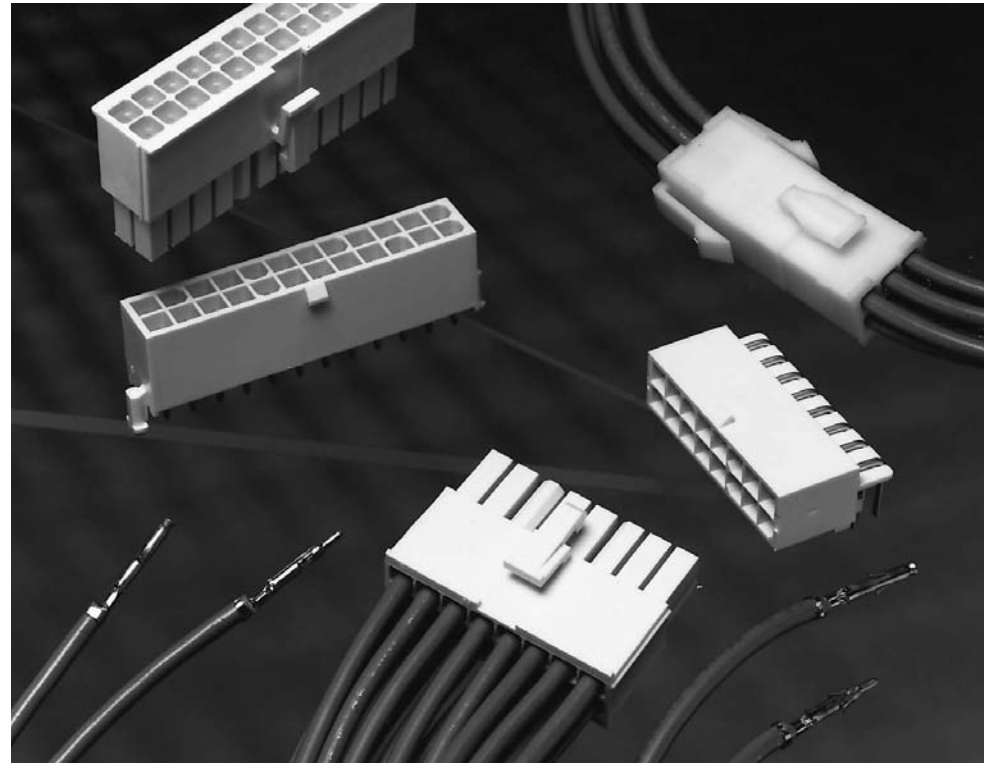


Mini-Universal MATE-N-LOK Connectors

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				
					Plating	With Drain Holes	Vertical Without Drain Holes	Blindmate	Right-Angle With Board Lock
1	UL94V-2	In-Line	172335-1	172327-14	—	—	—	—	—
	UL94V-0	In-Line	172164-1	172156-14	Tin ⁶	—	—	—	1-794374-0
					Duplex ⁵	—	—	—	1-794374-1
2	UL94V-2	In-Line	172336-1	172328-12	—	—	—	—	—
			172343-14	172343-14	—	—	—	—	—
			172807-13	172807-13	—	—	—	—	—
	UL94V-0	In-Line	173956-13	173956-13	—	—	—	—	—
			172165-1	172157-12	Tin ⁶	1-770166-0	1-770872-0	—	1-770966-0
			794894-17	172233-14	Duplex ⁵	1-770166-1	1-770872-1	—	1-770966-1
3	UL94V-2	In-Line	172808-13	794896-12,7	Tin/Duplex	1-770166-1	1-770872-1	—	1-770966-1
			172337-1	172808-13	—	—	—	—	—
			173957-13	173957-13	—	—	—	—	—
	UL94V-0	In-Line	172166-1	172158-12	Tin	1-770170-0	1-770873-0	—	1-770967-0
			172809-13	172234-14	Duplex ⁵	1-770170-1	1-770873-1	—	1-770967-1
			172338-1	172330-12	—	—	—	—	—
4	UL94V-2	Dual Row	173958-13	173958-13	—	—	—	—	—
			172167-1	172159-12	Tin	1-770174-0	1-770874-0	1-794325-0	1-770968-0
			794805-17	794939-12,7	Duplex ⁵	1-770174-1	1-770874-1	1-794325-1	1-770968-1
	UL94V-0	Dual Row	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	770579-1	—	Duplex ⁵	1-770178-1	1-770875-1	1-794326-1	1-770969-1
			794821-17	794941-12,7	Tin/Duplex	1-770178-1	1-770875-1	—	1-770969-1
			172340-1	172332-12	Tin	1-794065-0	1-794073-0	1-794327-0	1-770970-0
	UL94V-2	Matrix	172169-1	172161-12	Duplex ⁵	1-794065-1	1-794073-1	1-794327-1	1-770970-1
			770580-1	—	Tin/Duplex	1-794065-1	1-794073-1	—	1-770970-1
			794781-17	794942-12,7	—	—	—	—	—
8	UL94V-0	Dual Row	172341-1	172333-12	Tin	1-770182-0	1-770876-0	1-794432-0	—
			172170-1	172162-12	Duplex ⁵	1-770182-1	1-770876-1	1-794432-1	—
			770581-1	—	Tin	1-770743-0	1-770858-0	1-794328-0	1-770971-0
	UL94V-2	Matrix	770582-1	—	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
