number of Positions	Dimensions		Part Number			
	L	M	UL 94V-2, Natural		UL 94V-0, White	
			Free-Hanging	Panel Mount	Free-Hanging	Panel Mount
2	5.4 .213	10.8 .425	794542-2	794550-2	*794594-2	*794598-2
4	9.6 .378	15.0 .591	794542-4	794550-4	*794594-4	*794598-4
6	13.8 .543	19.2 .756	794542-6	794550-6	*794594-6	*794598-6
8	18.0 .709	23.4 .921	794542-8	794550-8	*794594-8	*794598-8
10	22.2 .874	27.6 1.087	1-794542-0	1-794550-0	*1-794594-0	*1-794598-0
12	26.4 1.039	31.8 1.252	1-794542-2	1-794550-2	*1-794594-2	*1-794598-2
14	30.6 .205	36.0 1.417	1-794542-4	1-794550-4	*1-794594-4	*1-794598-4
16	34.8 1.370	40.2 1.583	1-794542-6	1-794550-6	*1-794594-6	*1-794598-6
18	39.0 1.535	44.4 1.748	1-794542-8	1-794550-8	*1-794594-8	*1-794598-8
20	43.2 1.701	48.6 1.913	2-794542-0	2-794550-0	*2-794594-0	*2-794598-0
22	47.4 1.866	52.8 2.079	2-794542-2	2-794550-2	*2-794594-2	*2-794598-2
24	51.6 2.032	57.0 2.244	2-794542-4	2-794550-4	*2-794594-4	*2-794598-4

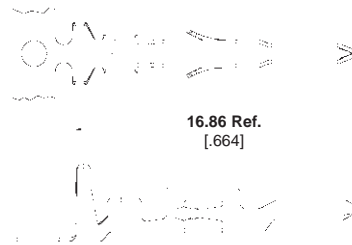
*Call for availability.

Male Contacts

Used in plug housings.

Material—Phos. Bronze

Application Tooling—See chart and pages 207-210



Wire Size Range AWG [mm ²]	Ins. Dia. Range	Plating	Part Number		Applicator Part Number		
			Strip Form	Loose Piece	for AMP-O-LECTRIC Bench Machine	for AMP-O-MATIC Stripper/Crimper Machine	CERTI-CRIMP Hand Tool Part Number
22-18 [.3-.8]	1.5-2.4 .059-.094	Tin Gold	794576-1 794576-4	794577-1 —	680308-□*	567959-1	734202-2
26-22 [.12-.3]	1.3-1.75 .047-.069	Tin Gold	794578-1 794578-4	794579-1 —	680307-□*	567960-1	—

*Part Number suffix "-2" indicates Applicator for Model K Machine and "-3" for Model G Machine.

Note: All part numbers are RoHS Compliant.

AMP-DUAC Connectors (Continued)

Vertical Header Assemblies

**2, 4 and 6 Position,
with and without Pegs and
with and without Drain
Holes**

Material and Finish

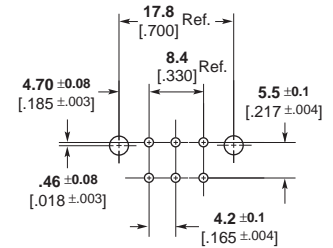
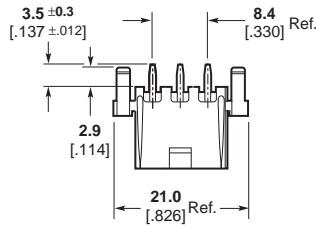
Housing—Nylon
UL 94V-2, Natural color
UL 94V-0, White color

Contacts—0.25 [.010] thick copper alloy

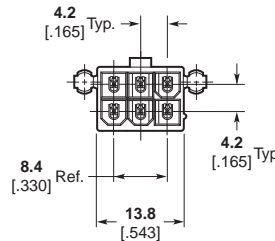
Related Product Data

Mate with—Receptacle housings (page 126).

Technical Documents—pages 125 and 205-206



Recommended PC Board Layout



Number of Positions	PCB Pegs	Drain Holes	Plating	Part Number	
				UL 94V-2, Natural	UL 94V-0, White
2	N	N	Tin	1586491-2	1586495-2
	N	N	30 Gold	1586492-2	1586496-2
	Y	N	Tin	1586489-2	1586493-2
	Y	N	30 Gold	1586490-2	1586494-2
	N	Y	Tin	1-794349-1	1-794543-1
	N	Y	30 Gold	1-794349-2	1-794543-2
	Y	Y	Tin	1-794302-1	1-794540-1
	Y	Y	30 Gold	1-794302-2	1-794540-2
4	Y	N	Tin	1586489-4	1586493-4
	Y	N	30 Gold	1586490-4	1586494-4
	N	N	Tin	1586491-4	1586495-4
	N	N	30 Gold	1586492-4	1586496-4
	Y	Y	Tin	1-794303-1	1-794466-1
	Y	Y	30 Gold	1-794303-2	1-794466-2
	N	Y	Tin	1-794350-1	1-794484-1
	N	Y	30 Gold	1-794350-2	1-794484-2
6	Y	Y	Tin	1-794304-1	1-794467-1
	Y	Y	30 Gold	1-794304-2	1-794467-2
	N	Y	Tin	1-794351-1	1-794485-1
	N	Y	30 Gold	1-794351-2	1-794485-2
	Y	N	Tin	1586489-6	1586493-6
	Y	N	30 Gold	1586490-6	1586494-6
	N	N	Tin	1586491-6	1586495-6
	N	N	30 Gold	1586492-6	1586496-6

Note: All part numbers are RoHS Compliant.

High Density

AMP-DUAC Connectors
.165 [4.20] Centerline

AMP-DUAC Connectors (Continued)

Vertical Header Assemblies
(Continued)

**8 and 10 Position,
with and without Pegs and
with and without Drain
Holes**

Material and Finish

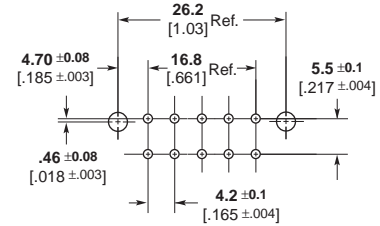
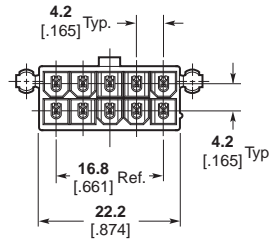
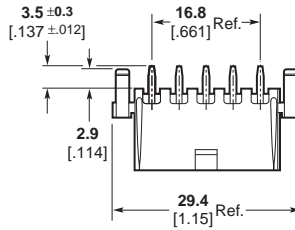
Housing—Nylon
UL 94V-2, Natural color
UL 94V-0, White color

Contacts—0.25 [.010] thick copper alloy

Related Product Data

Mate with—Receptacle housings
(page 126).

Technical Documents—pages 125
and 205-206



Recommended PC Board Layout

Number of Positions	PCB Pegs	Drain Holes	Plating	Part Number	
				UL 94V-2, Natural	UL 94V-0, White
8	Y	N	Tin	1586489-8	1586493-8
	Y	N	30 Gold	1586490-8	1586494-8
	N	N	Tin	1586491-8	1586495-8
	N	N	30 Gold	1586492-8	1586496-8
	Y	Y	Tin	1-794305-1	1-794468-1
	Y	Y	30 Gold	1-794305-2	1-794468-2
	N	Y	Tin	1-794352-1	1-794486-1
	N	Y	30 Gold	1-794352-2	1-794486-2
10	Y	N	Tin	1-1586489-0	1-1586493-0
	Y	N	30 Gold	1-1586490-0	1-1586494-0
	N	N	Tin	1-1586491-0	1-1586495-0
	N	N	30 Gold	1-1586492-0	1-1586496-0
	Y	Y	Tin	1-794306-1	1-794469-1
	Y	Y	30 Gold	1-794306-2	1-794469-2
	N	Y	Tin	1-794353-1	1-794487-1
	N	Y	30 Gold	1-794353-2	1-794487-2

Note: All part numbers are RoHS Compliant.

High Density

AMP-DUAC Connectors
.165 [4.20] Centerline

AMP-DUAC Connectors (Continued)

Vertical Header Assemblies (Continued)

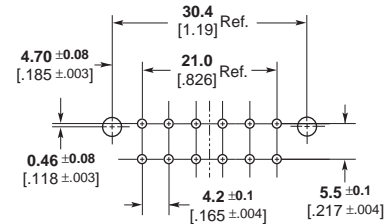
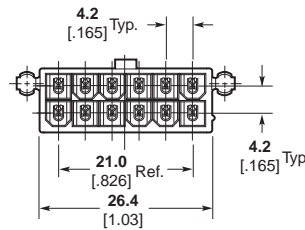
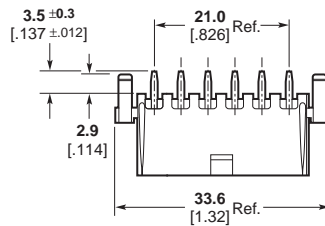
12 Position, with and without Pegs and with and without Drain Holes

Material and Finish

Housing—Nylon
UL 94V-2, Natural color
UL 94V-0, White color
Contacts—0.25 [.010] thick copper alloy

Related Product Data

Mate with—Receptacle housings (page 126).
Technical Documents—pages 125 and 205-206



Recommended PC Board Layout

Number of Positions	PCB Pegs	Drain Holes	Plating	Part Number	
				UL 94V-2, Natural	UL 94V-0, White
12	Y	N	Tin	1-1586489-2	1-1586493-2
	Y	N	30 Gold	1-1586490-2	1-1586494-2
	N	N	Tin	1-1586491-2	1-1586495-2
	N	N	30 Gold	1-1586492-2	1-1586496-2
	Y	Y	Tin	1-794307-1	1-794470-1
	Y	Y	30 Gold	1-794307-2	1-794470-2
	N	Y	Tin	1-794354-1	1-794488-1
	N	Y	30 Gold	1-794354-2	1-794488-2

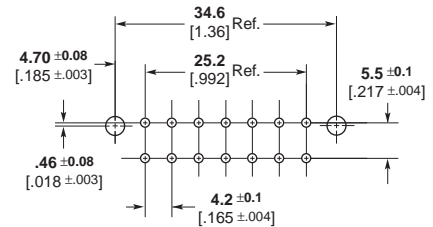
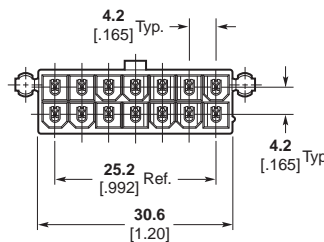
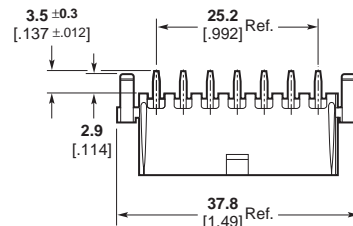
14 Position, with and without Pegs and with and without Drain Holes

Material and Finish

Housing—Nylon
UL 94V-2, Natural color
UL 94V-0, White color
Contacts—0.25 [.010] thick copper alloy

Related Product Data

Mate with—Receptacle housings (page 126).
Technical Documents—pages 125 and 205-206



Recommended PC Board Layout

Number of Positions	PCB Pegs	Drain Holes	Plating	Part Number	
				UL 94V-2, Natural	UL 94V-0, White
14	Y	N	Tin	1-1586489-4	1-1586493-4
	Y	N	30 Gold	1-1586490-4	1-1586494-4
	N	N	Tin	1-1586491-4	1-1586495-4
	N	N	30 Gold	1-1586492-4	1-1586496-4
	Y	Y	Tin	1-794308-1	1-794453-1
	Y	Y	30 Gold	1-794308-2	1-794453-2
	N	Y	Tin	1-794355-1	1-794489-1
	N	Y	30 Gold	1-794355-2	1-794489-2

Note: All part numbers are RoHS Compliant.

High Density

AMP-DUAC Connectors
.165 [4.20] Centerline

AMP-DUAC Connectors (Continued)

Vertical Header Assemblies (Continued)

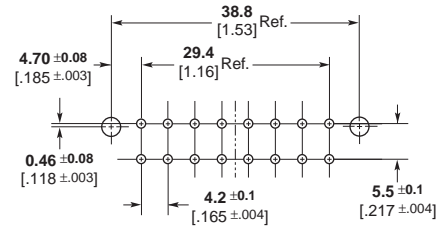
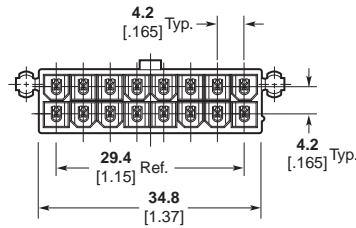
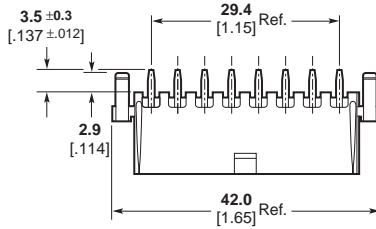
16 Position, with and without Pegs and with and without Drain Holes

Material and Finish

Housing—Nylon
UL 94V-2, Natural color
UL 94V-0, White color
Contacts—0.25 [.010] thick copper alloy

Related Product Data

Mate with—Receptacle housings (page 126).
Technical Documents—pages 125 and 205-206



Recommended PC Board Layout

Number of Positions	PCB Pegs	Drain Holes	Plating	Part Number	
				UL 94V-2, Natural	UL 94V-0, White
16	Y	N	Tin	1-1586489-6	1-1586493-6
	Y	N	30 Gold	1-1586490-6	1-1586494-6
	N	N	Tin	1-1586491-6	1-1586495-6
	N	N	30 Gold	1-1586492-6	1-1586496-6
	Y	Y	Tin	1-794309-1	1-794429-1
	Y	Y	30 Gold	1-794309-2	1-794429-2
	N	Y	Tin	1-794356-1	1-794490-1
	N	Y	30 Gold	1-794356-2	1-794490-2

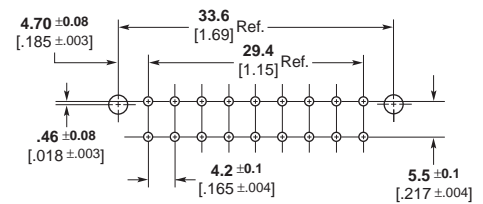
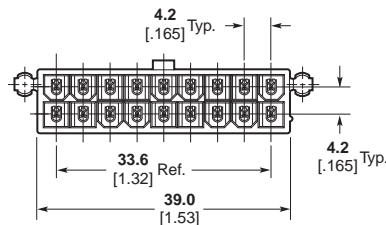
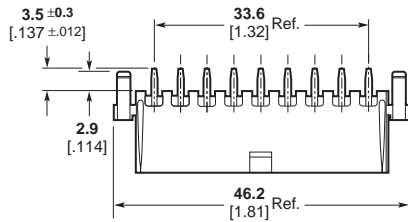
18 Position, with and without Pegs and with and without Drain Holes

Material and Finish

Housing—Nylon
UL 94V-2, Natural color
UL 94V-0, White color
Contacts—0.25 [.010] thick copper alloy

Related Product Data

Mate with—Receptacle housings (page 126).
Technical Documents—pages 125 and 205-206



Recommended PC Board Layout

Number of Positions	PCB Pegs	Drain Holes	Plating	Part Number	
				UL 94V-2, Natural	UL 94V-0, White
18	Y	N	Tin	1-1586489-8	1-1586493-8
	Y	N	30 Gold	1-1586490-8	1-1586494-8
	N	N	Tin	1-1586491-8	1-1586495-8
	N	N	30 Gold	1-1586492-8	1-1586496-8
	Y	Y	Tin	1-794310-1	1-794454-1
	Y	Y	30 Gold	1-794310-2	1-794454-2
	N	Y	Tin	1-794357-1	1-794491-1
	N	Y	30 Gold	1-794357-2	1-794491-2

Note: All part numbers are RoHS Compliant.

AMP-DUAC Connectors (Continued)

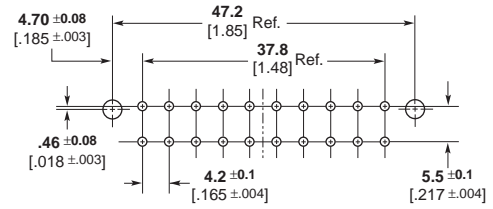
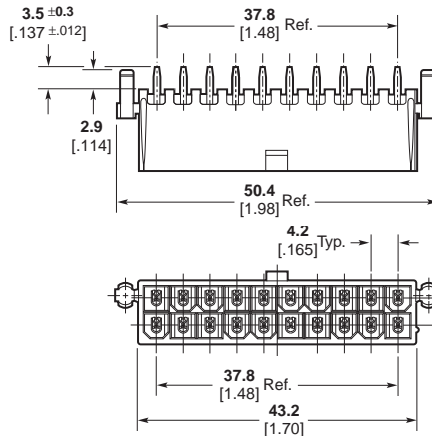
Vertical Header Assemblies (Continued)

20 Position, with and without Pegs and with and without Drain Holes

Material and Finish

Housing—Nylon
UL 94V-2, Natural color
UL 94V-0, White color

Contacts—0.25 [.010] thick copper alloy



Recommended PC Board Layout

Related Product Data

Mate with—Receptacle housings (page 126).

Technical Documents—pages 125 and 205-206

Number of Positions	PCB Pegs	Drain Holes	Plating	Part Number	
				UL 94V-2, Natural	UL 94V-0, White
20	Y	N	Tin	2-1586489-0	2-1586493-0
	Y	N	30 Gold	2-1586490-0	2-1586494-0
	N	N	Tin	2-1586491-0	2-1586495-0
	N	N	30 Gold	2-1586492-0	2-1586496-0
	Y	Y	Tin	1-794311-1	1-794455-1
	Y	Y	30 Gold	1-794311-2	1-794455-2
	N	Y	Tin	1-794358-1	1-794492-1
	N	Y	30 Gold	1-794358-2	1-794492-2

High Temperature Headers

IR Reflow compatible, UL 94V-0, Black color

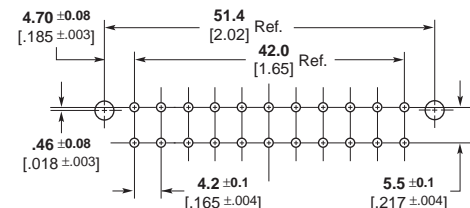
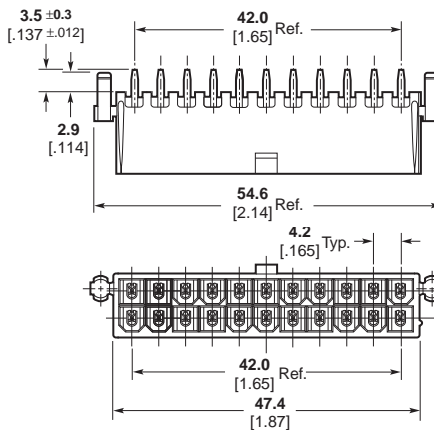
Number of Positions	PCB Pegs	Drain Holes	Plating	Part Number
				UL 94V-0, Black
20	N	N	Tin	1-794415-1
	N	N	30 Gold	1-794415-2

22 Position, with and without Pegs and with and without Drain Holes

Material and Finish

Housing—Nylon
UL 94V-2, Natural color
UL 94V-0, White color

Contacts—0.25 [.010] thick copper alloy



Recommended PC Board Layout

Related Product Data

Mate with—Receptacle housings (page 126).

Technical Documents—pages 125 and 205-206

Number of Positions	PCB Pegs	Drain Holes	Plating	Part Number	
				UL 94V-2, Natural	UL 94V-0, White
22	Y	N	Tin	2-1586489-2	2-1586493-2
	Y	N	30 Gold	2-1586490-2	2-1586494-2
	N	N	Tin	2-1586491-2	2-1586495-2
	N	N	30 Gold	2-1586492-2	2-1586496-2
	Y	Y	Tin	1-794312-1	1-794471-1
	Y	Y	30 Gold	1-794312-2	1-794471-2
	N	Y	Tin	1-794359-1	1-794493-1
	N	Y	30 Gold	1-794359-2	1-794493-2

Note: All part numbers are RoHS Compliant.

AMP-DUAC Connectors (Continued)

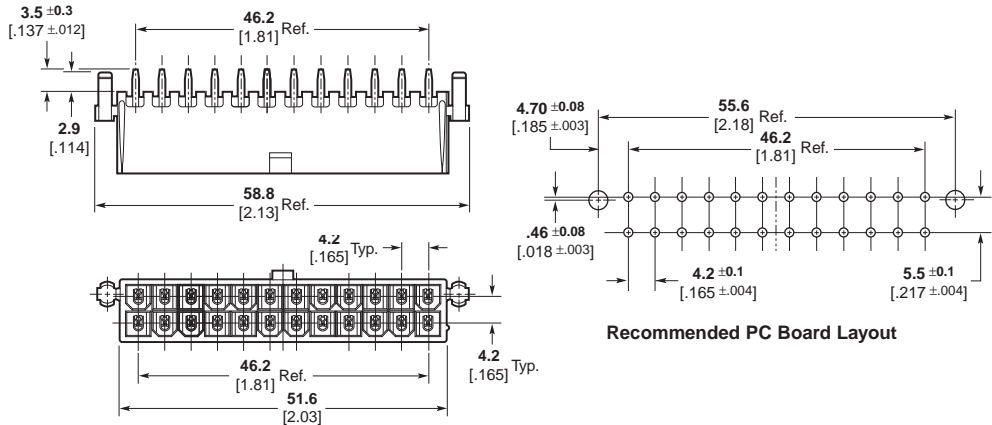
Vertical Header Assemblies (Continued)

24 Position, with and without Pegs and with and without Drain Holes

Material and Finish

Housing—Nylon
UL 94V-2, Natural color
UL 94V-0, White color

Contacts—0.25 [.010] thick copper alloy



Recommended PC Board Layout

Related Product Data

Mate with—Receptacle housings (page 126).

Technical Documents—pages 125 and 205-206

Number of Positions	PCB Pegs	Drain Holes	Plating	Part Number	
				UL 94V-2, Natural	UL 94V-0, White
24	Y	N	Tin	2-1586489-4	2-1586493-4
	Y	N	30 Gold	2-1586490-4	2-1586494-4
	N	N	Tin	2-1586491-4	2-1586495-4
	N	N	30 Gold	2-1586492-4	2-1586496-4
	Y	Y	Tin	794313-3	1-794472-1
	Y	Y	30 Gold	794313-4	1-794472-2
	N	Y	Tin	1-794360-1	1-794494-1
	N	Y	30 Gold	1-794360-2	1-794494-2

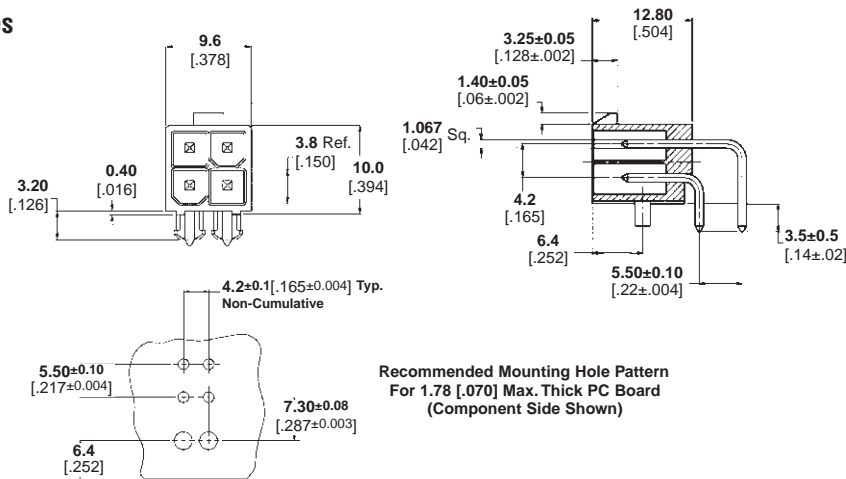
Right-Angle Header Assemblies

2-24 Position, with Pegs and without Drain Holes

Material and Finish

Housing—Nylon
UL 94V-2, Natural color
UL 94V-0, White color

Contacts—Copper alloy



Recommended Mounting Hole Pattern For 1.78 [.070] Max. Thick PC Board (Component Side Shown)

Number of Positions	PCB Pegs	Drain Holes	Plating	Part Number	
				UL 94V-2, Natural	UL 94V-0, White
2	Y	N	Tin	1-794507-1	1-794526-1
4	Y	N	Tin	1-794508-1	1-794527-1
6	Y	N	Tin	1-794448-1	1-794528-1
8	Y	N	Tin	1-794509-1	1-794529-1
10	Y	N	Tin	1-794510-1	1-794530-1
12	Y	N	Tin	1-794511-1	1-794531-1
14	Y	N	Tin	1-794512-1	1-794532-1
16	Y	N	Tin	1-794513-1	1-794533-1
18	Y	N	Tin	1-794514-1	1-794588-1
20	Y	N	Tin	1-794449-1	1-794534-1
22	Y	N	Tin	1-794515-1	1-794589-1
24	Y	N	Tin	1-794516-1	1-794590-1



Note: All part numbers are RoHS Compliant.

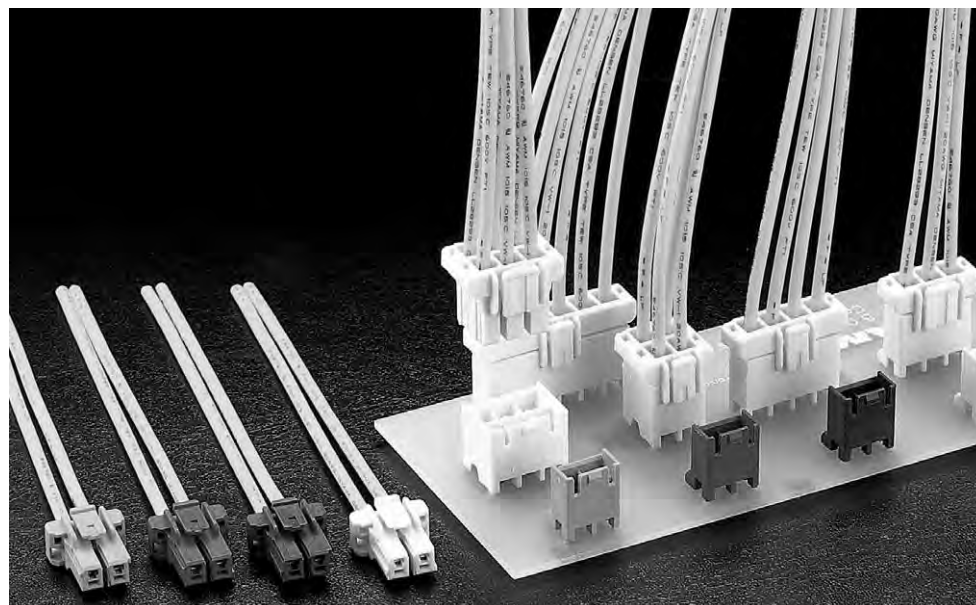
Engineering Notes



5.0 mm Power Key Connectors (5.0 PKC) (Wire-to-Board)

Product Facts

- Compact design with 19.4 mm mated height
- Power circuit connector with 5.0 mm contact centerline
- Wire-to-board connectors consisting of plug housings for wires and PCB header assemblies
- With a clear clicking sound, contact insertions can be made easier. The double lock plate provides for complete loading of contacts
- Locking levers are surrounded by walls, which protect levers and prevent tangling with wires
- Connector is designed to release bubbles created by the process of potting (PC board coating)
- Housing lances also help prevent tangling of wired contacts
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR7189 



5.0 mm Power Key Connectors are for power circuits of home appliances, especially targeting gas appliances. The connector features four kinds of keying per housing.

Only color-coding of housings limited the efficiency of blind mating where you could not see connectors. However, the new keying mechanism not only improves assembly efficiency but also helps prevent mismatching.

Part numbers involved can be reduced so that purchasing and stock level control can be made simpler.

Performance Characteristics

- Voltage Rating**—300 VAC¹
- Current Rating**—10A max.²
- Operating Temperature**—
-30°C ~ +105°C
- Applicable Wire**—24-16 AWG
- Applicable PC Board Thickness**—
1.6 mm

¹ Excludes header tyne round space. Usable for 150 VAC applications when the round dimensions are 3 mm or less.

² Specified values vary according to the number of contacts and the wire used. The 10 A maximum value applies to 16 AWG wire used with 2 contacts.

Technical Documents

- Product Specification**
108-5699
- Application Specification**
114-5292

5.0 mm Power Key Connectors (5.0 PKC) (Wire-to-Board) (Continued)

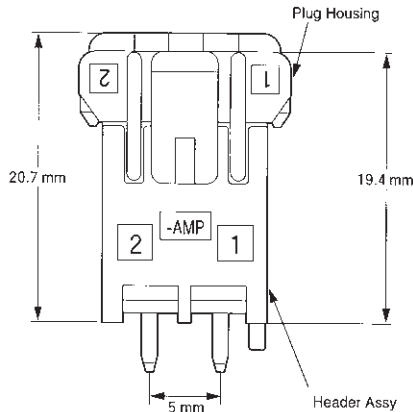
Quick Reference Chart for Mating Part Numbers

No. of Pos.	Plug Housing		Applicable Double Lock Plate Part Number	Mating Header Assy. Part Number	
	Type of Keying/Color	Part Number			
2	Type A/Natural	1376388-1	1376394-1	1376382-1	
	Type B/Red	1-1376388-2	1376394-1	1-1376382-2	
	Type C/Blue	2-1376388-3	1376294-1	2-1376382-3	
	Type D/Yellow	3-1376388-4	1376394-1	3-1376382-4	
3	Type A/Natural	1376389-1	1376395-1	1376383-1	1376421-1
	Type B/Red	1-1376389-2	1376395-1	1-1376383-2	1-1376421-2
	Type C/Blue	2-1376389-3	1376395-1	2-1376383-3	2-1376421-3
	Type D/Yellow	3-1376389-4	1376395-1	3-1376383-4	3-1376421-4
4	Type A/Natural	1376390-1	1376396-1	1376384-1	
	Type B/Red	1-1376390-2	1376396-1	1-1376384-2	
	Type C/Blue	2-1376390-3	1376396-1	2-1376384-3	
	Type D/Yellow	3-1376390-4	1376396-1	3-1376384-4	
6	Type A/Natural	1376391-1	1376397-1	1376385-1	
	Type B/Red	1-1376391-2	1376397-1	1-1376385-2	
	Type C/Blue	2-1376391-3	1376397-1	2-1376385-3	
	Type D/Yellow	3-1376391-4	1376397-1	3-1376385-4	
2 Row					
4	Type A/Natural	1376392-1	1376394-1	1376386-1	
	Type B/Red	1-1376392-2	1376394-1	1-1376386-2	
	Type C/Blue	2-1376392-3	1376394-1	2-1376386-3	
	Type D/Yellow	3-1376392-4	1376394-1	3-1376386-4	
6	Type A/Natural	1376393-1	1376395-1	1376387-1	
	Type B/Red	1-1376393-2	1376395-1	1-1376387-2	
	Type C/Blue	2-1376393-3	1376395-1	2-1376387-3	
	Type D/Yellow	3-1376393-4	1376395-1	3-1376387-4	

*Included in Header Assy. line are Tube Stick version. Refer to the appropriate description in the catalog.

Note: All part numbers are RoHS Compliant.

Mating Configurations



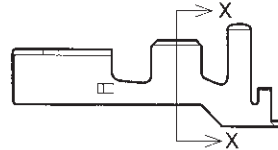
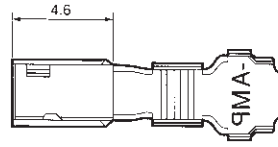
Note: Dimensions shown are metric.

5.0 mm Power Key Connectors .197 [5.00] Centerline Standard Density

5.0 mm Power Key Connectors (5.0 PKC) (Wire-to-Board) (Continued)

Receptacle Contacts

Material and Finish
Pre-tinned Copper Alloy



Wire Range		Wire Ins. Dia.	Receptacle Contact Part No.	Applicator Part No.
AWG	mm ²			
24~20	0.22~0.53	1.89~2.7	1376348-1 (Strip Form)	*
20~16	0.5~1.25	2.0~3.1	1376347-1 (Strip Form)	*

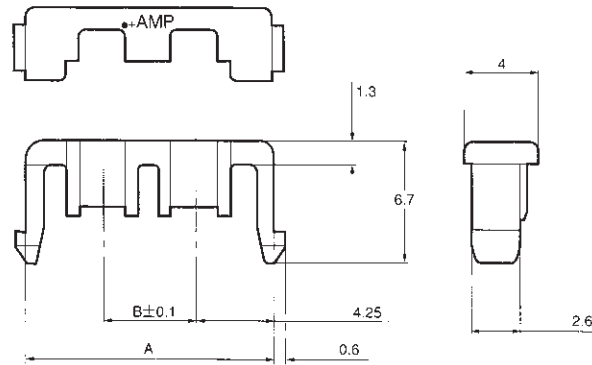
* Contact the Tooling Assistance Center (TAC) at 1-800-722-1111 for Applicator Part Number.

Note: Dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

Double Lock Plates

Material and Finish
UL94V-0, 6/6 Nylon, glass filled, Black



No. of Pos.	Dimensions (Double Lock Plate)		Double Lock Plate Part No.	Applicable Plug Part No.	
	A	B			
2	13.5	5	1376394-1	□-1376388-□	□-1376392-□
3	18.5	10	1376395-1	□-1376389-□	□-1376393-□
4	23.5	15	1376396-1	□-1376390-□	
6	33.5	25	1376397-1	□-1376391-□	

* Contact the Tooling Assistance Center (TAC) for Applicator Part Number.

Note: Dimensions shown are metric.

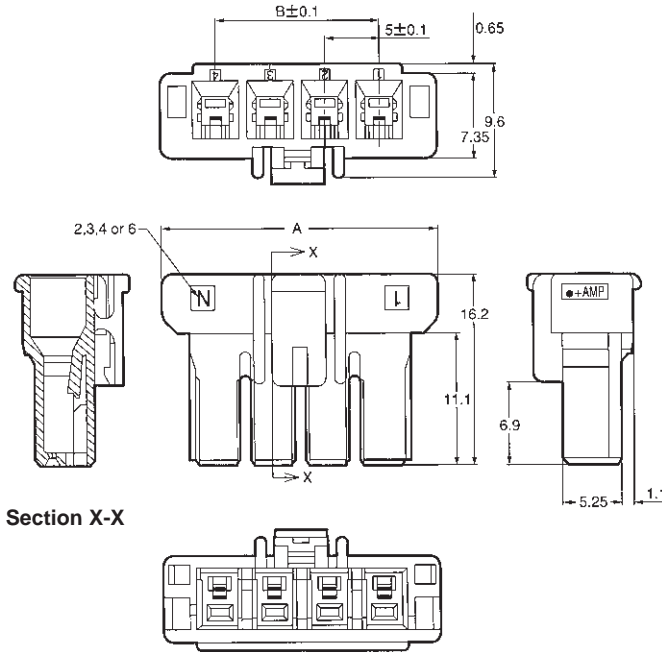
Note: All part numbers are RoHS Compliant.

5.0 mm Power Key Connectors (5.0 PKC) (Wire-to-Board) (Continued)

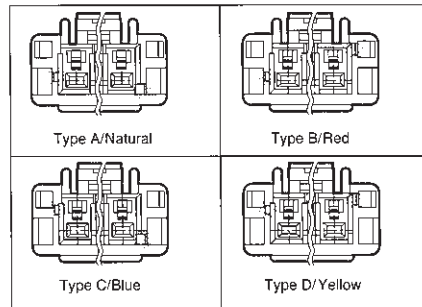
**Plug Housings
(For Receptacle Contacts)**

Material and Finish
Housing—6/6 Nylon, glass filled

Related Product Data
Receptacle Contacts—page 137
Double Lock Plates—page 137
Mating Headers—page 140



Type of Keying/Color



No. of Pos.	Dimensions		Plug Housing Part No.				Applicable Double Lock Plate Part Number	Mating Header Assy. Part Number
	A	B	Type of Keying/Color					
			Type A Natural	Type B Red	Type C Blue	Type D Yellow		
2	15	—	1376388-1	1-1376388-2	2-1376388-3	3-1376388-4	1376394-1	□-1376382-□
3	20	10	1376389-1	1-1376389-2	2-1376389-3	3-1376389-4	1376395-1	□-1376383-□ □-1376421-□
4	25	15	1376390-1	1-1376390-2	2-1376390-3	3-1376390-4	1376396-1	□-1376384-□
6	35	25	1376391-1	1-1376391-2	2-1376391-3	3-1376391-4	1376397-1	□-1376385-□

Note: Dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

5.0 mm Power Key Connectors .197 [5.00] Centerline Standard Density

5.0 mm Power Key Connectors (5.0 PKC) (Wire-to-Board) (Continued)

**Plug Housing (2 Rows)
(For Receptacle Contacts)**

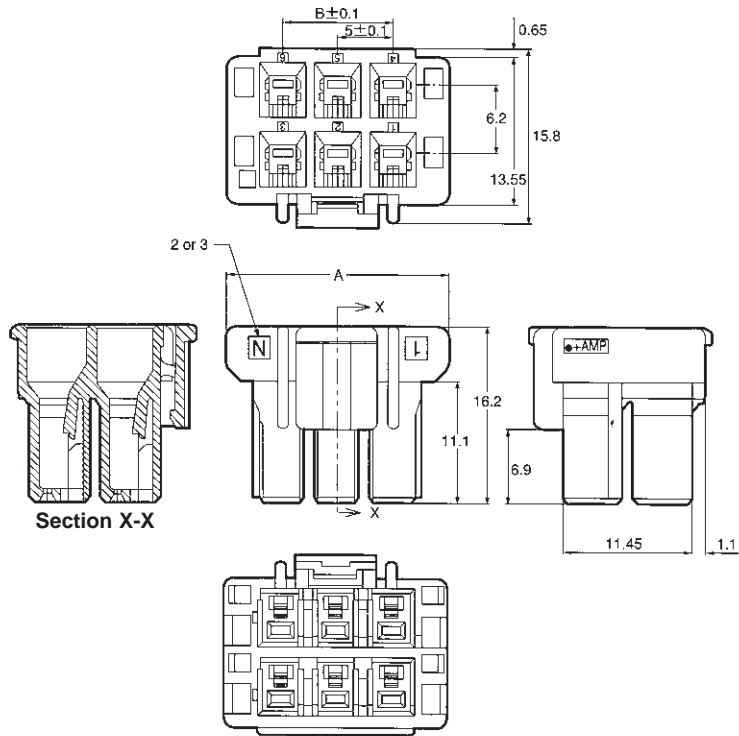
Material and Finish
Housing—6/6 Nylon, glass filled

Related Product Data

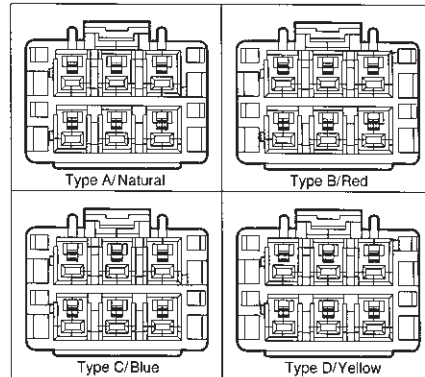
Receptacle Contacts—page 137

Double Lock Plates—page 137

Mating Headers—page 141



Type of Keying/Color



No. of Pos.	Dimensions		Plug Housing Part No. Type of Keying/Color				Applicable Double Lock Plate Part Number	Mating Header Assy. Part Number
	A	B	Type A Natural	Type B Red	Type C Blue	Type D Yellow		
4	15	—	1376392-1	1-1376392-2	2-1376392-3	3-1376392-4	1376394-1	□-1376386-□
6	20	10	1376393-1	1-1376393-2	2-1376393-3	3-1376393-4	1376395-1	□-1376387-□

Note: Dimensions shown are metric.

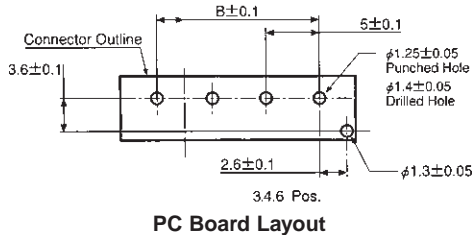
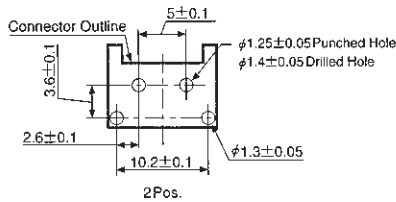
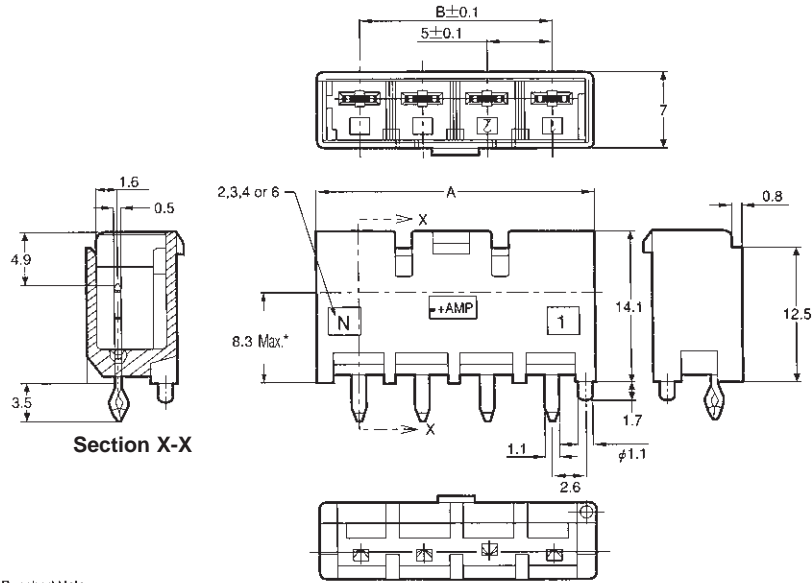
Note: All part numbers are RoHS Compliant.

5.0 mm Power Key Connectors (5.0 PKC) (Wire-to-Board) (Continued)

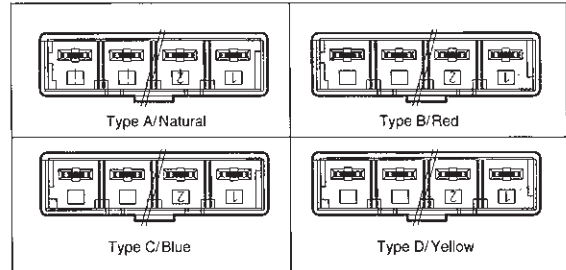
Vertical Header Assembly

Material and Finish
Housing—6/6 Nylon, glass filled
Tab Contacts -Copper Alloy, Tin plated

Related Product Data
Mating Plug Housings—page 138



Type of Keying/Color



No. of Pos.	Dimensions		Loose Piece Tube (Qty.)	Vertical Header Assy. Part No. Type of Keying/Color				Mating Plug Housing Part Number
	A	B		Type A Natural	Type B Red	Type C Blue	Type D Yellow	
2	11.6	—	L.P.	1376382-1	1-1376382-2	2-1376382-3	3-1376382-4	□-1376388-□
			Tube	1376437-1 (40)	1-1376437-2 (40)	2-1376437-3 (40)	3-1376437-4 (40)	
3	16.6	10	L.P.	1376383-1	1-1376383-2	2-1376383-3	3-1376383-4	□-1376389-□
			Tube	1376439-1 (25)	1-1376439-2 (25)	2-1376439-3 (25)	3-1376439-4 (25)	
4	21.6	15	L.P.	1376384-1	1-1376384-2	2-1376384-3	3-1376384-4	□-1376390-□
			Tube	1376440-1 (20)	1-1376440-2 (20)	2-1376440-3 (20)	3-1376440-4 (20)	
6	31.6	25	L.P.	1376385-1	1-1376385-2	2-1376385-3	3-1376385-4	□-1376391-□
			Tube	1376441-1 (15)	1-1376441-2 (15)	2-1376441-3 (15)	3-1376441-4 (15)	
2*	16.6	10	L.P.	1376421-1	1-1376421-2	2-1376421-3	3-1376421-4	□-1376389-□
			Tube	1376444-1 (25)	1-1376444-2 (25)	2-1376444-3 (25)	3-1376444-4 (25)	

*10 mm centerline

Note: Dimensions shown are metric.

Note: All part numbers are RoHS Compliant.

Standard Density
5.0 mm Power Key Connectors .197 [5.00] Centerline

5.0 mm Power Key Connectors (5.0 PKC) (Wire-to-Board) (Continued)

**Vertical Header Assembly
(2 Rows)**

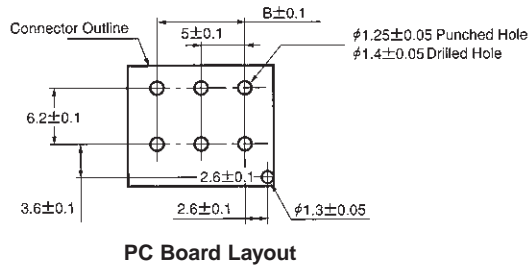
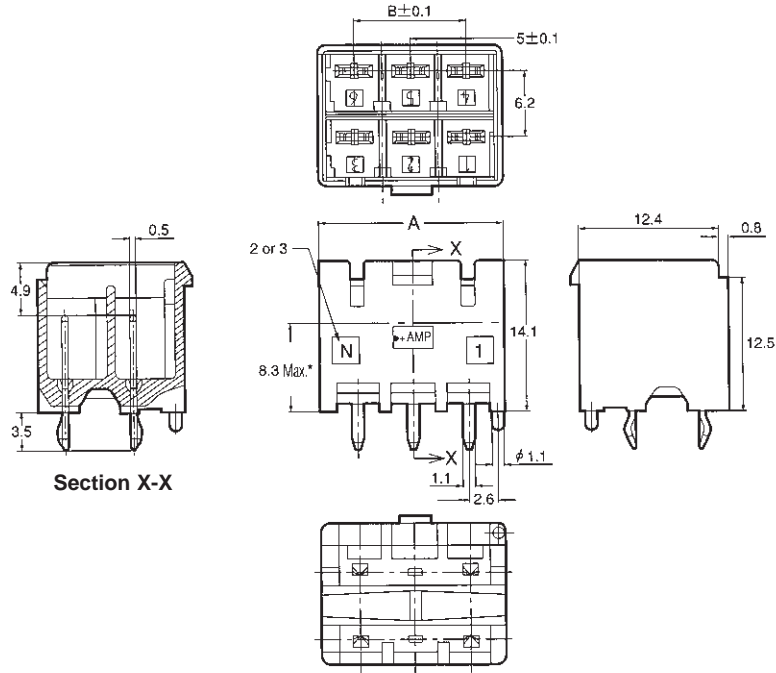
Material and Finish

Housing—6/6 Nylon, glass filled

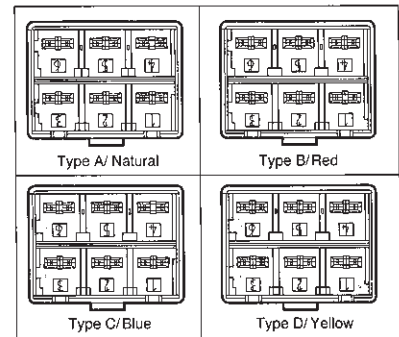
Tab Contacts—Copper Alloy, Tin plated

Related Product Data

Mating Plug Housings—page 139



Type of Keying/Color



No. of Pos.	Dimensions		Loose Piece Tube (Qty.)	Vertical Header Assy. Part No. Type of Keying/Color				Mating Plug Housing Part Number
	A	B		Type A Natural	Type B Red	Type C Blue	Type D Yellow	
4	11.6	—	L.P.	1376386-1	1-1376386-2	2-1376386-3	3-1376386-4	□-1376392-□
			Tube	1376442-1 (40)	1-1376442-2 (40)	2-1376442-3 (40)	3-1376442-4 (40)	
6	16.6	10	L.P.	1376387-1	1-1376387-2	2-1376387-3	3-1376387-4	□-1376393-□
			Tube	1376443-1 (25)	1-1376443-2 (25)	2-1376443-3 (25)	3-1376443-4 (25)	

Note: Dimensions shown are metric.



Note: All part numbers are RoHS Compliant.

