

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

Contacts

Pin diameter .039 [0.99]

Material

Brass

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

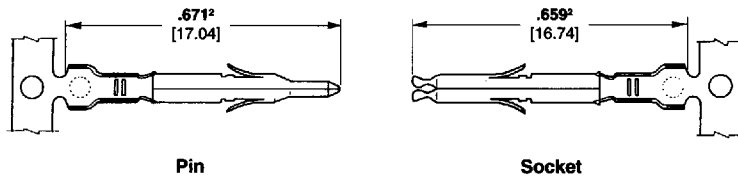
114-16017 Mini-Universal MATE-N-LOK Connectors

Performance Characteristics — pg. 49 and 50

Housings — pg. 53, 54 and 55

Technical Documents — pg. 80

Application Tooling — pg. 81-85



Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Contact Part Numbers				HDM Applicator Part No.	Hand Tool Part No.
			Pin		Socket			
			Strip Form	Loose Form	Strip Form	Loose Form		
30-26 [.05-.12]	.035-.050 .889-1.27	Pre-tin	770835-1	794059-1	770834-1	794058-1	567418-1 ³ 567418-2 ³ 567418-3 ³	—
		Duplex ¹	770835-3	794059-3	770834-3	794058-3		
26-22 [.12-.3]	.047-.069 1.19-1.75	Pre-tin	770901-1	770985-1	770902-1	770986-1	567066-3 ⁴ 567066-4 ⁴ 567066-5 ⁴	90710-1
		Duplex ¹	770901-3	770985-3	770902-3	770986-3		
22-18 [.3-.8] or 22 x (2) [.3]	.059-.094 1.50-2.39 or .133 Max. 3.38	Pre-tin	770903-1	770987-1	770904-1	770988-1	567067-1 ³ 567067-2 ³ 567067-3 ³	90711-1
		Duplex ¹	770903-3	770987-3	770904-3	770988-3		
20-16 [.5-1.2] or 20 x (2) [.5]	.079-.126 2.01-3.20 or .094 x (2) 2.39	Pre-tin	171636-1 ²	171638-1 ²	171637-1 ²	171639-1 ²	567251-2 ³ 567251-3 ³	90707-1
		Duplex ¹	—	—	171637-3 ²	—		

¹Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and .000100 [.00254] min. tin-lead 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.

³HDM Applicator part number ending in -1 is used on AMPOMATER CLS Machine with T or G Terminators, -2 is used on AMP-O-ELECTRIC Model K Machine, -3 is used on AMP-O-ELECTRIC Model G Machine. See page 85 for further information.

⁴HDM Applicator part number ending in -3 is used on AMPOMATOR CLS Machine with T or G Terminators, -4 is used on AMP-O-ELECTRIC Model K Machine, -5 is used on AMP-O-ELECTRIC Model G Machine. See page 85 for further information.

Keying Plug

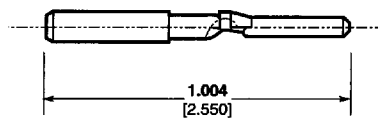
Material

UL94V-0 Nylon, white color

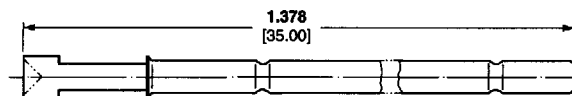
Test Probe Contact

Material and Finish

Phosphor bronze, nickel plated



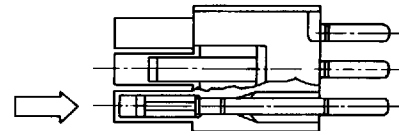
Part Number
174670-1



Part Number
172971-1

Notes:

1. The test probe is inserted into the housing in the same direction as indicated by the arrow 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. 455830-1
IS 408-7984

Dimensions are for reference only.

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 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-.078 [0.79-1.98] 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 38721
- Passed test by VDE under their Registration Number 3476/ Continuous Surveillance



Performance Characteristics

The Mini-Universal MATE-N-LOK Connector performance characteristics found on pages 49 and 50 are based on free hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Low Level Termination Resistance
10 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 600V AC or DC

Contact Retention 8 lb. min. per contact

Durability 20 cycles, mating and unmating

Wire Size		Termination Resistance		Contact Crimp Tensile Force	
AWG	mm ²	Test Current (Amps)	Resistance Milliohms (Max. Init.)	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

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 Sheet

408-3234 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.