			172342-1	172334-12	—	—	—	—	—
10	UL94V-0	Dual Row	172171-1	172163-12	Tin	1-770186-0	1-794040-0	1-794329-0	—
			770583-1	—	Duplex ⁵	1-770186-1	1-794040-1	1-794329-1	—
			794781-17	794942-12,7	Tin	1-794066-0	1-770621-0	—	1-770972-0
	UL94V-2	Matrix	770584-1	—	Duplex ⁵	1-794066-1	1-770621-1	—	1-770972-1
			770585-1	—	Tin	1-794067-0	1-794074-0	—	1-770973-0
			770586-1	—	Duplex ⁵	1-794067-1	1-794074-1	—	1-770973-1
12	UL94V-0	Dual Row	172342-1	172334-12	—	—	—	—	—
			770587-1	—	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	—
	UL94V-2	Matrix	172171-1	172163-12	Tin	1-794068-0	1-794075-0	—	1-770974-0
			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
14	UL94V-0	Dual Row	770582-1	—	Duplex ⁵	1-794069-1	1-794076-1	—	1-794105-1
			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
	UL94V-2	Matrix	770587-1	—	Tin	1-794071-0	1-794078-0	—	1-794107-0
			794781-17	794942-12,7	Duplex ⁵	1-794071-1	1-794078-1	—	1-794107-1
			172341-1	172333-12	—	—	—	—	—
15	UL94V-0	Dual Row	172341-1	172333-12	Tin	1-794072-0	1-794079-0	—	1-794108-0
			770587-1	—	Duplex ⁵	1-794072-1	1-794079-1	—	1-794108-1
			794781-17	794942-12,7	—	—	—	—	—

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.

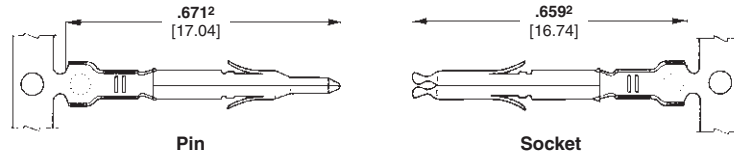
Mini-Universal MATE-N-LOK Connectors (Continued)

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	794406-1 ²	171638-1 ²	794407-1 ²	171639-1 ²	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	—	—	1-794407-1 ²	—		

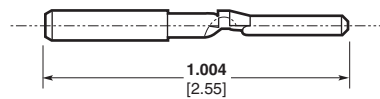
¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and .000100 [.00254] min. tin in crimping area over .000050 [.00127] min. nickel underplate on entire contact.
² .671 [17.04] and .659 [16.74] dimensions are .689 [17.50] for indicated part numbers.
³ HDM Applicator part number 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.
⁴ 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