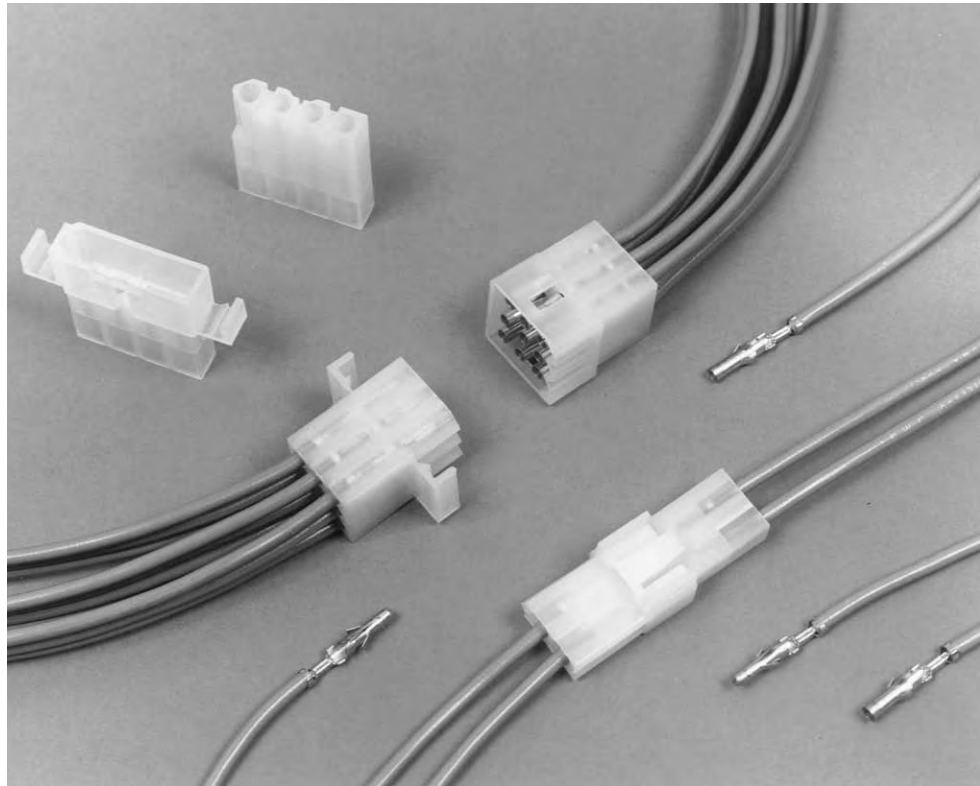
Engineering Notes



.093 [2.36] Commercial Pin and Socket Connectors

Product Facts

- Polarized
- Cavity identification
- Low contact-mating force
- Dual locking lances
- Detent and positive locking
- Contacts available in brass and phosphor bronze with tin and gold plating
- Panel mounting and free-hanging styles
- “F” crimp contacts
- Applicator and hand tool available
- Economical commercial-grade connectors
- Compatible with high-speed application machinery and competitive soft shells
- Wire range 24 to 14 AWG [0.2 to 2 mm²]
- Accepts wires with insulation diameters as large as .180 [4.57]
- Housings available in 1 to 15 positions
- .093 plug and receptacle housings accept pin or socket contacts. The preferred convention is to use socket contacts with receptacle housings
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



Performance Characteristics

The .093 Commercial Pin and Socket Connectors performance characteristics found on pages 143-144 are based on free-hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Thermal Shock— -55°C to +105°C

Temperature-Humidity Cycling— +25°C to +65°C at 90–95% RH

Corrosion—48 hr. at 5% salt concentration

Vibration—10-55-10 cycles per minute at .06 [1.52] total excursion

Physical Shock—18 shocks, 50 Gs sawtooth in 11 milliseconds

Durability—50 mating cycles

Dielectric Withstanding Voltage— 1.0 kVAC

Insulation Resistance— 1000 megohms min. initial

Voltage Rating—250 V AC or DC

Connector Mating— 2.5 lb. [11.1 N] max. per contact

Connector Unmating— 1.5 lb. [6.7 N] min. per contact

Contact Retention— 10 lb. [44.5 N] min.

Technical Documents

Application Specification
114-49000 .093 Commercial Pin and Socket Connectors

Product Specification
108-1038 .093 Commercial Pin and Socket Connectors

.093 [2.36] Commercial Pin and Socket Connectors (Continued)

Performance Characteristics (continued)

Maximum Current—Maximum current rating of .093 Commercial Pin and Socket Connectors is limited by the maximum operating temperature of the housings which is 105°C including the temperature rise of the contacts which is a maximum of 30°C. There are several variables which have a direct effect on this maximum current-carrying capability for a given connector and must be considered for each application. These variables are:

Wire Size—Larger diameter wire will carry more current since it has less internal resistance to current flow and thus generates less heat. Longer wire lengths also enhance current-carrying capabilities since the wire conducts heat away from the connector.

Connector Size—In general, the more circuits in a connector, the less current can be carried.

Ambient Temperature—The higher the ambient temperature, the less current can be carried in any given connector.

Related Product Data

Product Specification — 108-1038

Current Rating Verification for 30°C Maximum Temperature Rise 100% Energized

Wire-to-Wire

.093 Commercial Pin and Socket Connectors — Calculated Current Table

Number of Circuits	Wire AWG					
	14	16	18	20	22	24
2	13.00	12.00	11.00	8.00	6.00	6.00
3	13.00	11.00	10.00	8.00	6.00	5.00
4 In-Line	11.00	10.00	9.00	7.00	5.00	4.00
4 Matrix	11.00	10.00	9.00	7.00	5.00	4.00
5	10.00	9.00	8.00	6.00	5.00	4.00
6	10.00	9.00	8.00	6.00	4.00	4.00
9	9.00	7.00	6.00	5.00	4.00	3.00
12	8.00	7.00	6.00	4.00	3.00	3.00
15	7.00	6.00	5.00	4.00	3.00	3.00

Values are based on initial Temperature Rise versus Current Testing and are intended to be a guide in the selection of a connector family. All applications should be tested by the end user. The values listed are per circuit for fully loaded housings being 100% energized. **Note:** All combinations were not tested and this chart contains interpolated and extrapolated values.

Minimum Wire Lengths for T-Rise vs. Current Testing

AWG	Min. Length (in.)	AWG	Min. Length (in.)
30	2.6	18	9.4
28	3.2	16	11.3
26	4.1	14	13.7
24	5.1	12	16.4
20	7.8	10	19.3

Note: If wire lengths used are less than those listed above, the current-carrying ability of the system will be reduced due to less heat being conducted away from the connector. The customer should fully test all applications.

Termination Resistance/Contact Crimp Tensile Force

Wire Size		Termination Resistance		Contact Crimp Tensile Force	
AWG	mm ²	Test Current (Amps)	Resistance Milliohms (Max. Init.)	Force (Min.)	
				lbs.	N
24	0.2	2.0	4.0	8	35.6
22	0.3–0.4	3.0	4.0	10	44.5
20	0.5–0.6	4.5	4.0	15	66.7
18	0.8–0.9	6.0	3.5	25	111.2
16	1.25–1.4	8.0	3.5	25	111.2
14	2	10.0	3.0	30	133.4

Note: This is the total resistance between wire crimps of a mated pin and socket.

.093 [2.36] Commercial Pin and Socket Connectors (Continued)

Contacts

Pin Diameter .093 [2.36]

Material

.010 [0.25] Stock Thickness

Pin and socket contacts can be used in either plug or receptacle housings.

Related Product Data

Product Specification — 108-1038

Application Specification
114-49000

Performance Characteristics —
pages 143-144

Housings

.198 [5.03] Centerline—pages 146-147

.250 [6.35] Centerline—pages 148-149

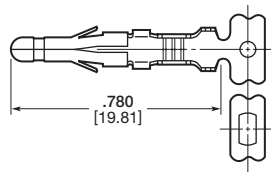
Panel Cutouts

.198 [5.03] Centerline Housings—
page 147

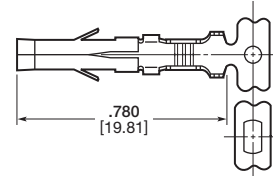
.250 [6.35] Centerline Housings—
page 148

Technical Documents—pages 143
and 205-206

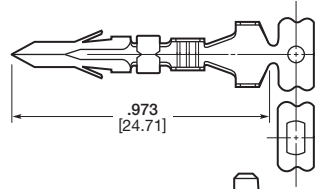
Application Tooling—pages 207-210



Pin

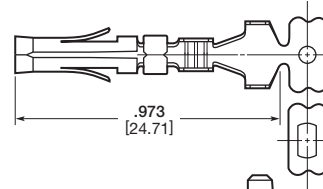


Socket



Pin

Part No. 770385-1



Socket

Part No. 770383-1



**Contact Insertion Tool
(For Pins and Sockets)
Part No. 91002-1
IS 408-7347**



**Contact Extraction Tool
Part No. 318837-1
IS 408-4375**

Wire Size AWG	mm ²	Ins. Dia.	Material & Finish	Contact Part Numbers				HDM Applicator Part No.	Hand Tool Part No.
				Pin		Socket			
				Strip Form	Loose Piece	Strip Form	Loose Piece		
24-18	0.2-0.9	.110 2.79	Brass, Pre-tin	350418-1	770147-1	350417-1	770146-1	466656-15 466656-25 466656-35	90872-1
			Brass, Gold ²	—	—	350417-3 ²	770146-3 ²		
			Brass Select Gold ¹	350418-5 ¹	770147-5 ¹	350417-5 ¹	770146-5 ¹		
20-14	0.6-2	.140 3.56	Brass, Pre-tin	350416-1	770145-1	350415-1	770144-1	466878-15 466878-25 466878-35	90871-1
			Brass, Select Gold ¹	350416-5 ¹	770145-5 ¹	350415-5 ¹	770144-5 ¹		
			Phos. Brz., Pre-tin	—	—	350415-6	770144-6		
18-14 or 2 (18)	0.8-2 or 2 (0.8-0.9)	.180 4.57	Brass, Pre-tin	770530-14	—	770529-14	—	567337-3 ⁶ 567337-4 ⁶ 567337-6 ⁶	—
			Phos. Brz., Pre-tin	—	—	770383-1 ³	—		
18-14 or 2 (18)	0.8-2 or 2 (0.8-0.9)	.180 4.57	Brass, Pre-tin	770385-1 ³	—	—	—	567273-2 ⁷ 567273-3 ⁷ 567273-4 ⁷	—
			Phos. Brz., Pre-tin	—	—	770383-1 ³	—		

¹Select Gold — .000030 [.000762] min gold in mating area over .000050 [.00127] min nickel.

²Gold — .000030 [.000762] min gold in mating area, overall gold flash over .000050 [.00127] min nickel.

³These contacts have a .0125 [.318] stock thickness and accept two wires, each with maximum .180 [4.57] insulation diameters. They can be used only with the following housing part numbers: 770364-1, 770365-1, 770450-1, 770451-1, 770452-1, and 770453-1 (see page 143).

⁴Contact length is .875 [22.23]

⁵HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3 is used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

⁶HDM Applicator part number ending in -3 is used on AMPOMATOR CLS Machine with T or G Terminators, -4 is used on AMP-O-LECTRIC Model K Machine, -6 is used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

⁷HDM Applicator part number ending in -3 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -4 is used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

Note: Phosphor bronze contacts should be used in high-temperature/humidity cycling applications.

Note: All part numbers are RoHS Compliant.

Standard Density

.093 [2.36] Commercial Pin and Socket Connectors
.198 [5.03] Centerline

.093 [2.36] Commercial Pin and Socket Connectors (Continued)

Housings

Free-Hanging or Panel Mount

.198 [5.03] Centerline spacing

Material

Housing—Nylon, natural color

Flammability Rating—

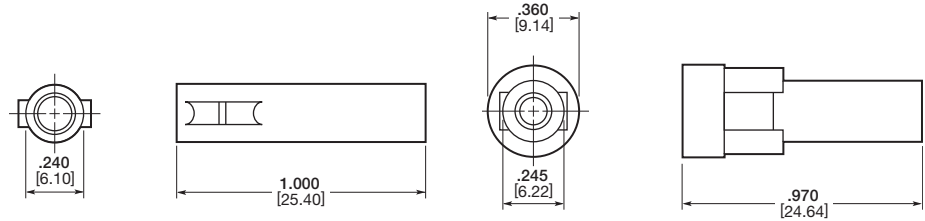
UL94-V-2

Related Product Data

Contacts—page 145

Product Specification—108-1038

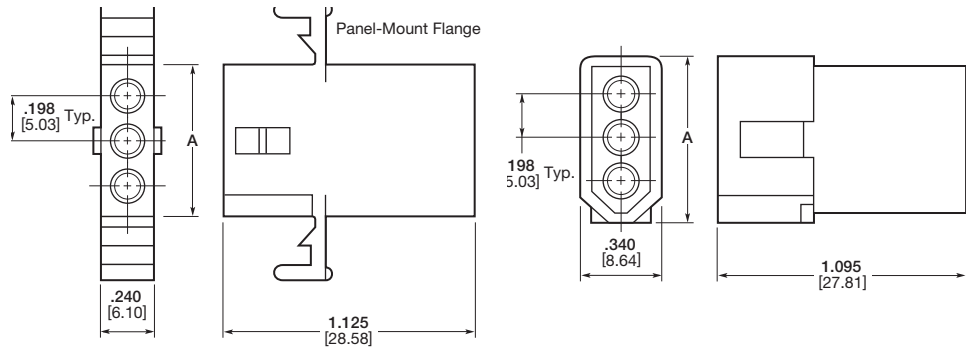
1 Circuit



Receptacle

Plug

2, 3, and 4 Circuit, In-Line



Receptacle

Plug

No. of Circuits	A Dimension		Receptacle Part Numbers				Plug Part Numbers	
	Receptacle	Plug	Panel Mount		Free-Hanging		Panel Mount	Free-Hanging
			Without Detents	With Detents	Without Detents	With Detents		
1	—	—	—	—	—	770063-1	—	770064-1
2	.540 13.72	.640 16.26	—	770066-11,5	—	770065-11,5 770266 ^{1,3,5}	770068-1 ¹	770069-1 ¹
3	.670 17.02	.770 19.56	—	770071-1	—	770070-1 770264-1 ³	770073-1	770074-1
4 (In-Line)	.870 22.10	.970 24.64	—	770076-1	—	770075-1	770077-1	770078-1
4 (Matrix)	.443 11.25	.540 13.71	—	—	—	770843-1	—	770842-1
5	1.070 27.18	1.170 29.72	—	—	—	770083-1 794015-1 ³	—	770084-1
6 (In-Line)	1.268 32.21	1.378 35.00	—	—	—	770782-1 ⁴	—	770892-1 ⁴
6 (Matrix)	.435 11.05	.535 13.59	770085-1	770087-1	770088-1	770086-1	770089-1	770090-1
9	.670 17.02	.770 19.56	770091-1	770093-1	770094-1	770092-1	770095-1 ² 770108-1	770096-1
12	.870 22.10	.970 24.64	770097-1	770099-1	770100-1	770098-1	770101-1	770102-1
15	1.070 27.18	1.170 29.72	770103-1	—	770105-1	—	770106-1	770107-1

¹2.248 [6.30] centerline.

²Mounting ears at wire end.

³Tool removable.

⁴Positive lock.

⁵600 V AC or DC

Note: All part numbers are RoHS Compliant.

Standard Density

.093 [2.36] Commercial Pin and Socket Connectors
.198 [5.03] Centerline

.093 [2.36] Commercial Pin and Socket Connectors (Continued)

Housings

Free-Hanging or Panel Mount

.198 [5.03] Centerline spacing

Material

Housing—Nylon, natural color

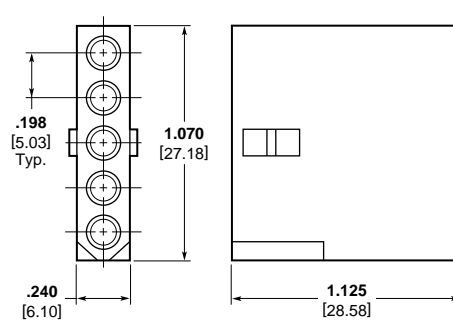
Flammability Rating—
UL94V-2

Related Product Data

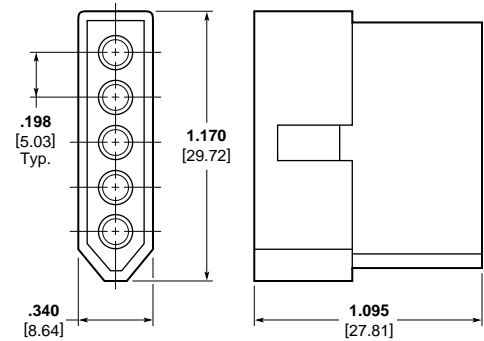
Contacts—page 145

Product Specification—108-1038

5 Circuit, In-Line

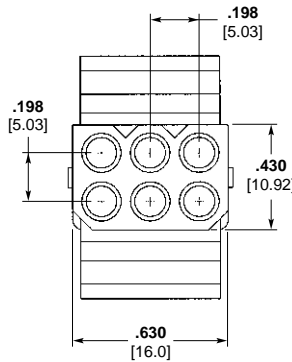


Receptacle (Free-Hanging)

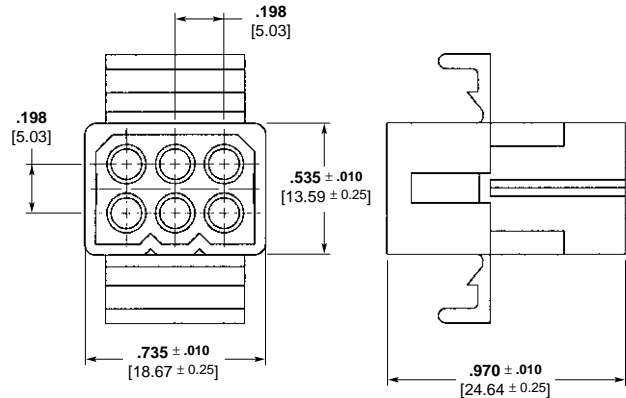


Plug (Free-Hanging)

4, 6, 9, 12, and 15 Circuit, Matrix



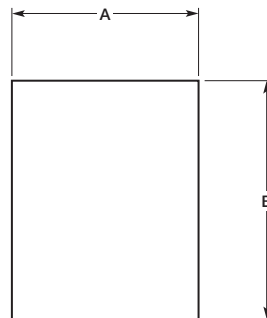
Receptacle



Plug

Recommended Panel Cutouts

Maximum panel thickness is .090 [2.29].



No. of Circuits	Panel Cutout Dimensions			
	Receptacle		Plug	
	A	B	A	B
2	.312 7.92	.725 18.42	.375 9.53	.800 20.32
3	.312 7.92	.840 21.34	.375 9.53	.933 23.70
4 (In-Line)	.312 7.92	1.038 26.37	.375 9.53	1.131 28.73
6	.600 15.24	.718 18.24	.695 17.65	.750 19.05
9	.725 18.42	.828 21.03	.660 16.76	.937 23.80
12	.725 18.42	1.050 26.67	.760 19.30	1.155 29.34
15	.655 16.64	1.240 31.50	.760 19.30	1.343 34.11

Note: The panel should be punched so that the housing enters in the same direction as the punch.

.093 [2.36] Commercial Pin and Socket Connectors (Continued)

Housings

Free-Hanging or Panel Mount

.250 [6.35] Centerline spacing

Material

Housing—Nylon, natural color

Flammability Rating—
UL94V-2

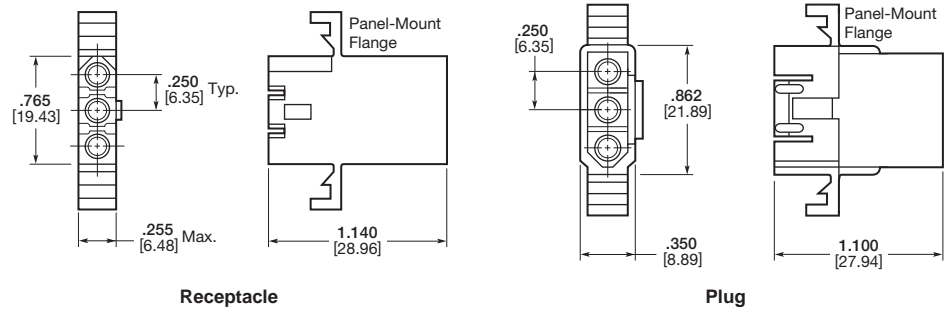
Voltage Rating—600 V AC or DC

Related Product Data

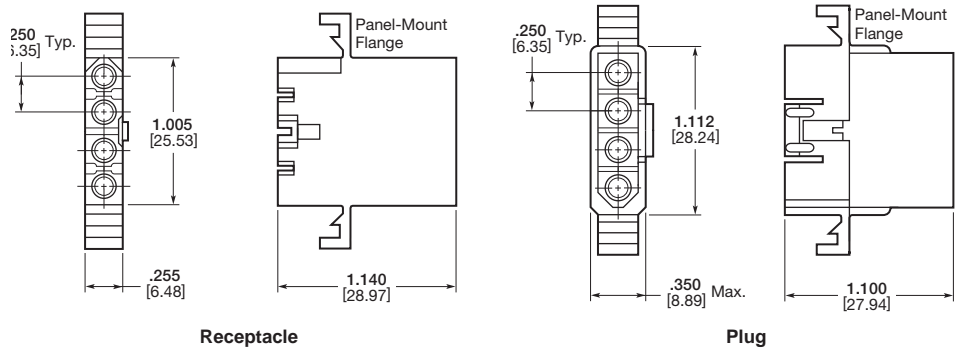
Contacts—page 145

Product Specification—108-1038

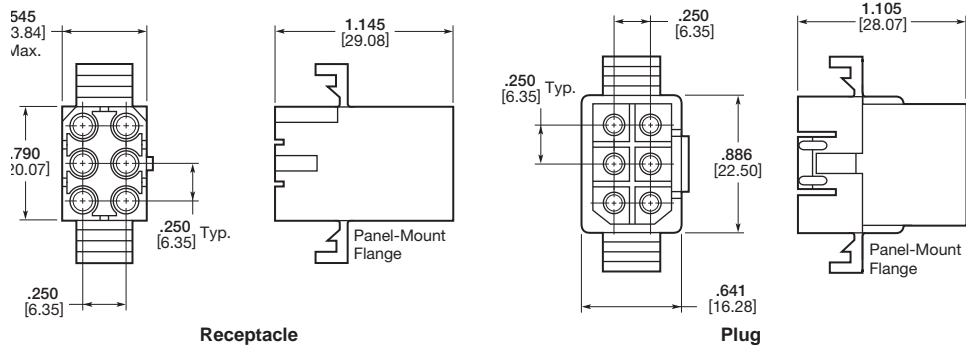
3 Circuit, In-Line



4 Circuit, In-Line



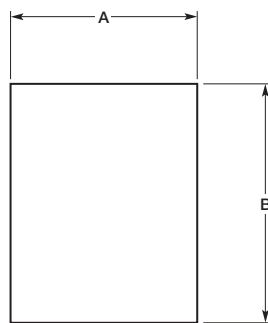
6 Circuit, Matrix



Recommended Panel Cutouts

Maximum panel thickness is
.062 [1.57].

Note: The panel should be punched so that the housing enters in the same direction as the punch.



No. of Circuits	Receptacle Part Numbers		Plug Part Numbers	
	Panel Mount	Free-Hanging	Panel Mount	Free-Hanging
3	770269-1 770771-11	770339-1	770338-1	770276-1
4	770329-1	770337-1	770330-1	770336-1
6	770372-1	770360-1	770373-1	770361-1

¹Pre-bent mounting ears.

No. of Circuits	Panel Cutout Dimensions			
	Receptacle		Plug	
	A	B	A	B
3	.310 7.87	.920 23.37	.365 9.27	1.022 25.96
4	.310 7.87	1.168 29.67	.365 9.27	1.270 32.26
6	.608 15.44	.946 24.03	.658 16.71	1.048 26.62

Note: All part numbers are RoHS Compliant.

Standard Density

.093 [2.36] Commercial Pin and Socket Connectors
.198 [5.03] Centerline

.093 [2.36] Commercial Pin and Socket Connectors (Continued)

Housings

Free-Hanging or Panel Mount

.250 [6.35] Centerline spacing

Material

Housing—Nylon, natural color

Flammability Rating—
UL94V-2

Voltage Rating—600 V AC or DC

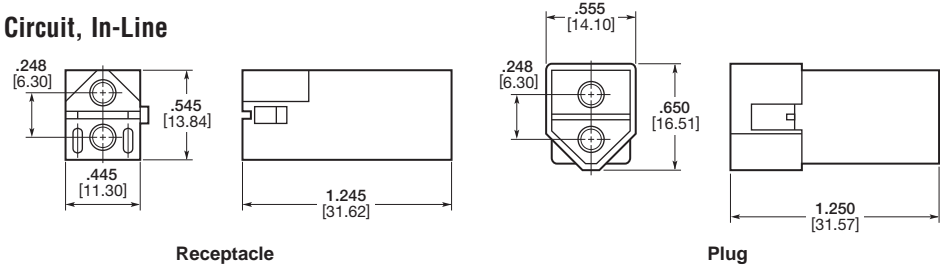
Related Product Data

Contacts—page 145

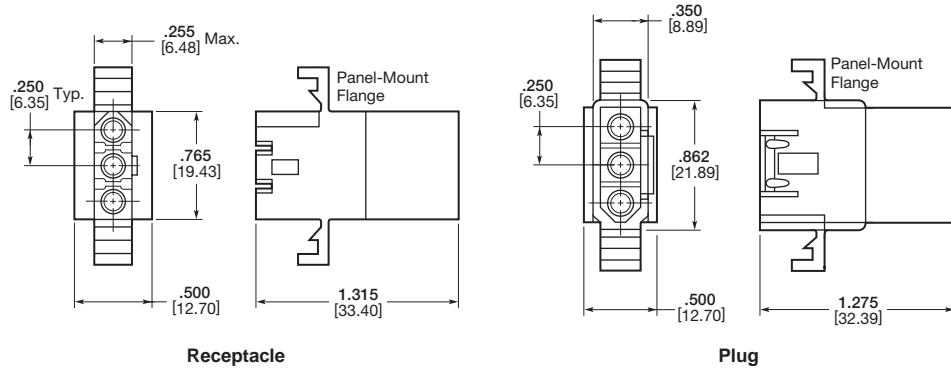
Product Specification—108-1038

Dual Wire

2 Circuit, In-Line



3 Circuit, In-Line



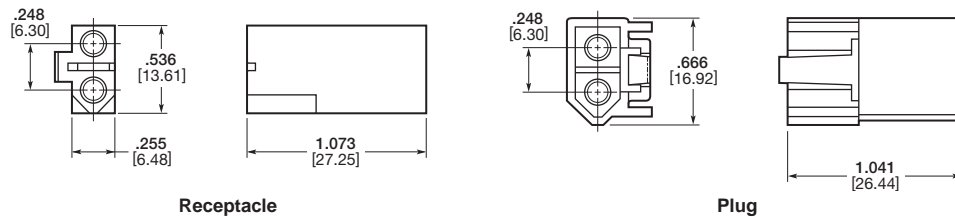
No. of Circuits	Receptacle Part Numbers		Plug Part Numbers	
	Panel Mount	Free-Hanging	Panel Mount	Free-Hanging
2	—	770364-1 ¹	—	770365-1 ¹
3	770453-1 ²	770451-1	770452-1 ²	770450-1

¹1.248 [6.30] centerline.

²See panel cutout dimensions on page 58.

Positive Lock

2, 3 and 4 Circuit, In-Line

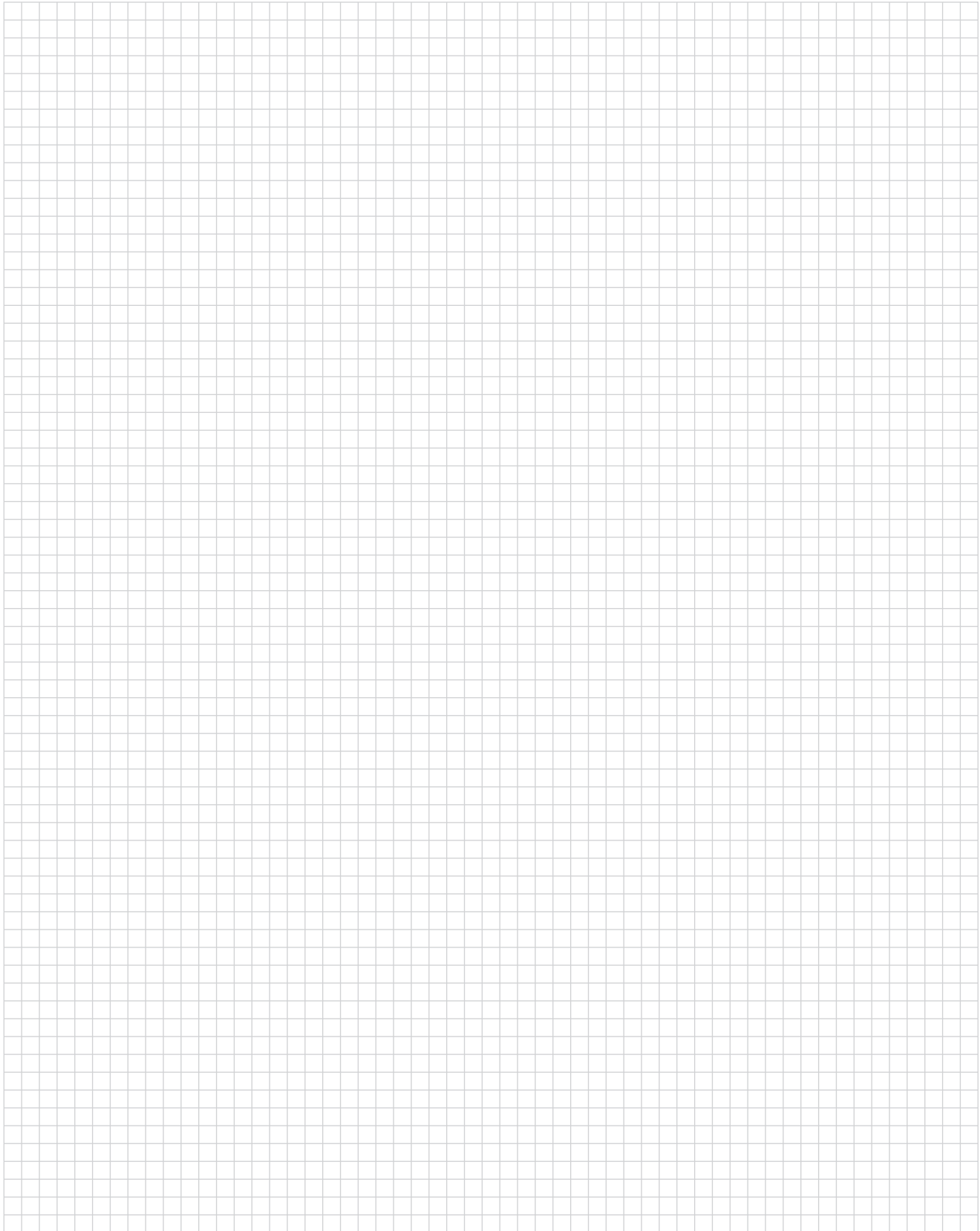


No. of Circuits	Receptacle Part Numbers	Plug Part Numbers
	Free-Hanging	Free-Hanging
2	770424-1 ¹	770425-1 ¹
3	770785-1	770783-1
4	770784-1	770810-1

¹1.248 [6.30] centerline.

Note: All part numbers are RoHS Compliant.

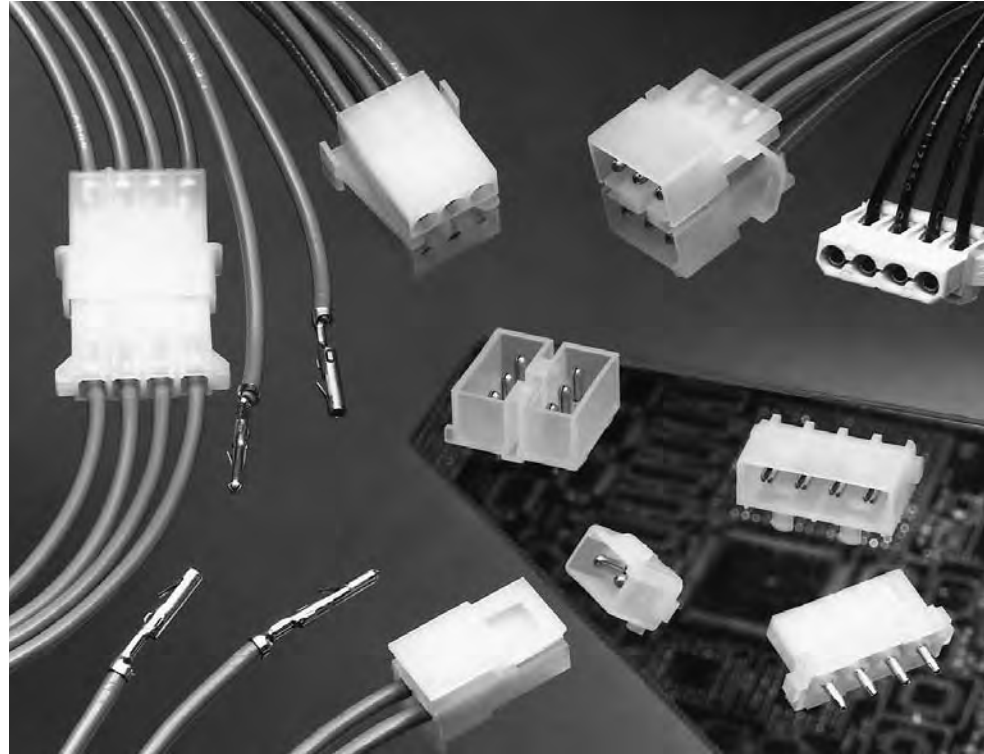
Engineering Notes



Commercial MATE-N-LOK Connectors

Product Facts

- Fully polarized nylon housings
- Easy cavity identification
- Locking devices are integral part of design. Connector halves will hold together under severe conditions of vibration and shock
- Built-in contact stabilization and self-aligning features
- Hot side egg-crate design for safety
- Precision molded to exacting tolerances
- Contacts accept a wire size range of 30-14 AWG [.05-2.0 mm²]
- Keying plug available
- “Clean” design contact—no sharp projections to impede insertion or damage housings
- Low insertion/extraction forces
- Contacts available in pre-tin or gold over nickel plated to fit the application requirements
- Wire-to-PC Board capability using pin or socket headers
- Solderability—Headers meet MIL-STD 202 method 208
- Four circuit PC Board-to-PC Board capability available by mating vertical socket header with either vertical, right-angle or surface mount pin header
- Four circuit insulation displacement connector (IDC) available
- Ultraviolet (UV) stable housings available in 1, 2 and 3 circuit
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189A



Performance Characteristics

The Commercial MATE-N-LOK Connector performance characteristics found on pages 151-152 are based on free-hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Dielectric Withstanding Voltage—1.5 KVAC between adjacent circuits

Insulation Resistance—500 megohms minimum initial between adjacent circuits

Voltage Rating—250 V AC or DC

Connector Mating—4 lb. max. per circuit

Connector Unmating—0.7 lb. min. per circuit

Contact Retention—15 lb. min. per contact

Durability—50 cycles, mating and unmating

Technical Documents

Product Specifications

108-1000 Commercial MATE-N-LOK Connectors

108-1077 Commercial MATE-N-LOK PC Board Headers

108-49000 IDC Connectors

Application Specifications

114-1012 Commercial MATE-N-LOK Contacts

114-49001 IDC Connectors

Instruction Sheets

408-7209, 408-7166, 408-7200, 408-7201, 408-7215, 408-3186, 408-7300

Commercial MATE-N-LOK Connectors (Continued)

Performance Characteristics (Continued)

Maximum Current—Maximum current rating of Commercial MATE-N-LOK connectors is limited by the maximum operating temperature of the housings which is 105°C including the temperature rise of the contacts which is a maximum of 30°C. There are several variables which have a direct effect on this maximum current-carrying capability for a given connector and must be considered for each application. These variables are:

Wire Size—Larger diameter wire will carry more current since it has less internal resistance to current flow and thus generates less heat. Longer wire lengths also enhance current-carrying capabilities since the wire conducts heat away from the connector.

Connector Size—In general, the more circuits in a connector, the less current can be carried.

Ambient Temperature—The higher the ambient temperature, the less current can be carried in any given connector.

Printed Wiring Board Conductor Size—The finished trace conductor width and thickness should be maximized to allow for the greatest current-carrying capacity and heat dissipation.

Commercial MATE-N-LOK connectors also will withstand the following tests:

Vibration—10-55-10 cycles per minute at .06 inch total excursion

Physical Shock—18 drops, 50 G sawtooth at 11 milliseconds

Housing Panel Mount Retention—40 lb. min. 3 and 4 circuit
65 lb. min. 6, 9, 12, and 15 circuit

Housing Lock Strength with Positive Locking Devices Engaged—25 lb. min.

Thermal Shock—-55°C to +85°C

Temperature-Humidity Cycling—25°C to 65°C at 95 RH

Corrosion—48 hr. at 5% salt concentration

Related Product Data

Product Specifications

- 108-1000 Commercial MATE-N-LOK Connectors
- 108-1077 Commercial MATE-N-LOK PC Board Headers

Current Rating Verification for 30°C Maximum Temperature Rise 100% Energized

Wire-to-Wire

Motor Mount Calculated Current Table

Number of Circuits	Wire Gauge						
	14	16	18	20	22	24	30
6	13.00	10.50	9.50	7.50	6.00	5.00	2.50
8	12.00	9.50	8.50	7.00	5.50	4.50	2.50
10	11.00	9.00	8.00	6.50	5.00	4.50	2.00
12	10.50	8.50	7.50	6.00	5.00	4.00	2.00
16	9.50	8.00	7.00	5.50	4.50	3.50	2.00

Values are based on initial Temperature Rise versus Current Testing and are intended to be a guide in the selection of a connector family. All applications should be tested by the end user. The values listed are per circuit for fully loaded housings being 100% energized. **Note:** All combinations were not tested, and this chart contains interpolated and extrapolated values.

Calculated Current Table

Number of Circuits	Wire Gauge						
	14	16	18	20	22	24	30
1	19.00	15.50	14.00	11.00	9.00	7.50	4.00
2	18.00	14.50	13.00	10.50	8.50	7.00	4.00
3	16.00	13.00	12.00	9.50	7.50	6.50	3.50
4	15.00	12.50	11.00	9.00	7.00	6.00	3.00
6 Matrix	13.00	10.50	9.50	7.50	6.00	5.00	3.00
8	12.50	10.50	9.00	7.50	6.00	5.00	2.50
9	11.00	9.00	8.00	6.50	5.50	4.50	2.50
10	12.00	9.50	8.50	7.00	5.50	4.50	2.50
12	10.50	8.50	7.50	6.00	5.00	4.00	2.00
15	9.50	8.00	7.00	5.50	4.50	4.00	2.00

Values are based on initial Temperature Rise versus Current Testing and are intended to be a guide in the selection of a connector family. All applications should be tested by the end user. The values listed are per circuit for fully loaded housings being 100% energized. **Note:** All combinations were not tested, and this chart contains interpolated and extrapolated values.

Wire-to-Board

Due to the vast differences in trace geometry and printed circuit board configurations, we are unable to provide a separate current carrying chart for our printed circuit board header products. However, the above Wire-to-Wire charts may be used as a guideline for headers if the trace width and thickness is equal to the listed wire gauge. For vertical headers, only 95% of the Wire-to-Wire value should be used. For right-angle headers, only 75% of the Wire-to-Wire value should be used. The chart values are only a tool for connector selection and will require the customer to fully test their application.

Minimum Wire Lengths for T-Rise vs. Current Testing

AWG	Min. Length (in.)	AWG	Min. Length (in.)
30	2.6	18	9.4
28	3.2	16	11.3
26	4.1	14	13.7
24	5.1	12	16.4
20	7.8	10	19.3

Note: If wire lengths used are less than those listed above, the current carrying ability of the system will be reduced due to less heat being conducted away from the connector. The customer should fully test all applications.

Termination Resistance/Contact Crimp Tensile Force

Wire Size		Termination Resistance		Contact Crimp Tensile Force	
AWG	mm ²	Test Current (Amps)	Resistance Milliohms (Max. Init.)	Force (Min.) lbs.	N
30	.05	.50	4.00	2	9
28	.08	.75	3.50	3	13
26	.12	1.00	3.50	7	31
24	.2	1.5	3.50	10	44
22	.3	3	3.50	15	67
20	.5	4.5	3.00	20	89
18	.8	6	3.00	30	133
16	1.2	8	2.75	30	133
14	2.0	10	2.75	35	156

Note: This is the total resistance between wire crimps of a mated pin and socket.

Standard Density

Commercial MATE-N-LOK Connectors
.200 [5.08] Centerline

Commercial MATE-N-LOK Connectors (Continued)

Commercial MATE-N-LOK Connector Mating Combinations

Connector Part Number					Mating Connector Part Number							
Number of Circuits	Flammability Rating	Style	Housing Type	Connector Part No.	Housing Part No.	Housing Type	PC Board Headers					
							Plating	Vertical Pin		Right-Angle Pin	Vertical Socket	
							Standard Tail	Long Tail		Standard Tail	Long Tail	
1	UL94V-2	In-Line	Socket: FH	1-480349-0	1-480350-0	Pin: FH	—	—	—	—	—	—
			Socket: FH UV Stable	1-480400-0	1-480351-0	Pin: FH Positive Lock	—	—	—	—	—	—
			Socket: FH UV Stable	1-480401-1	Pin: FH UV Stable	—	—	—	—	—	—	—
2	UL94V-2	In-Line	Socket: FH	1-480318-0	1-480319-0	Pin: FH	Pre-tin	350209-1	350422-1	794120-1	—	—
			Socket: FH UV Stable	1-480393-1	1-480498-1	Pin: FH UV Stable	—	—	—	—	—	—
			Socket: FH Positive Lock	1-480720-0	794012-1	Pin: FH Positive Lock	Pre-tin	350539-1	350540-1	—	—	—
			Socket: FH Positive Lock	1-480720-0	794012-1	Pin: FH Positive Lock	Duplex ¹	1586530-2	—	—	—	—
3	UL94V-2	In-Line	Socket: FH	1-480303-0	1-480305-0	Pin: FH	Pre-tin	350210-1	350423-1	643488-1	—	—
			Socket: PM	1-480304-0			Duplex ¹	1586514-2	—	—	—	—
			Socket: FH Positive Lock	1-480721-0	—	—	Pre-tin	350541-1	350542-1	—	—	—
			Socket: FH UV Stable	1-480388-0	1-480387-0	Pin: FH UV Stable	Duplex ¹	1586532-2	—	—	—	—
4			See next page for 4 position mating combinations									
6	UL94V-2	Matrix	Socket: FH Positive Lock	1-480270-0	1-480340-0	Pin: FH Positive Lock	Pre-tin	1-380999-0	350425-1	—	—	—
			Socket: PM Positive Lock	1-480273-0	1-480271-0	Pin: MM Positive Lock	Duplex ¹	2-1586546-0	1586526-2	—	—	—
			Pin: PM Positive Lock	1-480276-0	1-480276-0	Pin: PM Positive Lock	Pre-tin	—	—	—	—	—
8	UL94V-2	Dual Row	Socket: FH Positive Lock	1-480283-0	1-480273-0	Socket: PM Positive Lock	Pre-tin	—	—	350641-1	350576-1	
			Socket: PM Positive Lock	1-480277-0	1-480274-0	Pin: MM Positive Lock	Duplex ¹	—	—	—	—	—
10	UL94V-2	Dual Row	Socket: FH Positive Lock	1-480285-0	1-480345-0	Pin: FH Positive Lock	Pre-tin	350212-1	350426-1	—	—	—
			Socket: PM Positive Lock	1-480277-0	1-480284-0	Pin: MM Positive Lock	Duplex ¹	1586518-2	1586528-2	—	—	—
12	UL94V-2	Dual Row	Socket: MM Positive Lock	1-480287-0	1-480274-0	Socket: PM Positive Lock	Pre-tin	—	—	350642-1	350577-1	
			Pin: PM Positive Lock	1-480278-0	1-480274-0	Socket: PM Positive Lock	Duplex ¹	—	—	—	—	—
		Matrix	Pin: PM Positive Lock	1-480324-0	1-480339-0	Pin: FH Positive Lock	Pre-tin	1-380991-0	350219-1	—	—	—
15	UL94V-2	Matrix	Pin: PM Positive Lock	1-480324-0	1-480286-0	Pin: MM Positive Lock	Duplex ¹	2-1586544-0	—	—	—	—
			Socket: MM Positive Lock	1-480438-0	1-480288-0	Pin: MM Positive Lock	Pre-tin	350213-1	350220-1	—	—	—
16	UL94V-2	Dual Row	Socket: MM Positive Lock	1-480438-0	1-480275-0	Socket: PM Positive Lock	Duplex ¹	—	—	350643-1	350578-1	
			Socket: PM Positive Lock	1-480324-0	1-480323-0	Socket: PM Positive Lock	Pre-tin	—	—	—	350644-1	350579-1
16	UL94V-2	Dual Row	Socket: MM Positive Lock	1-480438-0	1-480439-0	Pin: MM Positive Lock	Pre-tin	350214-1	350427-1	—	—	—
			Socket: PM Positive Lock	1-480324-0	1-480439-0	Pin: MM Positive Lock	Duplex ¹	1586522-2	1586529-2	—	—	—

FH: Free-Hanging

PM: Panel Mount

MM: Motor Mount

¹Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

Note: All part numbers are RoHS Compliant.

Commercial MATE-N-LOK Connectors (Continued)

Connector Part Number				Mating Connector Part Number												
Flammability Rating	Connector Type	Connector Part No.	Housing Part No.	Housing Type	Plating	Socket Connectors			PC Board Vertical Socket Header			PC Board Pin Headers				
						Insulation Displacement Connector	AWG	AWG	Standard Tail	Vertical Standard Tail	Long Tail	Surface Mount	Standard	Right-Angle W/Fixed Belt	W/Fixed Belt Reverse Pol.	
	Socket Housing Positive Lock	1-480772-0			Pre-tin Duplex1			350543-1 1586534-2	350544-1 1586536-2							
	Socket Housing Detent Lock	1-480424-0	1-480426-0	Pin	Pre-tin			350211-1 770328-13	350424-1	770829-1	641737-1 770846-1	174804-1	174552-1			
UL94V-2	Pin Housing Detent Lock	1-480426-0	1-480424-0	Socket	Pre-tin	770156-2 22 770156-3 18 770156-4 20 770156-5 16		770997-1 794287-12								
	Pin Housing Detent Lock High Temp	3-480426-0	3-480425-0	Socket High Temp												
	Socket Header	770997-1 794287-12	1-480426-0	Pin	Pre-tin			350211-1	350424-1	770829-1	641737-1 770846-1	174804-1	174552-1			
	Insulation Displacement Connector (IDC)	770156-2 770156-3 770156-4 770156-5	1-480426-0	Pin	Pre-tin			350211-1	350424-1	770829-1	641737-1 770846-1	174804-1	174552-1			
UL94V-0	Socket Housing	770827-1	794132-1	Pin	Pre-tin											
	Insulation Displacement Connector (IDC)	794036-1 794036-2 794036-3 794036-4	794132-1		Pre-tin											
	Right-Angle Pin Header	1-641737-1	770827-1	Socket	Pre-tin			794236-1								

PM: Panel Mount

¹Duplex Finish—Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

²Surface Mount Compatible.

³With Drainholes

Note: All part numbers are RoHS Compliant.

Commercial MATE-N-LOK Connectors (Continued)

Contacts

Pin diameter .084 [2.13]
Stock thickness .012 [.305]
These contacts are to be used in Commercial MATE-N-LOK housings **only**.

Related Product Data

Product Specification
108-1000 Commercial MATE-N-LOK Connectors

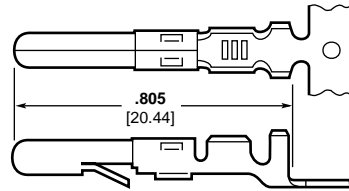
Application Specification
114-1012 Commercial MATE-N-LOK Contacts

Performance Characteristics—
pages 151-152

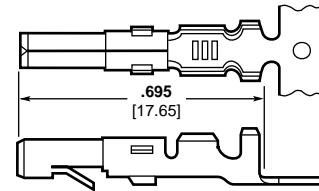
Housings—pages 157-159

Technical Documents—pages 151 and 205-206

Application Tooling—pages 207-210



Pin



Socket

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Material & Finish	Contact Part Numbers				HDM Applicator Part No.	Hand Tool Part No.
			Pin		Socket			
			Strip Form	Loose Piece	Strip Form	Loose Piece		
30-22 [.05-.3]	.040-.075 1.02-1.91	Brass, Pre-tin	350079-1	61174-1	350078-1	61173-1	466426-1 ³ 466426-2 ³ 466426-3 ³	91515-1
		Phos. Brz., Pre-tin	350079-4	—	350078-4	61173-4		
		Brass, Gold ¹	350079-5	61174-5	350078-5	61173-5		
		Brass, Pre-tin	61116-1	60618-1	61314-1	60617-1		
24-18 [.2-.8]	.060-.100 1.52-2.54	Phos. Brz., Pre-tin	61116-4	60618-4	61314-4	60617-4	466320-1 ³ 466320-2 ³ 466320-4 ³	91512-1 91528-1 ⁴
		Brass, Gold ¹	61116-5	60618-5	61314-5	60617-5		
		Phos. Brz., Select Gold ²	61116-6	60618-6	61314-6	60617-6		
		Brass, Select Gold ²	61116-7	—	61314-7	—		
20-14 [.5-2.0]	.100-.130 2.54-3.30	Brass, Pre-tin	61118-1	60620-1	61117-1	60619-1	687763-1 ³ 687763-2 ³ 687763-6 ³	91504-1
		Phos. Brz., Pre-tin	61118-4	60620-4	61117-4	60619-4		
		Brass, Gold ¹	61118-5	60620-5	61117-5	60619-5		
		Phos. Brz., Gold ¹	61118-6	—	61117-6	60619-7		
		Brass, Select Gold ²	61118-7	—	61117-7	—		
(2) 18 [.8] or (2) .115 Max. (1) 18 [.8] and 2.92 (1) 16 [1.2] (stacked)		Brass, Pre-tin	350558-1	350639-1	350557-1	—	687898-1 ³ 687898-2 ³ 687898-4 ³	91504-1
		Phos. Brz., Pre-tin	350558-4	—	350557-4	350638-4		

¹Gold Finish — Plated with .000030 [.000762] min. gold in mating area and inside wire barrel over .000050 [.00127] min. nickel underplate on entire contact.