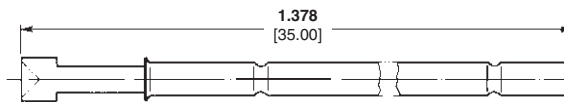


Part Number
174670-1

Test Probe Contact

Material and Finish

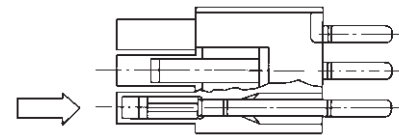
Phosphor bronze, nickel plated



Part Number
172971-1

Notes:

1. The test probe is inserted into the housing in the same direction as indicated by the arrow shown to the right.
2. The test probe can be used in the Cap or Plug Housing.
3. 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

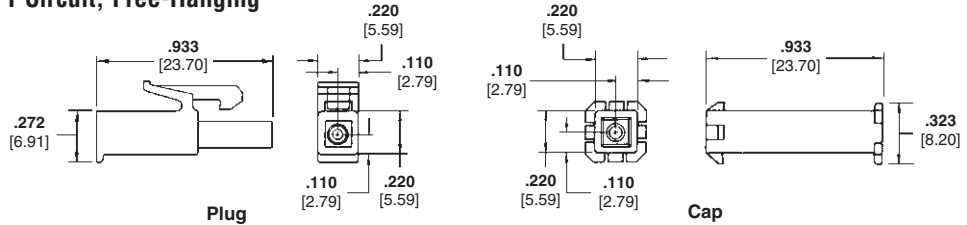
Test Probe Contact — page 86

Panel Cutout Recommendations— page 89

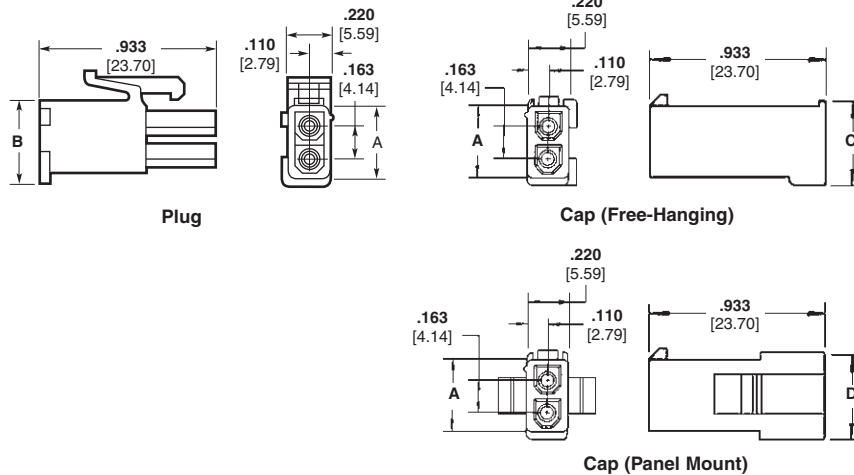
Technical Documents— pages 83 and 205-206

Mating Headers — pages 90-92

1 Circuit, Free-Hanging



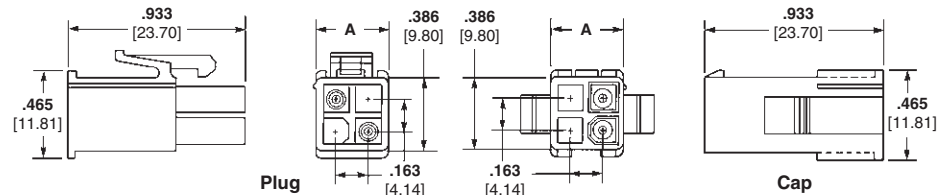
2 and 3 Circuit, In-Line



Number of Circuits	Dimensions			Housing Part Numbers ¹						
	A	B	C	UL94V-0 Nylon, White Color			UL94V-2 Nylon, Natural Color			
				Plug	Cap		Plug	Cap		
					Panel Mount	Free-Hanging	Panel Mount	Free-Hanging		
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