²Select Gold Finish — Plated with .000030 [.000762] min. gold in mating area over .000050 [.00127] min. nickel underplate on entire contact.

³HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine; -3, -4, or -6 is used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

⁴Use Hand Tool No. 91528-1 for .043-.075 [1.09-1.90] insulation diameter.

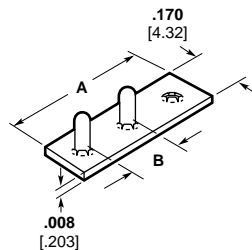
Notes:

1. Extraction Tools: Pins — No. **1-305183-1** (IS 408-7158); Sockets — No. **1-305183-2** (IS 408-7158); Pins and Sockets — No. **465644-1** (IS 408-7211)
2. Insertion Tools: No. **455830-1** (IS 408-7984)

Commoning Tabs

Material and Finish

Brass, tin plated
Stock thickness .008 [.203]



Number of Holes	Dimensions		Part Number
	A	B	
2	.377 9.58	.203 5.16	60843-1
2	.355 9.02	.195 4.95	350444-1
3	.579 14.71	.203 5.16	60842-1
3	.550 13.97	.195 4.95	350444-2

Note: Commoning tabs are designed to be used with pin housings.

Note: All part numbers are RoHS Compliant.

Commercial MATE-N-LOK Connectors (Continued)

Contacts

Pin diameter .084 [2.13]
Stock thickness .012 [.305]
These contacts are to be used in Commercial MATE-N-LOK housings only.

Related Product Data

Product Specification

108-1000 Commercial MATE-N-LOK Connectors

Application Specification

114-1012 Commercial MATE-N-LOK Contacts

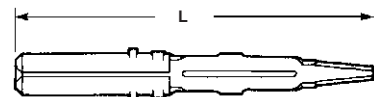
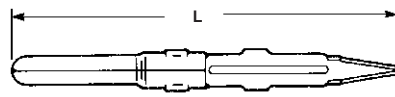
Performance Characteristics—pages 151-152

Housings—pages 157-159

Technical Documents—pages 151 and 205-206

Application Tooling—pages 207-210

PC Board Contacts



Pin

Socket

Type of Contact	L Dim.		Material & Finish	Part Numbers	
	Pin	Socket		Pin	Socket
				Loose Piece	Loose Piece
PC Board	1.110 [28.19]	1.010 [25.65]	Phos. Brz., Pre-tin	61518-11	61320-11
	1.210 [30.73]	1.110 [28.19]	Phos. Brz., Pre-tin	350074-12	350073-12

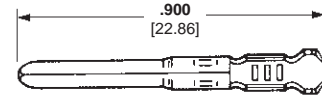
¹For .062 [1.57] max. board thickness — Board hole size .057 [1.45]

²For .125 [3.14] max. board thickness — Board hole size .057 [1.45]

Grounding Pin

(.095 [2.41] longer than standard pin)

(Mate first, break last, not for interrupting current)



Wire Size Range AWG [mm ²]	Ins. Dia. Range	Material & Finish	Contact Part Numbers		HDM Applicator Part No.	Hand Tool Part No.
			Strip Form	Loose Piece		
24-18 [2-.8]	.060-.100 1.52-2.54	Brass, Pre-tin	61527-2	—	466320-11 466320-21 466320-41	91512-1

¹HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine; -3, -4, or -6 is used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

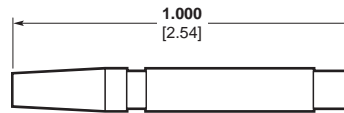
Keying Plug

IS 408-7582

Material

Housing—Nylon, natural color

Flammability Rating—UL94V-2



Part Number
200821-1

Note: Keying plug snaps into socket housing

Note: All part numbers are RoHS Compliant.

Standard Density

Commercial MATE-N-LOK Connectors
.200 [5.08] Centerline

Commercial MATE-N-LOK Connectors (Continued)

Housings

Free-Hanging

.200 [5.08] Centerline spacing

Material

Housing—Nylon, natural color

Flammability Rating—UL94V-2

Related Product Data

Product Specification

108-1000 Commercial MATE-N-LOK Connectors

Performance Characteristics—pages 151-152

Contacts—pages 155-156

Commoning Tabs—page 155

Keying Plug—page 156

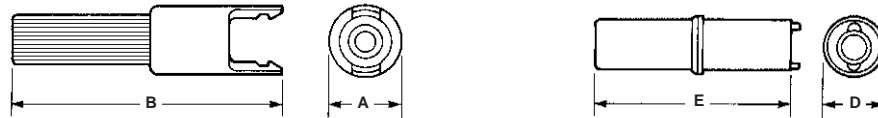
Technical Documents—pages 151 and 205-206

Mating Pin Headers—pages 161-164

Mating Socket Headers—page 162

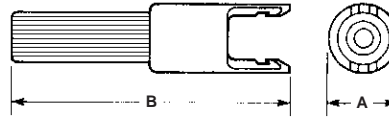
Mating IDC—page 163

1 Circuit



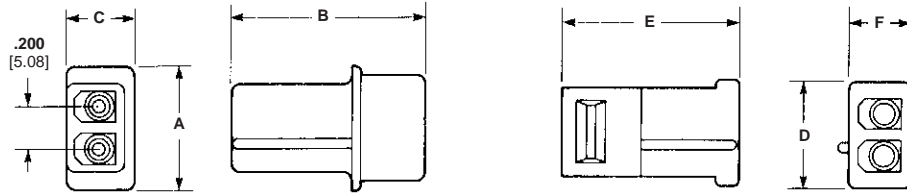
Pin Housing (Cap) Detent Lock

Socket Housing (Plug)



Pin Housing (Cap) Positive Lock

2, 3 and 4 Circuit, In-Line



Pin Housing (Cap)

Socket Housing (Plug)

Number of Circuits	Dimensions						Part Numbers	
	A	B	C	D	E	F	Pin Housing (Cap)	Socket Housing (Plug)
1	.300	1.200	—	.260	.870	—	1-480350-01	1-480349-0
	7.62	30.48	—	6.60	22.10	—	1-480351-02	1-480349-0
	.300	1.240	—	.260	.870	—	1-480401-01,3	1-480400-03
2	.300	1.325	—	.260	.995	—	1-480401-01,3	1-480400-03
	7.62	33.65	—	6.60	25.27	—	1-480319-01,5	1-480318-05
	.610	.930	.330	.530	.860	.295	1-480498-11,3,5	1-480393-13,5
3	.610	.930	.330	.530	.860	.295	1-480305-01,5	1-480303-05
	15.49	23.62	8.38	13.46	21.84	7.49	1-480387-01,3,5	1-480388-03,5
	.810	.930	.325	.825	.850	.290	1-480426-01,5,6	1-480424-05,6
4	.810	.930	.325	.825	.850	.290	1-480426-01,5,6	1-480424-05,6
	20.57	23.62	8.25	20.95	21.60	7.37	794132-14,5,6	770827-14,5,6
	1.010	.930	.330	1.030	.850	.310		
	25.65	23.62	8.38	26.16	21.60	7.88		
	—	—	—	1.030	.850	.310		
				26.16	21.60	7.88		

¹Detent lock

²Positive lock

³UV Stable black color

⁴Housing Material UL94V-0 rated

⁵Housing accepts double wire applications where individual insulation diameters do not exceed .115 [2.92].

⁶Used by the disk drive industry.

Note: All part numbers are RoHS Compliant.

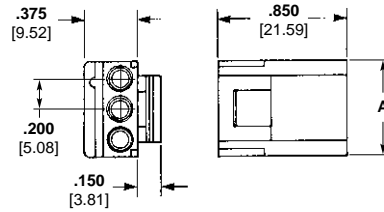
Commercial MATE-N-LOK Connectors (Continued)

Housings
Free-Hanging, Positive Lock

Material

Housing—Nylon, natural color
Flammability Rating—UL94V-2

2, 3, and 4 Circuit, In-Line
.200 [5.08] Centerline spacing

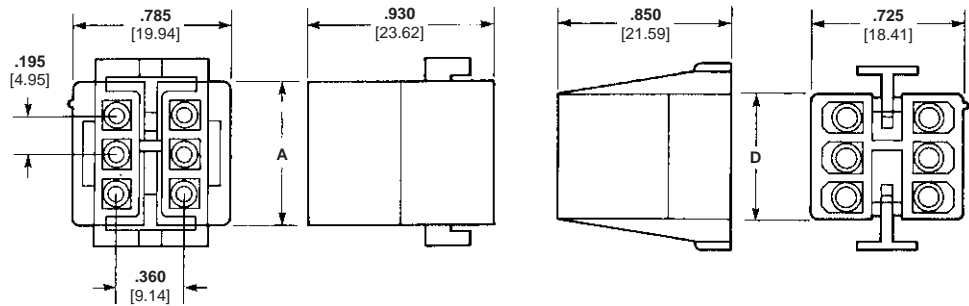


Socket Housing (Plug)

Number of Circuits	A Dim.	Part Numbers		
		Socket Housing (Plug)	Mates with Pin Headers	Mates with Cap Housing
2	.435 11.04	1-480720-0	350539, 350540	794012-1
3	.630 16.00	1-480721-0	350541	—
4	.830 21.09	1-480722-0 ¹	350543 ¹ , 350544 ¹	—

¹Used by the disk drive industry.

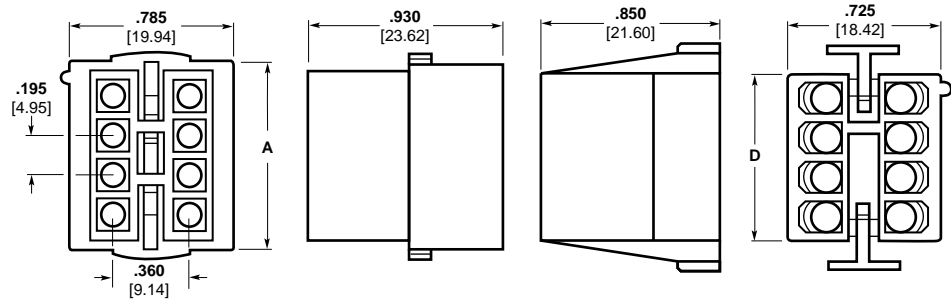
6 Circuit, Dual Row



Pin Housing (Cap)

Socket Housing (Plug)

8 and 10 Circuit, Dual Row



Pin Housing (Cap)

Socket Housing (Plug)

Related Product Data

Product Specification

108-1000 Commercial MATE-N-LOK Connectors

Performance Characteristics—pages 151-152

Contacts—pages 155-156

Commoning Tabs—page 155

Keying Plug—page 156

Technical Documents—pages 151 and 205-206

Mating Headers—pages 161-164

Number of Circuits	Dimensions		Part Numbers	
	A	D	Pin Housing (Cap)	Socket Housing (Plug)
6	.705 17.91	.610 15.49	1-480340-0	1-480270-01
8	.900 22.86	.805 20.44	1-480345-0	1-480283-0 ¹
10	1.095 27.81	1.000 25.40	1-480339-0	1-480285-0 ¹

¹Housing accepts double wire applications where individual insulation diameters do not exceed .115 [2.92].

Note: All part numbers are RoHS Compliant.

Standard Density

Commercial MATE-N-LOK Connectors
.200 [5.08] Centerline

Commercial MATE-N-LOK Connectors (Continued)

Housings

Panel Mount, Positive Lock

Material

Housing—Nylon, natural color

Flammability Rating—UL94V-2

Related Product Data

Product Specification

108-1000 Commercial MATE-N-LOK Connectors

Performance Characteristics—pages 151-152

Contacts—pages 155-156

Commoning Tabs—page 155

Keying Plug—page 156

Technical Documents—pages 151 and 205-206

Mating Socket Headers—page 162

Mating IDC—page 163

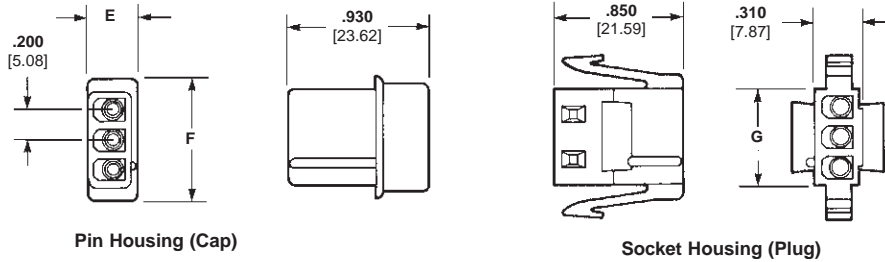
Recommended Panel Cutout for Panel Mount Socket Housing

View is from socket housing entry side

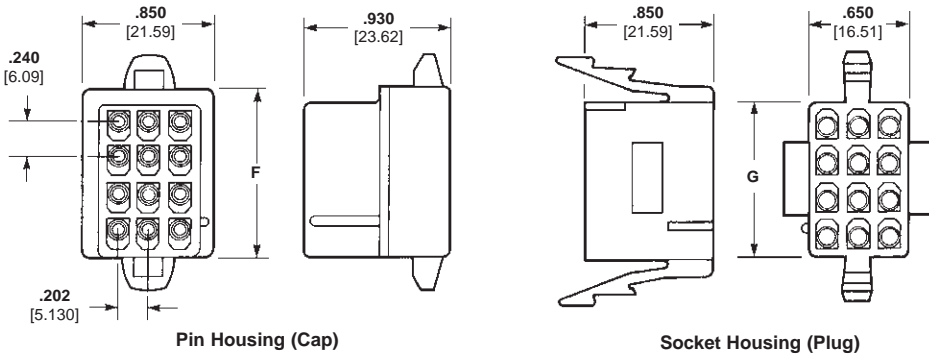
Mounting Information

1. Recommended panel thickness—.025-.065 [.635-1.65].
2. Both locking legs are to be squeezed together and the housing is to be inserted "straight-in", as opposed to a rocking manner.
3. The panel should be punched so that the housing enters the panel in the same direction as the punch.
4. The panel must not have any material (paint, porcelain, etc.) applied in the mounting hole area that would decrease the retention of the housing in the panel.
5. If the two items above are not complied with, the "A" dimension should be reduced .020 [5.08] for proper retention.

3 and 4 Circuit, In-Line



6, 9, 12 and 15 Circuit, Matrix

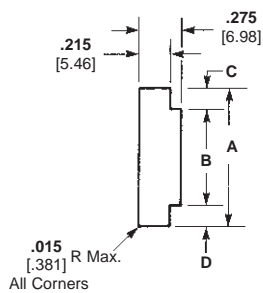


Number of Circuits	Dimensions			Part Numbers	
	E	F	G	Pin Housing (Cap)	Socket Housing (Plug)
3	.325 8.26	.810 20.57	.630 16.00	1-480305-02	1-480304-0
4	.330 8.38	1.010 25.65	.825 20.96	1-480426-02,4 3-480426-01,2,4	1-480425-04 3-480425-01,4
6	—	.665 16.89	.555 14.10	1-480276-0 ³	1-480273-0
9	—	.905 22.99	.795 20.19	1-480277-0 ³	1-480274-0
12	—	1.145 29.08	1.045 26.54	1-480278-0 ³	1-480275-0
15	—	1.382 35.10	1.280 32.51	1-480324-0 ³	1-480323-0

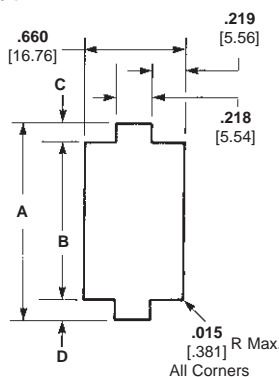
¹Housing material has 125°C temperature rating
²Detent lock
³Positive lock
⁴Used by disk drive industry

Note: All part numbers are RoHS Compliant.

3 and 4 Circuit, In-Line



6, 9, 12 and 15 Circuit, Matrix

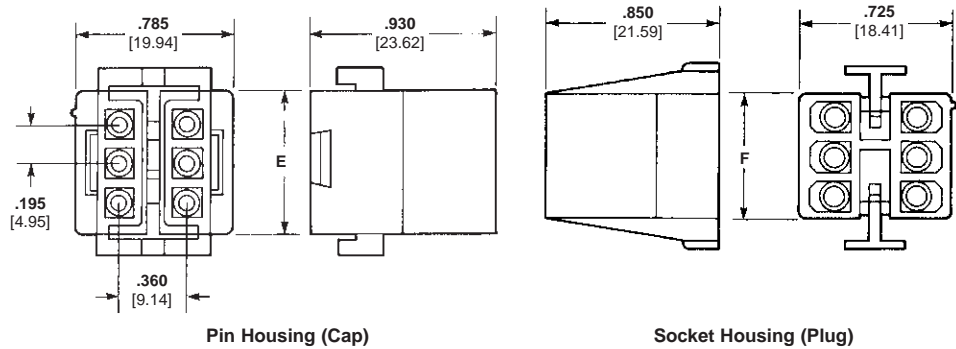


Number Circuits	Dimensions	
	A	B
3	.890 22.61	.645-.635 16.38-16.13
4	1.100 27.94	.845-.835 21.46-21.21
6	.840 21.34	.575-.570 14.61-14.48
9	1.075 27.31	.815-.810 20.70-20.57
12	1.320 33.53	1.055-1.050 26.80-26.67
15	1.550 39.37	1.290-1.285 32.77-32.64

Note: Dimensions "C" and "D" are to be equal.

Commercial MATE-N-LOK Connectors (Continued)

Motor Mount, Positive Lock 6, 8, 10, 12 and 16 Circuit, Dual Row



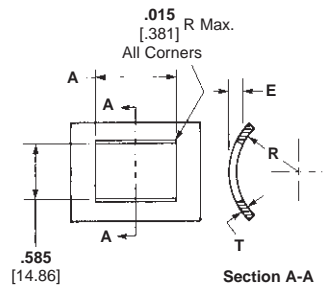
Number of Circuits	Dimensions		Part Numbers	
	E	F	Pin Housing (Cap)	Socket Housing (Plug)
UL94V-2 Nylon, Natural Color				
6	.705 17.90	.610 15.49	1-480271-0	1-480270-0 ¹
8	.900 22.86	.805 20.45	1-480284-0	1-480283-0 ¹
10	1.095 27.81	1.000 25.4	1-480286-0	1-480285-0 ¹
12	1.290 32.77	1.195 30.35	1-480288-0	1-480287-0
16	1.680 42.67	1.585 40.26	1-480439-0	1-480438-0

¹Housing accepts double wire applications where individual insulation diameters do not exceed .115 [2.92].

Note: All part numbers are RoHS Compliant.

Recommended Panel Cutout for Motor Mount Pin Housing

View is from pin housing entry side.



Note: Motor mount housings may be used in flat panels

Number of Circuits	A Dim.
6	.715 18.16
8	.910 23.11
10	1.105 28.07
12	1.300 33.02
16	1.690 42.93

Mounting Information

1. Recommended panel thickness "E" is .040-.100 [1.02-2.54] and is dependent on "T" and "R".
2. The pin housing must be inserted in a rocking manner.
3. The panel must be punched so that the housing enters the panel in the same direction as the punch.

Standard Density

Commercial MATE-N-LOK Connectors
.200 [5.08] Centerline

Commercial MATE-N-LOK Connectors (Continued)

PC Board Vertical Pin Headers

Material

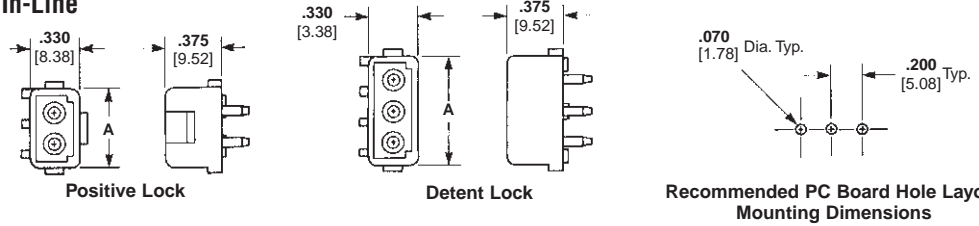
Housing — Nylon, natural color
Flammability Rating — UL94V-2
Contacts — Phosphor bronze
 Solder tail diameter .062 [1.57]

Related Product Data

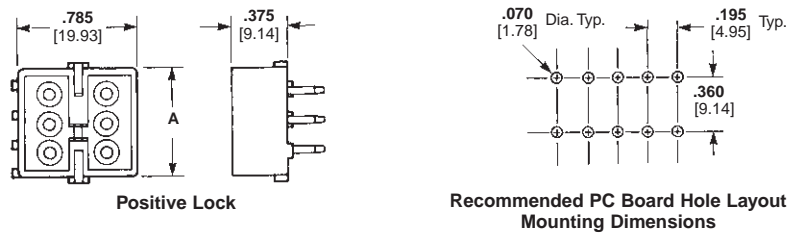
Product Specifications
 108-1077 Commercial MATE-N-LOK
 PC Board Headers

Performance Characteristics —
 pages 151-152
Technical Documents — pages 151
 and 205-206
Mating Socket Housings —
 pages 157-160
Mating Socket Headers — page 162
Mating IDC — page 163

**2, 3, and 4 Circuit,
In-Line**



**6, 8, 10, 12 and 16 Circuit,
Dual Row**



Number of Circuits	A Dim.	Type Lock	Finish	Part Numbers		Mates with Socket Housing Part Number
				Standard ² Tail	Long ³ Tail	
2	.515 13.09	Positive	Pre-tin	350539-1	350540-1	1-480720-0
			Duplex ¹	1586530-2	—	
		Detent	Pre-tin	350209-1	350422-1	1-480318-0
			Duplex ¹	1586512-2	—	
3	.715 18.17	Positive	Pre-tin	350541-1	350542-1	1-480721-0
			Duplex ¹	1586532-2	—	
		Detent	Pre-tin	350210-1	350423-1	1-480303-0
			Duplex ¹	1586514-2	—	
4	.915 23.24	Positive	Pre-tin	350543-1 ⁵	350544-1 ⁵	1-480722-0 ⁵
			Duplex ¹	1586534-2 ⁵	1586536-2 ⁵	
		Detent	Pre-tin	350211-1 ⁵	350424-1 ⁵	1-480424-0 ^{4,5}
			794236-15,8	—		
			Post-tin	1586627-15,6	—	
			1-1586627-15,6,7	—		
Duplex ¹	1586515-2 ⁵	1586525-2 ⁵				
6	.705 17.91	Positive	Pre-tin	1-380999-0	350425-1	1-480270-0
			Duplex ¹	2-1586546-0	1586526-2	
8	.900 22.86	Positive	Pre-tin	350212-1	350426-1	1-480283-0
			Duplex ¹	1586518-2	1586528-2	
10	1.095 27.81	Positive	Pre-tin	1-380991-0	350219-1	1-480285-0
			Duplex ¹	2-1586544-0	—	
12	1.290 32.77	Positive	Pre-tin	350213-1	350220-1	1-480287-0
			Duplex ¹	1586520-2	1586524-2	
16	1.680 42.68	Positive	Pre-tin	350214-1	350427-1	1-480438-0
			Duplex ¹	1586522-2	1586529-2	

¹Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.
²Use standard tail for .062 [1.57] thick PC Board.
³Use long tail for .125 [3.18] thick PC Board.
⁴Other mating connectors include a vertical PC Board socket header and the insulation displacement connectors (IDC).
⁵Used by the disk drive industry.
⁶With drain holes.
⁷Tube loaded.
⁸Housing material UL94V-0 rated.

Note: All part numbers are RoHS Compliant.

Commercial MATE-N-LOK Connectors (Continued)

**PC Board Surface Mount
Right-Angle Pin Header**

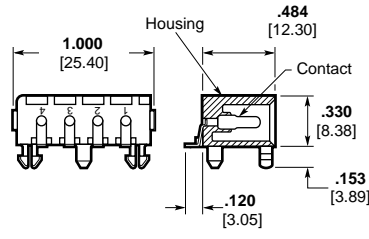
Material and Finish

Housing—Nylon, black color

Flammability Rating—UL94V-2

Contact—Phosphor bronze, pre-tin
Solder tail width .052 [1.32]

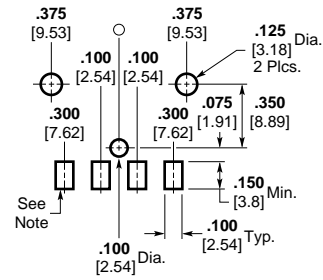
4 Circuit, In-Line



Part Number
770829-1

Notes:

1. Mating parts include socket housings, a vertical PC Board socket header below and the insulation displacement connectors (IDC).
2. Used by the disk drive industry.



Note: .010 [.25] min. thick solder paste, 63/27 tin

Recommended PC Board Layout
.062 [1.57] thick PC Board

**PC Board Vertical
Socket Headers**

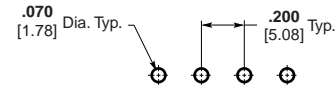
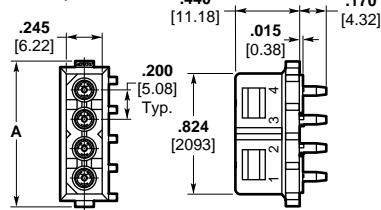
Material

Housing—Nylon, natural color

Flammability Rating—UL94V-2

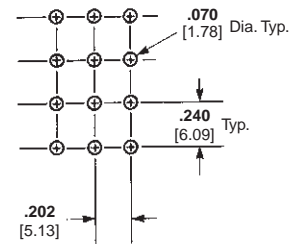
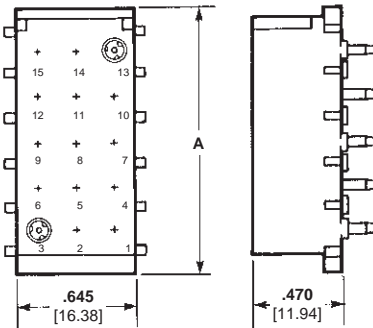
Contacts—Phosphor bronze
Solder tail diameter .062 [1.57]

4 Circuit, In-Line



Recommended PC Board Hole Layout
.062 [1.57] thick PC Board

**6, 9, 12 and 15 Circuit,
Matrix**



Recommended PC Board Hole Layout
.062 [1.57] thick PC Board

Related Product Data

Product Specifications

108-1077 Commercial MATE-N-LOK
PC Board Headers

Performance Characteristics—
pages 151-152

Technical Documents—pages 151
and 205-206

Mating Pin Housings—pages 157-160

Mating Pin Headers—pages 161-164

Mating Socket Housings—
pages 157-160

Mating Socket Headers—page 162

Mating IDC—page 163

Number of Circuits	A Dim.	Finish	Part Numbers		Mates with Pin Housing Part Number
			Standard Tail ⁵	Long Tail ⁶	
4	1.000 25.40	Pre-tin	770997-1 ³	—	1-480426-02, ³
			794285-13,7	—	
			794287-13,4,8	—	
6	.720 18.29	Pre-tin	350641-1	350576-1	1-480276-0
		Duplex ¹	1586539-2	—	
9	.960 24.39	Pre-tin	350642-1	350577-1	1-480277-0
12	1.200 30.49	Pre-tin	350643-1	350578-1	1-480278-0
15	1.440 36.58	Pre-tin	350644-1	350579-1	1-480324-0

¹Duplex Finish—Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

²Other mating connectors include vertical, right-angle and surface mount PC Board pin headers.

³Used by the disk drive industry.

⁴Surface mount compatible.

⁵Use standard tail for .062 [1.57] thick PC Board.

⁶Use long tail for .125 [3.18] thick PC Board.

⁷Low Mating Force

⁸High Temperature

Note: All part numbers are RoHS Compliant.

Standard Density

Commercial MATE-N-LOK Connectors
.200 [5.08] Centerline

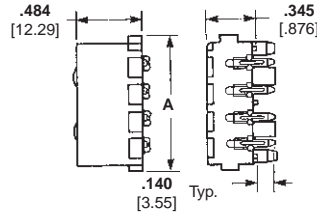
Commercial MATE-N-LOK Connectors (Continued)

PC Board Right-Angle Pin Headers

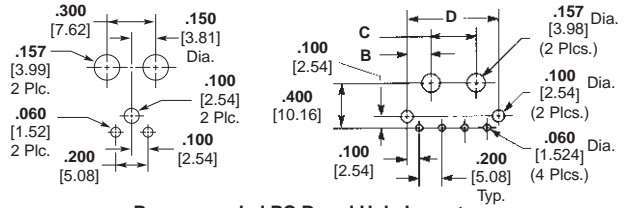
Material and Finish

Contact—Phosphor bronze, pre-tin
Solder tail width .052 [1.32]

2, 3, and 4 Circuit, In-Line



2, 3, and 4 Circuit



Recommended PC Board Hole Layout
.062 [1.57] thick PC Board

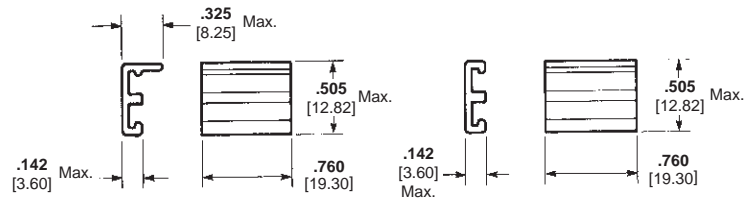
Number of Circuits	Dimensions				Housing Material	Part Numbers	Mates with Socket Housing Part Number
	A	B	C	D			
2	.600 15.24	—	.300 7.62	—	UL94V-2 Nylon Natural Color	794120-1	1-480318-0
3	.800 20.32	.150 3.81	.300 7.62	.600 15.24	UL94V-0 Nylon	643488-1	1-480303-0
4	1.000 25.40	.200 5.08	.400 10.16	.800 20.32	UL94V-2 Nylon, Natural Color	641737-1 ³ 770846-11, ³	1-480424-02, ³
					UL94V-0 Nylon	1-641737-1 ³	770827-12, ³

¹Surface Mount Compatible. ²Other mating connectors include a vertical PC Board socket header and the insulation displacement connectors (IDC). ³Used by the disk drive industry.

Dust Covers

Material

Housing—Polyester, white color
Flammability Rating—UL94V-2



For Feed-To Wiring
Part Number 770232-1

For Feed-Through Wiring
Part Number 770233-1

Note: These parts are used with the insulation displacement connectors below.

Insulation Displacement Connectors (IDC)

Material

Housing—Nylon
Contact—Phosphor bronze

Related Product Data

Used by the disk drive industry.

Product Specifications

108-1077 Commercial MATE-N-LOK
PC Board Headers

108-49000 IDC Connectors

Application Specification

114-49001 IDC Connectors

Performance Characteristics—
pages 151-152

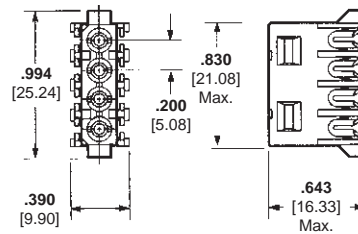
Technical Documents—
pages 151 and 205-206

Mating Socket Housings—
pages 157-160

Mating Pin Housings—pages 157-
160

Mating Pin Headers—pages 161-164

4 Circuit, In-Line



Socket Assembly (Plug)

Wire Size Range AWG [mm ²]	Color Code	Finish	Part Number		Mates with Part Numbers
			UL94V-2	UL94V-0	
22 [.3]	Red	Pre-tin	770156-2	794036-3	1-480426-0** 350211-1 350211-2 350424-1 350424-2 641737-1 1-641737-1 770827-1 770829-1 770846-1
20 [.5]	Yellow	Pre-tin	770156-4	794036-2	
18 [.8]	Orange	Pre-tin	770156-3	794036-1	
16 [1.2]	Blue	Pre-tin	770156-5*	794036-4	

*Application Tooling: Arbor Tool 91085-2 uses head 231920-2. **Pin Housing

Notes:

1. Insulation diameter .095 [2.41] max.

2. Application Tooling

Power Unit No. **91112-2** (IS 408-7763) uses Head No. **231920-2** (IS 408-9330) and Hand Tool Handle No. **58074-1** (IS 408-6790) uses Terminating Head No. **231894-1** (IS 408-3186)

Note: All part numbers are RoHS Compliant.

Commercial MATE-N-LOK Connectors (Continued)

PC Board Right-Angle Pin Header with Fix Belt

Material

Housing — Thermoplastic
Flammability Rating — UL94V-2
Contacts — Copper Alloy

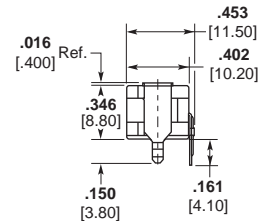
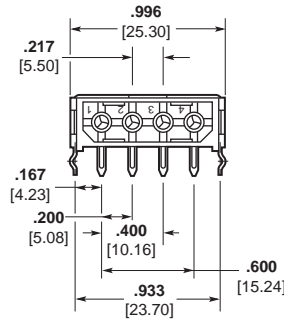
Related Product Data

Used by the disk drive industry

Product Specification

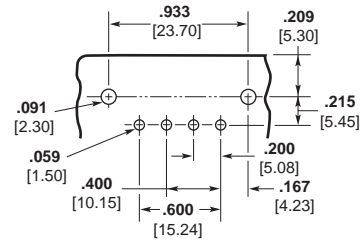
108-5155

4 Circuit, In-Line



Part No. 174552-1

Notes: Mates with socket housing Part No. 1-480424-0. Other mating connectors include a vertical PC Board socket header and the insulation displacement connectors (IDC).



Recommended PC Board Hole Layout
.062 [1.57] thick PC Board

PC Board Right-Angle Pin Headers with Fix Belt Reverse Polarization

Material and Finish

Housing — Nylon
Flammability Rating — UL94V-2
Contacts — Tin plated, Copper alloy

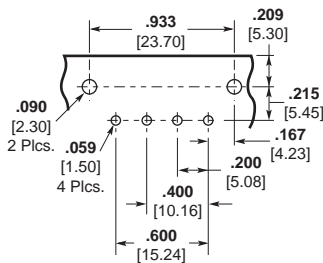
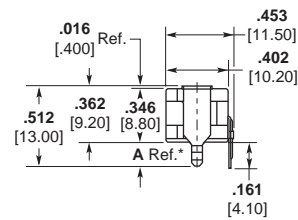
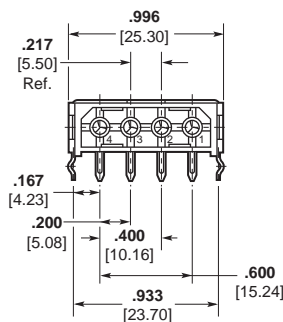
Related Product Data

Used by the disk drive industry

Product Specification

108-5155

4 Circuit, In-Line



Part No. 174804*

Recommended PC Board Hole Layout
.062 [1.57] thick PC Board

Notes: Mates with socket housing Part No. 1-480424-0. Other mating connectors include a vertical PC Board socket header and the insulation displacement connectors (IDC).

Note: All part numbers are RoHS Compliant.

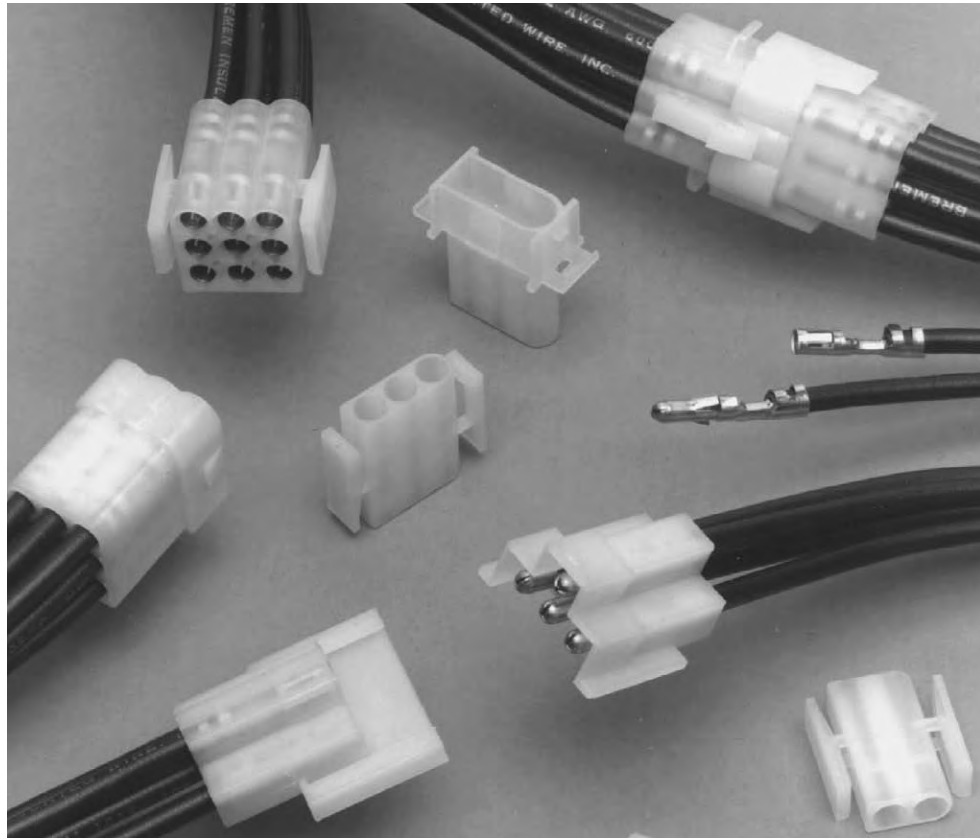
Part No.	A Dim.*	Description
174804-1	.150 3.80	Long Clamp with Kink

Commercial MATE-N-LOK Connectors
.200 [5.08] Centerline
Standard Density

.140 MATE-N-LOK Connectors (Large Insulation), .240 Centerline

Product Facts

- Available in 2, 3 and 9 circuit configurations for panel mounting; 4 and 9 circuit configurations for free-hanging applications
- Standard natural nylon housings
- Housings fully polarized
- Contacts fully protected in housings
- Contacts accept wire size range 20-10 AWG [.5-5.0 mm²] with insulation diameters from .100 [2.54] to .180 [4.57]
- Low insertion/extraction forces
- Dual locking lances provide optimum contact stability
- Extraction tool removes both pins and sockets
- Contacts are on .240 [6.09] centerline spacing
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189A



Performance Characteristics

The .140 MATE-N-LOK Connector performance characteristics found on this page are based on free-hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Dielectric Withstand Voltage—3.0 KVAC between adjacent circuits

Insulation Resistance—1000 megohms minimum initial between adjacent circuits

Voltage Rating—600 V AC or DC

Connector Mating—4.5 lb. max. per circuit

Connector Unmating—8 lb. min. per circuit

Contact Retention—30 lb. min.

Durability—25 cycles, mating and unmating

Thermal Shock—-55°C to +85°C

Temperature-Humidity Cycling—25°C to 65°C at 95 RH

Maximum Current—Maximum current rating of .140 MATE-N-LOK Connectors is limited by the maximum operating temperature of the housings which is 105°C and the temperature rise of the contacts which is 30°C. There are several variables which have a direct effect on this maximum current-carrying capability for a given connector and must be considered for each application. These variables are:

Wire Size—Larger diameter wire will carry more current since it has less internal resistance to current flow and thus generates less heat. Longer wire lengths also enhance current-carrying capabilities since the wire conducts heat away from the connector.

Connector Size—In general, the more circuits in a connector, the less current can be carried.

Ambient Temperature—The higher the ambient temperature, the less current can be carried in any given connector.

Technical Documents

Product Specification
108-1032 .140 Diameter
MATE-N-LOK Connectors

Application Specification
114-1007 .140 Diameter
MATE-N-LOK Contacts

Wire Size		Termination Resistance		Contact Crimp Tensile Force	
AWG	mm ²	Test Current (Amps)	Resistance Milliohms (Max. Init.)	Force (Min.)	
				lbs.	N
20	.5	4.5	3.0	20	89
18	.8	6	2.5	30	133
16	1.2	8	2.5	45	200
14	2.0	10	2.0	50	222
12	3.0	12	1.5	60	267
10	5.0	14	1.5	65	289

Note: This is the total resistance between wire crimps of a mated pin and socket.

Current Rating Verification for 30°C Maximum Temperature Rise 100% Energized

Wire-to-Wire

.140 MATE-N-LOK Connector Calculated Current Table

Number of Circuits	Wire AWG					
	10	12	14	16	18	20
2	28.00	23.00	18.50	15.00	13.50	10.50
3	25.00	21.00	17.00	13.50	12.00	9.50
9	18.50	15.00	12.00	10.00	9.00	7.00

Values are based on initial Temperature Rise versus Current Testing and are intended to be a guide in the selection of a connector family. All applications should be tested by the end user. The values listed are per circuit for fully loaded housings being 100% energized. **Note:** All combinations were not tested, and this chart contains interpolated and extrapolated values.

Minimum Wire Lengths for T-Rise vs. Current Testing

Note: If wire lengths used are less than those listed, the current carrying ability of the system will be reduced due to less heat being conducted away from the connector. The customer should fully test all applications.

.140 MATE-N-LOK Connectors (Large Insulation), .240 Centerline (Continued)

Contacts

Pin diameter .140 [3.57]
Stock thickness .014 [.357]

Related Product Data

Product Specification
108-1032 .140 Diameter
MATE-N-LOK Connectors

Application Specification
114-1007 .140 Diameter
MATE-N-LOK Contacts

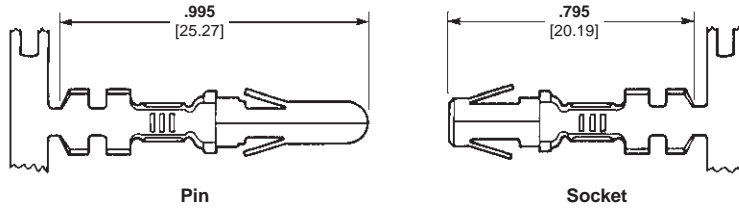
Performance Characteristics—
page 159

Keying Plug—none

Housings—pages 166-167

Technical Documents—pages 165
and 205-206

Application Tooling—pages 207-210



Wire Size Range AWG [mm ²]	Ins. Dia. Range	Material & Finish	Contact Part Numbers				HDM Applicator Part No.	Hand Tool Part No.
			Pin		Socket			
			Strip Form	Loose Piece	Strip Form	Loose Piece		
20-14 [.5-2.0]	.100-.180 2.54-4.5	Brass, pre-tin Phos. Brz., pre-tin	61627-1	350389-1	61626-1	350388-1	567306-1 567306-2 567306-3	90247-1
			61627-2	—	61626-2	—		
14-10 [2.0-5.0]	.100-.180 2.54-4.5	Brass, pre-tin Phos. Brz., pre-tin	350201-1	350391-1	350200-1	350390-1	567309-1 567309-2 567309-3	69710-12
			350201-2	350391-2	350200-2	350390-2		

¹HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3 is used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

²Hand Tool No. **69710-1** uses die set No. **58374-1** for 14-12 AWG and No. **58373-1** for 10 AWG.



Contact Extraction Tool
Part No. 318845-1
IS 408-4378

Housings

Free-Hanging

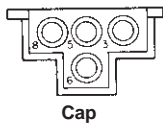
.240 [6.09] Centerline spacing

Material

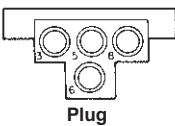
Nylon, natural color

Flammability Rating—UL94V-2

Cavity Identification
(Rear View)

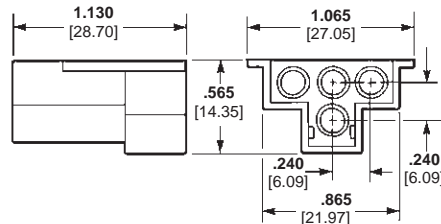


Cap

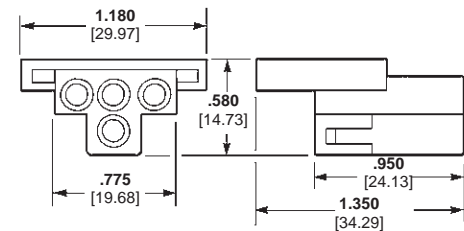


Plug

4 Circuit

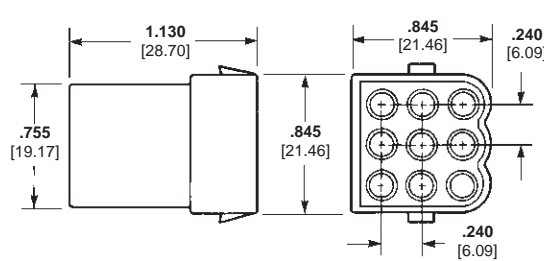


Pin Housing (Cap)
Part No. 1-480512-0
Part No. 794700-1 (Black Color High Temp.)

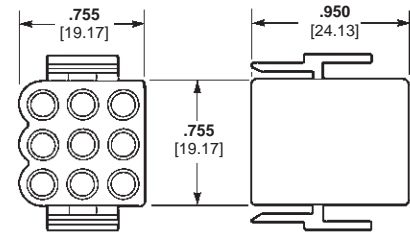


Socket Housing (Plug)
Part No. 1-480510-0

9 Circuit, Matrix



Pin Housing (Cap)
Part No. 1-480586-0



Socket Housing (Plug)
Part No. 1-480585-0

Note: All part numbers are RoHS Compliant.

.140 MATE-N-LOK Connectors (Large Insulation) .240 [6.10] Centerline Standard Density

.140 MATE-N-LOK Connectors (Large Insulation), .240 Centerline (Continued)

Housings

Panel Mount

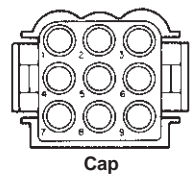
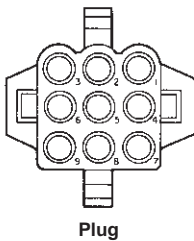
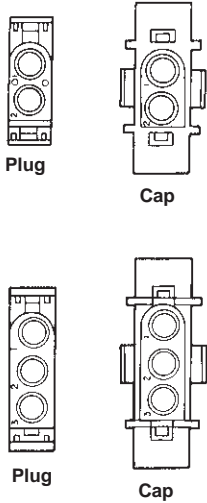
.240 [6.09] Centerline spacing

Material

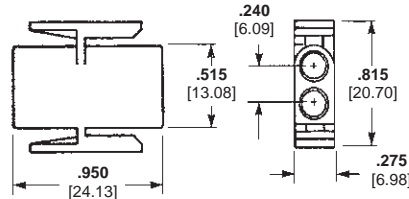
Housing—Nylon, natural color

Flammability Rating—UL94V-2

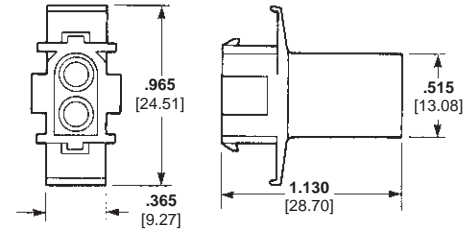
Cavity Identification
(Rear View)



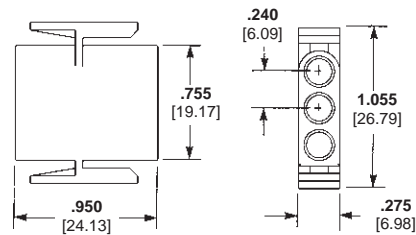
2 and 3 Circuit, In-Line



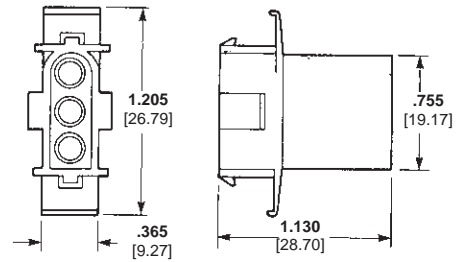
Socket Housing (Plug)
Part No. 1-350344-0
Part No. 794699-1 (Black Color High Temp.)



Pin Housing (Cap)
Part No. 1-350345-0
Part No. 1586305-1 (Black Color High Temp.)

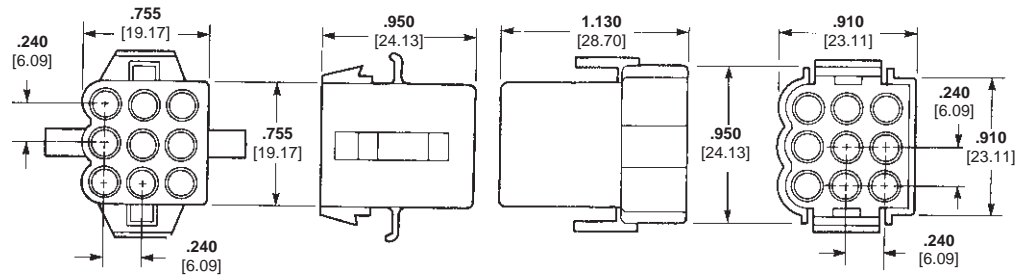


Socket Housing (Plug)
Part No. 1-350346-0



Pin Housing (Cap)
Part No. 1-350347-0
Part No. 794061-1 (Black Color High Temp.)

9 Circuit, Matrix



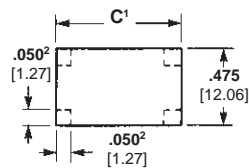
Socket Housing (Plug)
Part No. 1-480672-0
Part No. 1586305-1 (Black Color High Temp.)

Pin Housing (Cap)
Part No. 1-480673-0
Part No. 794683-1 (Black Color High Temp.)

Recommended Panel Cutouts

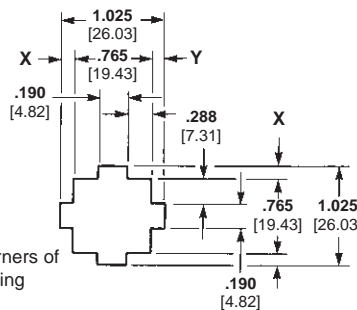
View is from housing entry side

2 and 3 Circuit



12 Circuit-.725 [18.42]
3 Circuit-.965 [24.51]
2.050 x .050 [1.27-1.27] tabs in corners of outlet are optional to reduce housing float in panel.

9 Circuit



Notes:

1. Panel thickness .040-.070 [1.02-1.78].
2. "X" and "Y" dimensions must be within .005 [0.127] of each other.
3. Panel should be punched so that the housing enters the panel in the same direction as the punch for ease of assembly.

Related Product Data

Product Specification

108-1032 .140 Diameter
MATE-N-LOK Connectors

Application Specification

114-1007 .140 Diameter
MATE-N-LOK Contacts

Performance Characteristics—
page 165

Keying Plug—none

Contacts—page 166

Technical Documents—pages 165
and 205-206




Note: All part numbers are RoHS Compliant.

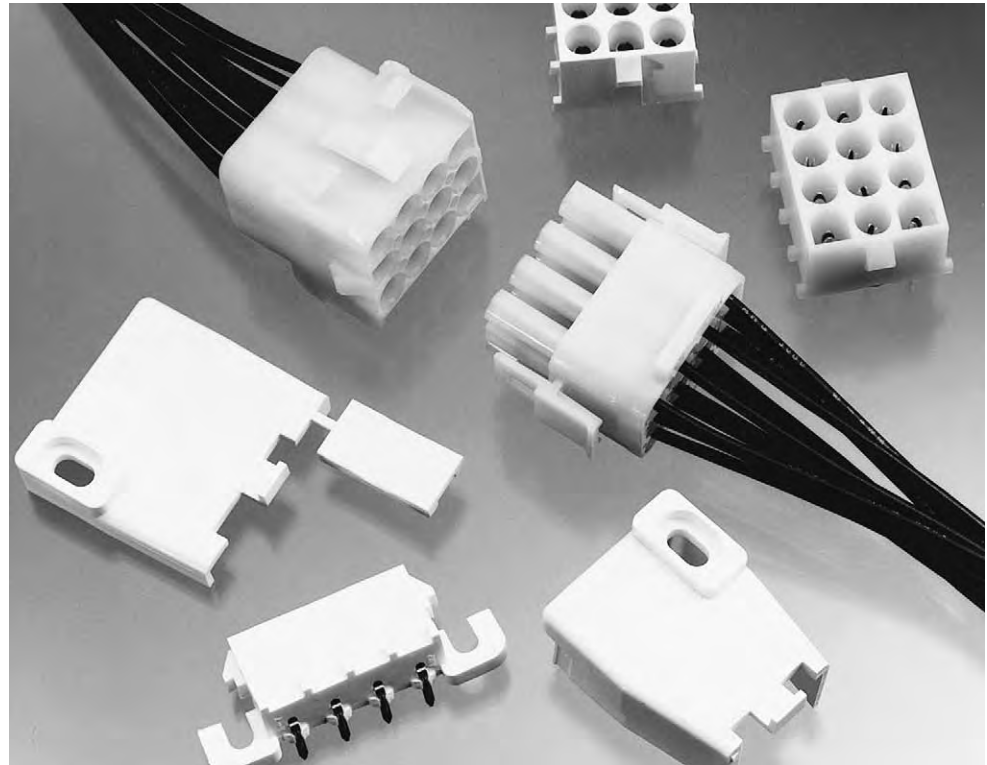
Engineering Notes



Universal MATE-N-LOK Connectors

Product Facts

- Pins and sockets can be intermixed in the same housing
- Positive polarization
- Rear cavity identification
- Contacts completely enclosed in housings
- Positive locking housings
- Insulation capability to .200 [5.08] diameter
- Removable, crimp snap-in contacts
- Low contact mating force
- Contacts accept 30-10 AWG [.05-5.0 mm²] wire sizes
- Contacts available with pre-tin or gold plating
- Dual locking lances provide optimum contact stability
- Panel mount or free-hanging
- Mate with Universal MATE-N-LOK II Housings
- Available in UL 94V-0 flame retardant material. Meets the material requirements of table 25.1 of U.L. Standard 1410 (television receivers and video products)
- Not for interrupting current
- Harness to PC Board capability using pin or socket headers
- Pin and socket headers are available in both vertical and right-angle style
- Solderability—headers meet MIL-STD 202 Method 208
- Contacts are on .250 [6.35] centerline spacing
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 
- Passed test by VDE under their Registration Number 3980/Continuous Surveillance 



Performance Characteristics

The Universal MATE-N-LOK Connector performance characteristics found on pages 169-170 are based on free-hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Dielectric Withstanding Voltage—5.0 KVAC or 5.0 KVDC between adjacent circuits

Insulation Resistance—1000 megohms minimum initial between adjacent circuits

Voltage Rating—600 V AC or DC

Contact Insertion Force—5.0 lb. max. per contact

Contact Retention—15 lb. min. per contact

Durability—50 cycles, mating and unmating

Technical Documents

Product Specifications

108-1031 Universal MATE-N-LOK Connectors

108-1053 Universal MATE-N-LOK PC Board Headers

Application Specification

114-1010 Universal MATE-N-LOK Contacts

Instruction Sheet

408-7714 Plug, Cap, Headers, Pin, Socket and Accessories

Universal MATE-N-LOK Connectors (Continued)

Performance Characteristics (Continued)

Maximum Current—Maximum current rating of Universal MATE-N-LOK connectors is limited by the maximum operating temperature of the housings which is 125°C for 94V-2 housings and 120°C for 94V-0 housings including the temperature rise of the contacts which is a maximum of 30°C. There are several variables which have a direct effect on this maximum current-carrying capability for a given connector and must be considered for each application. These variables are:

Wire Size—Larger diameter wire will carry more current since it has less internal resistance to current flow and thus generates less heat. Longer wire lengths also enhance current carrying capabilities since the wire conducts heat away from the connector.

Connector Size—In general, the more circuits in a connector, the less current can be carried.

Ambient Temperature—The higher the ambient temperature, the less current can be carried in any given connector.

Printed Wiring Board Conductor Size—The finished trace conductor width and thickness should be maximized to allow for the greatest current carrying capacity and heat dissipation.

Universal MATE-N-LOK connectors also will withstand the following tests:

Vibration—10-55-10 cycles per minute at .06 inch total excursion

Physical Shock—18 drops, 50 G sawtooth at 10 milliseconds

Housing Panel Retention—75 lb. min.

Housing Lock Strength—30 lb. min.

Thermal Shock—-55°C to +85°C

Temperature-Humidity Cycling—25°C to 65°C at 95 RH

Corrosion—48 hr. at 5% salt concentration

Related Product Data

Product Specifications

108-1031 Universal MATE-N-LOK Connectors

108-1053 Universal MATE-N-LOK Headers

Current Rating Verification for 30°C Maximum Temperature Rise 100% Energized

Wire-to-Wire

Calculated Current Table

Number of Circuits	Wire Gauge									
	10	12	14	16	18	20	22	24	26	30
2	19.00	18.00	17.00	14.50	13.00	10.00	8.00	6.50	5.50	3.50
3	17.50	16.50	15.50	13.00	12.00	9.00	7.50	6.00	5.00	3.00
4	16.50	15.50	15.00	12.50	11.00	8.50	7.00	5.50	4.50	3.00
5	16.00	15.00	14.00	12.00	10.50	8.00	6.50	5.50	4.50	3.00
6 In-Line	15.50	14.50	13.50	11.50	10.00	8.00	6.50	5.00	4.00	2.50
6 Matrix	15.00	14.00	13.00	11.00	9.50	7.50	6.00	5.00	4.00	2.50
8	14.50	14.00	13.00	10.50	9.50	7.50	6.00	5.00	4.00	2.50
9	13.50	12.50	11.50	9.50	8.50	6.50	5.50	4.50	3.50	2.00
10	14.00	13.00	12.50	10.00	9.00	7.00	5.50	4.50	3.50	2.50
12	12.50	12.00	11.00	9.00	8.00	6.00	5.00	4.00	3.00	2.00
15	12.00	11.50	10.00	8.50	7.50	6.00	4.50	4.00	3.00	2.00

Values are based on initial Temperature Rise versus Current Testing and are intended to be a guide in the selection of a connector family. All applications should be tested by the end user. The values listed are per circuit for fully loaded housings being 100% energized. **Note:** All combinations were not tested, and this chart contains interpolated and extrapolated values.

Minimum Wire Lengths for T-Rise vs. Current Testing

AWG	Min. Length (in.)	AWG	Min. Length (in.)
30	2.6	18	9.4
28	3.2	16	11.3
26	4.1	14	13.7
24	5.1	12	16.4
20	7.8	10	19.3

Note: If wire lengths used are less than those listed above, the current carrying ability of the system will be reduced due to less heat being conducted away from the connector. The customer should fully test all applications.

Wire-to-Board

Due to the vast differences in trace geometry and printed circuit board configurations, we are unable to provide a separate current carrying chart for our printed circuit board header products. However, the above Wire-to-Wire charts may be used as a guideline for headers if the trace width and thickness is equal to the listed wire gauge. For vertical headers, only 95% of the Wire-to-Wire value should be used. For right-angle headers, only 75% of the Wire-to-Wire value should be used. The chart values are only a tool for connector selection and will require the customer to fully test their application.

Termination Resistance/Contact Crimp Tensile Force

Wire Size		Termination Resistance		Contact Crimp Tensile Force	
AWG	mm ²	Test Current (Amps)	Resistance Milliohms (Max. Init.)	Force (Min.) lbs.	N
30	.05	—	—	2	9
28	.08	—	—	3	13
26	.12	—	—	6	27
24	.2	1.5	3.50	8	36
22	.3	3	3.50	14	62
20	.5	4.5	3.00	14	62
18	.8	6	3.00	30	133
16	1.2	8	2.75	45	200
14	2.0	10	2.75	50	222
12	3.0	—	—	60	267
10	5.0	—	—	70	311

Note: This is the total resistance between wire crimps of a mated pin and socket.

Universal MATE-N-LOK Connectors (Continued)

Universal MATE-N-LOK Connector Mating Combinations

Connector Part Number ⁷					Mating Connector Part Number								
Number of Circuits	Flammability Rating	Style	Plug Part Number ²	Cap Part Number ²	Plating	Vertical Pin ²			Vertical Socket ²			Right-Angle ²	
						Standard Tail	Standard Tail Polarized	Long Tail	Standard Tail	Standard Tail Polarized	Long Tail	Pin	Socket
1		—	1-350867-0	770421-1	—	—	—	—	—	—	—	—	—
			UL94V-0	350865-1	350866-1	—	—	—	—	—	—	—	—
2	In-Line	—	1-480698-0 794814-1 ³	1-480699-0 794815-1 ³	Pre-tin	350428-1	641963-1	350582-1	350759-4	643411-1	350986-4	—	—
					Duplex ¹	350428-4	641963-3	350582-4	350759-5	—	—	—	—
					Pre-tin	350786-1	641964-1	350787-1	350824-1	643412-1	350831-1	1-350942-0	643226-1
					Duplex ¹	350786-3	641964-3	350787-3	350824-4	643412-3	—	3-350942-0	—
3	In-Line ⁶	—	1-480700-0 794901-1 ³	1-480701-0 794900-1 ³	Pre-tin	350429-1	641965-1	350583-1	350760-4	643413-1	350987-4	—	—
					Duplex ¹	350429-4	—	350583-4	350760-5	—	—	—	—
					Pre-tin	350789-1	641966-1	350790-1	350825-1	643414-1	350832-1	1-350943-0	643228-1
					Duplex ¹	350789-3	—	350790-3	350825-4	643414-3	350832-4	3-350943-0	3-643228-0
4	In-Line	—	1-480702-0 794899-1 ³	1-480703-0 794707-1 ³	Pre-tin	350430-1	641967-1	350584-1	350761-4	643415-1	350988-4	1-350948-0	—
					Duplex ¹	350430-4	—	350584-4	350761-5	—	350988-5	—	—
					Pre-tin	350792-1	641968-1	350793-1	350826-1	643416-1	350833-1	1-350944-0	643230-1
					Duplex ¹	350792-3	—	350793-3	350826-4	—	350833-4	3-350944-0	3-643230-0
5	In-Line	—	1-480763-0	1-480764-0 ³ 794863-1 ³	Pre-tin	640466-1	643405-1	—	640467-1	—	—	1-350949-0	—
					Duplex ¹	640466-3	—	—	640467-3	—	—	—	—
					Pre-tin	640900-1	643406-1	—	640901-1	—	—	1-350945-0	643232-1
					Duplex ¹	640900-3	—	—	640901-3	—	—	3-350945-0	3-643232-0
6	In-Line	—	640585-1	926307-1	Pre-tin	641832-1	643407-1	—	—	—	—	640587-1	—
					Duplex ¹	641832-3	—	—	—	—	—	—	—
					Pre-tin	641831-1	643408-1	—	770262-1	—	—	640583-1	643234-1
					Duplex ¹	641831-3	—	—	770262-3	—	—	640583-3	3-643234-0
6	Matrix ⁶	—	1-480704-0 794535-1 ³ 794096-1 ⁵	1-480705-0 794536-1 ³	Pre-tin	350431-1	641969-1	350585-1	350762-4	643423-1	350989-4	—	—
					Duplex ¹	350431-4	—	350585-4	350762-5	—	350989-5	—	—
					Pre-tin	350711-1	641970-1	350732-1	350827-1	643424-1	350834-1	—	—
					Duplex ¹	350711-4	641970-3	350732-4	350827-4	643424-3	350834-4	—	—
8	In-Line	—	640586-1	926308-1	Pre-tin	641825-1	—	770143-1	—	—	—	—	—
					Duplex ¹	—	—	—	—	—	—	—	—
					Pre-tin	641828-1	643410-1	—	—	—	—	640584-1	643236-1
					Duplex ¹	—	643410-3	—	—	—	—	640584-3	3-643236-0
9	Matrix	—	1-480706-0 794537-1 ³	1-480707-0 794538-1 ³	Pre-tin	350432-1	641971-1	350586-1	350763-4	643425-1	350990-4	—	—
					Duplex ¹	350432-4	641971-3	350586-4	350763-5	—	350990-5	—	—
					Pre-tin	350712-1	641972-1	350742-1	350828-1	643426-1	350835-1	—	—
					Duplex ¹	350712-4	641972-3	350742-4	350828-4	643426-3	350835-4	—	—
10	In-Line	—	926302-1	926309-1	Pre-tin	—	—	—	—	—	—	—	—
					Duplex ¹	—	—	—	—	—	—	—	—
					Pre-tin	—	—	—	—	—	—	—	—
					Duplex ¹	—	—	—	—	—	—	—	—
12	Matrix	—	1-480708-0 794851-1 ³	1-480709-0 794727-1 ³	Pre-tin	350433-1	641973-1	350587-1	350764-4	—	350991-4	—	—
					Duplex ¹	350433-4	—	350587-4	350764-5	—	350991-5	—	—
					Pre-tin	350713-1	641974-1	350737-1	350829-1	643428-1	350836-1	—	—
					Duplex ¹	350713-4	641974-3	350737-4	350829-4	—	350836-4	—	—
15	Matrix	—	1-480710-0 794546-1 ³	1-480711-0 794545-1 ³	Pre-tin	350434-1	641975-1	350588-1	350765-4	643429-1	350992-4	—	—
					Duplex ¹	350434-4	—	350588-4	350765-5	—	—	—	—
					Pre-tin	350714-1	641976-1	350738-1	350830-1	643430-1	350837-1	—	—
					Duplex ¹	350714-4	641976-4	350738-4	350830-4	—	350837-4	—	—

¹Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

²Universal MATE-N-LOK Plug and Cap housings accept pin or socket contacts. Use the appropriate contacts in the Plug housing as required by the mating component.

³Housing material has 125°C temperature rating.

⁴Black in color.

⁵Tool Removable

⁶UV Resistant housing material available.

⁷European glow wire housing material available.

Note: All part numbers are RoHS Compliant.

Universal MATE-N-LOK Connectors (Continued)

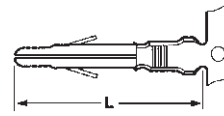
Contacts

Solid pin diameter .084 [2.13]
Stock thickness .012 [.305] unless otherwise noted.
These contacts can be used in either Universal MATE-N-LOK Plug or Cap housings **only**.

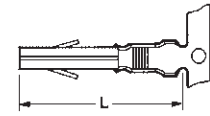
Related Product Data

Product Specification
108-1031 Universal MATE-N-LOK Connectors
Application Specification
114-1010 Universal MATE-N-LOK Contacts

Performance Characteristics— pages 169-170
Technical Documents— pages 169 and 205-206
Application Tooling— pages 207-210
Housings— page 174



Solid Pin



Socket

Wire Size Range AWG [mm ²]	Ins. Dia. Range	L Dim.		Material & Finish	Contact Part Numbers				HDM Applicator Part No.	Hand Tool Part No.
		Pin	Socket		Pin		Socket			
					Strip Form	Loose Piece	Strip Form	Loose Piece		
30-26 [.05-.12]	.032-.057 .813-1.45	.790 20.06	.760 19.30	Brass, Pre-tin	350924-1	770672-1	350925-1	770673-1	466616-2 ⁶ 466616-3 ⁶	58439-1
				Phos. Brz., Gold ²	350924-6	770672-6	350925-6	—		
24-18 [.2-.8]	.040-.100 1.02-2.54	.790 20.06	.760 19.30	Brass, Pre-tin	350561-1	350690-1	350851-1 350570-1 ¹	350689-1 ¹	466320-1 ⁶ 466320-2 ⁶ 466320-4 ⁶	91510-1
				Brass, Gold ²	350561-2	350690-2	350851-2	640347-2		
				Brass, Select Gold ³	350561-7	350690-7	350851-7 350570-7 ¹	350689-7 ¹		
				Phos. Brz., Pre-tin	350561-3	350690-3	350570-3 ¹	350689-3 ¹		
				Phos. Brz., Select Gold ³	—	—	350570-6 ¹	—		
20-14 [.5-2.0]	.060-.130 1.52-3.30	.790 20.06	.760 19.30	Brass, Pre-tin	350218-1	350547-1	350536-1	350550-1	687763-1 ⁶ 687763-2 ⁶ 687763-6 ⁶	91500-1
				Brass, Gold ²	350218-2	350547-2	350536-2	350550-2		
				Brass, Select Gold ³	350218-7	350547-7	350536-7	350550-7		
				Phos. Brz., Pre-tin	350218-3	350547-3	350536-3	350550-3		
				Phos. Brz., Select Gold ³	350218-6	350547-6	350536-6	350550-6		
20-14 [.5-2.0] or 2@18 [.8]	.130-.200 3.30-5.08	.810 20.57	.780 19.81	Brass, Pre-tin	350538-1	350552-1	350537-1	350551-1	687926-1 ⁶ 687926-2 ⁶ 687926-6 ⁶	91508-17 91506-17
				Brass, Gold ²	350538-2	350552-2	350537-2	350551-2		
				Brass, Select Gold ³	350538-7	350552-7	350537-7	350551-7		
				Phos. Brz., Pre-tin	350538-3	350552-3	350537-3	350551-3		
				Phos. Brz., Select Gold ³	350538-6	350552-6	350537-6	350551-6		
18-14 ⁴ [.8-2.0]	.130-.200 3.30-5.08	.810 20.57	.780 19.81	Brass, Pre-tin	350873-1	—	350874-1	—	466588-1 ⁶ 466588-2 ⁶ 466588-3 ⁶	91508-17 91506-17
				Phos. Brz., Pre-tin	350873-3	350918-3	350874-3	350919-3		
12-10 [3.0-5.0]	.200 max.⁵ 5.08	.810 20.57	.780 19.81	Phos. Brz., Pre-tin	350922-3	640309-3	350923-3	640310-3	466597-1 ⁶ 466597-2 ⁶	69710-17
				Phos. Brz., Select Gold ³	350922-6	640309-6	350923-6	640310-6		

¹Socket Contact — .010 [.254] stock thickness
²Gold Finish — Plated with .000030 [.000762] min. gold in mating area and inside wire barrel over .000050 [.00127] min. nickel underplate on entire contact.
³Select Gold Finish — Plated with .000030 [.000762] min. gold in mating area over .000050 [.00127] min. nickel underplate on entire contact.
⁴Recommended for predominant use of 14 AWG wire.
⁵There is no insulation barrel on this contact. Insulation maximum diameter is limited by the housing.
⁶HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3, -4 & -6 are used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.
⁷Hand Tool No. **91508-1** is for wire size 20-18 AWG. Hand Tool No. **91506-1** is for wire size 16-14 AWG. Hand Tool No. **69710-1** use die set No. **58380-1** for 12 AWG and No. **58380-2** for 10 AWG.
Note: Phosphor bronze material contacts should be used in high temperature/humidity cycling applications.
Note: All part numbers are RoHS Compliant.



Contact Retention Test Tool
Part No. 1586701-1
IS 408-10003



Contact Extraction Tool
Part No. 318851-1
IS 408-4371



Contact Insertion Tool
(For inserting contacts applied to small diameter wire)
Part No. 91002-1
IS 408-7347

Standard Density
Universal MATE-N-LOK Connectors
.250 [6.35] Centerline

Universal MATE-N-LOK Connectors (Continued)

Contacts

Split pin diameter .086 [2.18]
Stock thickness .012 [.305]
These contacts can be used in either Universal MATE-N-LOK Plug or Cap housings **only**.

Related Product Data

Product Specification

108-1031 Universal MATE-N-LOK Connectors

Application Specification

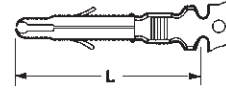
114-1010 Universal MATE-N-LOK Contacts

Performance Characteristics—
pages 169-170

Technical Documents—pages 169
and 205-206

Application Tooling—pages 207-210
Housings—page 174

Split Pins



Wire Size Range AWG [mm ²]	Ins. Dia. Range	L Dim.	Material & Finish	Contact Part Number		HDM Applicator Part No.	Hand Tool Part No.
				Strip Form	Loose Piece		
24-18 [.2-.8]	.040-.100 1.02-2.54	.790 20.06	Brass, Pre-tin	350699-1	350706-1	466320-1 ³ 466320-2 ³ 466320-4 ³	91510-1
			Brass, Gold ¹	350699-2	350706-2		
			Brass, Select Gold ²	350699-7	350706-7		
20-14 [.5-2.0]	.060-.130 1.52-3.30	.790 20.06	Brass, Pre-tin	350687-1	350705-1	687763-1 ³ 687763-2 ³ 687763-6 ³	91500-1
			Brass, Gold ¹	350687-2	350705-2		
			Brass, Select Gold ²	350687-7	350705-7		
20-14 [.5-2.0] or 2@18 [.8]	.130-.200 3.30-5.08	.810 20.57	Brass, Pre-tin	350700-1	350707-1	687926-1 ³ 687926-2 ³ 687926-6 ³	91508-1 ⁴ 91506-1 ⁴
			Brass, Gold ¹	350700-2	350707-2		
			Brass, Select Gold ²	350700-7	350707-7		

¹Gold Finish—Plated with .000030 [.000762] min. gold in mating area and inside wire barrel over .000050 [.00127] min. nickel underplate on entire contact.

²Select Gold Finish—Plated with .000030 [.000762] min. gold in mating area over .000050 [.00127] min. nickel underplate on entire contact.

³HDM Applicator part number ending in -1, is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -4 & -6 are used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

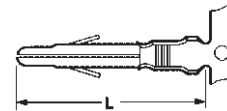
⁴Hand Tool No. **91508-1** for wire size 20-18 AWG. Hand Tool No. **91506-1** for wire size 16-14 AWG.

Notes:

1. Split pins recommended for use in housings having 6, 9, 12 and 15 circuits to reduce mating force.
2. Phosphor bronze material contacts are available for use in high temperature/humidity cycling applications, consult Tyco Electronics.

Grounding Pins

(.100 [2.54] longer than standard pin)
(Mate first, break last, not for interrupting current)



Wire Size Range AWG [mm ²]	Ins. Dia. Range	L Dim.	Material & Finish	Contact Part Number		HDM Applicator Part No.	Hand Tool Part No.
				Strip Form	Loose Piece		
24-18 [.2-.8]	.060-.130 1.52-3.30	.890 22.60	Brass, Pre-tin	770210-1	—	567216-2 ² 567216-3 ²	—
				350654-1	350669-1		
20-14 [.5-2.0]	.060-.130 1.52-3.30	.890 22.60	Brass, Pre-tin	350654-1	350669-1	687763-1 ² 687763-2 ² 687763-6 ²	91500-1
12-10 [3.0-5.0]	.200 max. ¹ 5.08	.910 23.11	Phos. Brz., Pre-tin	770234-3	—	466597-1 ² 466597-2 ² 466597-3 ²	—

¹There is no insulation barrel on this contact. Insulation maximum diameter is limited by the housing.

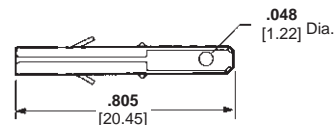
²HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3 & -6 are used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

**Programmable Connector
Contact**

(Socket with 110 Series Special FASTON Tab)

Material and Finish

Brass, pre-tin



Part Number
350877-1

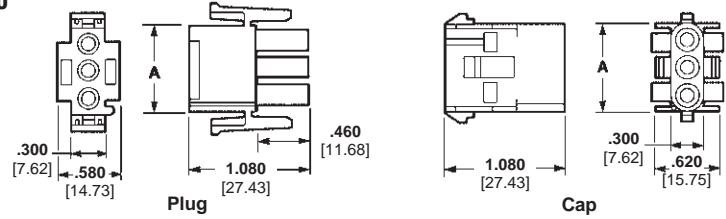
Note: This contact will accept a 110 Series FASTON Receptacle—Part No. **350871-1** (strip form) allowing simple field wiring or wiring changes.

Note: All part numbers are RoHS Compliant.

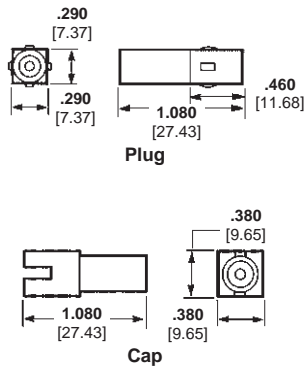
Universal MATE-N-LOK Connectors (Continued)

Housings
Free-Hanging or Panel Mount
.250 [6.35] Centerline spacing

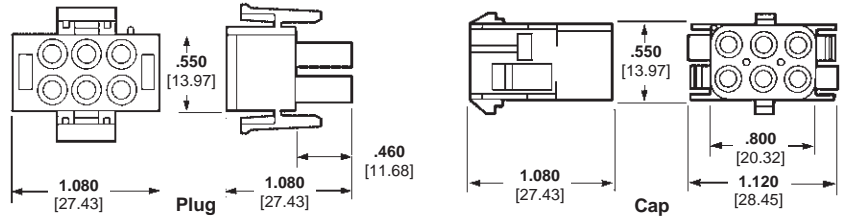
2, 3, 4, 5, 6, 8 and 10
Circuit, In-Line



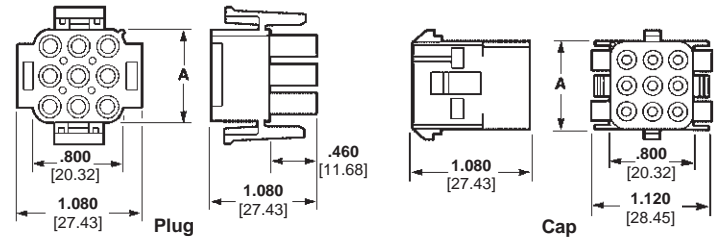
1 Circuit, Free-Hanging



6 Circuit, Matrix



9, 12 and 15 Circuit, Matrix



Related Product Data

- Product Specification**
108-1031 Universal MATE-N-LOK Connectors
- Performance Characteristics**—
pages 169-170
- Contacts**—pages 172-173
- Panel Cutout**
- Recommendations**—page 175
- Keying Plug**—page 175
- Strain Reliefs**—pages 175-176
- Technical Documents**—pages 169 and 205-206
- Mating Headers**—pages 182-183 and 185
- Other Mating Connectors**
Universal MATE-N-LOK II Housings—
pages 193-194

Note: See charts on page 182 to order Plug and Cap Housings in colors.

Number of Circuits	A Dim.	Housing Part Numbers			
		UL94V-2 Nylon, Natural Color ²		UL94V-0 Nylon ³	
		Plug	Cap	Plug	Cap
1	—	1-350867-0	770421-1	350865-1	350866-1
2	.550 13.97	1-480698-0 ¹	1-480699-0 ¹	350777-1 ¹	350778-1 ¹
3	.800 20.32	1-480700-0 ¹	1-480701-0 ¹	350766-1 ¹	350767-1 ¹
4	1.050 26.67	1-480702-0 ¹	1-480703-0 ¹	350779-1 ¹	350780-1 ¹
5	1.300 33.02	1-480763-0 ¹	1-480764-0 ¹	350809-1 ¹	350810-1 ¹
6	1.550 39.37	640585-1 ¹	926307-1 ¹	640581-1 ¹	926307-3 ¹
		1-480704-0 794096-1 ⁴	1-480705-0	350715-1	350781-1
8	2.050 52.07	640586-1 ¹	926308-1 ¹	640582-1 ¹	926308-3 ¹
9	.800 20.32	1-480706-0	1-480707-0	350720-1	350782-1
10	2.550 64.77	926302-1 ¹	926309-1 ¹	926302-3 ¹	926309-3 ¹
12	1.050 26.67	1-480708-0	1-480709-0	350735-1	350783-1
15	1.300 33.02	1-480710-0	1-480711-0	350736-1	350784-1

¹In-Line style.
²Housing material has 125°C temperature rating.
³Housing material has 120°C temperature rating.
⁴Tool Removable.

Note: All part numbers are RoHS Compliant.

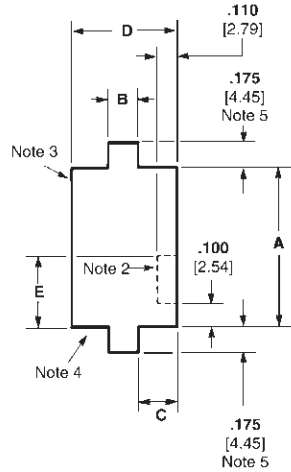
Universal MATE-N-LOK Connectors
.250 [6.35] Centerline
Standard Density

Universal MATE-N-LOK Connectors (Continued)

Recommended Cap Housing Panel Cutouts

View is from cap entry side

Refer to Application Specification 114-1010



Style	Number of Circuits	Dimensions					
		A	B	C	D	E	
In-Line	2	.565 14.35	.340 8.64	.095 2.41	.530 13.46	.250 6.35	
	3	.815 20.70	.340 8.64	.095 2.41	.530 13.46	.250 6.35	
	4	1.065 27.05	.340 8.64	.095 2.41	.530 13.46	.250 6.35	
	5	1.315 33.40	.340 8.64	.095 2.41	.530 13.46	.250 6.35	
	6	1.567 39.80	.154 3.91	.189 4.80	.531 13.49	.394 10.0	
	8	2.067 52.50	.154 3.91	.189 4.80	.531 13.49	.394 10.0	
	10	2.567 65.20	.154 3.91	.189 4.80	.530 13.46	.394 10.0	
	Matrix	6	.565 14.35	.480 12.19	.275 6.99	1.030 26.16	.250 6.35
		9	.815 20.70	.480 12.19	.275 6.99	1.030 26.16	.250 6.35
		12	1.065 27.05	.480 12.19	.275 6.99	1.030 26.16	.350 8.89
15		1.315 33.40	.480 12.19	.275 6.99	1.030 26.16	.350 8.89	

Notes:

1. Recommended panel thickness — .030-.090 [.762-2.286]. Panel must be punched so that housing enters panel in same direction as the punch.
2. Optional — Do not remove this material when keying cap housing to panel.
3. Circuit #1 location when using panel keying with 6, 9, 12 and 15 circuit Matrix housings.
4. Circuit #1 location when using panel keying with 2, 3, 4, 5, 6, 8 and 10 circuit In-Line housings.
5. .175 [4.45] dimension is .125 [3.18] for 6, 8 and 10 circuit In-Line housings.

Keying Plugs

IS 408-3320



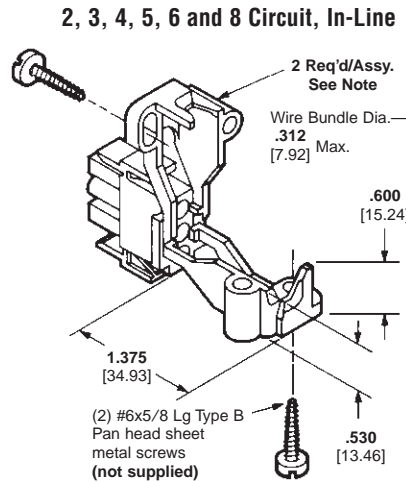
Part Numbers

UL94V-2 Nylon material, natural color — 1-640415-1
UL94V-0 Nylon material — 1-640415-0

Note: Keying plug snaps into plug or cap housing

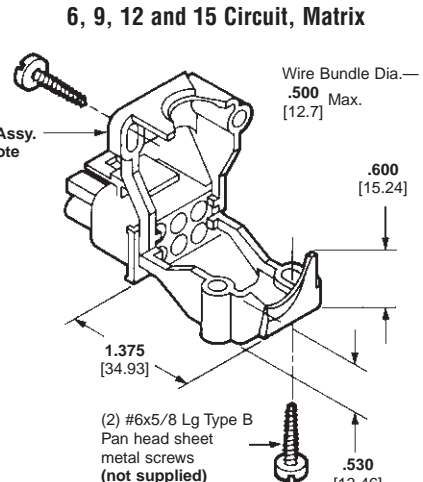
Plug Housing Strain Reliefs

IS 408-3320



Part Numbers

UL94V-2 Nylon material, natural color — 1-350589-0
UL94V-0 Nylon material — 350811-1



Part Numbers

UL94V-2 Nylon material, natural color — 1-350590-0
UL94V-0 Nylon material — 350812-1

Note: Strain relief part number represents one half of a strain relief. Two strain reliefs required per housing.

Note: All part numbers are RoHS Compliant.

Universal MATE-N-LOK Connectors (Continued)

Plug or Cap Housing Strain Reliefs

IS 408-3320

Related Product Data

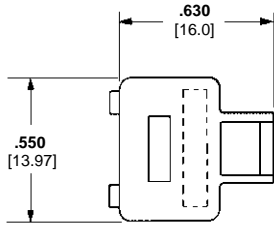
Housings—page 174
Technical Documents—pages 169 and 205-206

Cap Housing Adapters

These adapters are designed to anchor the cap housing strain reliefs to the housings and prevent the strain relief halves from "drawing in" when the screws are being torqued down to clamp the cable.

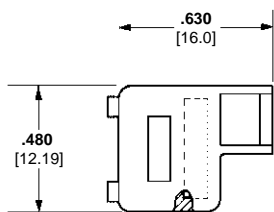
IS 408-3320

For All Positions Except 2, 6 and 8 Circuit Cap Housings



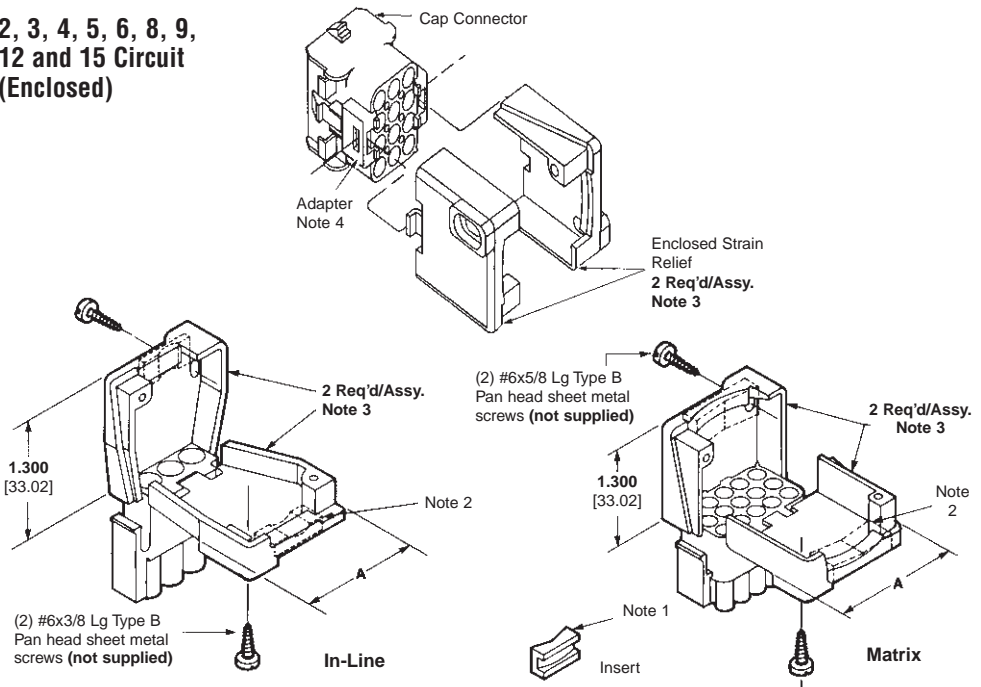
UL94V-2 Nylon material, natural color—**641777-1**
UL94V-0 Nylon material—**641778-1**

For 2 In-Line and 6 Matrix Circuit Cap Housings Only



UL94V-2 Nylon material, natural color—**643182-1**
UL94V-0 Nylon material—**643182-2**

2, 3, 4, 5, 6, 8, 9, 12 and 15 Circuit (Enclosed)



Style	Number of Circuits	A Dim.	Insert Supplied	Single Wire Dia. Range	Wire Bundle Dia. Range	Part Numbers	
						UL94V-2 Nylon, Natural Color	UL94V-0 Nylon
In-Line	2	.960 24.38	Yes	.040-.190 1.02-4.83	—	1-640719-0	640713-1
			No	—	.200-.350 5.08-8.89	1-640719-1	640713-2
	3	1.140 28.96	Yes	.040-.190 1.02-4.83	—	1-640720-0	640714-1
			No	—	.200-.350 5.08-8.89	641763-1	641945-1
	4	1.325 33.65	Yes	.040-.190 1.02-4.83	—	641775-1	641776-1
			No	—	.200-.350 5.08-8.89	641775-2	641776-2
	5	1.530 38.86	Yes	.040-.190 1.02-4.83	—	643030-3	643030-1
			No	—	.200-.350 5.08-8.89	643030-2	643030-4
	6 Note 5	1.780 45.21	Yes	.040-.190 1.02-4.83	—	643585-1	643313-1
			No	—	.200-.350 5.08-8.89	643585-2	643313-2
	8 Note 5	2.280 56.08	Yes	.040-.190 1.02-4.83	—	—	643314-1
			No	—	.200-.350 5.08-8.89	—	643314-2
Matrix	6	1.030 26.16	Yes	—	.120-.650 3.05-16.51	1-640721-0	640715-1
	9	1.030 26.16	Yes	—	.120-.650 3.05-16.51	1-640722-0	640716-1
	12	1.280 32.51	Yes	—	.150-.750 3.81-19.05	1-640723-0	640717-1
	15	1.530 38.86	Yes	—	.200-.850 5.08-21.59	1-640724-0	640718-1
			No	—	—	—	—

Notes:

1. Cable clamping insert comes attached to strain relief. It can be used to provide additional adjustment for small wire bundles or discarded.
2. Insert to be positioned as shown by dotted lines.
3. Strain relief part number represents one-half of a strain relief. Two strain reliefs required per housing.
4. Must use cap housing adapters when attaching strain reliefs to a cap housing. Two adapters required per housing.
5. Strain reliefs for 6 and 8 circuit In-Line fits plug housings only.

Note: All part numbers are RoHS Compliant.

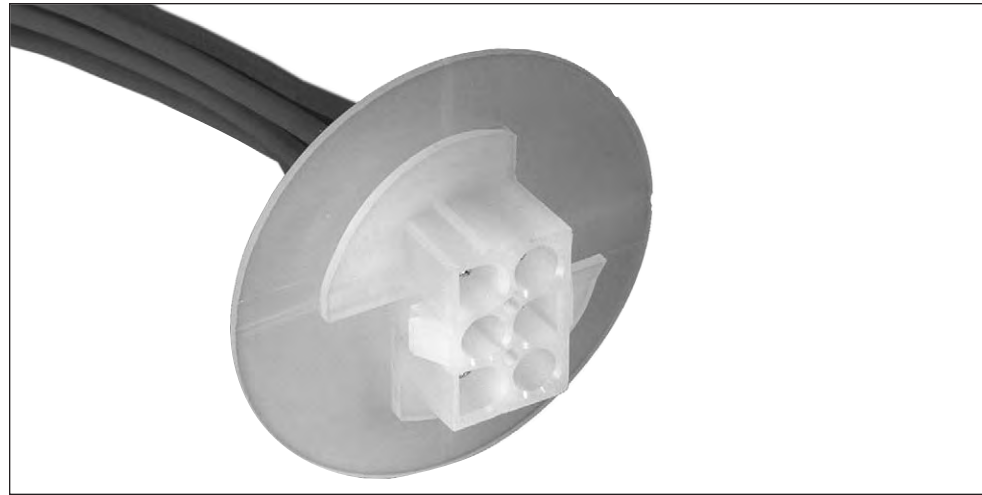
Standard Density

Universal MATE-N-LOK Connectors
.250 [6.35] Centerline

Universal MATE-N-LOK Flanged Cap Housings with Twist and Lock Feature

Product Facts

- Available in a 6, 9, and 12 circuit design
- Designed for household appliances where a bulkhead connector system is needed in conjunction with foam-in insulation
- Mates with standard Universal MATE-N-LOK plug housings (page 174)
- Accepts Universal MATE-N-LOK pin and socket contacts (page 167)
- Designed to utilize the Splash Proof/Sealed Universal MATE-N-LOK seals for additional sealing protection (pages 174-175)



Material and Finish

Housing—Nylon, UL 94V-0 or UL 94V-2 rated

Contacts—Phosphor Bronze or Brass

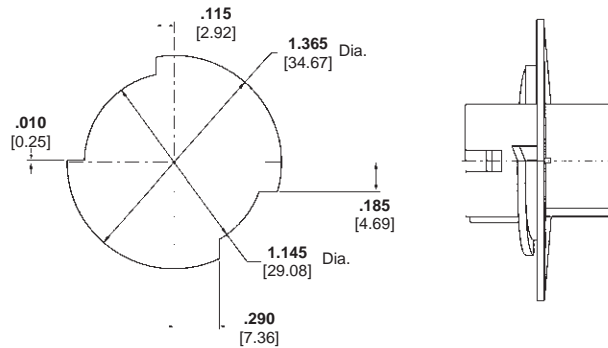
Plating—Pre-tin or Gold

Related Product Data

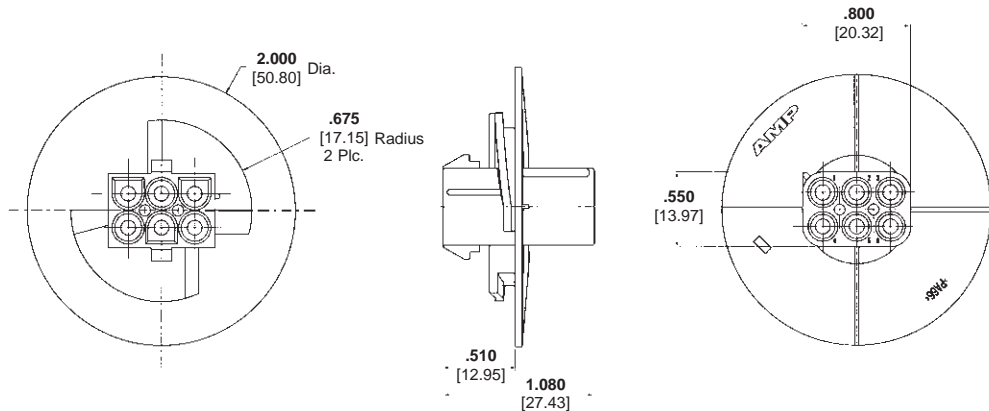
Contacts—pages 172-173

Plug Housings—page 174

Seals—page 180



**Recommended Panel Cutout
(for 6 and 9 Pos. Housings)**



Notes:

1. Recommended Panel Thickness: 0.76-2.29 [.030-.090]
2. Panel must be punched so that the housing enters the panel in the same direction as the punch.
3. Asymmetrical panel cutout provides polarization for Pin 1 location.

Number of Circuits	Cap Housing Part Numbers	
	UL 94V-0	UL 94V-2
6	794760-1	794714-1
9	794761-1	794715-1
12	794762-1	794716-1

Note: All part numbers are RoHS Compliant.