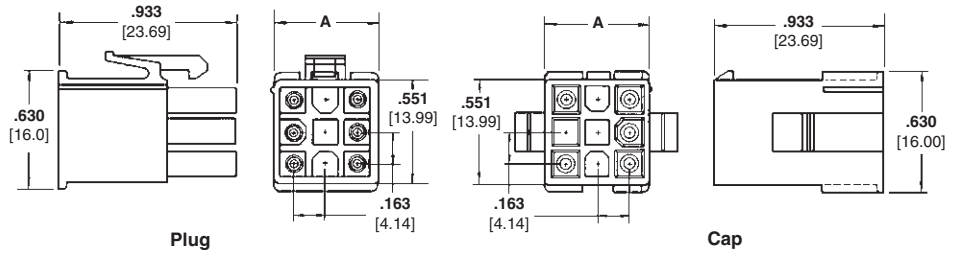
Test Probe Contact — page 86

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

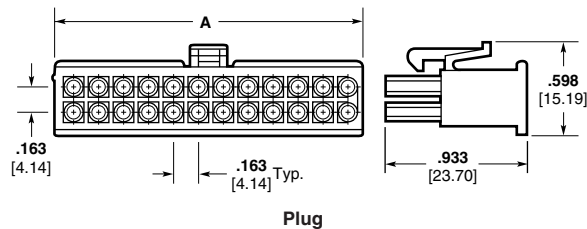


Number of Circuits	A Dim.	Housing Part Numbers ¹			
		UL94V-0 Nylon, White Color		UL94V-2 Nylon, Natural Color	
		Plug	Cap	Plug	Cap
9	.551 13.99	172169-1	172161-1	172340-1	172332-1
12	.716 18.19	172170-1	172162-1	172341-1	172333-1
15	.882 22.40	172171-1	172163-1	172342-1	172334-1

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

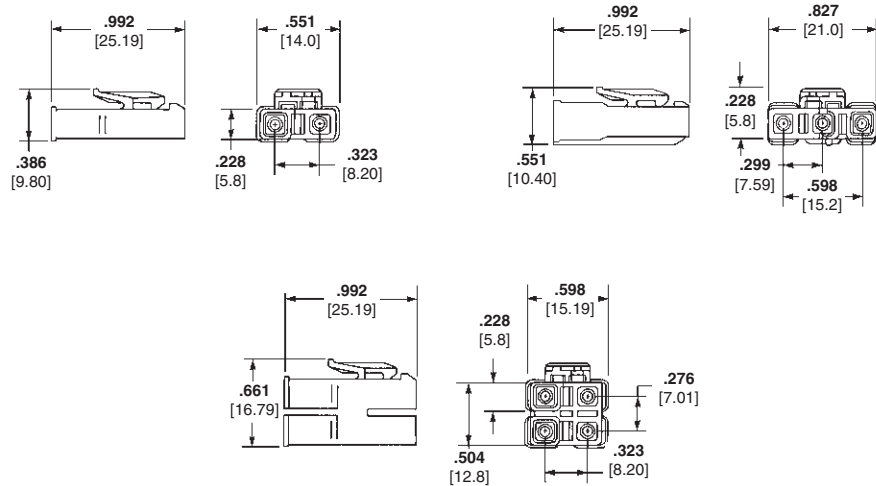
- Product Specifications**
108-1542 Mini-Universal MATE-N-LOK Connectors
108-1543 Mini-Universal MATE-N-LOK Headers
108-5151 Mini-Universal MATE-N-LOK Connectors (UL94V-2)
108-5138 Mini-Universal MATE-N-LOK Connectors (UL94V-0)

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

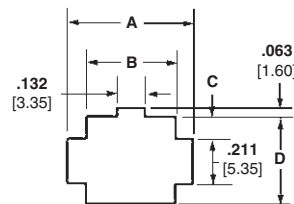
Note: Housing mates to itself; 2 required per wire-to-wire connection.