Universal MATE-N-LOK Sealed Bulkhead Connectors

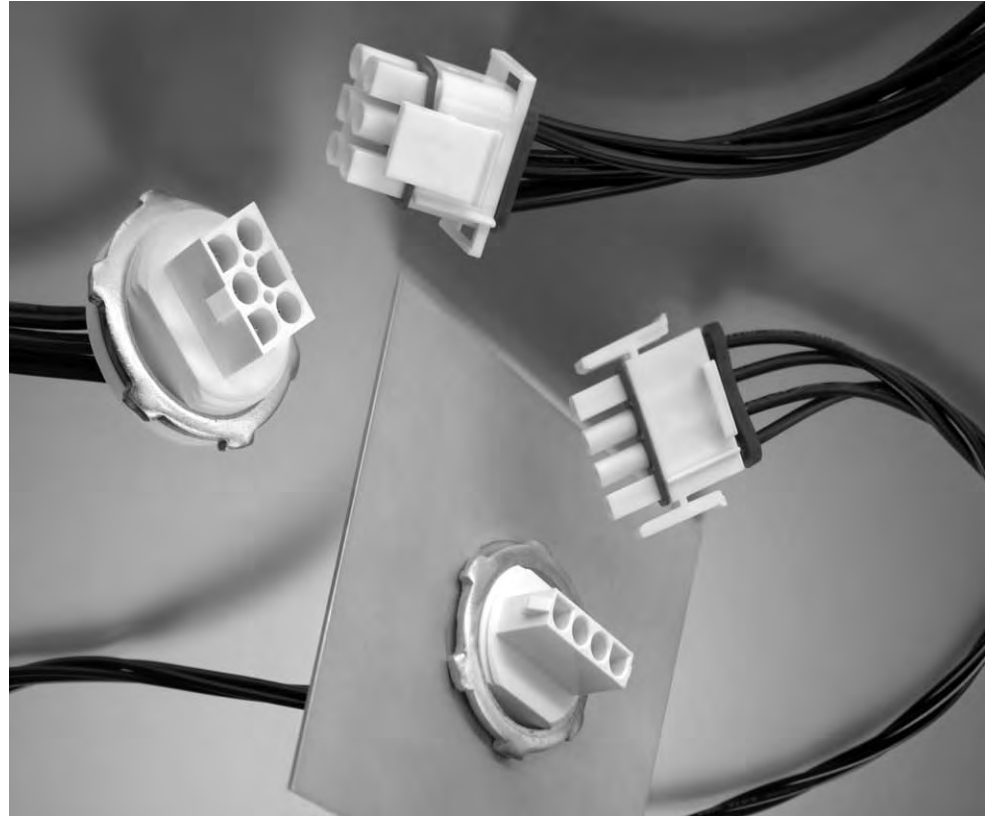
Product Facts

- Bulkhead mount Universal MATE-N-LOK connector that facilitates sealed panel mounting and works with existing Universal MATE-N-LOK seals to provide a fully-sealed interconnection system
- Available in 4, 6, 9 and 12 positions
- Sealed, flange mount design
- Mates to standard Universal MATE-N-LOK plug housings
- Accepts standard Universal MATE-N-LOK contacts
- Works with standard Universal MATE-N-LOK connector interface and wire seals
- Anti-rotation feature aids installation
- Rear mount flange design enables use in wire harnesses
- Pins and sockets can be intermixed in the same housing
- UL Recognized, File No. E28476
- CSA Certified, File No. 1030930



Applications

- Vending Machines
- Industrial Machinery
- Lighting
- HVAC Equipment



Performance Characteristics

Dielectric Withstanding Voltage—5.0 KVAC or 5.0 KVDC between adjacent circuits

Insulation Resistance—1000 megohms minimum initial between adjacent circuits

Voltage Rating—600 V AC or DC

Durability—50 cycles, mating and unmating

Technical Documents

Product Specification
108-1031 Universal MATE-N-LOK Connectors

Application Specification
114-1010 Universal MATE-N-LOK Contacts

Instruction Sheet
408-10017 Universal MATE-N-LOK Bulkhead Connectors

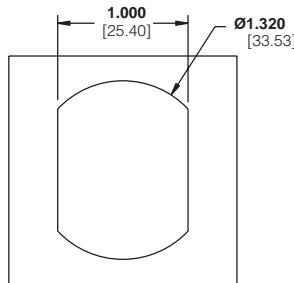
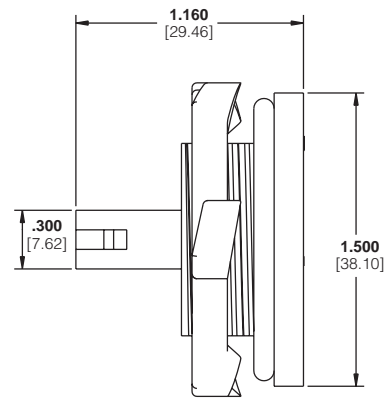
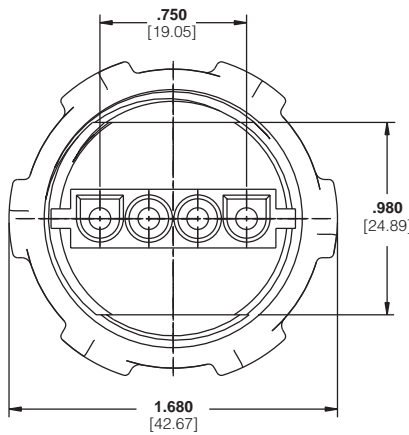
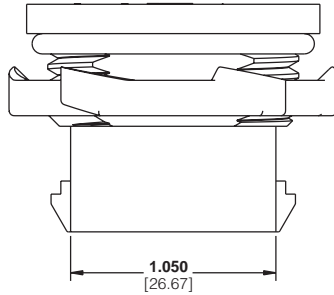
Universal MATE-N-LOK Sealed Bulkhead Connectors (Continued)

Connector Housings

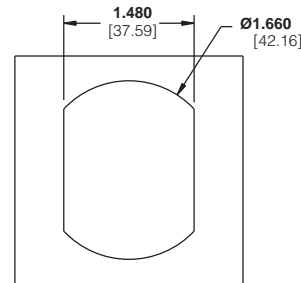
4 Position Connector Housing (shown)

Material and Finish

- Housing**—Nylon, UL 94V-0 rated
- Contacts**—Brass with pre-tin or gold plating
- O-ring Seal**—Neoprene
- Locking Nut**—Steel, zinc plated



Recommended
Panel Cut-Out for 4, 6 & 9 Position Product Only



Recommended
Panel Cut-Out for 12 Position Product Only

No. of Pos.	Style	Housing Part Number
4	In Line	1604256-1
6	Matrix	1604210-1
9	Matrix	1604254-1
12	Matrix	1604941-1

Note: All part numbers are RoHS Compliant.

Standard Density

Universal MATE-N-LOK Sealed Bulkhead Connectors
.250 [6.35] Centerline

Universal MATE-N-LOK Sealed Connectors

Splash Proof Seals

Product Facts

- Economical splash proof/immersion sealed connector system
- No design changes to existing Universal MATE-N-LOK product
- Existing applications utilizing Universal MATE-N-LOK connectors can be upgraded to a splash proof system
- Utilizes two wire seals and one interface seal
- Wire range is 20-14 AWG [.5-2.0] with insulation diameter range .060-.130 [1.52-3.30]
- .110-.130 [2.79-3.30] insulation diameter passed European IP sealing level 5/6 + 7 (swirling dust/immersion to 1 meter for 30 minutes)
- .060-.110 [1.52-2.79] insulation diameter passed European IP sealing level 5/5 + 7 (swirling dust/heavy seas)
- Universal MATE-N-LOK II keying plug can be used to seal unused circuits
- Primary application is for wire-to-wire; wire-to-board application must use a closed bottom header

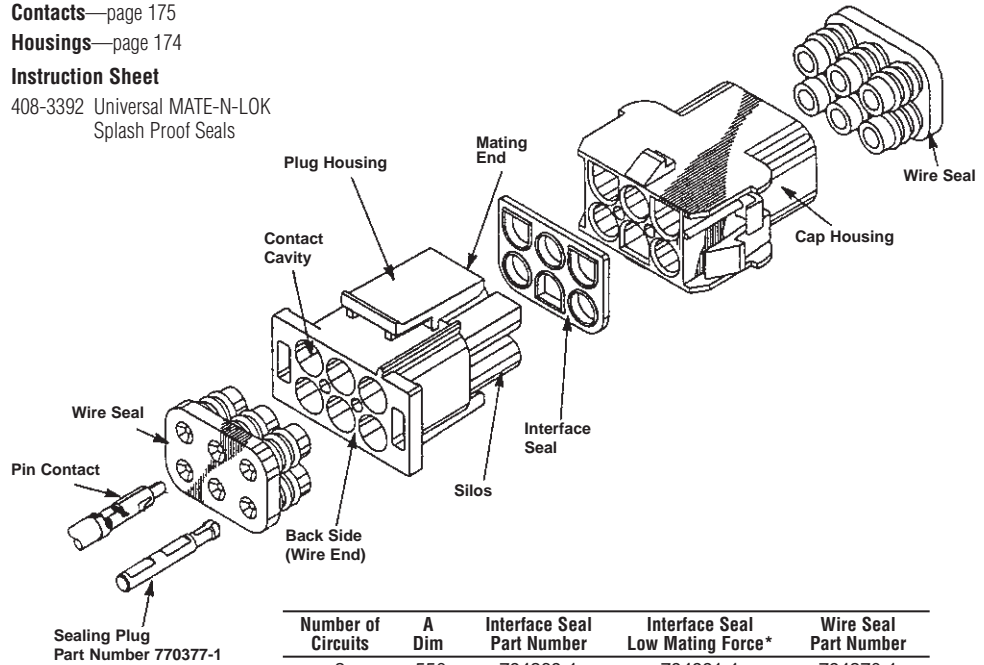
Material

Silicone rubber, blue color

Technical Documents

- Product Specification**
108-1031-1 Splash Proof Seal, Universal MATE-N-LOK Connectors
- Contacts**—page 175
- Housings**—page 174
- Instruction Sheet**
408-3392 Universal MATE-N-LOK Splash Proof Seals

Note: For proper use of this product, customer should make sure that Instruction Sheet 408-3392 is available for review.



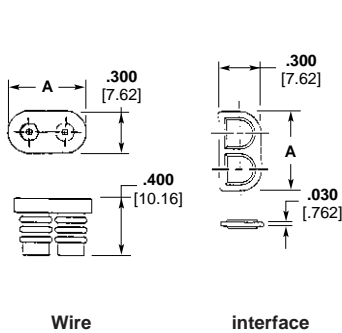
Number of Circuits	A Dim	Interface Seal Part Number	Interface Seal Low Mating Force*	Wire Seal Part Number
2	.550	794269-1	794991-1	794270-1
3	.800	794271-1	794992-1	794272-1
4	1.050	794273-1	—	794274-1
6	—	794275-1	794993-1	794276-1
9	.800	794277-1	794994-1	794278-1
12	1.050	794279-1	—	794280-1
15	1.300	794281-1	—	794282-1

Note: One interface seal and two wire seals required per mated assembly.
*Low mating force interface seals do not meet IP 5/6 IP 5/7 requirements.

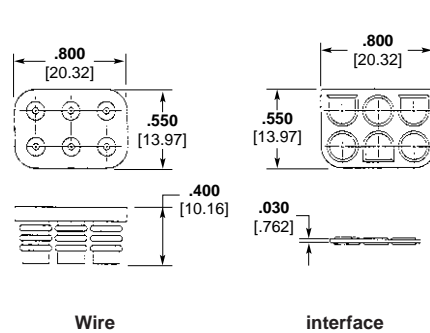
Note: All part numbers are RoHS Compliant.

Standard Density

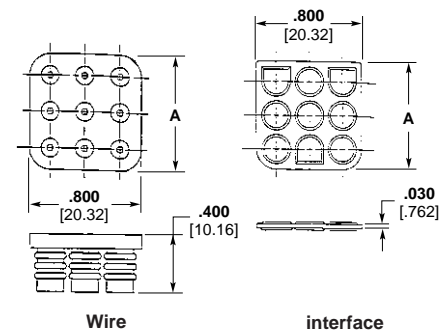
2, 3, 4 Circuit, In-Line



6 Circuit, Matrix



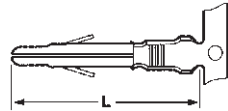
9, 12, and 15 Circuit, Matrix



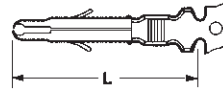
Universal MATE-N-LOK Sealed Connectors (Continued)

Contacts (used with Splash Proof Seals)

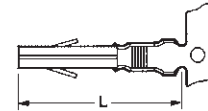
Solid pin diameter .084 [2.13]
Split pin diameter .086 [2.18]
Stock thickness .012 [.305] unless otherwise noted.
These contacts can be used in either Universal MATE-N-LOK Plug or Cap housings **only**.



Solid Pin



Split Pin



Socket

Related Product Data

Product Specification

108-1031 Universal MATE-N-LOK Connectors

Application Specification

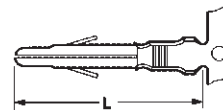
114-1010 Universal MATE-N-LOK Contacts

Performance Characteristics—pages 169-170

Technical Documents—pages 169 and 205-206

Application Tooling—pages 207-210

Housings—page 174



Grounding Pin

(100 [2.54] longer than standard pin)
(Mate first, break last, not for interrupting current)

Wire Size Range AWG [mm ²]	Ins. Dia. Range	L Dim.		Material & Finish	Style	Contact Part Numbers				HDM Applicator Part No.	Hand Tool Part No.
		Pin	Socket			Pin		Socket			
						Strip Form	Loose Piece	Strip Form	Loose Piece		
20-14 [.5-2.0]	.060-.130 [1.52-3.30]	.790 20.06	.760 19.30	Brass, Pre-tin	Solid	350218-1	350547-1	350536-1	350550-1	687763-1 ³ 687763-2 ³ 687763-6 ³	91500-1
				Brass, Gold ¹		350218-2	350547-2	350536-2	350550-2		
				Brass, Select Gold ²		350218-7	350547-7	350536-7	350550-7		
				Phos. Brz., Pre-tin		350218-3	350547-3	350536-3	350550-3		
				Phos. Brz., Select Gold ²		350218-6	350547-6	350536-6	350550-6		
		Brass, Pre-tin	350687-1	350705-1	—	—					
		Brass, Gold ¹	350687-2	350705-2	—	—					
		Brass, Select Gold ²	350687-7	350705-7	—	—					
		.890 22.60	—	Brass, Pre-Tin	Grounding	350654-1	350669-1	—	—		

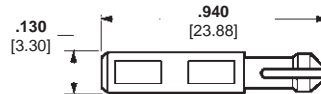
¹Gold Finish—Plated with .000030 [.000762] min. gold in mating area and inside wire barrel over .000050 [.00127] min. nickel underplate on entire contact.
²Select Gold Finish—Plated with .000030 [.000762] min. gold in mating area over .000050 [.00127] min. nickel underplate on entire contact.
³HDM Applicator part number ending in -1, is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -4 & -6 are used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

Notes:

1. Split pins recommended for use in housings having 6, 9, 12 and 15 circuits to reduce mating force.
2. Phosphor bronze material contacts are available for use in high temperature/humidity cycling applications, consult Tyco Electronics.
3. 18-24 AWG contacts (page 166) can be used with splash proof seals if insulation diameter range is .060-.100 [1.52-2.54].

Universal MATE-N-LOK II Keying Plug/Splash Proof Sealing Plug

IS 408-3392



Part Number
UL94V-0 Nylon material—770377-1

Related Product Data

Housings—page 174

Technical Documents—pages 169 and 205-206



Seal Latch Tool
Part No. 794381-1
IS 408-3392



Contact Extraction Tool
Part No. 318851-1
IS 408-4371



Contact Insertion Tool (For inserting contacts applied to small diameter wire)
Part No. 91002-1
IS 408-7347

Note: All part numbers are RoHS Compliant.

Universal MATE-N-LOK Connectors

PC Board Vertical Pin Headers

.250 [6.35] Centerline spacing

Material

Housing—

UL94V-2 Nylon, natural color
UL94V-0 Nylon

Contacts—Phosphor bronze

Solder tail diameter .062 [1.57]

Related Product Data

Product Specification

108-1053 Universal MATE-N-LOK
PC Board Headers

Performance Characteristics—
pages 169-170

Recommended PC Board Hole Layout—page 184

Technical Documents—pages 169
and 205-206

Mating Connectors

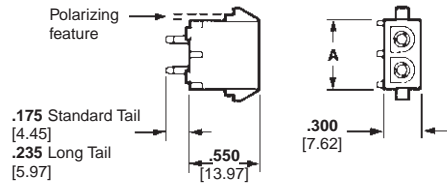
Universal MATE-N-LOK

Plug Housings—page 174

Universal MATE-N-LOK II

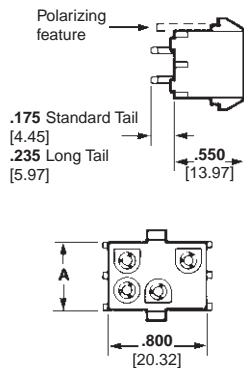
Plug Housings—pages 193-194

**2, 3, 4, 5, 6 and 8
Circuit, In-Line**



Number of Circuits	A Dim.	Flammability Rating	Pin Finish	Pin Header Part Numbers			Mates with Plug Housing Part Number (Using Socket Contacts)	
				Standard Tail ²	Standard Tail Polarized ²	Long Tail ³	Universal MATE-N-LOK	Universal MATE-N-LOK II
2	.550 13.97	UL94V-2	Pre-tin	350428-1	641963-1	350582-1	1-480698-0	—
			Duplex ¹	350428-4	641963-3	350582-4		
		UL94V-0	Pre-tin	350786-1	641964-1	350787-1	350777-1	770017-1
			Duplex ¹	350786-3	641964-3	350787-3		
3	.800 20.32	UL94V-2	Pre-tin	350429-1	641965-1	350583-1	1-480700-0	—
			Duplex ¹	350429-4	—	350583-4		
		UL94V-0	Pre-tin	350789-1	641966-1	350790-1	350766-1	770018-1
			Duplex ¹	350789-3	—	350790-3		
4	1.050 26.67	UL94V-2	Pre-tin	350430-1	641967-1	350584-1	1-480702-0	—
			Duplex ¹	350430-4	—	350584-4		
		UL94V-0	Pre-tin	350792-1	641968-1	350793-1	350779-1	770019-1
			Duplex ¹	350792-3	—	350793-3		
5	1.300 33.02	UL94V-2	Pre-tin	640466-1	643405-1	—	1-480763-0	—
			Duplex ¹	640466-3	—	—		
		UL94V-0	Pre-tin	640900-1	643406-1	—	350809-1	770016-1
			Duplex ¹	640900-3	—	—		
6	1.550 39.37	UL94V-2	Pre-tin	641832-1	643407-1	—	640585-1	—
			Pre-tin	641831-1	643408-1	—		
		UL94V-0	Pre-tin	641825-1	—	770143-1	640586-1	—
			Pre-tin	641828-1	643410-1	770272-1		
UL94V-0	Duplex ¹	—	643410-3	770272-3	—	—		

**6, 9, 12 and 15
Circuit, Matrix**



Number of Circuits	A Dim.	Flammability Rating	Pin Finish	Pin Header Part Numbers			Mates with Plug Housing Part Number (Using Socket Contacts)	
				Standard Tail ²	Standard Tail Polarized ²	Long Tail ³	Universal MATE-N-LOK	Universal MATE-N-LOK II
6	.550 13.97	UL94V-2	Pre-tin	350431-1	641969-1	350585-1	1-480704-0	—
			Duplex ¹	350431-4	—	643749-15		
		UL94V-0	Pre-tin	350711-1	641970-1	350732-1	350715-1	770020-1
			Duplex ¹	350711-4	641970-3	350732-4		
9	.800 20.32	UL94V-2	Pre-tin	350432-1	641971-1	350586-1	1-480706-0	—
			Duplex ¹	350432-4	641971-3	350586-4		
		UL94V-0	Pre-tin	350712-1	641972-1	350742-1	350720-1	770021-1
			Duplex ¹	350712-4	641972-3	350742-4		
12	1.050 26.67	UL94V-2	Pre-tin	350433-1	641973-1	350587-1	1-480708-0	—
			Duplex ¹	350433-4	—	350587-4		
		UL94V-0	Pre-tin	350713-1	641974-1	350737-1	350735-1	770022-1
			Duplex ¹	350713-4	641974-3	350737-4		
15	1.300 33.02	UL94V-2	Pre-tin	350434-1	641975-1	350588-1	1-480710-0	—
			Duplex ¹	350434-4	—	350588-4		
		UL94V-0	Pre-tin	350714-1	641976-1	350738-1	350736-1	770023-1
			Duplex ¹	350714-4	641976-4	350738-4		

Note: Header Housings on pages 182-185 are available in **colors** listed on page 188. Call Technical Support for exact Part Numbers.

¹Duplex Finish—Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.
²Use Standard Tail for .062 [1.57] thick PC Board. ³Use Long Tail for .125 [3.18] thick PC Board.
⁴Black in color. ⁵No drain holes, used w/ seals, page 180. **Note: All part numbers are RoHS Compliant.**

Universal MATE-N-LOK Connectors (Continued)

PC Board Vertical Socket Headers

.250 [6.35] Centerline spacing

Material

Housing—

UL94V-2 Nylon, natural color
UL94V-0 Nylon

Contacts—Phosphor bronze

Solder tail diameter .062 [1.57]

Related Product Data

Product Specification

108-1053 Universal MATE-N-LOK
PC Board Headers

Performance Characteristics—
pages 169-170

Recommended PC Board Hole Layout—page 184

Technical Documents—pages 169
and 205-206

Mating Connectors

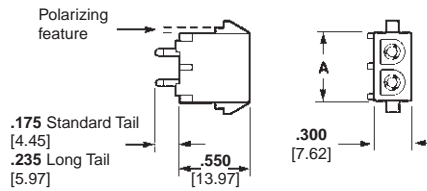
Universal MATE-N-LOK

Plug Housings—page 174

Universal MATE-N-LOK II

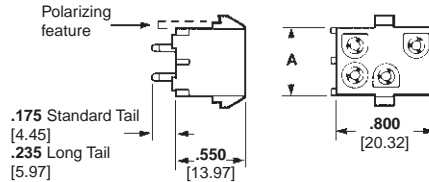
Plug Housings—pages 193-194

**2, 3, 4, 5, and 6
Circuit, In-Line**



Number of Circuits	A Dim.	Flammability Rating	Socket Finish	Socket Header Part Numbers			Mates with Plug Housing Part Number (Using Pin Contacts)	
				Standard Tail ²	Standard Tail Polarized ²	Long Tail ³	Universal MATE-N-LOK	Universal MATE-N-LOK II
2	.550 13.97	UL94V-2	Pre-tin	350759-4	643411-1	350986-4	1-480698-0	—
			Duplex ¹	350759-5	—	—		
		UL94V-0	Pre-tin	350824-1	643412-1	350831-1	350777-1	770017-1
			Duplex ¹	350824-4	643412-3	—		
3	.800 20.32	UL94V-2	Pre-tin	350760-4	643413-1	350987-4	1-480700-0	—
			Duplex ¹	350760-5	—	—		
		UL94V-0	Pre-tin	350825-1	643414-1	350832-1	350766-1	770018-1
			Duplex ¹	350825-4	643414-3	350832-4		
4	1.050 26.67	UL94V-2	Pre-tin	350761-4	643415-1	350988-4	1-480702-0	—
			Duplex ¹	350761-5	—	350988-5		
		UL94V-0	Pre-tin	350826-1	643416-1	350833-1	350779-1	770019-1
			Duplex ¹	350826-4	—	350833-4		
5	1.300 33.02	UL94V-2	Pre-tin	640467-1	—	—	1-480763-0	—
			Duplex ¹	640467-3	—	—		
		UL94V-0	Pre-tin	640901-1	—	—	350809-1	770016-1
			Duplex ¹	640901-3	—	—		
6	1.550 39.37	UL94V-0	Duplex ¹	770262-3	—	—	640581-1	—

**6, 9, 12 and 15
Circuit, Matrix**



Number of Circuits	A Dim.	Flammability Rating	Socket Finish	Socket Header Part Numbers			Mates with Plug Housing Part Number (Using Pin Contacts)	
				Standard Tail ²	Standard Tail Polarized ²	Long Tail ³	Universal MATE-N-LOK	Universal MATE-N-LOK II
6	.550 13.97	UL94V-2	Pre-tin	350762-4	643423-1	350989-4	1-480704-0	—
			Duplex ¹	350762-5	—	350989-5		
		UL94V-0	Pre-tin	350827-1	643424-1	350834-1	350715-1	770020-1
			Duplex ¹	350827-4	643424-3	350834-4		
9	.800 20.32	UL94V-2	Pre-tin	350763-4	643425-1	350990-4	1-480706-0	—
			Duplex ¹	350763-5	—	350990-5		
		UL94V-0	Pre-tin	350828-1	643426-1	350835-1	350720-1	770021-1
			Duplex ¹	350828-4	643426-3	350835-4		
12	1.050 26.67	UL94V-2	Pre-tin	350764-4	—	350991-4	1-480708-0	—
			Duplex ¹	350764-5	—	350991-5		
		UL94V-0	Pre-tin	350829-1	643428-1	350836-1	350735-1	770022-1
			Duplex ¹	350829-4	—	350836-4		
15	1.300 33.02	UL94V-2	Pre-tin	350765-4	643429-1	350992-4	1-480710-0	—
			Duplex ¹	350765-5	—	—		
		UL94V-0	Pre-tin	350830-1	643430-1	350837-1	350736-1	770023-1
			Duplex ¹	350830-4	—	350837-4		

Note: Header Housings on pages 182-185 are available in **colors** listed on page 188. Call Technical Support for exact Part Numbers.

¹Duplex Finish—Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

²Use Standard Tail for .062 [1.57] thick PC Board.

³Use Long Tail for .125 [3.18] thick PC Board.

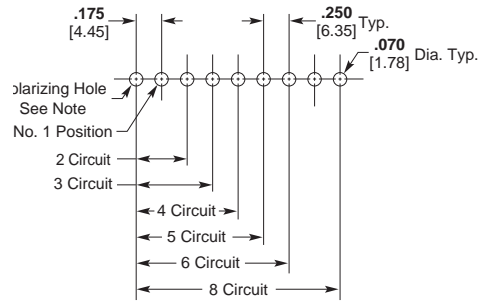
Note: All part numbers are RoHS Compliant.

Universal MATE-N-LOK Connectors (Continued)

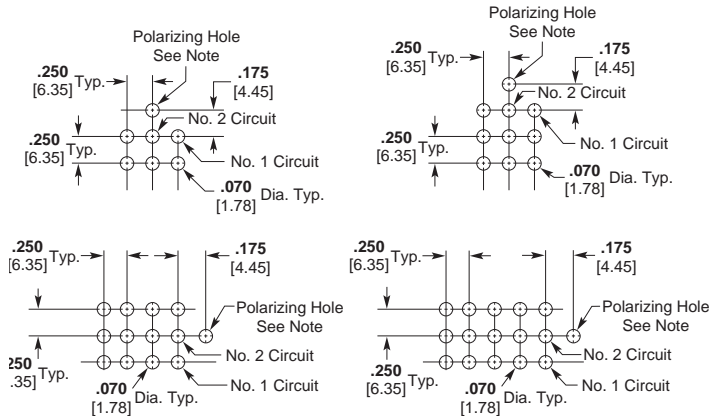
Recommended PC Board Hole Layouts for Pin and Socket Vertical Headers

Related Product Data
Vertical Headers—pages 182-183

2, 3, 4, 5, 6 and 8 Circuit, In-Line



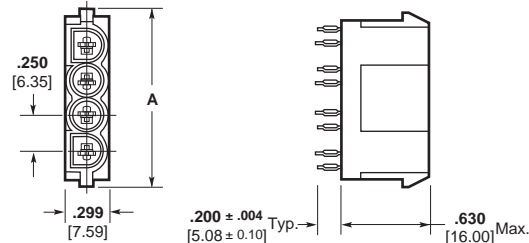
6, 9, 12 and 15 Circuit, Matrix



Note: Polarizing hole .070 [1.78] Dia. required for polarized headers only.

PC Board Vertical Pin Headers with ACTION PIN Contacts

Material and Finish
Housing—PBT, black
Flammability Rating—UL94V-0
Contacts—Copper alloy, plated with tin over nickel on entire contact



Related Product Data

Performance Characteristics—pages 169-170
Technical Documents—pages 169 and 205-206

Product Specification
108-5222 ACTION PIN Universal MATE-N-LOK Header Assembly

Mating Connectors

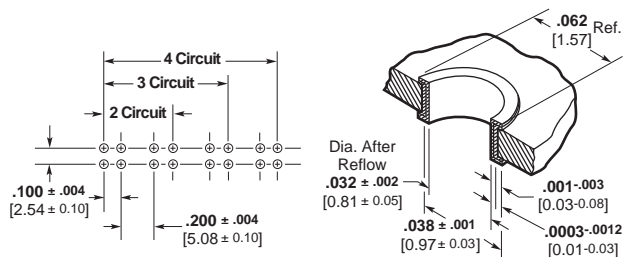
Universal MATE-N-LOK
Plug Housings—page 174

Universal MATE-N-LOK II
Plug Housings—pages 193-194

Note: Header Housings on pages 182-185 are available in colors listed on page 188. Call Technical Support for exact Part Numbers.

Number of Circuits	A Dim.	Part Number	Mates with Plug Housing Part Number (Using Socket Contacts)	
			Universal MATE-N-LOK	Universal MATE-N-LOK II
2	.750 19.05	173924-1	1-480698-0 350777-1	770017-1
3	1.000 25.40	173925-1	1-480700-0 350766-1	770018-1
4	1.250 31.75	173926-1	1-480702-0 350779-1	770019-1

Note: Install in PC Board with arbor tool.
Note: All part numbers are RoHS Compliant.



Recommended PC Board Hole Layout

PC Board Hole Dimensions

Standard Density
Universal MATE-N-LOK Connectors
.250 [6.35] Centerline

Universal MATE-N-LOK Connectors (Continued)

PC Board Right-Angle Pin and Socket Headers

.250 [6.35] Centerline spacing

Material

Housing — Nylon

Contacts — Phosphor bronze
Solder tail width .052 [1.32]

Related Product Data

Product Specification

108-1053 Universal MATE-N-LOK
PC Board Headers

Performance Characteristics —

pages 169-170

Technical Documents — pages 169
and 205-206

Mating Connectors

Universal MATE-N-LOK

Plug Housings — page 174

Universal MATE-N-LOK II

Plug Housings — pages 193-194

Note: Header Housings on pages 182-185 are available in **colors** listed on page 188. Call Technical Support for exact Part Numbers.

Test Connectors (with spring loaded contacts)

Material

Housing — Nylon

Flammability Rating — UL94V-0

Related Product Data

Mating Connectors — Housings and headers having the same number of circuits. The housings can have pin or socket contacts, or a combination of both.

Mating Housings — page 174

Mating Headers — pages 182-185

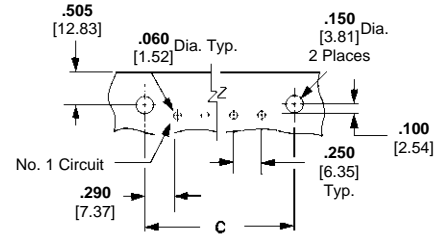
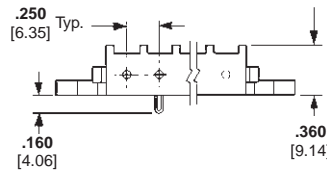
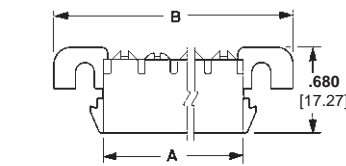
Other Mating Connectors

Universal MATE-N-LOK II Housings — pages 193-194

Notes:

1. Test probes have 5 amp maximum current rating, 1,000,000 cycles.
2. Test Connector housings are of the same configuration as standard housings. Refer to page 23 for dimensional specifications.

2, 3, 4, 5, 6 and 8 Circuit, In-Line



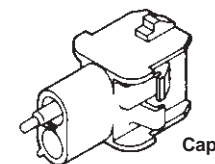
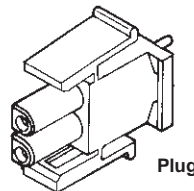
Use 6-32 UNC Pan Head Screw
3/8 [9.53] long for mounting
(Not Supplied)

Recommended PC Board Hole Layout
.062 [1.57] Board Thickness

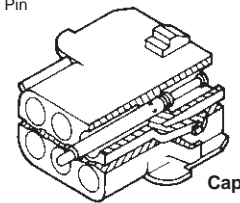
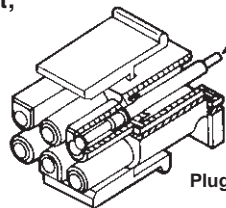
No. of Circuits	Dimensions			Contact Finish	Right-Angle Header Part Numbers						
	A	B	C		UL94V-2			UL94V-0			
					Pin	Socket	Mates with	Pin	Socket	Mates with	
2	.550 13.97	1.245 31.62	.830 21.08	Pre-tin	—	—	—	1-350942-0	643226-1	350777-1	770017-1
				Duplex ¹	—	—	—	3-350942-0	—		
3	.800 20.32	1.495 37.97	1.080 27.43	Pre-tin	—	—	—	1-350943-0	643228-1	350766-1	770018-1
				Duplex ¹	—	—	—	3-350943-0	3-643228-0		
4	1.050 26.67	1.745 44.32	1.330 33.78	Pre-tin	1-350948-0	—	—	1-350944-0	643230-1	350779-1	770019-1
				Duplex ¹	—	—	1-480702-0	3-350944-0	3-643230-0		
5	1.300 33.02	1.995 50.67	1.580 40.13	Pre-tin	1-350949-0	—	—	1-350945-0	643232-1	350809-1	770016-1
				Duplex ¹	—	—	1-480763-0	3-350945-0	3-643232-0		
6	1.550 39.37	2.245 57.02	1.830 46.48	Pre-tin	640587-1	—	—	640583-1	643234-1	640581-1	—
				Duplex ¹	—	643235-1	640585-1	640583-3	3-643234-0		
8	2.050 52.07	2.745 69.72	2.330 59.18	Pre-tin	—	—	—	640584-1	643236-1	640582-1	—
				Duplex ¹	—	643237-1	640586-1	640584-3	3-643236-0		

¹Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact. ²Black in color.

2, 3, 4 and 5 Circuit, In-Line



6, 9, 12 and 15 Circuit, Matrix



.084 [2.13] Dia. Pin
Mates with
Universal
MATE-N-LOK
Sockets

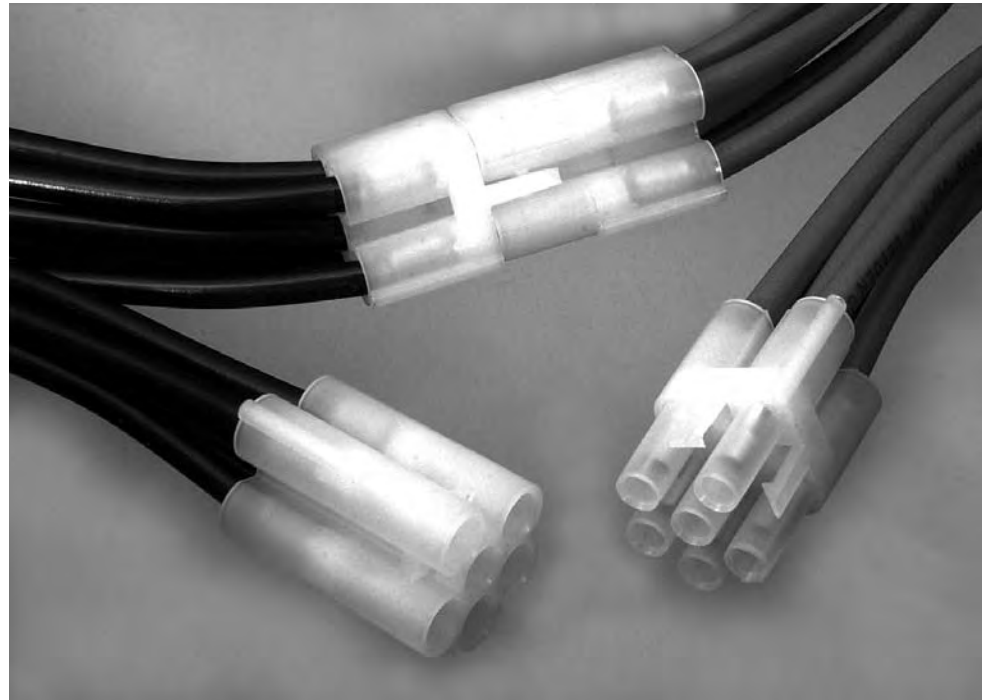
Number of Circuits	Part Numbers	
	Plug	Cap
2	350848-2	350849-2
3	350848-3	350849-3
4	350848-4	350849-4
5	350848-5	350849-5
6	350848-6	350849-6
9	350848-9	350849-9
12	1-350848-2	1-350849-2
15	1-350848-5	1-350849-5

Note: All part numbers are RoHS Compliant.

Universal MATE-N-LOK Circular Connectors

Product Facts

- Unique product designed to accommodate the specific needs of the lighting industry
- Circular design allows the connector to pass through 7/8 inch knock-out holes in electrical fixtures and boxes
- 6-position accommodates most major electrical industry requirements
- Universal MATE-N-LOK connector centerline spacing maintains UL and CSA approvals
- Uses standard Universal MATE-N-LOK contacts and application tooling
- Positive polarized housing helps prevent incorrect mating
- UL Recognized, File No. E28476
- CSA Certified, File No. LR7189



Applications

- Primary applications are in the Lighting, Vending, and Appliance industries
- Applications where use of a completed harness that will pass through a 7/8 inch knock-out is required
- Provides the capability to quickly disconnect individual fixtures from sensitive environmental areas and perform maintenance at other sites
- Not for interrupting current

Performance Characteristics

- Voltage**—600 V AC or DC
- Current**—20 amps maximum per UL-1977 (6 position, fully energized)
- Dielectric Withstanding Voltage**—5 KVAC or KVDC
- Insulation Resistance**—1000 M Ω max. between adjacent circuits
- Durability**—50 cycles mating and unmating
- Contact Retention**—15 lb. minimum per contact

Technical Documents

- Product Specification**
108-2069 Universal MATE-N-LOK Circular Connector
- Application Specification**
114-1010 Universal MATE-N-LOK Connectors

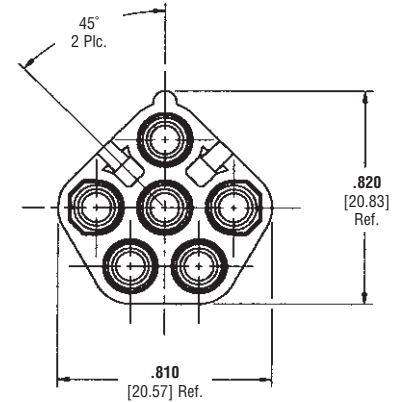
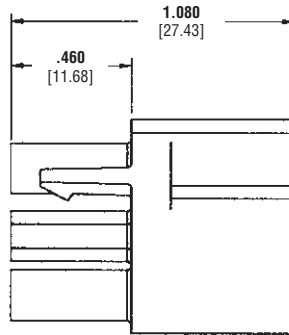
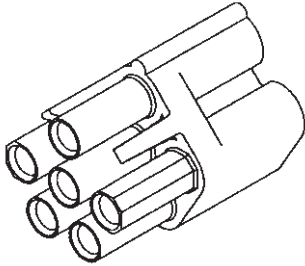
Standard Density

Universal MATE-N-LOK Circular Connectors
.250 [6.35] Centerline

Universal MATE-N-LOK Circular Connectors (Continued)

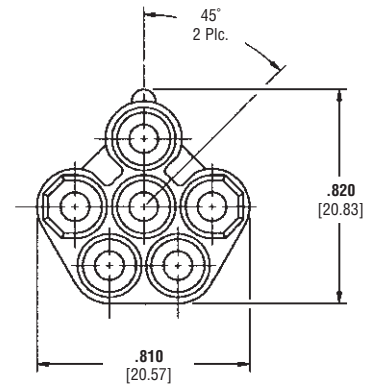
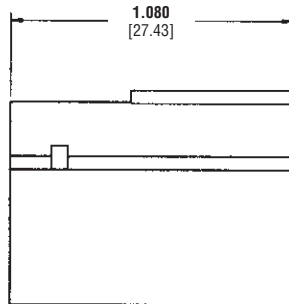
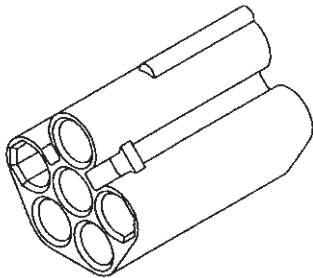
Plug

Part No. 794911-1



Cap

Part No. 794912-1



Material and Finish

Housings—Nylon, UL 94V-2 rated

Related Product Data

Contacts—pages 172-173

Note: All part numbers are RoHS Compliant.

Universal MATE-N-LOK Connectors — Available in Colors

Note: See corresponding Universal MATE-N-LOK Plug and Cap Housing Base Part Numbers on page 175.

Header Housings on pages 182-185 are also available in **colors**. Call Technical Support for exact Part Numbers.

Base Part Number	No. of Circuits	Housing	Material
480698	2	Plug	V-2
480699	2	Cap	V-2
480700	3	Plug	V-2
480701	3	Cap	V-2
480702	4	Plug	V-2
480703	4	Cap	V-2
480763*	5	Plug*	V-2
480764*	5	Cap*	V-2
480704	6	Plug	V-2
480705	6	Cap	V-2
480706	9	Plug	V-2
480707	9	Cap	V-2
480708	12	Plug	V-2
480709	12	Cap	V-2
480710	15	Plug	V-2
480711	15	Cap	V-2
350777	2	Plug	V-0
350778	2	Cap	V-0
350766	3	Plug	V-0
350767	3	Cap	V-0
350799	4	Plug	V-0
350780	4	Cap	V-0
350809	5	Plug	V-0
350810	5	Cap	V-0
350715	6	Plug	V-0
350781	6	Cap	V-0
350720	9	Plug	V-0
350782	9	Cap	V-0
350735	12	Plug	V-0
350783	12	Cap	V-0
350736	15	Plug	V-0
350784	15	Cap	V-0

Dash Number	Color
1-xxxxxx-0	Natural
1-xxxxxx-1	Brown
1-xxxxxx-2	Red
1-xxxxxx-3	Orange
1-xxxxxx-4	Yellow
1-xxxxxx-5	Green
1-xxxxxx-6	Blue
1-xxxxxx-8	Gray
1-xxxxxx-9	Black

*** Special for Base Part Numbers 480763 and 480764**

Dash Number	Color
xxxxxx-1	Natural
1-xxxxxx-1	Brown
1-xxxxxx-2	Red
1-xxxxxx-3	Orange
1-xxxxxx-4	Yellow
1-xxxxxx-5	Green
1-xxxxxx-6	Blue
1-xxxxxx-8	Gray
1-xxxxxx-9	Black

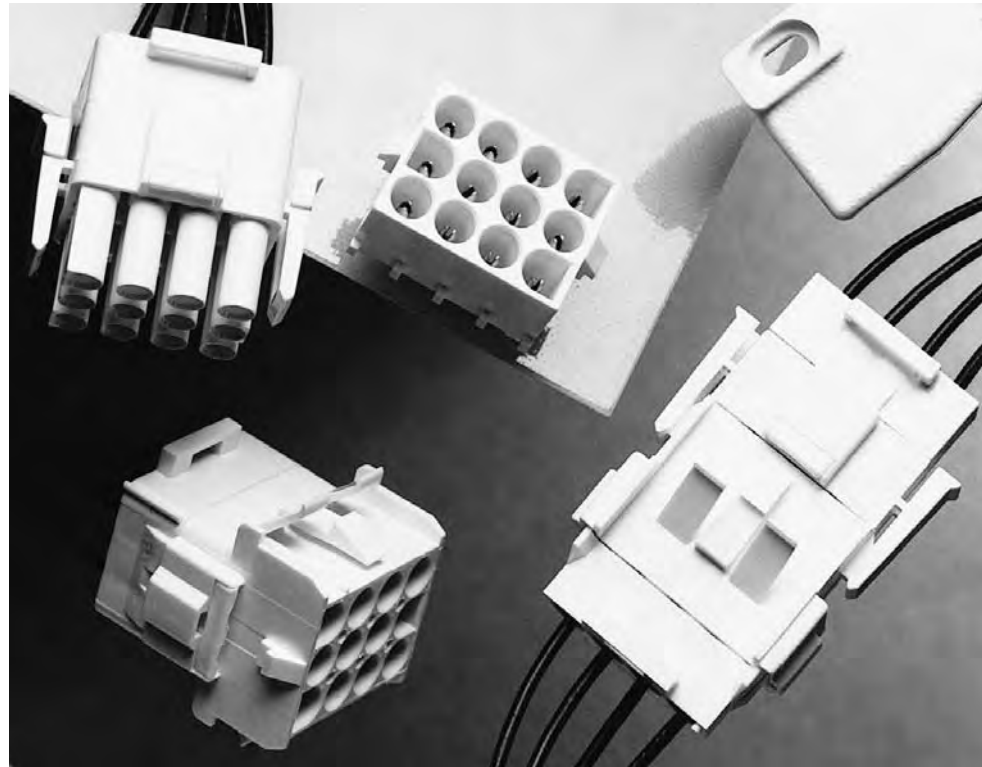
Standard Density

Universal MATE-N-LOK Connectors — Available in Colors
.250 [6.35] Centerline

Universal MATE-N-LOK II Connectors

Product Facts

- High reliability
- For use where repair or replacement would be difficult
- Pins and sockets can be intermixed in the same housing
- Available in 2 through 15 circuit sizes for free-hanging or panel mount wire-to-wire connection
- Mate with standard Universal MATE-N-LOK Housings and PC Board Headers
- Uses standard Universal MATE-N-LOK panel cutouts and strain reliefs
- Polarized housings available in UL94V-0 flammability rated material
- Enclosed contacts for shock protection
- F-Crimp terminals accept 30-10 AWG [.05-5.0 mm²] wire sizes
- Contacts available in strip and loose form
- Lanceless contacts for tangle-free handling
- Insulation capability to .200 [5.08] diameter
- Connector design provides for complete contact insertion
- Three-point stabilization precisely controls contact alignment, minimizing stubbing
- Tin or duplex gold plated contacts
- Contacts are on .250 [6.35] centerline spacing
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, (CSA)
- Passed test by VDE under their Registration Number 3980/Continuous Surveillance



Performance Characteristics

The Universal MATE-N-LOK II Connector performance characteristics found on pages 189-190 are based on free-hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Dielectric Withstanding Voltage—5.0 KV AC or DC between adjacent circuits initially

Insulation Resistance—1000 megohms minimum between adjacent circuits

Voltage Rating—600 V AC or DC

Connector Mating—Split Pin—1.5 lb. max. per circuit

Connector Unmating—Split Pin—.5 lb. min. per circuit

Contact Insertion Force—3.0 lb. max. per contact unassembled

Contact Retention—35 lb. min. per contact

Durability—50 cycles, mating and unmating

Technical Documents

Product Specification

108-1090 Universal MATE-N-LOK II Connectors

Application Specification

114-1043 Universal MATE-N-LOK II Connectors

Instruction Sheet

408-3200 Housing, Contacts and Accessories

Standard Density

Universal MATE-N-LOK II Connectors
.250 [6.35] Centerline

Universal MATE-N-LOK II Connectors (Continued)

Performance Characteristics (Continued)

Maximum Current—Maximum current rating of Universal MATE-N-LOK II connectors is limited by the maximum operating temperature of the housings which is 120°C including the temperature rise of the contacts which is a maximum of 30°C. There are several variables which have a direct effect on this maximum current-carrying capability for a given connector and must be considered for each application. These variables are:

Wire Size—Larger diameter wire will carry more current since it has less internal resistance to current flow and thus generates less heat. Longer wire lengths also enhance current carrying capabilities since the wire conducts heat away from the connector.

Connector Size—In general, the more circuits in a connector, the less current can be carried.

Ambient Temperature—The higher the ambient temperature, the less current can be carried in any given connector.

Universal MATE-N-LOK II connectors also will withstand the following tests:

Vibration—10-55-10 cycles per minute at .06 inch total excursion

Physical Shock—18 drops, 50 g sawtooth at 10 milliseconds

Housing Panel Retention—75 lb. min.

Housing Lock Strength—35 lb. min.

Thermal Shock—-55°C to +85°C

Temperature-Humidity Cycling—25°C to 65°C at 95 RH

Corrosion—48 hr. at 5% salt concentration

Current Rating Verification for 30°C Maximum Temperature Rise 100% Energized

Wire-to-Wire

Calculated Current Table

Number of Circuits	Wire Gauge									
	10	12	14	16	18	20	22	24	26	30
2	19.00	18.00	17.00	14.50	13.00	10.00	8.00	6.50	5.50	3.50
3	17.50	16.50	15.50	13.00	12.00	9.00	7.50	6.00	5.00	3.00
4	16.50	15.50	15.00	12.50	11.00	8.50	7.00	5.50	4.50	3.00
5	16.00	15.00	14.00	12.00	10.50	8.00	6.50	5.50	4.50	3.00
6 Matrix	15.00	14.00	13.00	11.00	9.50	7.50	6.00	5.00	4.00	2.50
8	14.50	14.00	13.00	10.50	9.50	7.50	6.00	5.00	4.00	2.50
9	13.50	12.50	11.50	9.50	8.50	6.50	5.50	4.50	3.50	2.00
10	14.00	13.00	12.50	10.00	9.00	7.00	5.50	4.50	3.50	2.50
12	12.50	12.00	11.00	9.00	8.00	6.00	5.00	4.00	3.00	2.00
15	12.00	11.50	10.00	8.50	7.50	6.00	4.50	4.00	3.00	2.00

Values are based on initial Temperature Rise versus Current Testing and are intended to be a guide in the selection of a connector family. All applications should be tested by the end user. The values listed are per circuit for fully loaded housings being 100% energized. **Note:** All combinations were not tested, and this chart contains interpolated and extrapolated values.

Minimum Wire Lengths for T-Rise vs. Current Testing

AWG	Min. Length (in.)	AWG	Min. Length (in.)
30	2.6	18	9.4
28	3.2	16	11.3
26	4.1	14	13.7
24	5.1	12	16.4
20	7.8	10	19.3

Note: If wire lengths used are less than those listed above, the current carrying ability of the system will be reduced due to less heat being conducted away from the connector. The customer should fully test all applications.

Wire-to-Board

Due to the vast differences in trace geometry and printed circuit board configurations, we are unable to provide a separate current carrying chart for our printed circuit board header products. However, the above Wire-to-Wire charts may be used as a guideline for headers if the trace width and thickness is equal to the listed wire gauge. For vertical headers, only 95% of the Wire-to-Wire value should be used. For right-angle headers, only 75% of the Wire-to-Wire value should be used. The chart values are only a tool for connector selection and will require the customer to fully test their application.