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

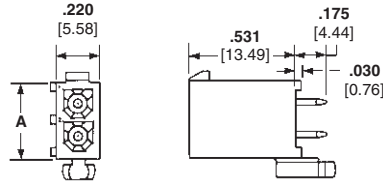
Technical Documents — pages 83 and 205-206

Mating Connectors

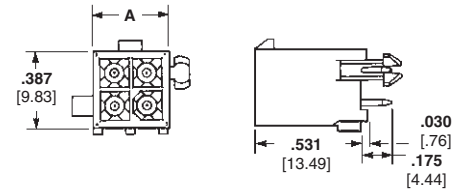
Mini-Universal MATE-N-LOK
Plug Housings — pages 87-89

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

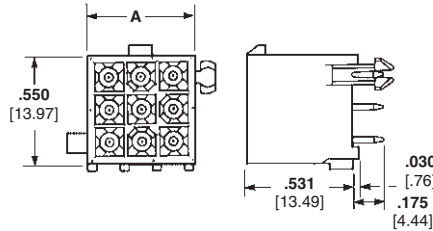
2 and 3 Circuit, In-Line



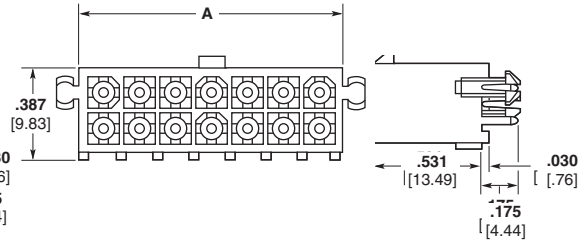
4, 6, 8, 10 and 12 Circuit, Dual Row



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	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		
12	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		

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

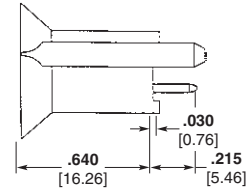
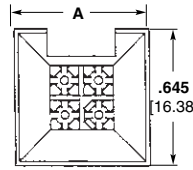
Mini-Universal MATE-N-LOK

Plug Housings — pages 87-89

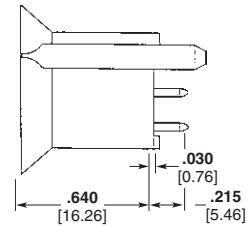
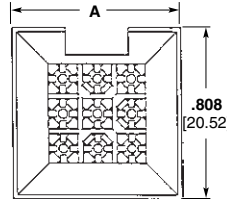
Mini-Universal MATE-N-LOK 2

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

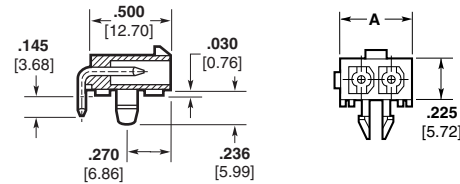
Plug Housings— pages 87-89

Mini-Universal MATE-N-LOK 2

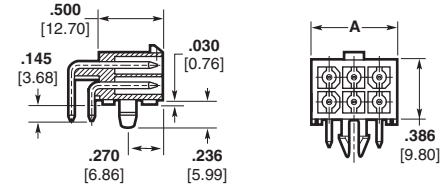
Plug Housings— pages 101-102

With Board Lock Feature

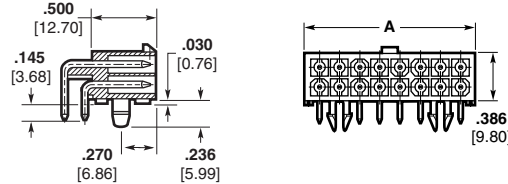
1, 2 and 3 Circuit, In-Line



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)

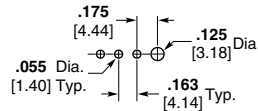
Recommended PC Board Hole Layouts for Vertical and Blindmate Headers

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

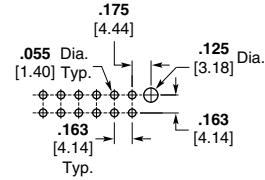
Related Product Data

Vertical Headers—pages 90-91

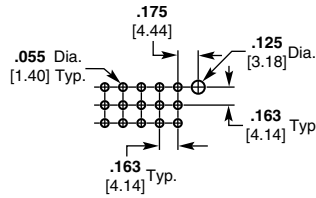
2 and 3 Circuit, In-Line



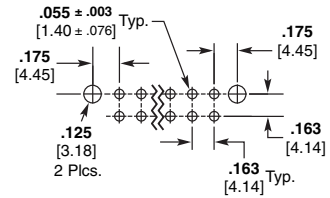
4, 6, 8, 10 and 12 Circuit, Dual Row



9, 12 and 15 Circuit, Matrix



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



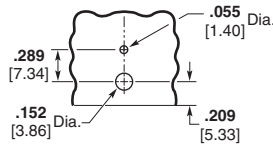
Recommended PC Board Hole Layouts for Right-Angle Headers