Termination Resistance/Contact Crimp Tensile Force

Wire Size		Termination Resistance		Contact Crimp Tensile Force	
AWG	mm ²	Test Current (Amps)	Resistance Milliohms (Max. Init.)	Force (Min.)	
				lbs.	N
30	.05	—	—	1.5	7
28	.08	—	—	3	13
26	.12	—	—	5	22
24	.2	1.5	3.50	7	31
22	.3	3	3.50	12	53
20	.5	4.5	3.00	17	66
18	.8	6	3.00	30	133
16	1.2	8	2.75	45	200
14	2.0	10	2.75	50	222
12	3.0	—	—	60	267
10	5.0	—	—	70	311

Note: This is the total resistance between wire crimps of a mated pin and socket.

Related Product Data

Product Specification

108-1090 Universal MATE-N-LOK II Connectors

Standard Density

Universal MATE-N-LOK II Connectors .250 [6.35] Centerline

Universal MATE-N-LOK II Connectors (Continued)

Universal MATE-N-LOK II Connector Mating Combinations

Connector Part Number				Mating Connector Part Number									
Number of Circuits	Flammability Rating	Style	Plug Kit Part Number ²	Cap Kit Part Number ²	Plating	Vertical Pin ²			Vertical Socket ²			Right-Angle ²	
						Standard Tail	Standard Tail Polarized	Long Tail	Standard Tail	Standard Tail Polarized	Long Tail	Pin	Socket
2	UL94V-0	In-Line	770017-1	770024-1	Pre-tin	350786-1	641964-1	350787-1	350824-1	643412-1	350831-1	1-350942-0	643226-1
					Duplex ¹	350786-3	641964-3	350787-3	350824-4	643412-3	—	3-350942-0	—
3	UL94V-0	In-Line	770018-1	770025-1	Pre-tin	350789-1	641966-1	350790-1	350825-1	643414-1	350832-1	1-350943-0	643228-1
					Duplex ¹	350789-3	—	350790-3	350825-4	643414-3	350832-4	3-350943-0	3-643228-0
4	UL94V-0	In-Line	770019-1	770026-1	Pre-tin	350792-1	641968-1	350793-1	350826-1	643416-1	350833-1	1-350944-0	643230-1
					Duplex ¹	350792-3	—	350793-3	350826-4	—	350833-4	3-350944-0	3-643230-0
5	UL94V-0	In-Line	770016-1	—	Pre-tin	640900-1	643406-1	—	640901-1	—	—	1-350945-0	643232-1
					Duplex ¹	640900-3	—	—	640901-3	—	—	3-350945-0	3-643232-0
6	UL94V-0	Matrix	770020-1	770027-1	Pre-tin	350711-1	641970-1	350732-1	350827-1	643424-1	350834-1	—	—
					Duplex ¹	350711-4	641970-3	350732-4	350827-4	643424-3	350834-4	—	—
9	UL94V-0	Matrix	770021-1	770028-1	Pre-tin	350712-1	641972-1	350742-1	350828-1	643426-1	350835-1	—	—
					Duplex ¹	350712-4	641972-3	350742-4	350828-4	643426-3	350835-4	—	—
12	UL94V-0	Matrix	770022-1	770029-1	Pre-tin	350713-1	641974-1	350737-1	350829-1	643428-1	350836-1	—	—
					Duplex ¹	350713-4	641974-3	350737-4	350829-4	—	350836-4	—	—
15	UL94V-0	Matrix	770023-1	770030-1	Pre-tin	350714-1	641976-1	350738-1	350830-1	643430-1	350837-1	—	—
					Duplex ¹	350714-4	641976-4	350738-4	350830-4	—	350837-4	—	—

¹Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

²Universal MATE-N-LOK II Plug and Cap housings accept pin or socket contacts. Use the appropriate contacts in the Plug housing as required by the mating component.

Note: All part numbers are RoHS Compliant.

Standard Density

Universal MATE-N-LOK II Connectors
.250 [6.35] Centerline

Universal MATE-N-LOK II Connectors (Continued)

Contacts

Split pin diameter .086 [2.18]
Stock thickness .012 [.305]
These contacts can be used in either Universal MATE-N-LOK II Plug or Cap housings.

Related Product Data

Product Specification
108-1090 Universal MATE-N-LOK II Connectors

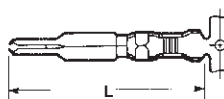
Application Specification
114-1043 Universal MATE-N-LOK II Contacts

Performance Characteristics—pages 189-190

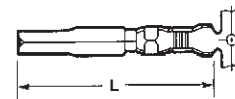
Housings—pages 193-194

Technical Documents—pages 189 and 205-206

Application Tooling—pages 207-210



Pin



Socket

Wire Size Range AWG [mm ²]	Ins. Dia. Range	L Dim.		Material & Finish	Contact Part Numbers				HDM Applicator Part No.	Hand Tool Part No.
		Pin	Socket		Pin		Socket			
					Strip Form	Loose Piece	Strip Form	Loose Piece		
30-26 [.05-.12]	.032-.057 .813-1.45	1.005 25.53	.980 24.90	Phos. Brz. Gold ¹	770011-6	770512-6	770012-6	770416-6	567252-1 ⁶ 567252-4 ⁶	58439-1
					Brass. Pre-tin	770009-1	770252-1	—		
24-18 [.2-.8]	.040-100 1.02-2.54	1.005 25.53	.980 24.90	Brass. Duplex ²	1-770009-0	1-770252-0	—	—	567214-1 ⁶ 567214-2 ⁶ 567214-4 ⁶	91510-1
				Phos. Brz. Pre-tin	—	—	770010-3	770253-3		
				Phos. Brz. Duplex ²	—	—	1-770010-0	1-770253-0		
				Brass. Pre-tin	770007-1	770250-1	—	—		
20-14 [.5-2.0]	.060-.130 1.52-3.30	1.005 25.53	.980 24.90	Brass. Duplex ²	1-770007-0	1-770250-0	—	—	567213-1 ⁶ 567213-2 ⁶ 567213-4 ⁶	91500-1
				Phos. Brz. Pre-tin	—	—	770008-3	770251-3		
				Phos. Brz. Duplex ²	—	—	1-770008-0	1-770251-0		
	.130-.200 3.30-5.08	.995 25.27	.970 24.63	Brass. Pre-tin	770005-1	770248-1	—	—	567212-1 ⁶ 567212-2 ⁶ 567212-4 ⁶	91508-14 91506-14
				Brass. Duplex ²	1-770005-0	1-770248-0	—	—		
				Phos. Brz. Pre-tin	770005-3	—	770006-3	770249-3		
12-10 [3.0-5.0]	.200 max.³ 5.08	1.005 25.53	.980 24.90	Phos. Brz. Pre-tin	770003-3	770246-3	770004-3	770247-3	567211-1 ⁶ 567211-2 ⁶ 567211-4 ⁶	69710-1 ⁵
				Phos. Brz. Duplex ²	1-770003-0	1-770246-0	1-770004-0	1-770247-0		

¹Gold Finish—Plated with .000030 [.000762] min. gold in mating area and inside wire barrel over .000050 [.00127] min. nickel underplate on entire contact.

²Duplex Finish—Plated with .000030 [.000762] min. gold in mating area and .000050 [.00127] min. tin in crimp area over .000050 [.00127] min. nickel underplate on entire contact.

³There is no insulation barrel on this contact. Insulation maximum diameter is limited by the housing. Use of strain relief is recommended with these contacts.

⁴Use Hand Tool No. **91508-1** for 20–18 AWG and No. **91506-1** for 16–14 AWG.

⁵Hand Tool No. 69710-1 uses die set No. **58380-1** for 12 AWG and No. **58380-2** for 10 AWG.

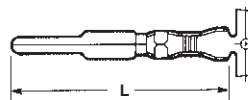
⁶HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -4 is used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.

Grounding Pin

(Mate first, break last, not for interrupting current)

Solid pin diameter .084 [2.13]
.100 [2.54] longer than standard pin
Stock thickness .012 [.304]

These contacts can be used in either Universal MATE-N-LOK II Plug or Cap housings only.



Wire Size Range AWG [mm ²]	Ins. Dia. Range	L Dim.	Material & Finish	Contact Part Numbers		HDM Applicator Part No.	Hand Tool Part No.
				Strip Form	Loose Piece		
20-14 [.5-2.0]	.060-.130 1.52-3.30	1.105 25.53	Brass. Pre-tin	770193-1	770254-1	567213-1 ³ 567213-2 ³ 567213-4 ³	91500-1
			Brass. Duplex ¹	1-770193-0	1-770254-0		
	.130-.200 3.30-5.08	1.085 27.56	Brass. Pre-tin	770194-1	770255-1	567212-1 ³ 567212-2 ³ 567212-4 ³	91508-1 ² 91506-1 ²
			Brass. Duplex ¹	1-770194-0	1-770255-0		

¹Duplex Finish—Plated with .000030 [.000762] min. gold in mating area and .000050 [.00127] min. tin in crimp area over .000050 [.00127] min. nickel underplate on entire contact.

²Use Hand Tool No. **91508-1** for 20–18 AWG and No. **91506-1** for 16–14 AWG.

³HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -4 is used on AMP-O-LECTRIC Model G Machine. See pages 207-210 for further information.



Latch Disengaging Tool
Part No. 58382-1
IS 408-9436



Contact Extraction Tool
(For extracting contacts crimped on 24 AWG or smaller wire)
Part No. 318851-1
IS 408-4371



Contact Insertion Tool
(For inserting contacts applied to small diameter wire)
Part No. 91002-1
IS 408-7347

Note: All part numbers are RoHS Compliant.

Universal MATE-N-LOK II Connectors (Continued)

Housing Kits
Free-Hanging or Panel Mount

.250 [6.35] Centerline spacing

Material—Nylon
Flammability Rating—UL 94V-0

Related Product Data

Product Specification

108-1090 Universal MATE-N-LOK II Connectors

Performance Characteristics—pages 189-190

Contacts—page 192

Panel Cutout Recommendations—page 195

Keying Plug—page 196

Strain Reliefs—page 196

Kit Components—page 195

Technical Documents—pages 189 and 205-206

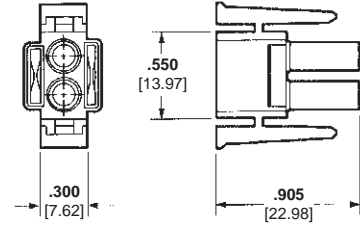
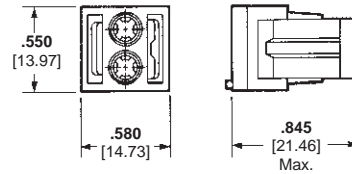
Other Mating Connectors

Universal MATE-N-LOK Housings—page 175

Universal MATE-N-LOK Headers—pages 182-183 and 185

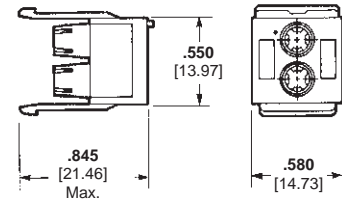
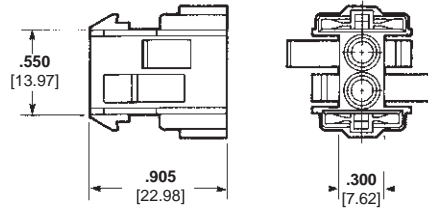
Universal MATE-N-LOK Test Connectors—page 185

2 Circuit, In-line



Plug Rear

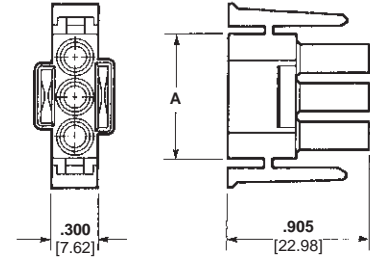
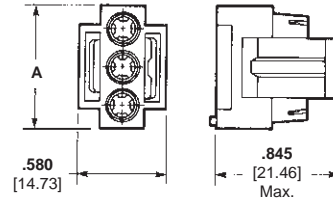
Plug Front



Cap Front

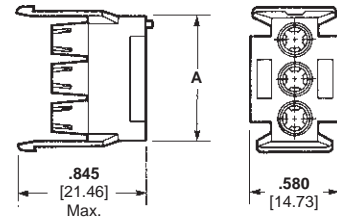
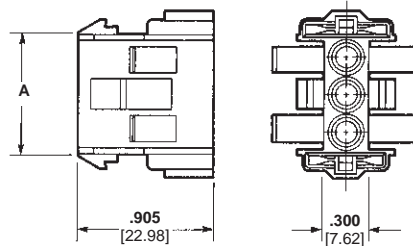
Cap Rear

3, 4 and 5 Circuit, In-Line



Plug Rear

Plug Front



Cap Front

Cap Rear

Number of Circuits	A Dim.	Kit Part Numbers (Includes Front and Rear)	
		Plug	Cap
2	—	770017-1	770024-1
3	.800 20.32	770018-1	770025-1
4	1.050 26.67	770019-1	770026-1
5	1.300 33.02	770016-14	—

Notes:

1. Kits consist of a front and rear component.
2. Kit components can be purchased separately. Page 195.
3. Packaging: Bulk—250 each component per poly bag/box.
4. Mates with standard Universal MATE-N-LOK cap housing P/N 350810-1 and 640900-X or 640901-X Vertical headers.

Note: All part numbers are RoHS Compliant.

Universal MATE-N-LOK II Connectors (Continued)

Housing Kits

Free-Hanging or Panel Mount

.250 [6.35] Centerline spacing

Material — Nylon

Flammability Rating — UL 94V-0

Related Product Data

Product Specification

108-1090 Universal MATE-N-LOK II Connectors

Performance Characteristics — pages 189-190

Contacts — page 192

Panel Cutout Recommendations — page 195

Keying Plug — page 196

Strain Reliefs — page 196

Kit Components — page 195

Technical Documents — pages 189 and 205-206

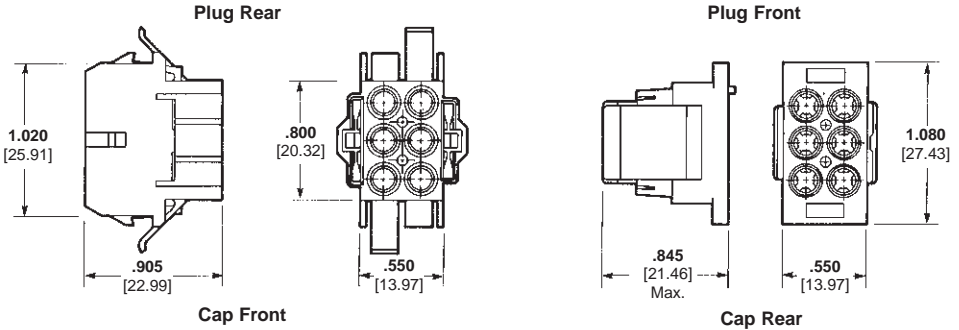
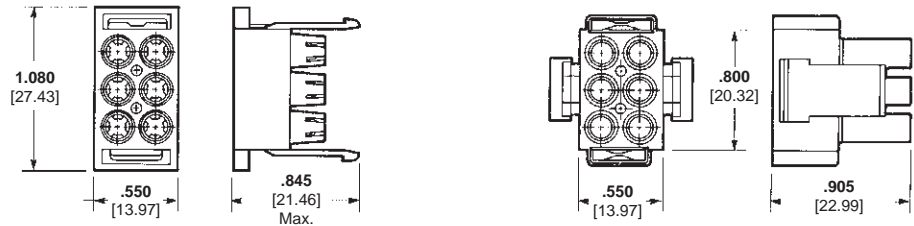
Other Mating Connectors

Universal MATE-N-LOK Housings — page 176

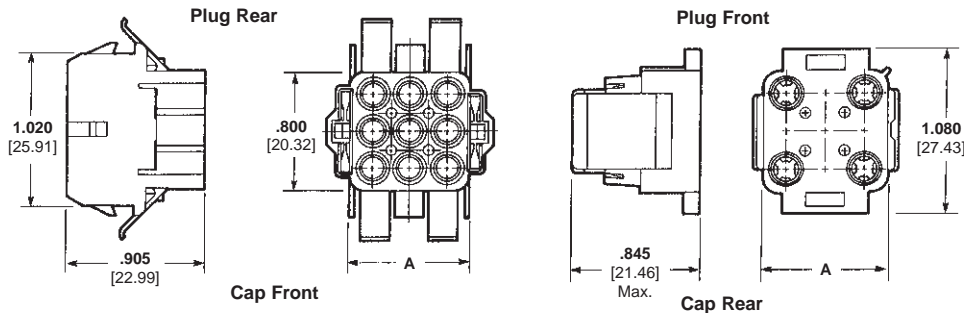
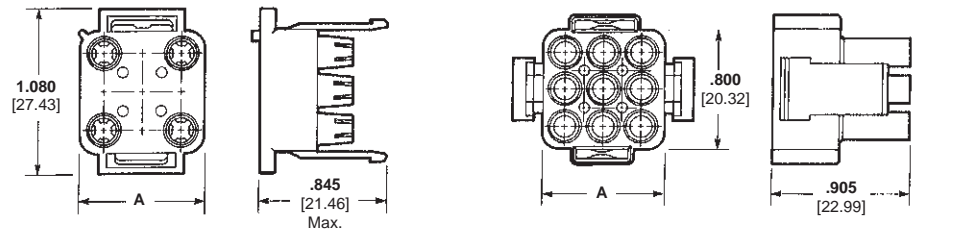
Universal MATE-N-LOK Headers — pages 182-183 and 185

Universal MATE-N-LOK Test Connectors — page 185

6 Circuit, Matrix



9, 12 and 15 Circuit, Matrix



Number of Circuits	A Dim.	Kit Part Numbers (Includes Front and Rear)	
		Plug	Cap
6	—	770020-1	770027-1
9	.800 20.32	770021-1	770028-1
12	1.050 26.67	770022-1	770029-1
15	1.300 33.02	770023-1	770030-1

Notes:

1. Kits consist of a front and rear component.
2. Kit components can be purchased separately. Page 195.
3. Packaging: Bulk — 250 each component per poly bag/box.

Note: All part numbers are RoHS Compliant.

Universal MATE-N-LOK II Connectors (Continued)

Housing Components
Free-Hanging or Panel Mount

.250 [6.35] Centerline spacing

Material — Nylon
Flammability Rating — UL 94V-0

Related Product Data

Product Specification
108-1090 Universal MATE-N-LOK II
Connectors

Performance Characteristics —
pages 189-190

Contacts — page 192

Illustrations and Dimensions —
pages 193-194

Panel Cutout Recommendations —
page 195

Keying Plug — page 196

Strain Reliefs — page 196

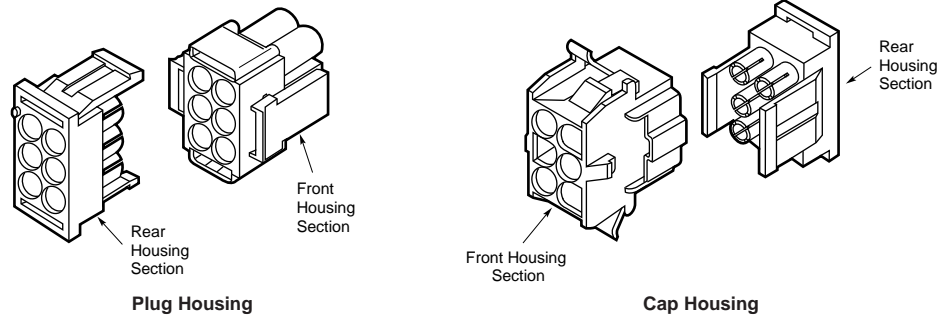
Technical Documents — pages 189
and 205-206

Other Mating Connectors

Universal MATE-N-LOK Connectors —
page 176

Universal MATE-N-LOK Headers —
pages 182-183 and 185

Universal MATE-N-LOK Test
Connectors — page 185



Number of Circuits	Kit Component Part Numbers					
	Plug			Cap		
	Kit	Front	Rear	Kit	Front	Rear
2	770017-1	770031-1	770032-1	770024-1	770045-1	770046-1
3	770018-1	770033-1	770034-1	770025-1	770047-1	770048-1
4	770019-1	770035-1	770036-1	770026-1	770049-1	770050-1
5	770016-1	770319-1	770320-1	—	—	—
6	770020-1	770037-1	770038-1	770027-1	770051-1	770052-1
9	770021-1	770039-1	770040-1	770028-1	770053-1	770054-1
12	770022-1	770041-1	770042-1	770029-1	770055-1	770056-1
15	770023-1	770043-1	770044-1	770030-1	770057-1	770058-1

Notes:

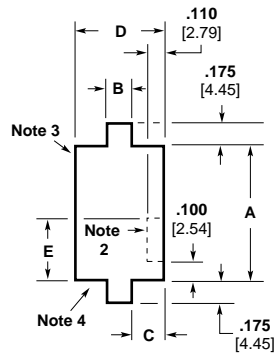
1. Kits consist of a front and rear component.
2. Kit components can be purchased separately.

Note: All part numbers are RoHS Compliant.

Recommended
Cap Housing
Panel Cutouts

View is from cap entry side

Refer to Application Specification
114-1043



Number of Circuits	Dimensions				
	A	B	C	D	E
2	.565 14.35	.340 8.63	.095 2.41	.530 13.46	.250 6.35
3	.815 20.70	.340 8.63	.095 2.41	.530 13.46	.250 6.35
4	1.065 27.05	.340 8.63	.095 2.41	.530 13.46	.250 6.35
6	.565 14.35	.480 12.19	.275 6.99	1.030 26.16	.250 6.35
9	.815 20.70	.480 12.19	.275 6.99	1.030 26.16	.250 6.35
12	1.065 27.05	.480 12.19	.275 6.99	1.030 26.16	.350 8.89
15	1.315 33.40	.480 12.19	.275 6.99	1.030 26.16	.350 8.89

Notes:

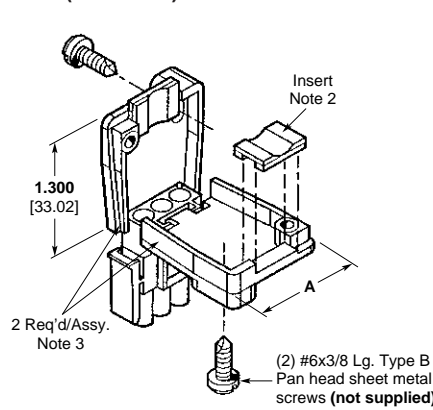
1. Recommended panel thickness — .030-.090 [.762-2.286]. Panel must be punched so that housing enters panel in same direction as the punch.
2. Optional — Do not remove this material when keying cap housing to panel.
3. Circuit #1 location when using panel keying with 6, 9, 12 and 15 circuit housings.
4. Circuit #1 location when using panel keying with 2, 3, and 4 circuit housings.

Universal MATE-N-LOK II Connectors (Continued)

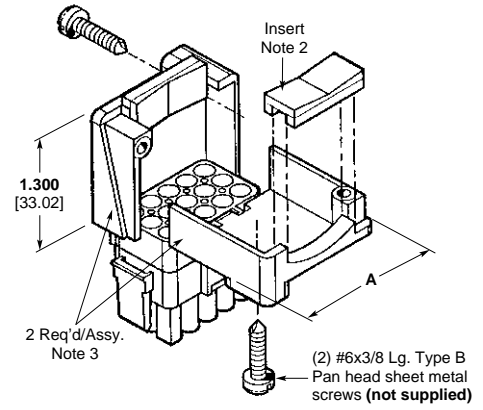
Plug or Cap Housing Strain Reliefs
IS 408-3320

Material — Nylon
Flammability Rating — UL 94V-0

2, 3, 4, 5, 6, 9, 12 and 15 Circuit (Enclosed)



In-Line



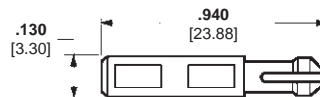
Matrix

Style	Number of Circuits	A Dim.	Insert Supplied	Single Wire Dia. Range	Wire Bundle Dia. Range	Strain Relief Part Numbers
In-Line	2	.960 24.38	Yes	.040 – .190 1.02 – 4.83	—	640713-1
			No	—	.200 – .350 5.08 – 8.89	640713-2
	3	1.140 28.96	Yes	.040 – .190 1.02 – 4.83	—	640714-1
			No	—	.200 – .350 5.08 – 8.89	641945-1
	4	1.340 34.04	Yes	.040 – .190 1.02 – 4.83	—	641776-1
			No	—	.200 – .350 5.08 – 8.89	641776-2
Matrix	5	1.530 38.86	Yes	.040 – .190 1.02 – 4.83	—	643030-1
			No	—	.200 – .350 5.08 – 8.89	643030-4
	6	1.030 26.16	Yes	—	.120 – .650 3.05 – 16.51	640715-1
			Yes	—	.120 – .650 3.05 – 16.51	640716-1
	9	1.030 26.16	Yes	—	.120 – .650 3.05 – 16.51	640716-1
			Yes	—	.150 – .750 3.81 – 19.05	640717-1
	12	1.280 32.51	Yes	—	.150 – .750 3.81 – 19.05	640717-1
			Yes	—	.200 – .850 5.08 – 21.59	640718-1
	15	1.530 38.86	Yes	—	.200 – .850 5.08 – 21.59	640718-1

Notes:

1. Insert comes attached to strain relief. It can be used to provide additional adjustment for small wire bundles or discarded.
2. Insert to be positioned as shown by dotted lines.
3. Strain relief part number represents one-half of a strain relief. Two of a part number are required for one connector.

Keying Plug
IS 408-3200



Related Product Data

Housings — pages 193-194
Technical Documents — pages 189 and 205-206

Part Number
UL94V-0 Nylon material — **770377-1**

Note: All part numbers are RoHS Compliant.

Universal MATE-N-LOK Headers for UMNL II Connectors

**PC Board Vertical
Pin Headers**

.250 [6.35] Centerline spacing

Material

Housing — Nylon

Flammability Rating — UL94V-0

Contacts — Phosphor bronze

Solder tail diameter .062 [1.57]

Related Product Data

Product Specification

108-1053 Universal MATE-N-LOK
PC Board Headers

Performance Characteristics —
pages 189-190

**Recommended PC Board Hole
Layout** — page 199

Technical Documents — pages 189
and 205-206

Mating Connectors

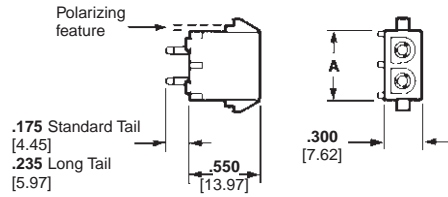
Universal MATE-N-LOK II

Plug Housings — pages 193-194

Universal MATE-N-LOK

Plug Housings — page 175

**2, 3, 4 and 5
Circuit, In-Line**



Number of Circuits	A Dim.	Pin Finish	Pin Header Part Numbers			Mates with Plug Housing Part Number (Using Socket Contacts)	
			Standard Tail ²	Standard Tail Polarized ²	Long Tail ³	Universal MATE-N-LOK II	Universal MATE-N-LOK
2	.550 13.97	Pre-tin	350786-1	641964-1 1-641964-14	350787-1	770017-1	350777-1
		Duplex ¹	350786-3	641964-3	350787-3		
3	.800 20.32	Pre-tin	350789-1	641966-1 1-641966-14	350790-1	770018-1	350766-1
		Duplex ¹	350789-3	—	350790-3		
4	1.050 26.67	Pre-tin	350792-1	641968-1	350793-1	770019-1	350779-1
		Duplex ¹	350792-3	—	350793-3		
5	1.300 33.02	Pre-tin	640900-1	643406-1	—	770016-1	350809-1
		Duplex ¹	640900-3	—	—		

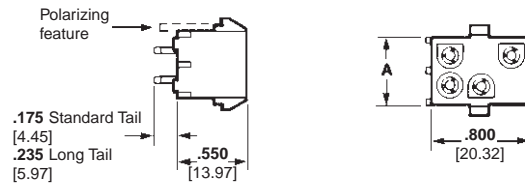
¹Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

²Use Standard Tail for .062 [1.57] thick PC Board.

³Use Long Tail for .125 [3.18] thick PC Board.

⁴Black in color.

**6, 9, 12 and 15
Circuit, Matrix**



Number of Circuits	A Dim.	Pin Finish	Pin Header Part Numbers			Mates with Plug Housing Part Number (Using Socket Contacts)	
			Standard Tail ²	Standard Tail Polarized ²	Long Tail ³	Universal MATE-N-LOK II	Universal MATE-N-LOK
6	.550 13.97	Pre-tin	350711-1	641970-1	350732-1	770020-1	350715-1
		Duplex ¹	350711-4	641970-3	350732-4		
9	.800 20.32	Pre-tin	350712-1	641972-1 1-641972-14	350742-1	770021-1	350720-1
		Duplex ¹	350712-4	641972-3	350742-4		
12	1.050 26.67	Pre-tin	350713-1	641974-1 1-641974-14	350737-1	770022-1	350735-1
		Duplex ¹	350713-4	641974-3	350737-4		
15	1.300 33.02	Pre-tin	350714-1	641976-1	350738-1	770023-1	350736-1
		Duplex ¹	350714-4	641976-4	350738-4		

¹Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

²Use Standard Tail for .062 [1.57] thick PC Board.

³Use Long Tail for .125 [3.18] thick PC Board.

⁴Black in color.

Note: All part numbers are RoHS Compliant.

Universal MATE-N-LOK Headers for UMNL II Connectors (Continued)

PC Board Vertical Socket Headers

.250 [6.35] Centerline spacing

Material

Housing — Nylon

Flammability Rating — UL94V-0

Contacts — Phosphor bronze

Solder tail diameter .062 [1.57]

Related Product Data

Product Specification

108-1053 Universal MATE-N-LOK
PC Board Headers

Performance Characteristics —
pages 189-190

Recommended PC Board Hole Layout — page 199

Technical Documents — pages 189
and 205-206

Mating Connectors

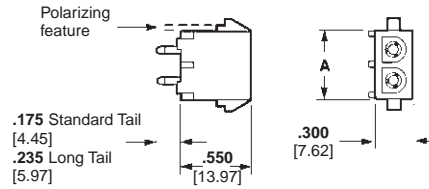
Universal MATE-N-LOK II

Plug Housings — pages 193-194

Universal MATE-N-LOK

Plug Housings — page 175

**2, 3, 4 and 5
Circuit, In-Line**



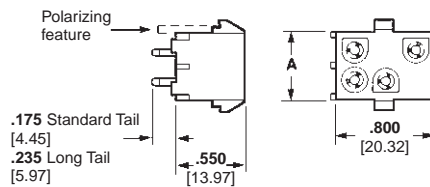
Number of Circuits	A Dim.	Socket Finish	Socket Header Part Numbers			Mates with Plug Housing Part Number (Using Pin Contacts)	
			Standard Tail ¹	Standard Tail Polarized ²	Long Tail ³	Universal MATE-N-LOK II	Universal MATE-N-LOK
2	.550 13.97	Pre-tin	350824-1	643412-1	350831-1	770017-1	350777-1
		Duplex ¹	350824-4	643412-3	—		
3	.800 20.32	Pre-tin	350825-1	643414-1	350832-1	770018-1	350766-1
		Duplex ¹	350825-4	643414-3	350832-4		
4	1.050 26.67	Pre-tin	350826-1	643416-1	350833-1	770019-1	350779-1
		Duplex ¹	350826-4	—	350833-4		
5	1.300 33.02	Pre-tin	640901-1	—	—	770016-1	350809-1
		Duplex ¹	640901-3	—	—		

¹Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

²Use Standard Tail for .062 [1.57] thick PC Board.

³Use Long Tail for .125 [3.18] thick PC Board.

**6, 9, 12 and 15
Circuit, Matrix**



Number of Circuits	A Dim.	Socket Finish	Socket Header Part Numbers			Mates with Plug Housing Part Number (Using Pin Contacts)	
			Standard Tail ¹	Standard Tail Polarized ²	Long Tail ³	Universal MATE-N-LOK II	Universal MATE-N-LOK
6	.550 13.97	Pre-tin	350827-1	643424-1	350834-1	770020-1	350715-1
		Duplex ¹	350827-4	643424-3	350834-4		
9	.800 20.32	Pre-tin	350828-1	643426-1	350835-1	770021-1	350720-1
		Duplex ¹	350828-4	643426-3	350835-4		
12	1.050 26.67	Pre-tin	350829-1	643428-1	350836-1	770022-1	350735-1
		Duplex ¹	350829-4	—	350836-4		
15	1.300 33.02	Pre-tin	350830-1	643430-1	350837-1	770023-1	350736-1
		Duplex ¹	350830-4	—	350837-4		

¹Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

²Use Standard Tail for .062 [1.57] thick PC Board.

³Use Long Tail for .125 [3.18] thick PC Board.

Note: All part numbers are RoHS Compliant.

Standard Density

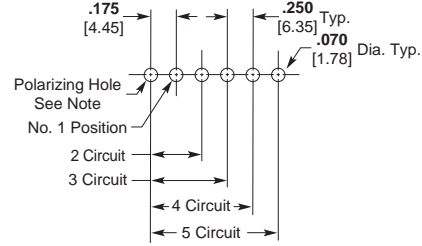
Universal MATE-N-LOK Headers
.250 [6.35] Centerline

Universal MATE-N-LOK Headers for UMNL II Connectors (Continued)

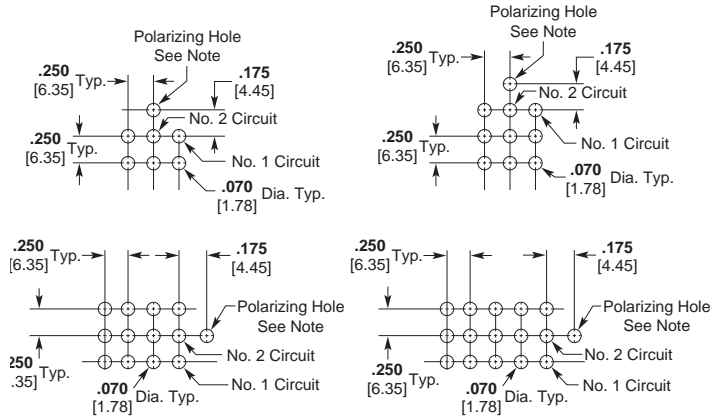
Recommended PC Board Hole Layouts for Pin and Socket Vertical Headers

Related Product Data
Vertical Headers — pages 197-198

2, 3, 4 and 5 Circuit, In-Line



6, 9, 12 and 15 Circuit, Matrix



Note: Polarizing hole .070 [1.78] Dia. required for polarized headers only.

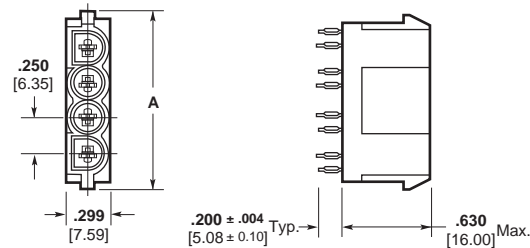
PC Board Vertical Pin Headers with ACTION PIN Contacts

Material and Finish
Housing — PBT, black
Flammability Rating — UL94V-0
Contacts — Copper alloy, plated with tin over nickel on entire contact

Related Product Data
Performance Characteristics — pages 189-190
Technical Documents — pages 189 and 205-206

Product Specification
108-5222 ACTION PIN Universal MATE-N-LOK Header Assembly

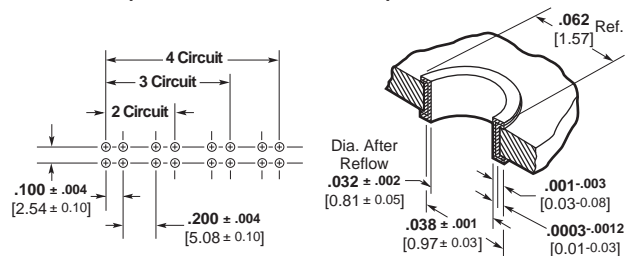
Mating Connectors
Universal MATE-N-LOK II Plug Housings — pages 193-194
Universal MATE-N-LOK Plug Housings — page 175



Number of Circuits	A Dim.	Part Number	Mates with Plug Housing Part Number (Using Socket Contacts)	
			Universal MATE-N-LOK II	Universal MATE-N-LOK
2	.750 19.05	173924-1*	770017-1	350777-1
3	1.000 25.40	173925-1*	770018-1	350766-1
4	1.250 31.75	173926-1*	770019-1	350779-1

*Install in PC Board with arbor tool.

Note: All part numbers are RoHS Compliant.



Recommended PC Board Hole Layout PC Board Hole Dimensions

Universal MATE-N-LOK Headers for UMNL II Connectors (Continued)

PC Board Right-Angle Pin and Socket Headers

.250 [6.35] Centerline spacing

Material

Housing — Nylon

Flammability Rating — UL 94V-0

Contacts — Phosphor bronze

Solder tail width .052 [1.32]

Related Product Data

Product Specification

108-1053 Universal MATE-N-LOK
PC Board Headers

Performance Characteristics —
pages 189-190

Technical Documents — pages 189
and 205-206

Mating Connectors

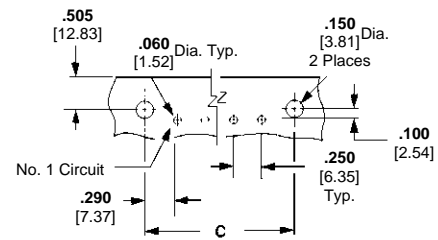
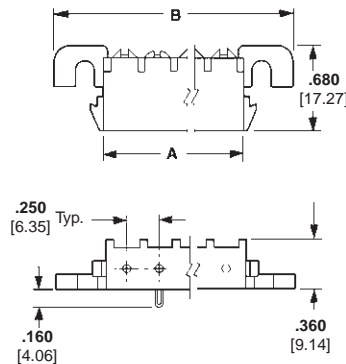
Universal MATE-N-LOK II

Plug Housings — pages 193-194

Universal MATE-N-LOK

Plug Housings — page 175

2, 3, 4 and 5 Circuit, In-line



Use 6-32 UNC Pan Head Screw
3/8 [9.53] long for mounting
(Not Supplied)

Recommended PC Board Hole Layout
.062 [1.57] Board Thickness

Number of Circuits	Dimensions			Contact Finish	Part Numbers			
	A	B	C		Right-Angle Header		Mates with Plug Housing	
					Pin	Socket	Universal MATE-N-LOK II	Universal MATE-N-LOK
2	.550 13.97	1.245 31.62	.830 21.08	Pre-tin	1-350942-0	643226-1	770017-1	350777-1
				Duplex ¹	3-350942-0	—		
3	.800 20.32	1.495 37.97	1.080 27.43	Pre-tin	1-350943-0	643228-1	770018-1	350766-1
				Duplex ¹	3-350943-0	3-643228-0		
4	1.050 26.67	1.745 44.32	1.330 33.78	Pre-tin	1-350944-0	643230-1	770019-1	350779-1
				Duplex ¹	3-350944-0	3-643230-0		
5	1.300 33.02	1.995 50.67	1.580 40.13	Pre-tin	1-350945-0	643232-1	770016-1	350809-1
				Duplex ¹	3-350945-0	3-643232-0		

¹Duplex Finish — Plated with .000030 [0.000762] min. gold in mating area, matte tin on solder tail end over .000050 [0.00127] min. nickel underplate on entire contact.

Note: All part numbers are RoHS Compliant.

Universal MATE-N-LOK Headers for UMNL II Connectors (Continued)

High Current Contacts

The Louvertac bands have the versatility of being designed into contact dimensions used in existing AMP connectors.

Universal MATE-N-LOK II High Current contacts have been designed to fit into an existing Universal MATE-N-LOK II housing. An initial T-Rise test of a fully energized 4 circuit connector with 10 gage wires has shown a 31 amp capability per line with a 30° T-rise.

Cable-to-Cable

Material

Body — Copper Alloy

Louvertac Band — Beryllium Copper

Finish — Silver

Contact Extraction Tool No. 318851-1

Latch Disengaging Tool No. 58382-1

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



■ **Certified by Canadian Standards Association, File No. LR7189**



■ **Passed test by VDE under their Registration Number 3980/Continuous Surveillance**



Design Objective — 108-1583

Application Specification — 114-16021

Cable-to-Right-Angle Board

Material

Housing — UL 94V-0 Nylon

Contact Body — Copper Alloy

Louvertac Band — Beryllium Copper

Finish — Silver

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



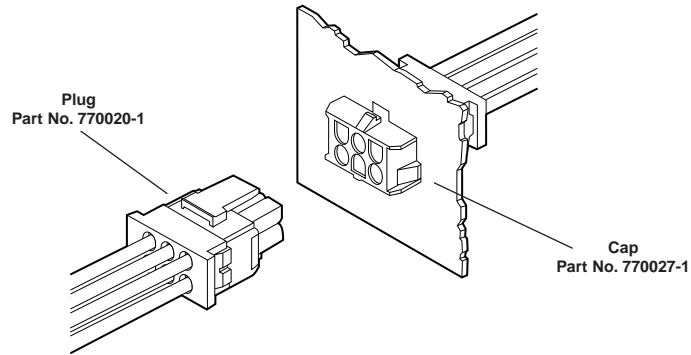
■ **Certified by Canadian Standards Association, File No. LR7189**



■ **Passed test by VDE under their Registration Number 3980/Continuous Surveillance**



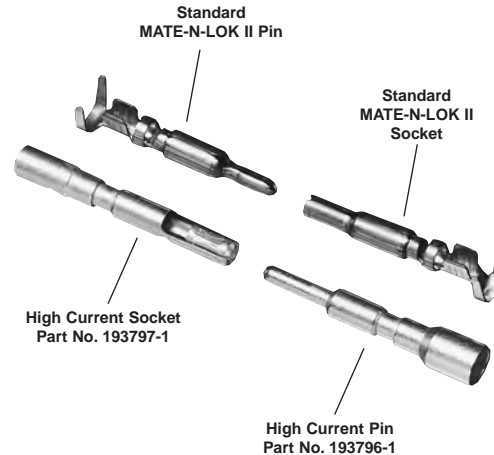
Design Objective — 108-1594



Contacts

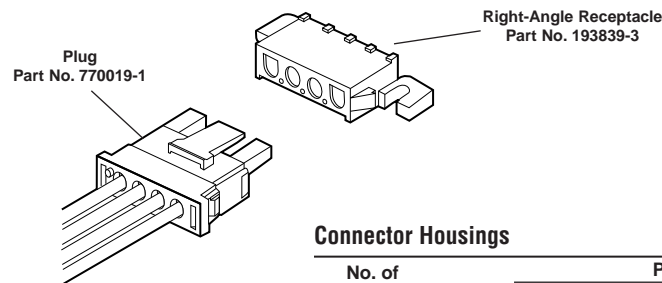
Wire Size AWG	Contact Part Numbers		Crimp Tools
	Pin	Socket	
10	193796-1	193797-1	Daniels Hand Tool #M310 or AMP P/N 356114-1 Positioner #TP1013 or AMP P/N 356337-1
12-14	193841-1	193842-1	

Note: High Current contacts are **not** intermateable with any other Universal MATE-N-LOK contact.



Connector Housings

No. of Circuits	Kit Part Numbers	
	Plug	Cap
2	770017-1	770024-1
3	770018-1	770025-1
4	770019-1	770026-1
5	770016-1	—
6	770020-1	770027-1
9	770021-1	770028-1
12	770022-1	770029-1
15	770023-1	770030-1



Connector Housings

No. of Circuits	Part Numbers	
	Socket Header	Mates with Plug Housing
2	193839-1	770017-1
3	193839-2	770018-1
4	193839-3	770019-1
5	193839-4	770016-1

Notes: 1. High Current contacts with Louvertac bands are **not** intermateable with any other contact.
2. Additional information on connectors is available in AMP High Current Products Catalog 65141.
3. Additional information on contacts is available in AMP Precision Pin and Socket Contacts Catalog 65910.

Note: All part numbers are RoHS Compliant.

Universal MATE-N-LOK Headers for UMNL II Connectors (Continued)

**High Current
Vertical Pin Headers**

High Current Universal MATE-N-LOK II Vertical Pin Headers are designed to accept Universal MATE-N-LOK II Plugs with High Current Socket contacts. All housings are polarized in order to allow proper circuit board placement. Eight versions are available from 2 circuit to 15 circuits.

Material

Housing — UL 94V-0 Nylon

Contacts — Copper Alloy

Finish — Silver

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



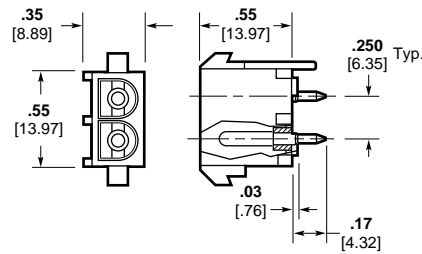
■ **Certified by Canadian Standards Association, File No. LR7189**



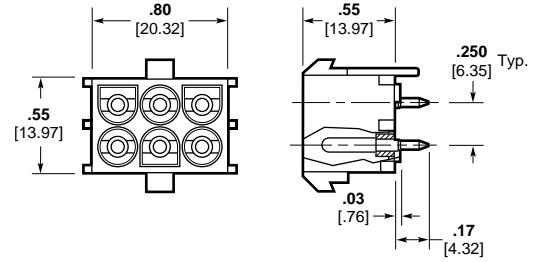
■ **Passed test by VDE under their Registration Number 3980/Continuous Surveillance**



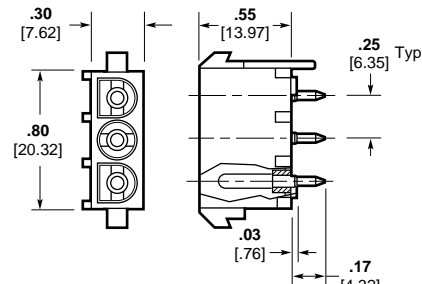
Design Objective — 108-1594



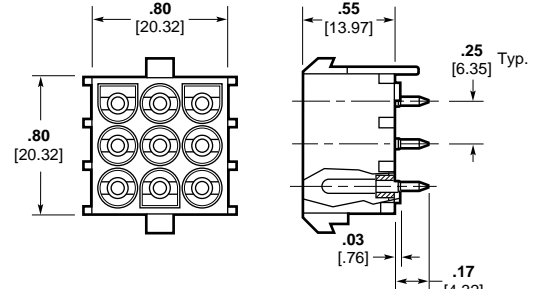
**2 Circuit
Part No. 194009-1**



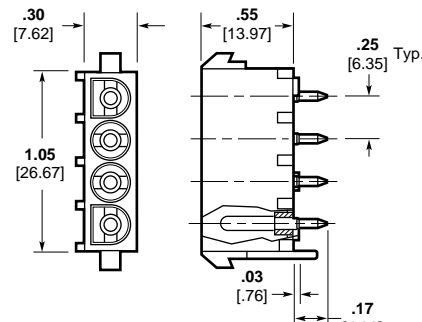
**6 Circuit
Part No. 194002-1**



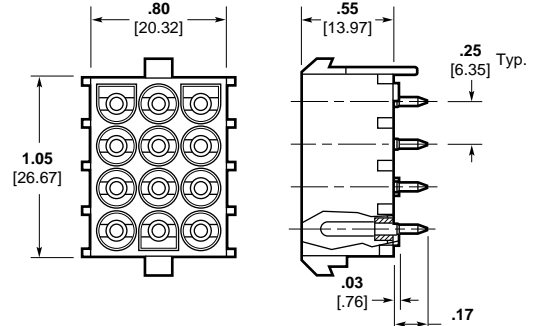
**3 Circuit
Part No. 194017-1**



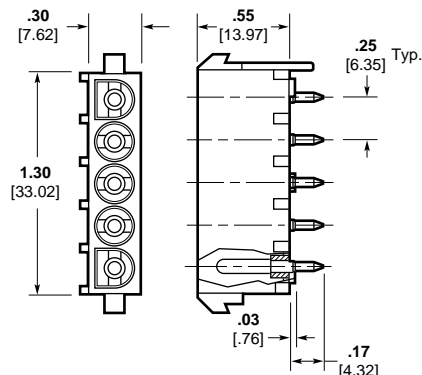
**9 Circuit
Part No. 194012-1**



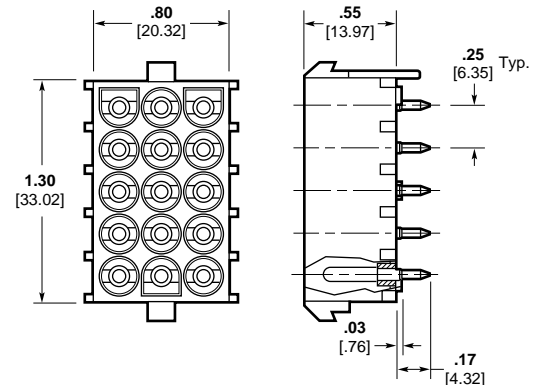
**4 Circuit
Part No. 194010-1**



**12 Circuit
Part No. 194014-1**



**5 Circuit
Part No. 194018-1**



**15 Circuit
Part No. 194013-1**


Notes: 1. High Current contacts with Louvertac bands are **not** intermateable with any other contact.
2. Additional information on connectors is available in AMP High Current Products Catalog 65141.