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

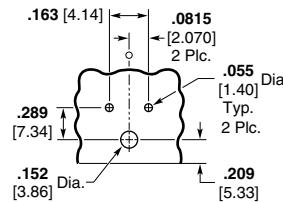
Related Product Data

Right-Angle Headers—page 92

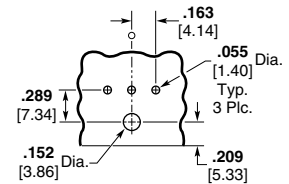
1 Circuit



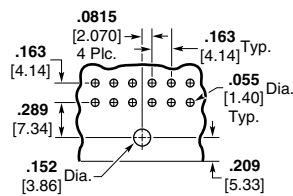
2 Circuit, In-Line



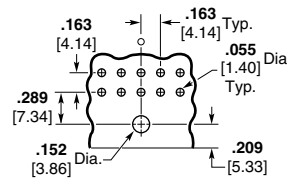
3 Circuit, In-Line



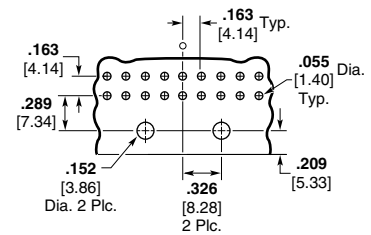
4, 8 and 12 Circuit, Dual Row



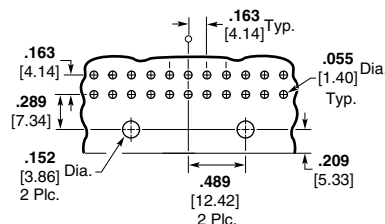
6 and 10 Circuit, Dual Row



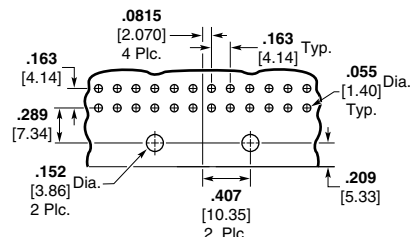
14 and 18 Circuit, Dual Row



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)

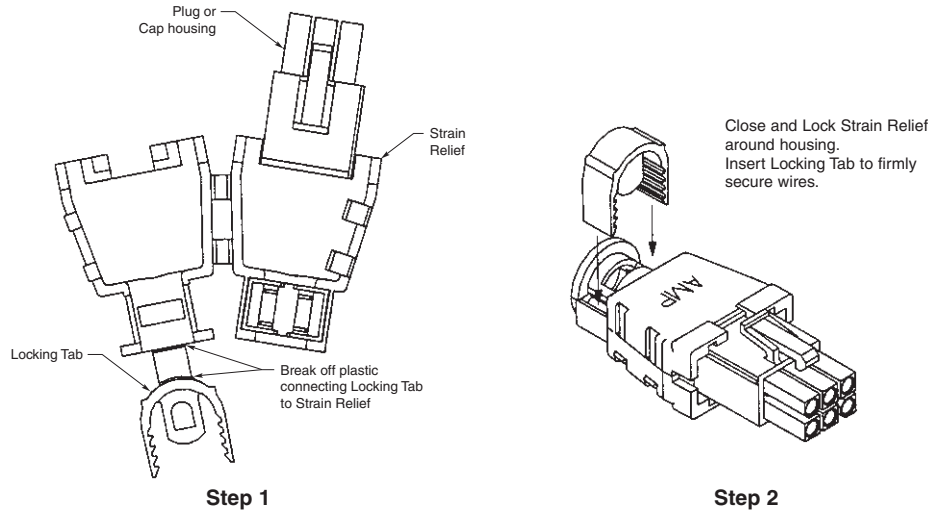
Strain Reliefs for Plug or Cap Housings

Related Product Data

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

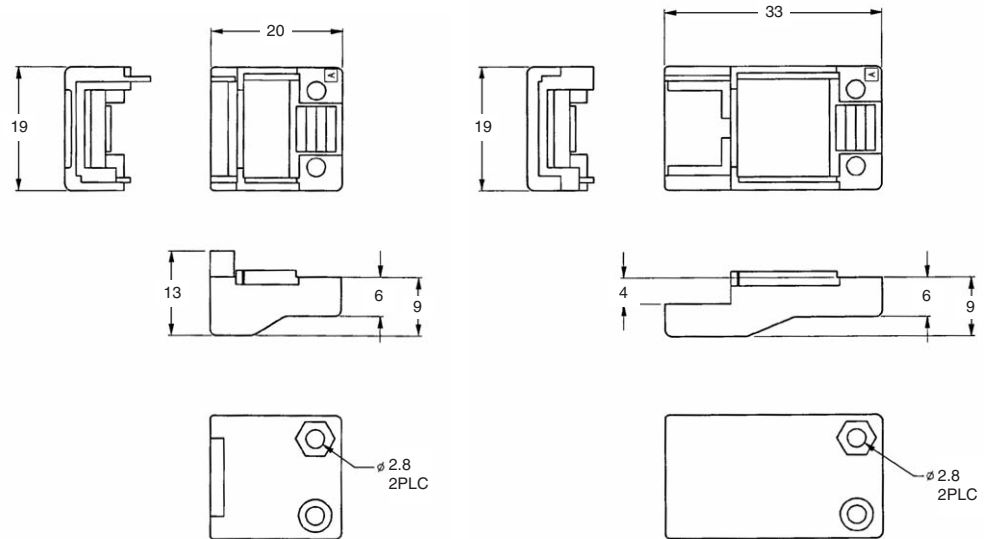
These Strain Reliefs may also be used with AMP-DUAC Receptacle housings on page 126.

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

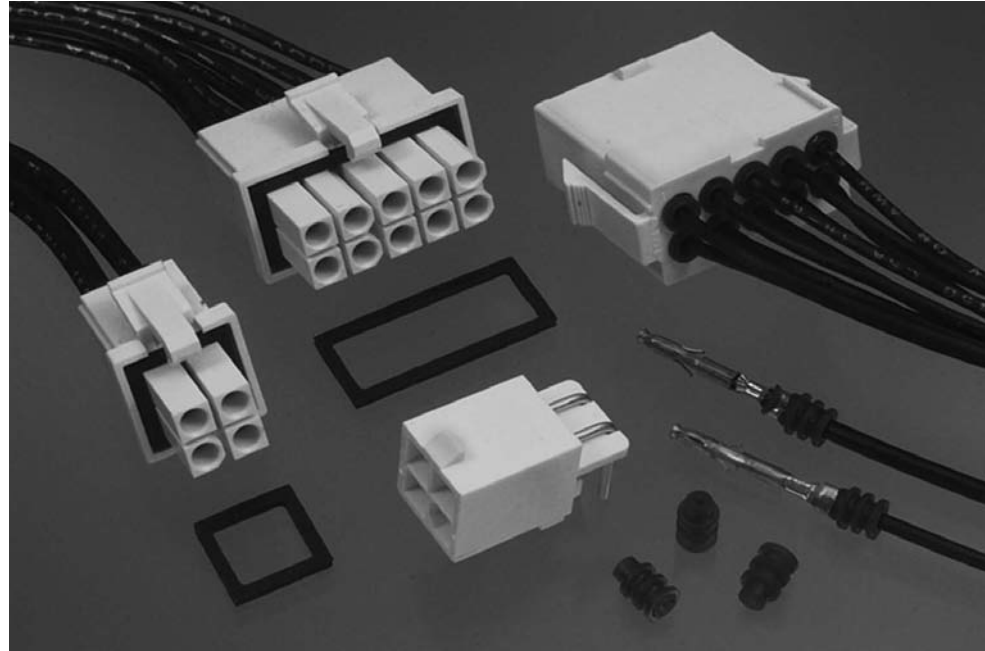
Note: All part numbers are RoHS Compliant.