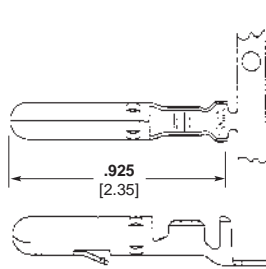
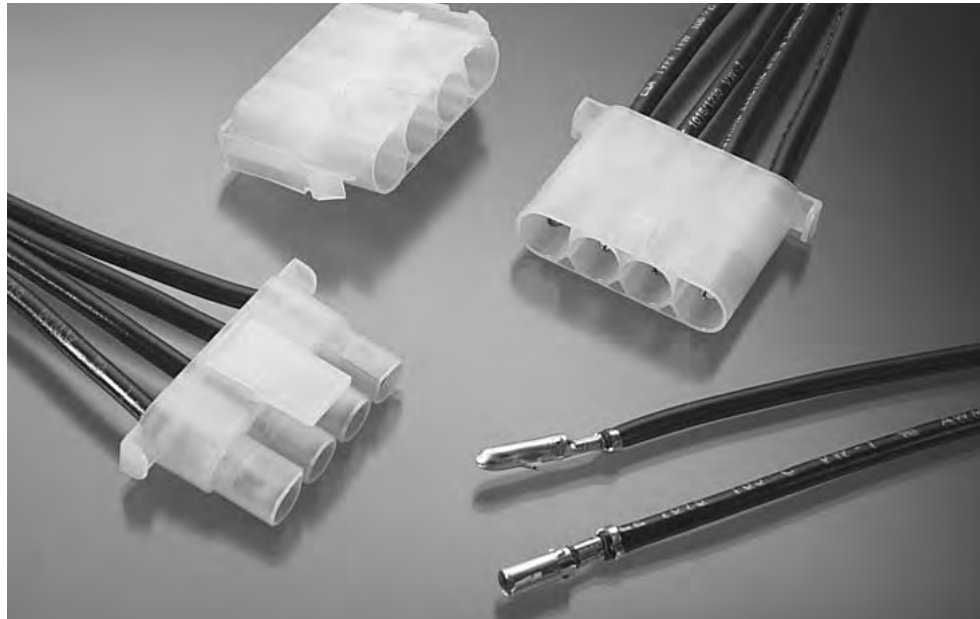
Standard Density

Universal MATE-N-LOK Headers
.250 [6.35] Centerline

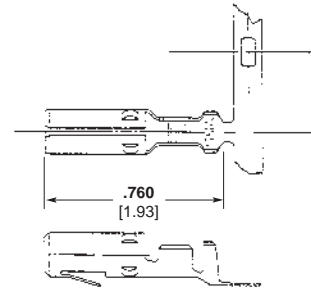
.156 MATE-N-LOK Connectors

Product Facts

- Positive polarized nylon housings
- Panel mount or free-hanging
- Numbered cavities for easy circuit identification
- Removable, crimp snap-in contacts
- Contacts accept 20-10 AWG wire sizes
- Pin contacts are used in cap housings, socket contacts are used in plug housings
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association File No. LR7189



Pin
Used in Caps



Socket
Used in Plugs

Contacts

Pin diameter .156 [3.96]

Material and Finish

Contacts—
Brass, Pre-tin plated
Stock thickness .018 [.457]

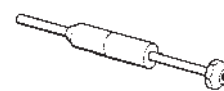
Wire Size Range AWG [mm ²]	Ins. Dia. Range	Contact Part Number				HDM ¹ Applicator Part No.	Hand Tool Part No.
		Pin		Socket			
		Strip Form	Loose Piece	Strip Form	Loose Piece		
20-14 [.5-2.0]	.125 max.	61086-1	61251-1	61085-1	61250-1	466462-1 466462-2 466462-3	58631-1
12-10 [3.0-6.0]	.185 max.	61234-1	61253-1	61233-1	61252-1	687765-2 687765-3	58632-1

¹To be used with appropriate application machine. See pages 201-204 for further information.

Note: All part numbers are RoHS Compliant.



Insertion Tool
Part No. 91002-1
(IS 408-7347)



Extraction Tool
Part No. 691458-1 (Pins)
Part No. 691458-2 (Sockets)
(IS 408-4322)

.156 MATE-N-LOK Connectors (Continued)

Housings
Free-Hanging or Panel Mount

Related Product Data

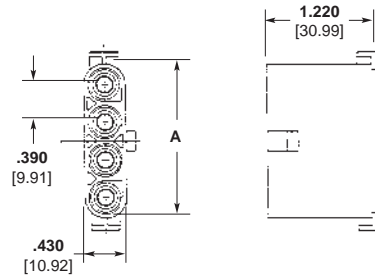
Contacts—page 203

Product Specification
108-8002

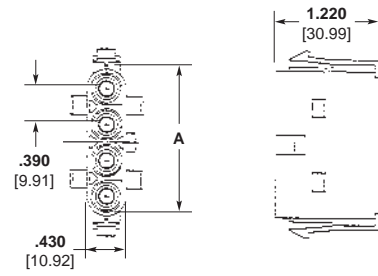
Application Specification
114-1109

Material

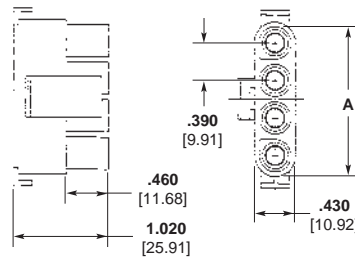
Housings—
Nylon, Natural Color
Flammability Rating—UL94V-2



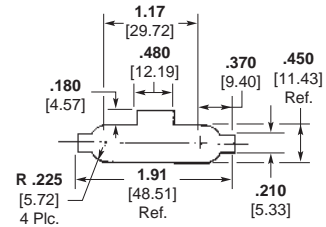
Pin Housing (Cap)
Free-Hanging
Part Number 794117-1



Pin Housing (Cap)
Panel Mount
Part Number 794118-1



Socket Housing (Plug)
Part Number 794116-1



Panel Mount Cutout

Note: Panel must be punched in the same direction as the housing will be inserted.

Number of Circuits	A Dim.	Plug	Cap	
			Free-Hanging	Panel Mount
3	.048 1.210	794412-1	794413-1	—
4	.063 1.590	794116-1	794117-1	794118-1

Note: All part numbers are RoHS Compliant.

Technical Documents

Related Product Data

Connectors

2.5 mm Signal Double Lock (SDL)—
pages 9-16

Micro MATE-N-LOK 3 mm—
pages 17-47

Grace Inertia Connectors (GIC) 3.5—pages 49-52

.062 Commercial Pin and Socket—pages 53-57

Power Double Lock (PDL)—
pages 59-81

Mini Universal MATE-N-LOK—
pages 83-94

Mini Universal MATE-N-LOK 2—
pages 99-107

(MR) Miniature Rectangular—
pages 109-118

VAL-U-LOK Connector System—
pages 119-124

AMP-DUAC—pages 125-133

5.0 mm Power Key Connectors (PKC)—pages 135-141

.093 Commercial Pin and Socket—pages 143-149

Commercial MATE-N-LOK—
pages 151-162

.140 MATE-N-LOK—pages 165-167

Universal MATE-N-LOK—
pages 169-188

Universal MATE-N-LOK II—
pages 189-195

.156 MATE-N-LOK—pages 203-204

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.

108-1000	Commercial MATE-N-LOK Connectors
108-1022	(MR) Miniature Rectangular Connectors
108-1031	Universal MATE-N-LOK Connectors
108-1031-1	Splash Proof Seal, Universal MATE-N-LOK Connectors
108-1032	.140 Diameter MATE-N-LOK Pin and Socket Connectors
108-1037	.062 Commercial Pin and Socket Connectors
108-1037-1	.062 Commercial Pin and Socket Contacts
108-1038	.093 Commercial Pin and Socket Connector
108-1053	Universal MATE-N-LOK Printed Circuit Board Headers
108-1077	Commercial MATE-N-LOK Printed Circuit Board Headers
108-1078	(MR) Miniature Rectangular Printed Circuit Board Headers
108-1090	Universal MATE-N-LOK II Connectors
108-1542	Mini-Universal MATE-N-LOK Connectors
108-1542-2	Splash Proof Seals for Mini-Universal MATE-N-LOK Connectors
108-1543	Mini-Universal MATE-N-LOK Headers
108-1594	Universal MATE-N-LOK Headers with High Current Contacts
108-1693	Mini-Universal MATE-N-LOK II Connectors
108-1694	Mini-Universal MATE-N-LOK II Headers
108-1699	AMP-DUAC Headers
108-1836	Micro MATE-N-LOK 3 mm Connectors
108-2069	Universal MATE-N-LOK Circular Connector
108-5138	Mini-Universal MATE-N-LOK Connectors (UL 94V-0)
108-5151	Mini-Universal MATE-N-LOK Connectors (UL 94V-2)
108-5155	Commercial MATE-N-LOK Pin Header Assembly
108-5222	Universal MATE-N-LOK Headers with ACTION PIN Contacts
108-5410	Power Double Lock (PDL) Connectors
108-5439	Power Double Lock (PDL) Connectors (SMT)
108-5459	2.5 mm Signal Double Lock (SDL) Connectors
108-5699	5.0 mm Power Key Connectors (PKC)
108-5810	Grace Inertia Connectors (GIC) 3.5
108-8002	.156 Diameter MATE-N-LOK Connectors
108-19099	AMP-DUAC Receptacles
108-49000	Commercial MATE-N-LOK IDC Insulation Displacement 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.

114-1007	.140 Diameter MATE-N-LOK Contacts
114-1010	Universal MATE-N-LOK Connectors
114-1012	Commercial MATE-N-LOK Contacts
114-1013	.062 Commercial Pin and Socket Connectors
114-1014	(MR) Miniature Rectangular Contacts
114-1043	Universal MATE-N-LOK II Connectors (housings, contacts and strain reliefs)
114-1109	.156 Diameter MATE-N-LOK Connectors
114-1111	Mini-Universal MATE-N-LOK 2 Connectors
114-5175	Power Double Lock (PDL) Connectors
114-5203	2.5 mm Signal Double Lock (SDL) Connectors
114-5292	5.0 mm Power Key Connectors (PKC)
114-5306	Grace Inertia Connectors (GIC) 3.5
114-6067	AMP-DUAC Crimping Contacts
114-13000	Micro MATE-N-LOK 3 mm Connectors

Technical Documents (Continued)

Application Specifications (Continued)

114-13089	Mini-Universal MATE-N-LOK Sealed Connectors
114-16017	Mini-Universal MATE-N-LOK Connectors
114-19048	AMP-DUAC Receptacles (Use of)
114-49000	.093 Commercial Pin and Socket Connectors
114-49001	Commercial MATE-N-LOK IDC Insulation Displacement Connectors

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

408-3186	Terminating Head (PN 231894-1) (Commercial MATE-N-LOK IDC Connector)
408-3200	Universal MATE-N-LOK II Connectors (Housings, Contacts and Accessories)
408-3231	(MR) Miniature Rectangular Connectors (Pin Housing, Socket Housing, Contacts, and Accessories)
408-3234	Mini-Universal MATE-N-LOK Connectors
408-3320	Universal MATE-N-LOK Strain Relief Assembly and Keying Plug
408-3392	Universal MATE-N-LOK Splash Proof Seals
408-3393	Mini-Universal MATE-N-LOK 2 Connectors
408-4118	Contact Extraction Tool (PN 189727-1)
408-4322	Contact Extraction Tools [PN 691458-1 (Pins) and 691458-2 (Sockets)]
408-4370	Contact Extraction Tool (PN 318831-1)
408-4371	Contact Extraction Tool (PN 318851-1)
408-4375	Contact Extraction Tool (PN 318837-1)
408-4378	Extraction Tool (PN 318845-1)
408-6790	Hand Tool Handle (PN 58074-1)
408-7158	Contact Extraction Tools [PN 1-305183-1 (Pins) and 1-305183-2 (Sockets)]
408-7166	Commercial MATE-N-LOK Panel Mount Connector
408-7200	Commercial MATE-N-LOK Free-Hanging Connector
408-7201	Commercial MATE-N-LOK Detent Engagement Connectors, 2 and 3 circuit
408-7209	Commercial MATE-N-LOK Commoning Tabs
408-7211	Pin and Socket Extraction Tool (PN 465644-1)
408-7215	Commercial MATE-N-LOK Single Circuit Connector
408-7300	MATE-N-LOK Contact and Housing Selection Charts
408-7347	Contact Insertion Tool (PN 91002-1)
408-7582	Commercial MATE-N-LOK Keying Plug
408-7714	Universal MATE-N-LOK Connectors
408-7763	Power Unit (PN 91112-2)
408-7984	Contact Insertion Tool (PN 455830-1)
408-9330	Head (PN 231920-2) (Used with Arbor Tool PN 91085-2)
408-9436	Latch Disengaging Tool (PN 58382-1)
408-9570	Contact Extraction Tool (PN 455822-2)
408-10003	Contact Retention Test Tool (PN 1586700-1)
408-10017	Universal MATE-N-LOK Sealed Bulkhead Connectors
411-5105	Mini-Universal MATE-N-LOK Connectors
411-5638	Power Double Lock (PDL) Connectors

Application Tooling

Semiautomatic Machines

AMP-O-LECTRIC Model "G" Terminating Machines, 354500-1, -9, -11



Semiautomatic bench machines for crimping reeled terminals and contacts, featuring a quiet and reliable direct motor drive, microprocessor controls for ease of setup and operation, and guarding and lighting designed for operator convenience and safety. All models are equipped with either manual or automatic precision adjustment of crimp height. Machine-mounted sensors are available for crimp quality monitoring using conventional miniature-style applicators.

Specifications

Width—18.7-25.3 [475-643] depending on applicator type

Depth—21.5-28.1 [546-713] depending on applicator type

Height—20 [508]

Weight—240 lb [110 kg]

Electrical—120 or 220 VAC, 50 or 60 Hz
Air—90-110 psi [6.21-7.59 bar], 6 scfm [0.00282 m³/s] when required with air-feed applicators

Wire Range—26-10 AWG [0.12-6 mm²] solid or stranded, depending on product applied

For more information, request Catalog **65828**, Catalog **82275 (Crimp Quality Monitor (CQM))**.

AMP-O-MATIC Stripper-Crimper Machine, 854040-3, -4



Semiautomatic bench crimping machines that also strip the wire, and are therefore used for terminating jacketed cable. Feature manual precision adjustment of crimp height, keyed strip blades for faster, more accurate setups, and an efficient scrap removal system. All adjustments can be made from the front of the machines without special tools. Available with crimp quality monitoring.

Specifications

Width—14 [355]

Depth—18 [457]

Height—33 [838] without reel

Weight—150 lb [68 kg]

Electrical—120 VAC, 50 or 60 Hz, .5 A

Air—80-100 psi [5.52-6.90 bar], 3.5 scfm [0.00165 m³/s]

Wire Range—32-14 AWG [0.03-2 mm²]

For more information, request Catalog **65004**.

AMP 3K/40 and AMP 5K/40 Terminators



As value oriented terminators, the AMP 3K/40 and AMP 5K/40 are designed for customers that require the increased output and quality of a semi-automatic machine at a competitive price. By incorporating the most commonly requested features as standard and offering a long list of optional equipment, these terminators offer flexibility to meet the specific needs of various applications at the lowest possible cost.

Optional Stripping Module for the AMP 3K/40, AMP 5K/40 and AMP-O-LECTRIC Model G Terminators



The combination of the Stripping Module with the AMP-O-LECTRIC Model G Terminator or the AMP 3K/40, 5K/40 provides an economical, proficient method of stripping wire and crimping terminals on the same machine. Wires are stripped moments before crimping, meaning there is virtually no chance of damaging wire conductors during handling or storage. Once the wire is fed into the start sensor the Stripping Module does the rest, improving placement accuracy.

For more information, request Catalog **1309085**.

Crimp Quality Monitor



This system measures the crimp height of each termination as it is made. It also evaluates the quality of each crimp. If a crimp is questionable, the monitor alerts the operator with both visual and audible alarms. It also features ports for printing and networking. For use with AMP-O-LECTRIC Model "G" and AMP-O-MATIC Stripper-

Crimper Machines, the monitor is mounted to the machine. For use with AMPOMATOR CLS IV+ Machines, it is integrated into the machine's operating system, with the displays appearing on the machine's touch screen.

For more information, request Catalog **82275**.

Note: This listing is for reference purposes only. To obtain part numbers for specific applications call Technical Support.

Application Tooling (Continued)

Application Tooling

Automatic Machines

**AMPOMATOR System III
Leadmaker**



The AMPOMATOR System III Leadmaker is designed for the demands of low-volume/high-mix manufacturing and precision quality. This leadmaker combines the best wire processing capabilities with

new technologies in terminal feeding and machine set-up found in the System III Applicator to offer significant advantages for higher throughput and efficiencies. Request Catalog 1654956-5.

**AMPOMATOR CLS IV+
Lead-Making Machines,
356500-1, -2**



System III Applicator



The System III Applicator introduces several new technologies into the applicator including a precision servo-electric motorized feeding system, a built-in data module for storing terminal crimp and

set-up information, a precision fit round ram, and a newly designed terminal depressor. It still utilizes the proven quality of the HD-M crimper and anvil tooling.

Fully-automatic machines that measure, cut, strip and terminate single leads. Microprocessor-controlled, and programmed and operated using an easy-to-follow, menu-driven touchscreen. Features include direct-drive terminating units with precision crimp height adjustment, fully programmable setups, wire runout and splice detection, and motorized pre-feed with wire straightener. Crimp quality monitoring is also available.

Specifications

- Width**—159 [4 039]
 - Depth**—68 [1 730]
 - Height**—90 [2 285] min., with 24 [610] dia. reel
 - Weight**—2 000 lb [907 kg]
 - Electrical**—220 VAC, 50 or 60 Hz, 1 Ø, 20 A with neutral and ground
 - Air**—90 psi [6.21 bar], 15 scfm [0.00708 m³/s] sustained
 - Wire Range**—26-10 AWG [0.12-6 mm²] stranded, 26-16 AWG [0.12-1.4 mm²] solid
 - Lead Lengths**—3-90 [76.2-2 286], 90-1 000 [2 286-25 400] with long lead conveyors
- For more information, request Catalog **124324**.

**EDGE Electronic Applicator
Counter**



The new, versatile EDGE applicator counter tracks wearable tool usage for the most effective maintenance planning. The completely electronic counter, with clear LCD display, indicates cycles since installation. By performing maintenance at measured intervals with pre-set

limits, operators avoid break-downs and rejects caused by tool wear or mis-adjustment. For more information, request Catalog **1773385**.

Application Tooling (Continued)

Applicator Styles

End- and Side-Feed Heavy-Duty Miniature (HDM) Applicators



- Handle a wide variety of products
- Used with both semi- and fully-automatic machines
- Quickly interchangeable to run different products
- Easily repaired
- Simple dial-in settings to handle similar products and various wire sizes

Stripper-Crimper (SCA) Applicators



- For use with AMP-O-MATIC Stripper-Crimper Machines
- Terminate a wide variety of open-barrel products
- Quickly interchangeable to run different products
- Easily repaired
- Simple dial-in settings to handle similar products and various wire sizes
- CQM applicators are available

Crimp Quality Monitor (CQM) Applicators



- Same basic features as regular HDM and SCA applicators
- Recommended for use with machines featuring manual or automatic precision-adjust
- Use two built-in sensors to provide the Crimp Quality Monitor with data to measure crimp height, and evaluate the quality of each crimp

Applicator and Hand Tool Selection Guide

Related Product Data

Contacts

- 2.5 mm Signal Double Lock (SDL)—page 12
- Micro MATE-N-LOK 3 mm—page 22
- Grace Inertia Connectors (GIC) 3.5—page 50
- .062 Commercial Pin and Socket—page 55
- Power Double Lock (PDL)—page 61
- Mini Universal MATE-N-LOK—page 84
- Mini Universal MATE-N-LOK 2—pages 100-101
- (MR) Miniature Rectangular—page 112
- VAL-U-LOK Connector System—page 120
- AMP-DUAC—pages 126-127
- 5.0 mm Power Key Connectors (PKC)—page 137
- .093 Commercial Pin and Socket—page 145
- Commercial MATE-N-LOK—pages 155-156
- .140 MATE-N-LOK—page 166
- Universal MATE-N-LOK—pages 172-173
- Universal MATE-N-LOK II—page 192
- .156 MATE-N-LOK—page 203

Density	Product Line	Applicators			Hand Tools	
		A	B	C	D	E
High	2.5 mm Signal Double Lock (SDL)	*	*	*	X	-
	Micro MATE-N-LOK 3 mm	X	X	X	X	-
	Grace Inertia Connectors (GIC) 3.5	*	*	*	X	-
	.062 Commercial Pin and Socket	X	X	X	-	X
	Power Double Lock (PDL)	*	*	*	X	-
	Mini-Universal MATE-N-LOK	X	X	X	X	X
	Sealed Mini-Universal MATE-N-LOK	X	X	X	X	-
	Mini-Universal MATE-N-LOK 2	X	X	X	X	X
	(MR) Miniature Rectangular	X	X	X	X	-
	VAL-U-LOK Connector System	X	-	-	-	X
Standard	AMP-DUAC	X	X	-	X	-
	5.0 mm Power Key Connectors (PKC)	*	*	*	X	-
	.093 Commercial Pin and Socket	X	X	X	-	X
	Commercial MATE-N-LOK	X	X	X	X	X
	.140 MATE-N-LOK	X	X	X	X	-
	Universal MATE-N-LOK	X	X	X	X	X
	Universal MATE-N-LOK II	X	X	X	X	X
	.156 MATE-N-LOK	X	-	-	X	-

A—Heavy Duty Miniature (HDM) Applicators
 B—Stripper-Crimper Applicators (SCA)
 C—Crimp Quality Monitor (CQM) Applicators
 D—CERTI-CRIMP Hand Tool
 E—PRO-CRIMPER III Commercial Hand Tool
 * Contact the Tooling Assistance Center (TAC) at 1-800-722-1111 for Applicator Part Numbers.

Mechanical Hand Tools

CERTI-CRIMP II Straight Action Hand Tools (SAHT) 91501-1, 91502-1



Premium grade hand tools. Feature ratchet control to provide complete crimp cycle. Die sets close in a straight line. Include a contact locator and wire stop, plus an insulation crimp

adjustment lever, when applicable. Approximate weight 1.3 lb [0.59 kg] For more information, request Catalog 65780.

Note: This listing is for reference purposes only. To obtain part numbers for specific applications call Technical Support.

Application Tooling (Continued)

Hand Tools

Related Product Data

Contacts

- 2.5 mm Signal Double Lock (SDL)**—page 12
- Micro MATE-N-LOK 3 mm**—page 22
- Grace Inertia Connectors (GIC) 3.5**—page 50
- .062 Commercial Pin and Socket**—page 55
- Power Double Lock (PDL)**—page 61
- Mini Universal MATE-N-LOK**—page 86
- Mini Universal MATE-N-LOK 2**—pages 100-101
- (MR) Miniature Rectangular**—page 112
- VAL-U-LOK Connector System**—page 120
- AMP-DUAC**—pages 126-127
- 5.0 mm Power Key Connectors (PKC)**—page 137
- .093 Commercial Pin and Socket**—page 145
- Commercial MATE-N-LOK**—pages 155-156
- .140 MATE-N-LOK**—page 166
- Universal MATE-N-LOK**—pages 172-173
- Universal MATE-N-LOK II**—page 192
- .156 MATE-N-LOK**—page 203

CERTI-CRIMP II Hand Tool



Catalog 65780

PRO-CRIMPER III Hand Tool



Catalog 82276

Features	CERTI-CRIMP Hand Tool	PRO-CRIMPER III Hand Tool
Field Repair/Prototyping	X	X
OEM Applications/Low Volume Production	X	—
Ratchet Control	X	X
Brush/Bellmouth Control	X	X
Precision Crimp Height Control	X	X
Little/No Operator Training	X	—
Insulation Adjustment	X	—
Repairable	X	—

Density	Product Line	CERTI-CRIMP Hand Tool		PRO-CRIMPER III Hand Tool	
		Part Number	Instruction Sheet	Part Number	Instruction Sheet
High	2.5 mm Signal Double Lock (SDL)	234603-1	411-5735	—	—
		234604-1	411-5736	—	—
	Micro MATE-N-LOK 3 mm	91501-1	408-8547	—	—
		91502-1	408-8547	—	—
	Grace Inertia Connectors (GIC) 3.5	1596277-1	411-78101	—	—
		—	—	90870-1	408-9965
	.062 Commercial Pin & Socket	—	—	90869-1	408-9964
		—	—	—	—
	Power Double Lock (PDL)	91567-1	408-8547	—	—
		91569-1	408-8547	—	—
	Mini-Universal MATE-N-LOK and Sealed Mini-Universal MATE-N-LOK	91529-1	408-8547	90758-1	408-9938
		91522-1	408-8547	90759-1	408-9962
		91594-1	408-8547	90760-1	408-9963
		90717-2	408-4443	—	—
		91529-1	408-8547	—	—
Mini-Universal MATE-N-LOK 2	91522-1	408-8547	—	—	
	91594-1	408-8547	—	—	
	90717-2	408-4443	—	—	
(MR) Miniature Rectangular	91534-1	408-8547	58514-1	408-9973	
	91526-1	408-8547	58514-1	408-9973	
VAL-U-LOK Connector System	—	—	91387-1	408-8917	
	—	—	91388-1	408-8918	
AMP-DUAC	90714-1	408-4385	—	—	
	734202-2	—	—	—	
Standard	5.0 mm Power Key Connectors (PKC)	—	—	—	—
		—	—	90872-1	408-9967
	.093 Commercial Pin & Socket	—	—	90871-1	408-9966
		—	—	—	—
	Commercial MATE-N-LOK	91515-1	408-8547	—	—
		91512-1	408-8547	90574-1	408-9886
		91504-1	408-8547	90575-1	408-9887
		91552-1	408-8547	—	—
		69710-11	408-2095	—	—
	.140 MATE-N-LOK	58373-12	408-9442	—	—
		58374-12	408-9442	—	—
		58439-1	408-9591	—	—
	Universal MATE-N-LOK and Universal MATE-N-LOK II	91510-1	408-8547	90548-1	408-9885
		91500-1	408-8547	90546-1	408-9883
		91508-1	408-8547	90547-1	408-9884
91506-1		408-8547	90547-1	408-9884	
69710-11		408-2095	—	—	
58380-12		408-9433	—	—	
58380-22		408-9433	—	—	
58631-1		408-4341	—	—	
.156 MATE-N-LOK	58632-1	408-4340	—	—	

¹Hand tool requires die set. ²Die set.
Note: This listing is for reference purposes only. To obtain part numbers for specific applications call Technical Support.

Applicator Options

	Strip Form Contact Part Number		Heavy-Duty Miniature Applicator Part Numbers				
	Pin	Socket	Used on Bench Top Terminators		Used on Automatic Leadmaking Equipment (AMPOMATOR CLS Machine with T or G Terminators)	Used on AMP-O-MATIC Stripper-Crimper Machine	
			AMP-O-LECTRIC Model K Machine	AMP-O-LECTRIC Model G Machine			
2.5 mm Signal Double Lock (SDL) Contacts	917764-1	917683-1	*	*	*	*	
	917765-1	917684-1	*	*	*	*	
Micro MATE-N-LOK 3 mm Connector System	1-794608-0	—					
	1-794608-1	—	1385194-2	1385194-3	1385194-1	—	
	1-794608-2	—					
	1-794609-0	—					
	1-794609-1	—	1385377-2	1385377-3	1385377-1	—	
	1-794609-2	—					
	—	794606-1					
	—	1-794606-1	680893-2	680893-3	680893-1	—	
	—	1-794606-2					
	—	794607-1					
Grace Inertia Connectors (GIC) 3.5 .062 Commercial Pin and Socket Contacts	—	1-794607-1	680894-2	680894-3	680894-1	—	
	—	1-794607-2					
	1565080-1	1565079-1	*	*	*	*	
	1612335-1	1612334-1	*	*	*	*	
	640391-1	640392-1					
	640391-5	640392-5	466686-2	466686-3	466686-1	466955-1	
	—	640392-2					
	—	794046-1					
	350629-1	350628-1					
	—	350628-2					
Power Double Lock (PDL)	350629-5	350628-5	687996-2	687996-3	687996-1	—	
	—	350628-6					
	—	794103-1					
	177916-1	177914-1	*	*	*	*	
		177914-2†	*	*	*	*	
	177917-1	177915-1	*	*	*	*	
		177915-2†	*	*	*	*	
	† High contact pressure type.						
	Mini-Universal MATE-N-LOK Contacts	770835-1	770834-1	567418-2	567418-3	567418-1	—
		1-770835-0	1-770834-0				
770901-1		770902-1	567066-4	567066-5	567066-3	466990-2	
1-770901-0		1-770902-0					
770903-1		770904-1	567067-2	567067-3	567067-1	466986-1	
1-770903-0		1-770904-0					
171636-1		171637-1	680582	567251-1	680582	567902-1	
—		171637-3					
Mini-Universal MATE-N-LOK 2 Contacts	794216-1	794217-1	567418-2	567418-3	567418-1	—	
	1-794216-0	1-794217-0					
	794218-1	794219-1	567066-4	567066-5	567066-3	466990-2	
	1-794218-0	1-794219-0					
	794220-1	794221-1	680854-2	680854-3	680854-1	466986-1	
	1-794220-0	1-794221-0					
	794222-1	794223-1	680582-2	680582-3	—	567902-1	
	1-794222-0	1-794223-0					
(MR) Miniature Rectangular Contacts	350968-1	794000-1	466352-2	466352-3	466352-1	—	
	350968-2	794000-2					
	350967-1	641294-1	466351-2	466351-4	466351-1	466913-1	
	350967-2	641294-2					
	350969-1	—	466351-2	466351-4	466351-1	466913-1	
	350969-2	—					

Note: Stripper Crimper (SCA) and Crimp Quality Monitor Applicators may be available. Call Technical Support for Part Numbers.

* Contact the Tooling Assistance Center (TAC) at 1-800-722-1111 for Applicator Part Numbers.

Note: All part numbers are RoHS Compliant.

Applicator Options (Continued)

Applicator Options

	Strip Form Contact Part Number		Heavy-Duty Miniature Applicator Part Numbers			
			Used on Bench Top Terminators		Used on Automatic Leadmaking Equipment (AMPOMATOR CLS Machine with T or G Terminators)	Used on AMP-O-MATIC Stripper-Crimper Machine
	Pin	Socket	AMP-O-LECTRIC Model K Machine	AMP-O-LECTRIC Model G Machine		
VAL-U-LOK Connector System	794955-1	794956-1				
	794955-2	794956-2				
	794955-3	794956-3	1385817-2	1385817-3	1385817-1	—
	794955-4	794956-4				
	794957-1	794958-1				
	794957-2	794958-2				
AMP-DUAC	794957-3	794958-3	1385448-2	1385448-3	1385448-1	—
	794957-4	794958-4				
	794576-1	106529-2	680308-2	680308-3	—	567959-1
		1-794138-3				
	794578-1	106528-2	680307-2	680307-3	—	567960-1
		1-794139-3				
5.0 mm Power Key Connectors (PKC)	—	1-794140-3	680350-2	680350-3	—	—
		794418-1				
	—	1376347-1	*	*	*	*
.093 Commercial Pin and Socket Contacts	—	1376348-1	*	*	*	*
	350418-1	350417-1				
	—	350417-3	466656-2	466656-3	466656-1	466922-1
	350418-5	350417-5				
	350416-1	350415-1	466878-2	466878-3	466878-1	466959-1
	350416-5	350415-5				
Commercial MATE-N-LOK Contacts	770530-1	770529-1	567337-4	567337-6	567337-3	—
	770385-1	770383-1	567273-2	567273-4	567273-3	—
	—	—				
	350079-1	350078-1				
	350079-4	350078-4	466426-2	466426-3	466426-1	—
	350079-5	350078-5				
	61116-1	61314-1				
	61116-4	61314-4				
	61116-5	61314-5	466320-2	466320-4	466320-1	466917-1
	61116-6	61314-6				
	61116-7	61314-7				
	61118-1	61117-1				
	61118-4	61117-4				
	61118-5	61117-5	687763-2	687763-6	687763-1	466920-1
61118-6	61117-6					
61118-7	61117-7					
.140 MATE-N-LOK Contacts	350558-1	350557-1	687898-2	687898-4	687898-1	—
	350558-4	350557-4				
	61527-2	—	466320-2	466320-4	466320-1	466917-1
	61627-1	61626-1	567306-2	567306-3	567306-1	—
	61627-2	61626-2				
	350201-1	350200-1	567309-2	567309-3	587309-1	—
Universal MATE-N-LOK Contacts	350201-2	350200-2				
	350924-1	350925-1	466616-2	466616-3	—	—
	350924-6	350925-6				
	350561-1	350851-1				
	—	350570-1				
	350561-2	350851-2				
	—	350570-2				
	350561-7	350851-7	466320-2	466320-4	466320-1	466917-1
	—	350570-7				
	350561-3	350570-3				
—	350570-6					

Note: Stripper Crimper (SCA) and Crimp Quality Monitor Applicators may be available. Call Technical Support for Part Numbers.

* Contact the Tooling Assistance Center (TAC) at 1-800-722-1111 for Applicator Part Numbers.

Note: All part numbers are RoHS Compliant.

Applicator Options (Continued)

**Universal
MATE-N-LOK
Contacts** (Continued)

**Universal
MATE-N-LOK II
Contacts**

**.156 MATE-N-LOK
Contacts**

Strip Form Contact Part Number		Heavy-Duty Miniature Applicator Part Numbers			
Pin	Socket	Used on Bench Top Terminators		Used on Automatic Leadmaking Equipment (AMPOMATOR CLS Machine with T or G Terminators)	Used on AMP-O-MATIC Stripper-Crimper Machine
		AMP-O-LECTRIC Model K Machine	AMP-O-LECTRIC Model G Machine		
350218-1	350536-1				
350218-2	350536-2				
350218-7	350536-7	687763-2	687763-6	687763-1	466920-1
350218-3	350536-3				
350218-6	350536-6				
350538-1	350537-1				
350538-2	350537-2				
350538-7	350537-7	687926-2	687926-6	687926-1	466989-1
350538-3	350537-3				
350538-6	350537-6				
350873-1	350874-1				
350873-3	350874-3	466588-2	466588-3	466588-1	—
350922-3	350923-3				
350922-6	350923-6	466597-2	466597-3	466597-1	—
350922-4	350923-4				
350699-1	—				
350699-2	—	466320-2	466320-4	466320-1	466917-1
350699-7	—				
350687-1	—				
350687-2	—	687763-2	687763-6	687763-1	466920-1
350687-7	—				
350700-1	—				
350700-2	—	687926-2	687926-6	687926-1	466989-1
350700-7	—				
770210-1	—	567216-2	567216-3	567216-1	
350654-1	—	687763-2	687763-6	687763-1	466920-1
770234-3	—	466597-2	466597-3	466597-1	
770011-6	770012-6	—	567252-4	567252-1	—
770009-1	—				
1-770009-0	—				
—	770010-3	—	567214-4	567214-1	567914-1
—	1-770010-0				
770007-1	—				
1-770007-0	—				
—	770008-3	—	567213-4	567213-1	567913-1
—	1-770008-0				
770005-1	—				
1-770005-0	—				
—	770006-3	—	567212-4	567212-1	—
1-770005-1	1-770006-0				
770003-3	770004-3				
1-770003-0	1-770004-0	—	567211-4	567211-1	—
770193-1	—				
1-770193-0	—	—	567213-4	567213-1	567913-1
770194-1	—				
1-770194-0	—	—	567212-4	567212-1	—
61086-1	61085-1	466462-1	466462-3	466462-1	—
61234-1	61233-1	687765-2	687765-2	—	—

Applicator Options

Note: Stripper Crimper (SCA) and Crimp Quality Monitor Applicators may be available. Call Technical Support for Part Numbers.

* Contact the Tooling Assistance Center (TAC) at 1-800-722-1111 for Applicator Part Numbers.

Note: All part numbers are RoHS Compliant.

Product Feature Comparisons

High Density	2.5 mm Signal Double Lock (SDL)	Micro MATE-N-LOK 3 mm	Grace Inertia Connectors (GIC) 3.5	.062 Commercial Pin & Socket	Power Double Lock (PDL)	Mini-Universal MATE-N-LOK	Sealed Mini-Universal MATE-N-LOK	Mini-Universal MATE-N-LOK 2	(MR) Miniature Rectangular	VAL-U-LOK Connector System	AMP-DUAC
Wire AWG —											
Maximum	20	20	18	18	16	16	18	16	18	18	18
Minimum	26	30	26	30	26	30	26	30	26	26	26
Current Rating —											
10 AWG Wire	—	—	—	—	—	—	—	—	—	—	—
14 AWG Wire	—	—	—	—	—	—	—	—	—	—	—
16 AWG Wire	—	—	—	—	14	—	—	—	—	—	—
18 AWG Wire	—	**	7	17	—	9	9	10.5	6	9	9
20 AWG Wire	3	—	—	—	—	—	—	—	—	—	—
Max. Operating Voltage (AC or DC)	50	250	300	250	300	600	600	600	250	600	600
Flammability Rating —											
UL 94V-0	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UL 94V-2	No	No	No	Yes	No	Yes*	No	Yes	No	Yes	Yes
Approvals —											
UL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Submitted	Yes	Yes	Yes
CSA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Submitted	Yes	Yes	Yes
VDE	Yes	Yes	—	No	Yes	Yes	Yes	Submitted	No	—	No
Contact Material —											
Brass	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	—
Phos. Bronze	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes	Yes
Plating Finish —											
Tin Plating	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gold Plating	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Centerline Spacing —											
	.098 [2.50]	.118 [3.00]	.137 [3.50]	.145 [3.68]	.156 [3.96] 256 [6.50] .312 [7.92] .512 [13.00]	.163 [4.14]	.163 [4.14]	.163 [4.14]	.165 [4.20]	.165 [4.20]	.165 [4.20]
Housings —											
Panel Mount	No	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Free-Hanging	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Secondary Locking Latches	Yes	No	Yes	No	Yes	No	No	Yes	No	Yes	Yes
Contact Position Control	Yes	No	No	No	No	No	No	Yes	No	No	Yes
In-Line Config.	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Dual Row Config.	No	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Matrix Config.	No	No	No	Yes	Yes	Yes	No	Yes	Yes	No	No
Accessories —											
Strain Relief	No	No	Yes	No	Yes	Yes	No	No	Yes	No	Yes
Keying Plug	No	No	No	No	No	Yes	Yes	Yes	Yes	No	No
Seals	No	No	No	No	No	Yes	Yes	No	No	No	No
Headers —											
Vertical	Yes	Yes	No	No	Yes	Yes	Yes	Mini-Universal MATE-N-LOK	Yes	Yes	Yes
Blindmate	No	No	No	No	No	Yes	Yes	Mini-Universal MATE-N-LOK	No	Yes	No
Right-Angle	Planned	Yes	No	No	No	Yes	Yes	Mini-Universal MATE-N-LOK	No	Yes	Yes
Positions —											
Minimum	2	2	2	1	1	1	2	2	2	2	2
Maximum	13	24	6	9	12	24	10	24	36	24	24

* Wire-to-Wire Only.
** 5 A on 20 AWG*

Product Feature Comparisons (Continued)

Standard Density	5.0 mm Power Key Connectors (PKC)	.093 Commercial Pin & Socket	Commercial MATE-N-LOK	.140 MATE-N-LOK	Universal MATE-N-LOK	Universal MATE-N-LOK II	.156 MATE-N-LOK
Wire AWG—							
Maximum	16	14	14	10	10	10	10
Minimum	24	24	30	20	30	30	20
Current Rating —							
10 AWG Wire	—	—	—	28	—	—	32.5
14 AWG Wire	—	19	13	—	15	19	—
16 AWG Wire	10	—	—	—	—	—	—
18 AWG Wire	—	—	—	—	—	—	—
20 AWG Wire	—	—	—	—	—	—	—
Max. Operating Voltage (AC or DC)	300	250	250	600	600	600	600
Flammability Rating —							
UL 94V-0	Yes	No	Yes	No	Yes	Yes	No
UL 94V-2	No	Yes	Yes	Yes	Yes	No	Yes
Approvals —							
UL	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CSA	Yes	Yes	Yes	Yes	Yes	Yes	No
VDE	No	No	No	No	Yes	Yes	No
Contact Material —							
Brass	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Phos. Bronze	No	Yes	Yes	Yes	Yes	Yes	No
Plating Finish —							
Tin Plating	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gold Plating	No	Yes	Yes	No	Yes	Yes	No
Centerline Spacing —	.197 [5.00]	.198 [5.03] .250 [6.35] .248 [6.30]	.200 [5.08] .240 [6.10] x .202 [5.13] .195 [4.95] x .360 [9.14]	.240 [6.10]	.250 [6.35]	.250 [6.35]	.390 [9.91]
Housings —							
Panel Mount	No	Yes	Yes	Yes	Yes	Yes	Yes
Free-Hanging	No	Yes	Yes	Yes	Yes	Yes	Yes
Secondary Locking Latches	Yes	No	No	Yes	No	Yes	Yes
Contact Position Control	No	No	No	No	No	Yes	No
In-Line Config.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dual Row Config.	Yes	No	Yes	No	No	No	No
Matrix Config.	No	Yes	Yes	Yes	Yes	Yes	No
Accessories —							
Strain Relief	Yes	No	No	No	Yes	Universal MATE-N-LOK	No
Keying Plug	No	No	Yes	No	Yes	Yes	No
Seals	No	No	No	No	Yes	No	No
Headers —							
Vertical	Yes	No	Yes	No	Yes	Universal MATE-N-LOK	No
Blindmate	No	No	No	No	No	No	No
Right-Angle	No	No	Yes	No	Yes	Universal MATE-N-LOK	No
Positions —							
Minimum	2	1	1	2	1	2	3
Maximum	6	15	16	9	15	15	4

* Wire-to-Wire Only.
** 5 A on 20 AWG*

Non-Compliant to RoHS Compliant Part Number Cross Reference

Non-Compliant Part Number	RoHS Compliant Part Number	Non-Compliant Part Number	RoHS Compliant Part Number	Non-Compliant Part Number	RoHS Compliant Part Number	Non-Compliant Part Number	RoHS Compliant Part Number
350209-2	1586512-2	350827-2	350827-4	643234-2	3-643234-0	770876-1	1-770876-0
350210-2	1586514-2	350828-2	350828-4	643236-2	3-643236-0	770876-2	1-770876-1
350211-2	1586515-2	350829-2	350829-4	643410-2	643410-3	770901-3	1-770901-0
350211-3	1586515-3	350830-2	350830-4	643412-2	643412-3	770902-3	1-770902-0
350212-2	1586518-2	350832-2	350832-4	643414-2	643414-3	770902-6	1-770902-1
350213-2	1586520-2	350833-2	350833-4	643424-2	643424-3	770903-3	1-770903-0
350214-2	1586522-2	350834-2	350834-4	643426-2	643426-3	770903-6	1-770903-1
350220-2	1586524-2	350835-2	350835-4	770003-4	1-770003-0	770904-3	1-770904-0
1-350375-0	2-350375-0	350836-2	350836-4	770004-4	1-770004-0	770904-6	1-770904-1
1-350376-0	2-350376-0	350837-2	350837-4	770005-2	1-770005-0	770966-1	1-770966-0
1-350377-0	2-350377-0	2-350942-0	3-350942-0	770005-4	1-770005-1	770966-2	1-770966-1
1-350378-1	2-350378-1	2-350943-0	3-350943-0	770006-4	1-770006-0	770967-1	1-770967-0
1-350379-1	2-350379-1	2-350944-0	3-350944-0	770007-2	1-770007-0	770967-2	1-770967-1
1-350380-1	2-350380-1	2-350945-0	3-350945-0	770008-4	1-770008-0	770968-1	1-770968-0
350424-2	1586525-2	350988-3	350988-5	770010-4	1-770010-0	770968-2	1-770968-1
350425-2	1586526-2	350989-3	350989-5	770166-1	1-770166-0	770969-1	1-770969-0
350426-2	1586528-2	350990-3	350990-5	770166-2	1-770166-1	770969-2	1-770969-1
350428-2	350428-4	350991-3	350991-5	770170-1	1-770170-0	770970-1	1-770970-0
350429-2	350429-4	1-380935-0	2-380935-0	770170-2	1-770170-1	770970-2	1-770970-1
350430-2	350430-4	1-380936-0	2-380936-0	770174-1	1-770174-0	770971-1	1-770971-0
350431-2	350431-4	1-380937-0	2-380937-0	770174-2	1-770174-1	770971-2	1-770971-1
350432-2	350432-4	2-380991-0	2-1586544-0	770178-1	1-770178-0	770972-1	1-770972-0
350433-2	350433-4	2-380999-0	2-1586546-0	770178-2	1-770178-1	770972-2	1-770972-1
350434-2	350434-4	640466-2	640466-3	770182-1	1-770182-0	770973-1	1-770973-0
350539-2	1586530-2	640467-2	640467-3	770182-2	1-770182-1	770973-2	1-770973-1
350541-2	1586532-2	640497-2	2-640497-2	770186-1	1-770186-0	770974-1	1-770974-0
350543-2	1586534-2	640497-4	2-640497-4	770186-2	1-770186-1	770974-2	1-770974-1
350544-2	1586536-2	640498-2	2-640498-2	770190-1	1-770190-0	770985-3	1-770985-0
350582-2	350582-4	640498-4	2-640498-4	770190-2	1-770190-1	770986-3	1-770986-0
350583-2	350583-4	640499-2	2-640499-2	770193-2	1-770193-0	770987-3	1-770987-0
350584-2	350584-4	640499-4	2-640499-4	770194-2	1-770194-0	770988-3	1-770988-0
350585-2	350585-4	640500-2	2-640500-2	770246-4	1-770246-0	794040-1	1-794040-0
350586-2	350586-4	640500-4	2-640500-4	770247-4	1-770247-0	794040-2	1-794040-1
350587-2	350587-4	640501-2	2-640501-2	770248-2	1-770248-0	794058-3	1-794058-0
350588-2	350588-4	640501-4	2-640501-4	770249-4	1-770249-0	794059-3	1-794059-0
350641-2	1586539-2	640502-2	2-640502-2	770250-2	1-770250-0	794065-1	1-794065-0
350711-2	350711-4	640502-4	2-640502-4	770251-4	1-770251-0	794065-2	1-794065-1
350712-2	350712-4	640503-2	2-640503-2	770252-2	1-770252-0	794066-1	1-794066-0
350713-2	350713-4	640503-4	2-640503-4	770254-2	1-770254-0	794066-2	1-794066-1
350714-2	350714-4	640504-2	2-640504-2	770255-2	1-770255-0	794067-1	1-794067-0
350714-3	350714-5	640504-4	2-640504-4	770262-2	770262-3	794067-2	1-794067-1
350732-2	350732-4	640505-2	2-640505-2	770328-1	1586627-1	794068-1	1-794068-0
350737-2	350737-4	640505-4	2-640505-4	1-770328-1	1-1586627-1	794068-2	1-794068-1
350738-2	350738-4	640506-2	2-640506-2	770621-1	1-770621-0	794069-1	1-794069-0
350742-2	350742-4	640506-4	2-640506-4	770621-2	1-770621-1	794069-2	1-794069-1
350759-3	350759-5	640583-2	640583-3	770743-1	1-770743-0	794070-1	1-794070-0
350760-3	350760-5	640584-2	640584-3	770743-2	1-770743-1	794070-2	1-794070-1
350761-3	350761-5	640900-2	640900-3	770834-3	1-770834-0	794071-1	1-794071-0
350762-3	350762-5	640901-2	640901-3	770834-6	1-770834-1	794071-2	1-794071-1
350763-3	350763-5	641831-2	641831-3	770835-3	1-770835-0	794072-1	1-794072-0
350764-3	350764-5	641832-2	641832-3	770858-1	1-770858-0	794072-2	1-794072-1
350765-3	350765-5	641963-2	641963-3	770858-2	1-770858-1	794073-1	1-794073-0
350786-2	350786-3	641964-2	641964-3	770859-1	1-770859-0	794073-2	1-794073-1
350787-2	350787-3	641970-2	641970-3	770859-2	1-770859-1	794074-1	1-794074-0
350789-2	350789-3	641971-2	641971-3	770872-1	1-770872-0	794074-2	1-794074-1
350790-2	350790-3	641972-2	641972-3	770872-2	1-770872-1	794075-2	1-794075-1
350792-2	350792-3	641974-2	641974-3	770873-1	1-770873-0	794076-1	1-794076-0
350793-2	350793-3	641976-2	641976-4	770873-2	1-770873-1	794076-2	1-794076-1
350824-2	350824-4	643228-2	3-643228-0	770874-2	1-770874-1	794077-1	1-794077-0
350825-2	350825-4	643230-2	3-643230-0	770875-1	1-770875-0	794077-2	1-794077-1
350826-2	350826-4	643232-2	3-643232-0	770875-2	1-770875-1	794078-1	1-794078-0