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

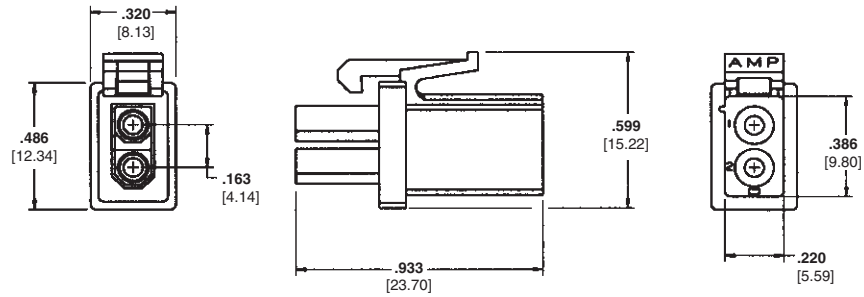
Instruction Sheets

- 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)

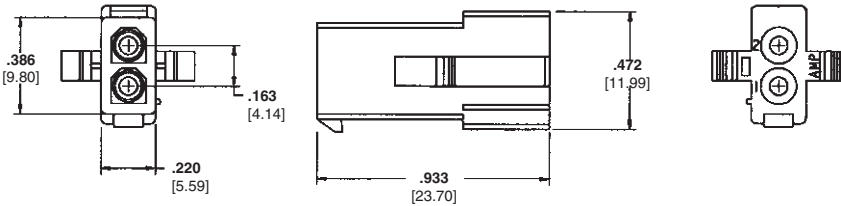
Plug

Part Number 794894-1
(2 position shown)



Cap

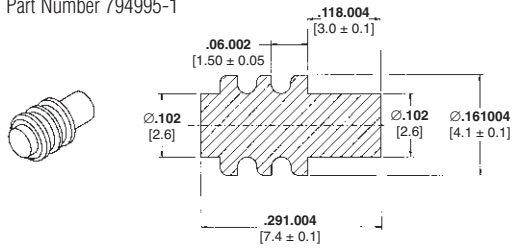
Part Number 794896-1
(2 position shown)



Individual Wire Seals

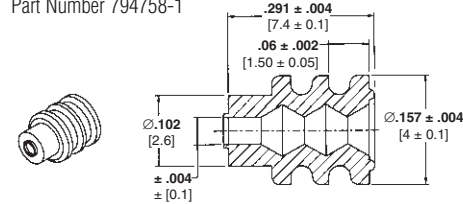
Single Housing Cavity Plug Seal

Part Number 794995-1

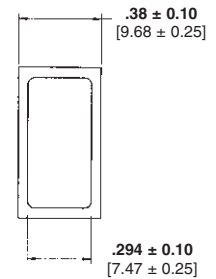


Single Wire Seal

Part Number 794758-1



Interface Seals



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.

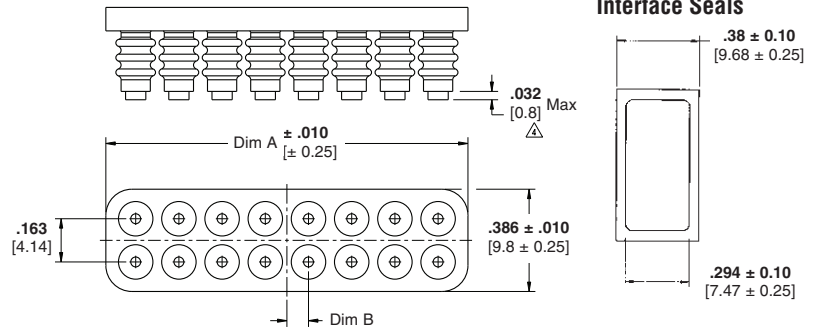
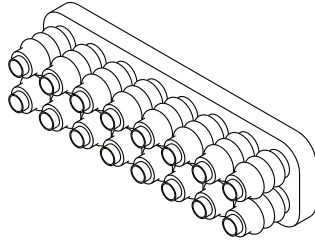
² HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3 is used on AMP-O-ELECTRIC Model G Machine. See pages 207-210 for further information.

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.