Non-Compliant to RoHS Compliant Part Number Cross Reference

Non-Compliant to RoHS Compliant Part Number Cross Reference (Continued)

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794105-2	1-794105-1
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794106-2	1-794106-1
794107-1	1-794107-0
794107-2	1-794107-1
794108-1	1-794108-0
794108-2	1-794108-1
794126-1	1-794126-0
794130-2	1-794130-1
794136-3	1-794136-1
794137-3	1-794137-1
794138-3	1-794138-3
794139-3	1-794139-3
794140-3	1-794140-3
794141-3	1-794141-3
794142-3	1-794142-3
794143-3	1-794143-3
794181-1	1-794181-1
794181-2	1-794181-2
794216-3	1-794216-0
794217-3	1-794217-0
794218-3	1-794218-0
794219-3	1-794219-0
794220-3	1-794220-0
794221-3	1-794221-0
794222-3	1-794222-0
794223-3	1-794223-0
794224-3	1-794224-0
794225-3	1-794225-0
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794228-3	1-794228-0
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794310-2	1-794310-2
794311-1	1-794311-1
794311-2	1-794311-2
794312-1	1-794312-1
794312-2	1-794312-2

Non-Compliant Part Number	RoHS Compliant Part Number
794313-1	794313-3
794313-2	794313-4
794325-1	1-794325-0
794326-2	1-794326-1
794327-1	1-794327-0
794327-2	1-794327-1
794328-1	1-794328-0
794330-2	1-794330-1
794349-1	1-794349-1
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794350-1	1-794350-1
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794351-1	1-794351-1
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794358-2	1-794358-2
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794359-2	1-794359-2
794360-1	1-794360-1
794360-2	1-794360-2
794374-1	1-794374-0
794374-2	1-794374-1
794406-3	1-794406-0
794407-3	1-794407-0
794415-1	1-794415-1
794415-2	1-794415-2
794429-1	1-794429-1
794429-2	1-794429-2
794448-1	1-794448-1
794449-1	1-794449-1
794453-1	1-794453-1
794453-2	1-794453-2
794454-1	1-794454-1
794454-2	1-794454-2
794455-1	1-794455-1
794455-2	1-794455-2
794466-1	1-794466-1
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794467-1	1-794467-1
794467-2	1-794467-2
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794469-2	1-794469-2
794470-1	1-794470-1
794470-2	1-794470-2
794471-1	1-794471-1
794471-2	1-794471-2
794472-1	1-794472-1

Non-Compliant Part Number	RoHS Compliant Part Number
794472-2	1-794472-2
794484-1	1-794484-1
794484-2	1-794484-2
794485-1	1-794485-1
794485-2	1-794485-2
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794516-1	1-794516-1
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794606-2	1-794606-1
794606-3	1-794606-2
794607-2	1-794607-1
794607-3	1-794607-2
794608-1	1-794608-0
794608-2	1-794608-1
794608-3	1-794608-2
794609-1	1-794609-0
794609-2	1-794609-1
794609-3	1-794609-2

Non-Compliant Part Number	RoHS Compliant Part Number
794610-2	1-794610-1
794610-3	1-794610-2
794611-2	1-794611-1
794611-3	1-794611-2
794612-1	1-794612-0
794612-2	1-794612-1
794612-3	1-794612-2
794613-1	1-794613-0
794613-2	1-794613-1
794613-3	1-794613-2
794618-2	3-794618-2
794618-4	3-794618-4
794618-6	3-794618-6
794618-8	3-794618-8
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1-794618-2	4-794618-2
1-794618-4	4-794618-4
1-794618-6	4-794618-6
1-794618-8	4-794618-8
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2-794618-2	5-794618-2
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794619-2	3-794619-2
794619-4	3-794619-4
794619-6	3-794619-6
794619-8	3-794619-8
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2-794619-2	5-794619-2
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794620-2	3-794620-2
794620-4	3-794620-4
794620-6	3-794620-6
794620-8	3-794620-8
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794621-2	3-794621-2
794621-4	3-794621-4
794621-6	3-794621-6
794621-8	3-794621-8
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794622-2	3-794622-2
794622-4	3-794622-4
794622-6	3-794622-6

Non-Compliant to RoHS Compliant Part Number Cross Reference

Non-Compliant to RoHS Compliant Part Number Cross Reference (Continued)

Non-Compliant to RoHS Compliant Part Number Cross Reference

Non-Compliant Part Number	RoHS Compliant Part Number
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1-794622-8	4-794622-8
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2-794622-2	5-794622-2
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794623-2	3-794623-2
794623-4	3-794623-4
794623-6	3-794623-6
794623-8	3-794623-8
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1-794623-2	4-794623-2
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794624-2	3-794624-2
794624-4	3-794624-4
794624-6	3-794624-6
794624-8	3-794624-8
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794625-4	3-794625-4
794625-6	3-794625-6
794625-8	3-794625-8
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794627-6	3-794627-6
794627-8	3-794627-8

Non-Compliant Part Number	RoHS Compliant Part Number
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794628-2	3-794628-2
794628-4	3-794628-4
794628-6	3-794628-6
794628-8	3-794628-8
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794632-2	3-794632-2
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794632-6	3-794632-6
794632-8	3-794632-8
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Non-Compliant Part Number	RoHS Compliant Part Number
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794633-2	3-794633-2
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794633-6	3-794633-6
794633-8	3-794633-8
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794634-2	3-794634-2
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794634-6	3-794634-6
794634-8	3-794634-8
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794636-6	3-794636-6
794636-8	3-794636-8
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Non-Compliant Part Number	RoHS Compliant Part Number
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794665-6	1586492-6
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1-794665-2	1-1586492-2
1-794665-4	1-1586492-4

Non-Compliant to RoHS Compliant Part Number Cross Reference (Continued)

Non-Compliant Part Number	RoHS Compliant Part Number	Non-Compliant Part Number	RoHS Compliant Part Number	Non-Compliant Part Number	RoHS Compliant Part Number	Non-Compliant Part Number	RoHS Compliant Part Number
1-794665-8	1-1586492-8	2-794677-0	5-794677-0	2-794682-2	5-794682-2	1445055-5	2-1445055-5
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794668-8	1586495-8	1-794680-0	4-794680-0	1445052-8	2-1445052-8	1445058-3	2-1445058-3
1-794668-0	1-1586495-0	1-794680-2	4-794680-2	1445052-9	2-1445052-9	1445058-4	2-1445058-4
1-794668-2	1-1586495-2	1-794680-4	4-794680-4	1-1445052-0	3-1445052-0	1445058-5	2-1445058-5
1-794668-4	1-1586495-4	1-794680-6	4-794680-6	1-1445052-1	3-1445052-1	1445058-6	2-1445058-6
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1-794677-6	4-794677-6	1-794682-8	4-794682-8	1445055-3	2-1445055-3	1445085-9	2-1445085-9
1-794677-8	4-794677-8	2-794682-0	5-794682-0	1445055-4	2-1445055-4	1-1445085-0	3-1445085-0

Non-Compliant to RoHS Compliant Part Number Cross Reference

Non-Compliant to RoHS Compliant Part Number Cross Reference (Continued)

Non-Compliant to RoHS Compliant Part Number Cross Reference

Non-Compliant Part Number	RoHS Compliant Part Number	Non-Compliant Part Number	RoHS Compliant Part Number	Non-Compliant Part Number	RoHS Compliant Part Number	Non-Compliant Part Number	RoHS Compliant Part Number
1-1445085-1	3-1445085-1	1-1445089-2	3-1445089-2	1445094-2	2-1445094-2	1445098-3	2-1445098-3
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1445086-9	2-1445086-9	1-1445090-0	3-1445090-0	1-1445094-1	3-1445094-1	1-1445098-2	3-1445098-2
1-1445086-0	3-1445086-0	1-1445090-1	3-1445090-1	1-1445094-2	3-1445094-2	1445099-2	2-1445099-2
1-1445086-1	3-1445086-1	1-1445090-2	3-1445090-2	1445095-2	2-1445095-2	1445099-3	2-1445099-3
1-1445086-2	3-1445086-2	1445091-2	2-1445091-2	1445095-3	2-1445095-3	1445099-4	2-1445099-4
1445087-2	2-1445087-2	1445091-3	2-1445091-3	1445095-4	2-1445095-4	1445099-5	2-1445099-5
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1445087-9	2-1445087-9	1-1445091-0	3-1445091-0	1-1445095-1	3-1445095-1	1-1445099-2	3-1445099-2
1-1445087-0	3-1445087-0	1-1445091-1	3-1445091-1	1-1445095-2	3-1445095-2	1445100-2	2-1445100-2
1-1445087-1	3-1445087-1	1-1445091-2	3-1445091-2	1445096-2	2-1445096-2	1445100-3	2-1445100-3
1-1445087-2	3-1445087-2	1445092-2	2-1445092-2	1445096-3	2-1445096-3	1445100-4	2-1445100-4
1445088-2	2-1445088-2	1445092-3	2-1445092-3	1445096-4	2-1445096-4	1445100-5	2-1445100-5
1445088-3	2-1445088-3	1445092-4	2-1445092-4	1445096-5	2-1445096-5	1445100-6	2-1445100-6
1445088-4	2-1445088-4	1445092-5	2-1445092-5	1445096-6	2-1445096-6	1445100-7	2-1445100-7
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1445088-6	2-1445088-6	1445092-7	2-1445092-7	1445096-8	2-1445096-8	1445100-9	2-1445100-9
1445088-7	2-1445088-7	1445092-8	2-1445092-8	1445096-9	2-1445096-9	1-1445100-0	3-1445100-0
1445088-8	2-1445088-8	1445092-9	2-1445092-9	1-1445096-0	3-1445096-0	1-1445100-1	3-1445100-1
1445088-9	2-1445088-9	1-1445092-0	3-1445092-0	1-1445096-1	3-1445096-1	1-1445100-2	3-1445100-2
1-1445088-0	3-1445088-0	1-1445092-1	3-1445092-1	1-1445096-2	3-1445096-2	1445101-2	2-1445101-2
1-1445088-1	3-1445088-1	1-1445092-2	3-1445092-2	1445097-2	2-1445097-2	1445101-3	2-1445101-3
1-1445088-2	3-1445088-2	1445093-2	2-1445093-2	1445097-3	2-1445097-3	1445101-4	2-1445101-4
1445089-2	2-1445089-2	1445093-3	2-1445093-3	1445097-4	2-1445097-4	1445101-5	2-1445101-5
1445089-3	2-1445089-3	1445093-4	2-1445093-4	1445097-5	2-1445097-5	1445101-6	2-1445101-6
1445089-4	2-1445089-4	1445093-5	2-1445093-5	1445097-6	2-1445097-6	1445101-7	2-1445101-7
1445089-5	2-1445089-5	1445093-6	2-1445093-6	1445097-7	2-1445097-7	1445101-8	2-1445101-8
1445089-6	2-1445089-6	1445093-7	2-1445093-7	1445097-8	2-1445097-8	1445101-9	2-1445101-9
1445089-7	2-1445089-7	1445093-8	2-1445093-8	1445097-9	2-1445097-9	1-1445101-0	3-1445101-0
1445089-8	2-1445089-8	1445093-9	2-1445093-9	1-1445097-0	3-1445097-0	1-1445101-1	3-1445101-1
1445089-9	2-1445089-9	1-1445093-0	3-1445093-0	1-1445097-1	3-1445097-1	1-1445101-2	3-1445101-2
1-1445089-0	3-1445089-0	1-1445093-1	3-1445093-1	1-1445097-2	3-1445097-2		
1-1445089-1	3-1445089-1	1-1445093-2	3-1445093-2	1445098-2	2-1445098-2		

Part Number Index

Note: This index lists all cataloged parts by base no. only. Complete part nos. (with prefixes and/or suffixes) are shown on the page(s) indicated.

Part No.	Page
60617	155
60618	155
60619	155
60620	155
60842	155
60843	155
61085	203, 213
61086	203, 213
61116	155, 214
61117	155, 214
61118	155, 214
61173	155
61174	155
61233	203, 213
61234	203, 213
61250	213
61251	213
61252	213
61253	213
61314	155, 212
61320	156
61518	156
61527	156, 212
61626	166, 212
61627	166, 212
106527	126
106528	126, 212
106529	126, 212
171636	213
171637	213
171638	86
171639	86
172156	85, 87
172157	85, 87
172158	85, 87
172159	85, 87
172160	85, 87
172161	85, 88
172162	85, 88
172163	85, 88
172164	85, 87, 92
172165	85, 87, 90, 92, 103, 105
172166	85, 87, 90, 92, 103, 105
172167	85, 87, 90-92, 103-105
172168	85, 87, 90-92, 103-105
172169	85, 88, 90-92, 103-105
172170	85, 88, 90-92, 103-105
172171	85, 88, 90-92, 103-105
172233	85, 87
172234	85, 87
172327	85, 87
172328	85, 87
172329	85, 87
172330	85, 87
172331	85, 87
172332	85, 88
172333	85, 88

Part No.	Page
172334	85, 88
172335	85, 87
172336	85, 87
172337	85, 87
172338	85, 87
172339	85, 87
172340	85, 88
172341	85, 88
172342	85, 88
172343	85, 87
172344	85, 87
172807	85, 89
172808	85, 89
172809	85, 89
172971	86
173924	184, 199
173925	184, 199
173926	184, 199
173956	85
173957	85, 89
173958	85
174552	154, 164
174670	86
177898	60, 62, 71
177899	60, 62, 71
177900	60, 63, 71
177901	60, 63, 71
177902	60, 63, 71
177903	60, 64, 71
177904	60, 64, 71
177905	60, 64, 71
177906	60, 67, 71
177907	60, 67, 71
177908	60, 68, 71
177909	60, 68, 71
177911	60, 69, 71
177912	60, 69, 71
177913	60, 70-71
177914	61, 211
177915	61, 211
177916	61, 211
177917	61, 211
177918	60, 71
177919	60, 71
177920	60, 71
177921	60, 71
179463	60, 65, 71
179464	60, 65, 71
179465	60, 66, 71
179466	60, 66, 71
179467	60, 66, 71
179592	61
179593	61
179594	61
179595	61
179838	61, 72
179839	61, 72
179840	61, 73
179841	61, 73
179843	61, 74
179844	61, 74
179846	61, 79

Part No.	Page
179847	61, 79
179848	61, 80
179849	61, 80
179861	61, 75, 77
179862	61, 76-77
179938	61, 75, 77
179939	61, 75, 77
179944	61
179945	61
193796	201
193797	201
193839	201
193841	201
193842	201
194002	202
194009	202
194010	202
194012	202
194013	202
194014	202
194017	202
194018	202
200821	156
306088	14
316061	60, 78
316062	60, 78
316063	60, 78
316086	10, 12, 14
316087	10, 12, 14
316088	10, 12, 14
316089	10, 12, 14
316090	10, 12, 14
316091	10, 12, 14
316092	10, 12, 14
316094	10, 12, 14
316221	16
316222	16
316223	16
316224	16
316225	16
316226	16
316227	16
316299	72
316398	12
316399	12
316400	12
316401	12
316454	94
316455	94
316501	60, 62, 71
316502	60, 67, 71
316768	60, 62, 71
316769	60, 65, 71
316770	60, 71
350020	116
350021	116
350022	116
350073	156
350074	156
350078	155, 212
350079	155, 212
350200	166, 212

Part No.	Page
350201	166, 212
350209	153, 161
350210	153, 161
350211	154, 161, 163
350212	153, 161
350213	153, 161
350214	153, 161
350218	172, 181, 213
350219	153, 161
350220	153, 161
350344	167
350345	167
350346	167
350347	167
350373	116
350374	116
350375	116
350376	116
350377	116
350378	116
350379	116
350380	116
350388	166
350389	166
350390	166
350391	166
350415	145, 212
350416	145, 212
350417	145, 212
350418	145, 212
350422	153, 161
350423	153, 161
350424	154, 161, 163
350425	153, 161
350426	153, 161
350427	153, 161
350428	171, 182
350429	171, 182
350430	171, 182
350431	171, 182
350432	171, 182
350433	171, 182
350434	171, 182
350444	155
350522	116
350523	116
350524	116
350536	172, 181, 213
350537	172, 213
350538	172, 213
350539	153, 158, 161
350540	153, 158, 161
350541	153, 158, 161
350542	153, 161
350543	154, 158, 161
350544	154, 158, 161
350547	172, 181
350550	172, 181
350551	172
350552	172
350557	155, 212
350558	155, 212

Part Number Index (Continued)

Part No.	Page
350561	172, 212
350570	172, 212
350576	153, 162
350577	153, 162
350578	153, 162
350579	153, 162
350582	171, 182
350583	171, 182
350584	171, 182
350585	171, 182
350586	171, 182
350587	171, 182
350588	171, 182
350589	175
350590	173
350591	112
350628	55, 211
350629	55, 211
350638	155
350639	155
350641	153, 162
350642	153, 162
350643	153, 162
350644	153, 162
350654	173, 181, 213
350669	173, 181
350687	173, 181, 213
350689	172
350690	172
350699	173, 213
350700	173, 213
350705	173, 181
350706	173
350707	173
350711	171, 182, 191, 197
350712	171, 182, 191, 197
350713	171, 182, 191, 197
350714	171, 182, 191, 197
350715	171, 174, 182-183, 197-198
350720	171, 174, 182-183, 197-198
350732	171, 182, 191, 197
350735	171, 174, 182-183, 197-198
350736	171, 174, 182-183, 197-198
350737	171, 182, 191, 197
350738	171, 182, 191, 197
350742	171, 182, 191, 197
350759	171, 183
350760	171, 183
350761	171, 183
350762	171, 183
350763	171, 183
350764	171, 183
350765	171, 183
350766	171, 174, 182-185, 197-200
350767	171, 174
350777	171, 174, 182-185, 197-200
350778	171, 174

Part No.	Page
350779	171, 174, 182-185, 197-200
350780	171, 174
350781	171, 174
350782	171, 174
350783	171, 174
350784	171, 174
350786	171, 182, 191, 197
350787	171, 182, 191, 197
350789	171, 182, 191, 197
350790	171, 182, 191, 197
350792	171, 182, 191, 197
350793	171, 182, 191, 197
350809	171, 174, 182-183, 185, 197-198
350810	171, 174, 193
350811	173
350812	173
350824	171, 183, 191, 198
350825	171, 183, 191, 198
350826	171, 183, 191, 198
350827	171, 183, 191, 198
350828	171, 183, 191, 198
350829	171, 183, 191, 198
350830	171, 183, 191, 198
350831	171, 183, 191, 198
350832	171, 183, 191, 198
350833	171, 183, 191, 198
350834	171, 183, 191, 198
350835	171, 183, 191, 198
350836	171, 183, 191, 198
350837	171, 183, 191, 198
350838	112
350848	185
350849	185
350851	172, 212
350865	171, 174
350866	171, 174
350867	171, 174
350871	173
350873	172, 213
350874	172, 213
350877	173
350918	172
350919	172
350922	172, 213
350923	172, 213
350924	172, 212
350925	172, 212
350942	171, 183, 191, 200
350943	171, 183, 191, 200
350944	171, 183, 191, 200
350945	171, 183, 191, 200
350948	171, 185
350949	171, 185
350967	106, 205
350968	106, 205
350969	106, 205
350986	171, 183
350987	171, 183
350988	171, 183
350989	171, 183

Part No.	Page
350990	171, 183
350991	171, 183
350992	171, 183
353891	60, 78
380935	116
380936	116
380937	116
380991	153, 161
380999	153, 161
480270	153, 158, 160-161
480271	153, 160
480273	153, 159
480274	153, 159
480275	153, 159
480276	153, 159, 162
480277	153, 159, 162
480278	153, 159, 162
480283	153, 158, 160-161
480284	153, 160
480285	153, 158, 160-161
480286	153, 160
480287	153, 160-161
480288	153, 160
480303	153, 157, 161, 163
480304	153, 159
480305	153, 157, 159
480318	153, 157, 161, 163
480319	153, 157
480323	153, 159
480324	153, 159, 162
480339	153, 158
480340	153, 158
480345	153, 158
480349	153, 157
480350	153, 157
480351	153, 157
480387	153, 157
480388	153, 157
480393	153, 157
480400	153, 157
480401	153, 157
480424	154, 157, 165, 163-164
480425	154, 159
480426	154, 157, 165, 162-163
480438	153, 160-161
480439	153, 160
480498	153, 157
480510	166
480512	166
480585	166
480586	166
480594	116
480634	116
480672	167
480673	167
480698	171, 174, 182-184
480699	171, 174
480700	171, 174, 182-184
480701	171, 174
480702	171, 174, 182-185
480703	171, 174
480704	171, 174, 182-183

Part No.	Page
480705	171, 174
480706	171, 174, 182-183
480707	171, 174
480708	171, 174, 182-183
480709	171, 174
480710	171, 174, 182-183
480711	171, 174
480720	153, 158, 161
480721	153, 158, 161
480722	158, 161
480763	171, 174, 182-183, 185
480764	171, 174
480772	154
640309	172
640310	172
640347	172
640391	55, 211
640392	55, 211
640415	173
640466	171, 182
640467	171, 183
640497	105, 112
640498	105, 112
640499	105, 112
640500	105, 112
640501	105, 112
640502	105, 112
640503	105, 112
640504	105, 112
640505	105, 112
640506	105, 112
640507	105, 107
640508	105, 107
640509	105, 107
640510	105, 107
640511	105, 108
640512	105, 108
640513	105, 108
640514	105, 108
640515	105, 108
640516	105, 108
640517	105, 107, 112
640518	105, 107, 112
640519	105, 107, 112
640520	105, 107, 112
640521	105, 108, 112
640522	105, 108, 112
640523	105, 108, 112
640524	105, 108, 112
640525	105, 108, 112
640526	105, 108, 112
640545	112
640579	112
640580	112
640581	171, 174, 182-183, 185
640582	171, 174, 182, 185
640583	171, 185
640584	171, 185
640585	171, 174, 182, 185
640586	171, 174, 182, 185
640587	171, 185
640713	180, 196

Part Number Index (Continued)

Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page
640714	180, 196	643415	171, 183	770050	195	770194	192, 213
640715	180, 196	643416	171, 183, 191, 198	770051	195	770210	173, 213
640716	180, 196	643423	171, 183	770052	195	770232	163
640717	180, 196	643424	171, 183, 191, 198	770053	195	770233	163
640718	180, 196	643425	171, 183	770054	195	770234	173, 213
640719	176	643426	171, 183, 191, 198	770055	195	770246	192
640720	176	643428	171, 183, 191, 198	770056	195	770247	192
640721	176	643429	171, 183	770057	195	770248	192
640722	176	643430	171, 183, 191, 198	770058	195	770249	192
640723	176	643488	153, 163	770063	146	770250	192
640724	176	643585	176	770064	146	770251	192
640900	171, 182, 191, 197	643749	182	770065	146	770252	192
640901	171, 183, 191, 198	770003	192, 213	770066	146	770253	192
641083	171	770004	192, 213	770068	146	770254	192
641294	106, 205	770005	192, 213	770069	146	770255	192
641300	112	770006	192, 213	770070	146	770262	171, 183
641737	154, 163	770007	192, 213	770071	146	770264	146
641763	176	770008	192, 213	770073	146	770266	146
641775	176	770009	192, 213	770074	146	770269	148
641776	180, 196	770010	192, 213	770075	146	770272	182
641777	176	770011	192, 213	770076	146	770274	56
641778	176	770012	192, 213	770077	146	770275	56
641825	171, 182	770016	194-195, 185, 191, 193, 195, 197-198	770078	146	770276	148
641828	171, 182	770017	194-195, 191, 193, 195, 197-201	770083	146	770277	56
641831	171, 182	770018	194-195, 191, 193, 195, 197-201	770084	146	770278	56
641832	171, 182	770019	194-195, 191, 193, 195, 197-1201	770085	146	770319	195
641945	180, 196	770020	194-195, 191, 194-195, 197-198, 201	770086	146	770320	195
641963	171, 182	770021	194-195, 191, 194-195, 197-198, 201	770087	146	770326	56
641964	171, 182, 191, 197	770022	194-195, 191, 194-195, 197-198, 201	770088	146	770329	148
641965	171, 182	770023	194-195, 191, 194-195, 197-198, 201	770089	146	770330	148
641966	171, 182, 191, 197	770024	191, 193, 195, 201	770090	146	770331	56
641967	171, 182	770025	191, 193, 195, 201	770091	146	770332	56
641968	171, 182, 191, 197	770026	191, 193, 195, 201	770092	146	770333	56
641969	171, 182	770027	191, 194-195, 201	770093	146	770334	56
641970	171, 182, 191, 197	770028	191, 194-195, 201	770094	146	770335	56
641971	171, 182	770029	191, 194-195, 201	770095	146	770336	148
641972	171, 182, 191, 197	770030	191, 194-195, 201	770096	146	770337	148
641973	171, 182	770031	195	770097	146	770338	148
641974	171, 182, 191, 197	770032	195	770098	146	770339	148
641975	171, 182	770033	195	770099	146	770340	56
641976	171, 182, 191, 197	770034	195	770100	146	770341	56
643030	180, 196	770035	195	770101	146	770342	56
643182	176	770036	195	770102	146	770343	56
643226	171, 183, 191, 200	770037	195	770103	146	770351	182
643228	171, 183, 191, 200	770038	195	770105	146	770353	56
643230	171, 183, 191, 200	770039	195	770106	146	770354	56
643232	171, 183, 191, 200	770040	195	770107	146	770355	56
643234	171, 185	770041	195	770108	146	770356	56
643235	185	770042	195	770143	171, 182	770360	148
643236	171, 185	770043	195	770144	145	770361	148
643237	185	770044	195	770145	145	770364	145, 149
643313	176	770045	195	770146	145	770365	145, 149
643314	176	770046	195	770147	145	770372	148
643405	171, 182	770047	195	770156	154, 163	770373	148
643406	171, 182, 191, 197	770048	195	770166	85, 90, 103, 107	770377	180, 196
643407	171, 182	770049	195	770170	85, 90, 103, 107	770383	145, 212
643408	171, 182			770174	85, 90, 103, 107	770385	145, 212
643410	171, 182			770178	85, 90, 103, 107	770416	192
643411	171, 183			770182	85, 90, 103, 107	770419	56
643412	171, 183, 191, 198			770186	85, 90, 103, 107	770421	171, 174
643413	171, 183			770190	85, 90, 103, 107	770424	149
643414	171, 183, 191, 198			770193	192, 213	770425	149

Part Number Index

Part Number Index (Continued)

Part No.	Page
770426	56
770427	56
770428	56
770429	56
770433	56
770441	56
770442	56
770443	56
770450	145, 149
770451	145, 149
770452	145, 149
770453	145, 149
770512	192
770526	154
770529	145, 212
770530	145, 212
770579	85, 88, 90-93, 103-106
770580	85, 88, 90-93, 103-106
770581	85, 88, 90, 92, 103, 105
770582	85, 88, 90, 92, 103, 105
770583	85, 88, 90, 92, 103, 105
770584	85, 88, 90, 92, 103, 105
770585	85, 88, 90, 92, 103, 105
770586	85, 88, 90, 92, 103, 105
770587	85, 88, 90, 92, 103, 105
770621	85, 90, 103, 107
770672	172
770673	172
770743	85, 90, 103, 107
770771	148
770782	146
770783	149
770784	149
770785	149
770810	149
770827	154, 157, 163
770829	154, 162-163
770834	85, 211
770835	85, 211
770842	146
770843	146
770846	154, 163
770858	85, 90, 103, 107
770859	85, 90, 103, 107
770872	85, 90, 103, 107
770872	97
770873	85, 90, 103, 107
770874	85, 90, 103, 107
770875	85, 90, 103, 107
770876	85, 90, 103, 107
770892	146
770901	86, 96, 211
770902	86, 96, 211
770903	86, 96, 211
770904	86, 96, 211
770966	85, 91, 105, 107
770967	85, 91, 105, 107
770968	85, 91, 105, 107
770969	85, 91, 105, 107
770970	85, 91, 105, 107
770971	85, 91, 105, 107
770972	85, 91, 105, 107

Part No.	Page
770973	85, 91, 105, 107
770974	85, 91, 105, 107
770983	53, 55
770985	85, 96
770986	85, 96
770987	85, 96
770988	85, 96
770994	185
770997	154, 162
794000	106, 205
794001	112
794012	153, 158
794015	146
794016	55
794017	55
794018	55
794019	55
794036	154, 163
794040	85, 90, 103, 107
794046	55, 211
794058	86
794059	86
794061	167
794065	85, 90, 103, 107
794066	85, 90, 103, 107
794067	85, 90, 103, 107
794068	85, 90, 103, 107
794069	85, 90, 103, 107
794070	85, 90, 103, 107
794071	85, 90, 103, 107
794072	85, 90, 103, 107
794073	85, 90, 103, 107
794074	85, 90, 103, 107
794075	85, 90, 103, 107
794076	85, 90, 103, 107
794077	85, 90, 103, 107
794078	85, 90, 103, 107
794079	85, 90, 103, 107
794096	171, 174
794103	55, 211
794105	85, 91, 105, 107
794106	85, 91, 105, 107
794107	85, 91, 105, 107
794108	85, 91, 105, 107
794116	214
794117	214
794118	214
794120	153, 163
794132	154, 157
794138	126, 212
794139	126, 212
794140	126, 212
794141	126
794142	126
794143	126
794184	90, 92, 101, 103, 105, 107
794185	101, 107
794186	90, 92, 101, 103, 105, 107
794187	101, 107
794188	90-92, 99, 101-102, 107

Part No.	Page
794189	101, 107
794190	90-92, 99, 101-102, 107
794191	101, 107
794192	90-91, 100-101, 105, 107
794193	101, 107
794194	90-91, 100-102, 107
794195	101, 107
794196	90-91, 100-105, 107
794197	101, 107
794198	90, 92, 100-101, 105, 107
794199	101, 107
794200	90-91, 100-102, 107
794201	101, 107
794202	90, 92, 100-101, 105, 107
794203	101, 107
794204	90-91, 100-102, 107
794205	101, 107
794206	90, 92, 100-101, 105, 107
794207	101, 107
794208	90, 92, 100-101, 105, 107
794209	101, 107
794210	90, 92, 100-101, 105, 107
794211	101, 107
794212	90, 92, 100-101, 105, 107
794213	101, 107
794214	90, 92, 100-101, 105, 107
794215	101, 107
794216	100, 211
794217	100, 211
794218	100, 211
794219	100, 211
794220	100, 211
794221	100, 211
794222	100, 211
794223	100, 211
794224	100
794225	100
794226	100
794227	100
794228	100
794229	100
794230	100
794231	100
794236	154, 161
794237	101, 107
794238	101, 107
794239	101, 107
794240	101, 107
794241	101, 107
794242	101, 107
794243	101, 107
794244	101, 107
794245	101, 107
794246	101, 107
794247	101, 107
794248	101, 107
794249	101, 107

Part No.	Page
794250	101, 107
794251	101, 107
794252	101, 107
794253	101, 107
794254	101, 107
794255	101, 107
794256	101, 107
794257	101, 107
794258	101, 107
794259	101, 107
794260	101, 107
794261	101, 107
794262	101, 107
794263	101, 107
794264	101, 107
794265	101, 107
794266	101, 107
794267	101, 107
794268	101, 107
794269	179
794270	179
794271	179
794272	179
794273	179
794274	179
794275	179
794276	179
794277	179
794278	179
794279	179
794280	179
794281	179
794282	179
794285	162
794287	154, 162
794302	128
794303	128
794304	128
794305	129
794306	129
794307	130
794308	130
794309	131
794310	131
794311	132
794312	132
794313	133
794325	85, 90, 104, 107
794326	85, 90, 104, 107
794327	85, 90, 104, 107
794328	85, 90, 104, 107
794329	85, 90, 104, 107
794330	85, 90, 104, 107
794349	128
794350	128
794351	128
794352	129
794353	129
794354	130
794355	130
794356	131
794357	131

Part Number Index (Continued)

Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page
794358	132	794538	171	794707	171	917696	10, 12-13
794359	132	794540	128	794714	177	917697	10, 12-13
794360	133	794542	127	794715	177	917698	10, 12
794369	101	794543	128	794716	177	917699	10, 12
794370	94	794545	171	794727	171	917700	10, 12
794374	85, 92	794546	171	794758	96	917701	10, 12
794380	53, 55	794550	127	794760	177	917702	10, 12
794406	86	794576	121, 206	794761	177	917703	10, 12
794407	86	794577	127	794762	177	917704	10, 12
794412	214	794578	121, 206	794772	96	917705	10, 12
794413	214	794579	127	794772	97	917706	10, 12
794415	132	794588	133	794781	85, 96	917707	10, 12
794418	126, 212	794589	133	794781	97	917708	10, 12
794421	126	794590	133	794805	85, 96	917709	10, 12
794423	94	794594	127	794805	97	917722	10, 16
794429	131	794598	127	794814	171	917723	10, 16
794432	85, 90, 104, 107	794606	19-22, 211	794815	171	917724	10, 16
794448	133	794606	20	794821	85, 96	917725	10, 16
794449	133	794607	19-22, 211	794821	97	917726	10, 16
794453	130	794608	19, 22, 211	794824	96	917727	10, 16
794454	131	794609	19, 22, 211	794824	97	917728	10, 16
794455	132	794610	19-22	794851	171	917729	10, 16
794466	128	794610	20	794863	171	917730	10, 16
794467	128	794611	19-22	794894	85, 96	917731	10, 16
794468	129	794611	20	794894	97	917732	10, 16
794469	129	794612	19, 22	794895	85, 96	917733	10, 16
794470	130	794613	19, 22	794896	85, 96	917745	61, 79
794471	132	794615	19, 28	794899	171	917746	79
794472	133	794616	19, 27	794900	171	917747	80
794484	128	794617	19, 21, 24, 34-37, 43-47	794901	171	917764	12, 14, 205
794485	128			794911	191	917765	12, 14, 205
794486	129	794618	21, 44	794912	191	917780	10, 15
794487	129	794619	21, 44	794939	85, 96	917781	10, 15
794488	130	794620	21, 44	794940	85, 96	917782	10, 15
794489	130	794621	21, 46	794941	85, 96	917783	10, 15
794490	131	794622	21, 46	794942	85, 96	917784	10, 15
794491	131	794623	21, 46	794953	122	917785	10, 15
794492	132	794624	21, 45	794954	122	917786	10, 15
794493	132	794625	21, 45	794955	114, 206	917787	10, 15
794494	133	794626	21, 45	794956	114, 206	917788	10, 15
794507	133	794627	21, 47	794957	114, 206	917789	10, 15
794508	133	794628	21, 47	794958	114, 206	917790	10, 15
794509	133	794629	21, 47	794991	180	917791	10, 15
794510	133	794630	21, 34	794992	180	917845	61, 73
794511	133	794631	21, 34	794993	180	917894	15
794512	133	794632	21, 34	794994	180	917895	15
794513	133	794633	21, 36	794995	96	917896	15
794514	133	794634	21, 36	797607	20	917897	15
794515	133	794635	21, 36	917353	61, 81	917898	15
794516	133	794636	21, 37	917354	61, 76-77	917899	15
794526	133	794637	21, 37	917683	12-13, 205	917900	15
794527	133	794638	21, 37	917684	12-13, 205	926302	171, 174
794528	133	794657	126	917686	10, 12-13	926307	171, 174
794529	133	794677	21, 43	917687	10, 12-13	926308	171, 174
794530	133	794678	21, 43	917688	10, 12-13	926309	171, 174
794531	133	794679	21, 43	917689	10, 12-13	1375618	126-127
794532	133	794680	21, 35	917690	10, 12-13	1376294	136
794533	133	794681	21, 35	917691	10, 12-13	1376347	137, 212
794534	133	794682	21, 35	917692	10, 12-13	1376348	137, 212
794535	171	794683	167	917693	10, 12-13	1376382	136, 138, 140
794536	171	794699	167	917694	10, 12-13	1376383	136, 138, 140
794537	171	794700	166	917695	10, 12-13	1376384	136, 138, 140

Part Number Index (Continued)

Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page
1376385	136, 138, 140	1445087	20, 33	1586038	123	1586522	153, 161
1376386	136, 139, 141	1445088	20, 38	1586039	123	1586524	153, 161
1376387	136, 139, 141	1445089	20, 39	1586040	123	1586525	154, 161
1376388	136-138, 140	1445090	20, 40	1586041	123	1586526	153, 161
1376389	136-138, 140	1445091	20, 41	1586042	123	1586528	153, 161
1376390	136-138, 140	1445092	20, 42	1586043	123	1586529	153, 161
1376391	136-138, 140	1445093	20, 30	1586044	123	1586530	153, 161
1376392	136, 139, 141	1445094	20, 31	1586101	121	1586532	153, 161
1376393	136, 139, 141	1445095	20, 32	1586102	121	1586534	154, 161
1376394	136-139	1445096	20, 33	1586103	121	1586536	154, 161
1376395	136-139	1445097	20, 38	1586104	121	1586539	162
1376396	136-138	1445098	20, 39	1586105	121	1586544	153, 161
1376397	136-138	1445099	20, 40	1586106	121	1586546	153, 161
1376421	136, 138, 140	1445100	20, 41	1586305	167	1586585	124
1376437	140	1445101	20, 42	1586314	121	1586586	124
1376439	140	1565079	50, 211	1586315	121	1586587	124
1376440	140	1565080	50, 211	1586316	121	1586588	124
1376441	140	1565081	51	1586317	121	1586627	161
1376442	140	1565082	51	1586359	97	1604210	178
1376443	140	1565083	52	1586359	96	1604254	178
1376444	140	1565084	52	1586362	96	1604256	178
1445022	19-20, 23, 30-33, 38-42	1565085	51	1586362	97	1604941	178
1445048	19, 26	1565086	51	1586404	96	1612334	50, 211
1445049	19, 25	1565087	52	1586489	128-133	1612335	50, 211
1445050	20, 30	1565088	52	1586490	128-133	1903486	60, 78
1445051	20, 31	1586000	122	1586491	128-133	1903487	60, 78
1445052	20, 32	1586017	122	1586492	128-133	1903720	60, 66
1445053	20, 33	1586018	122	1586493	128-133	1939343	60, 73, 78
1445054	20, 38	1586019	122	1586494	128-133	1939344	60
1445055	20, 39	1586022	121	1586495	128-133	2029030	20, 29
1445056	20, 40	1586023	121	1586496	128-133	2029047	20, 29
1445057	20, 41	1586024	121	1586512	153, 161	2029056	97
1445058	20, 42	1586025	121	1586514	153, 161	2029058	97
1445084	20, 30	1586026	121	1586515	154, 161	2029102	20, 29
1445085	20, 31	1586027	121	1586518	153, 161	2029104	20, 29
1445086	20, 32	1586037	123	1586520	153, 161		

Tooling Part Number Index

Part No.	Page
58074	163, 206
58373	166, 210
58374	166, 210
58380	172, 192, 210
58382	192, 201, 206
58439	172, 192, 210
58514	210
58631	203, 210
58632	203, 210
65780	209-210
69710	166, 172, 192, 210
82276	210
90247	166
90546	210
90547	210
90548	210
90574	210
90575	210
90714	126, 210
90717	86, 100, 210
90758	210
90759	210
90760	210
90869	55, 210
90870	55, 210
90871	145, 210
90872	145, 210
91002	55, 86, 145, 172, 181, 192, 203, 206
91085	163, 206
91112	163, 206
91387	120, 210
91388	120, 210
91500	172-173, 181, 192, 210
91501	22, 209-210

Part No.	Page
91502	22, 209-210
91504	155, 210
91506	172-173, 192, 210
91508	172-173, 192, 210
91510	172-173, 192, 210
91512	155-156, 210
91515	155, 210
91522	86, 96, 100, 210
91526	112, 210
91528	155
91529	86, 96, 100, 210
91534	112, 210
91536	86
91552	210
91567	61, 210
91569	61, 210
91594	100, 210
188688	126
189727	86, 206
231894	163, 206
231920	163, 206
234603	12, 210
234604	12, 210
234605	12
234912	61
234914	61
305183	155, 206
318831	55, 206
318837	145, 206
318845	166, 206
318851	172, 181, 192, 201, 206
354500	207
356114	201
356337	201
356500	208

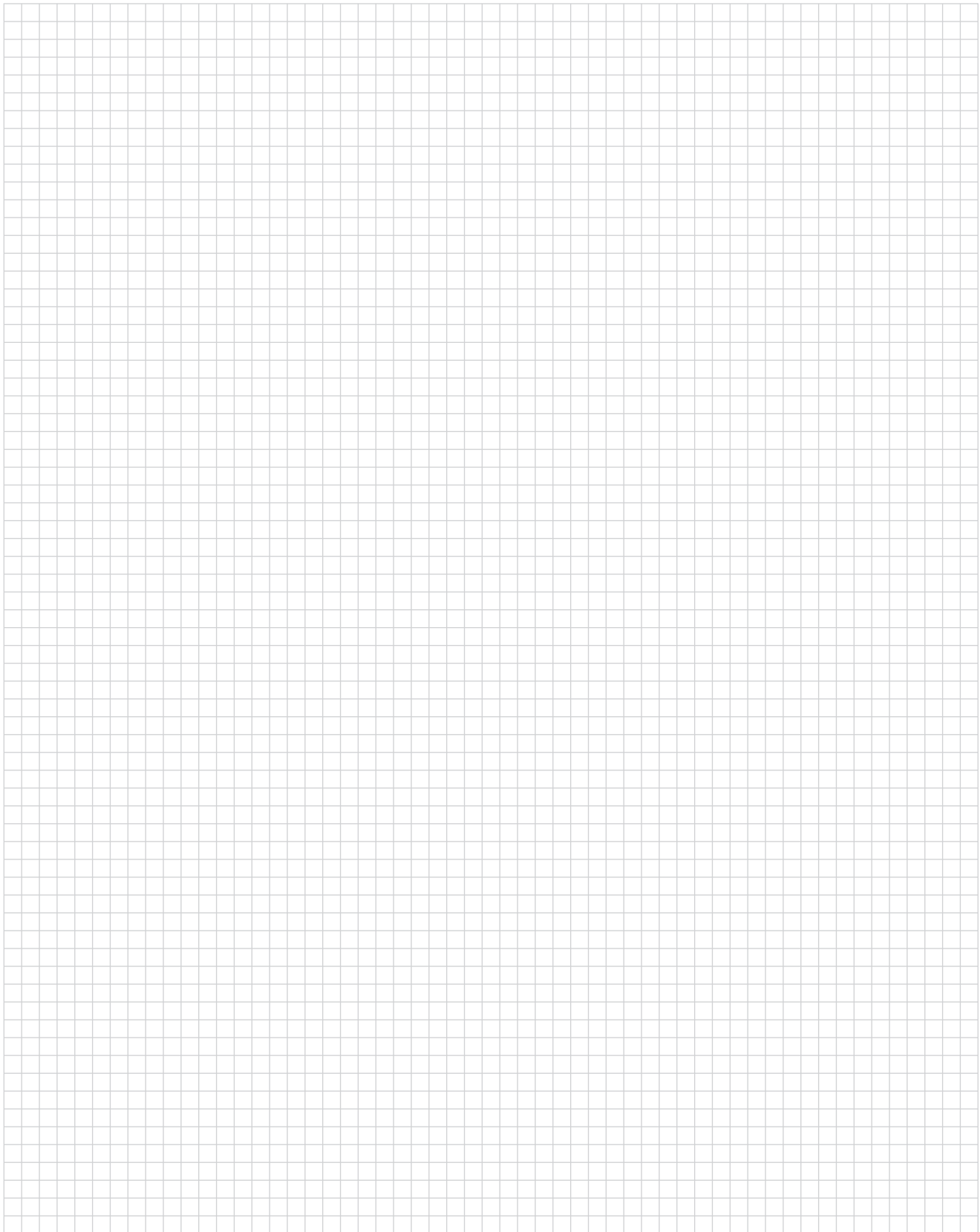
Part No.	Page
455822	112, 206
455830	112, 155, 206
457306	116
465644	155, 206
466320	155-156, 172-173, 212-213
466351	112, 211
466352	112, 211
466426	155, 212
466462	203, 213
466588	172, 213
466597	172-173, 213
466616	172, 212
466656	145, 212
466686	55, 211
466878	145, 212
466913	211
466917	212-213
466920	212-213
466922	212
466955	211
466959	212
466986	211
466989	213
466990	211
567066	86, 96, 100, 211
567067	86, 96, 211
567211	192, 213
567212	192, 213
567213	192, 213
567214	192, 213
567216	173, 213
567251	211
567252	192, 213
567273	145, 212
567306	166, 212

Part No.	Page
567309	166, 212
567337	145, 212
567418	86, 100, 211
567902	211
567913	213
567914	213
567959	126-127, 212
567960	126-127, 212
587309	212
680307	126-127, 212
680308	126-127, 212
680350	126, 212
680582	86, 100, 211
680854	100, 211
680893	22, 211
680894	22, 211
687763	155, 172-173, 181, 212-213
687765	155, 212
687898	172-173, 213
687926	55, 211
687996	203, 206
691458	181
794381	22
843996	207
854040	22, 211
1385194	22, 211
1385377	120, 212
1385448	120, 212
1385817	120
1586343	22
1586344	172, 206
1586700	50, 210
1596277	

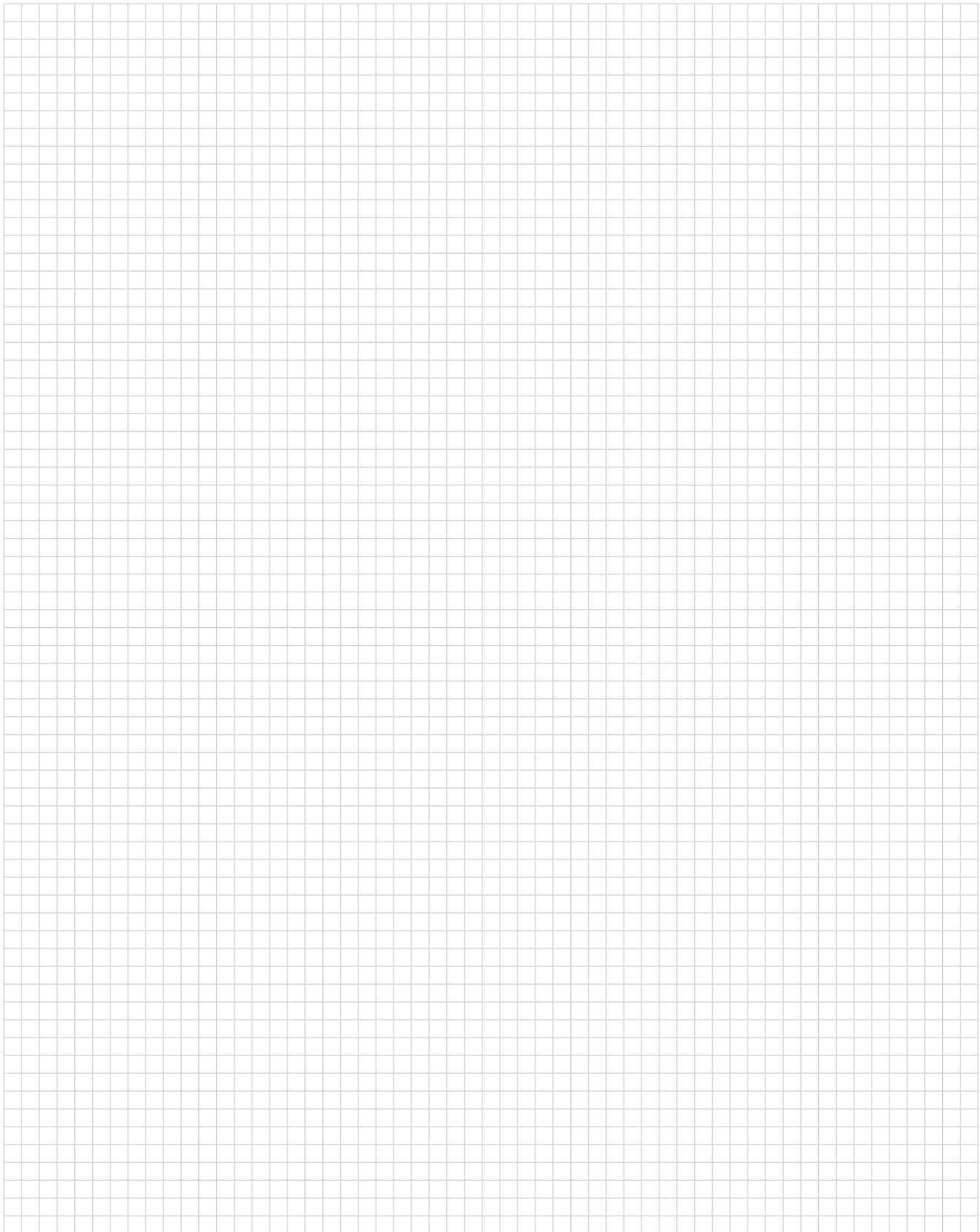
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