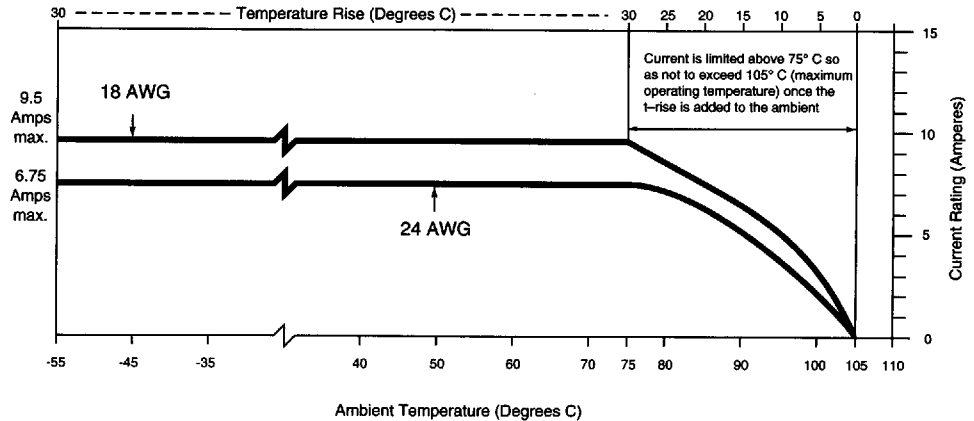
Connector Size In general, the more circuits in a connector, the less current can be carried.

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

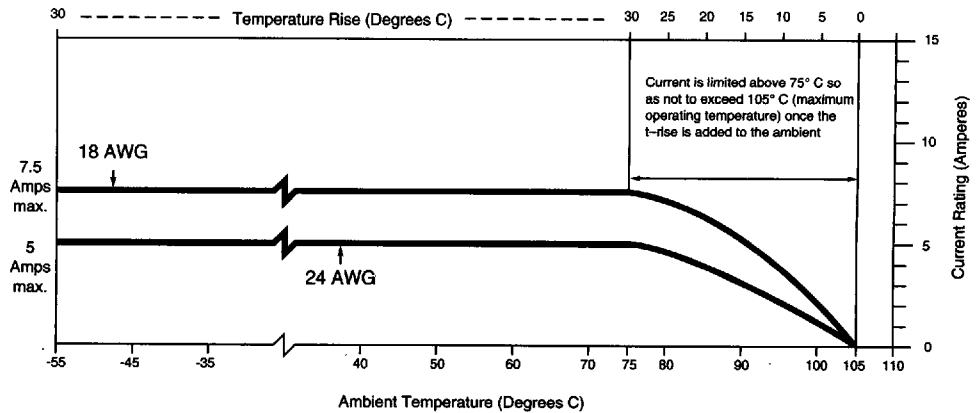
Printed Wiring Board Conductor Size The finished trace conductor width and thickness should be maximized to allow for the greatest current carrying capacity and heat dissipation.

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

2 Circuit Connector (Wire-to-Wire)



10 Circuit Connector (Wire-to-Board)



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 -20°C to +105°C

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

Corrosion 48 hr. at 5% salt concentration

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

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

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)

Notes: 1. Data for these curves based on initial T-Rise vs. Current Testing.

2. Current is limited above 75°C so as not to exceed 105°C (maximum operating temperature) once the T-Rise is added to the ambient.

3. Housings are fully loaded with all circuits 100% energized. Current rating is per circuit.

Mini-Universal MATE-N-LOK Connectors

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.	Plating	PC Board Pin Headers			
						Vertical		Right Angle	
						With Drain Holes	Without Drain Holes	Standard Board Lock	Short Board Lock
1	UL94V-2	In-Line	172335-1	172327-1 ⁴	—	—	—	—	—
	UL94V-0	In-Line	172164-1	172156-1 ⁴	—	—	—	—	—
2	UL94V-2	In-Line	172336-1	172328-1 ²	—	—	—	—	—
			172807-1 ³	172343-1 ⁴	—	—	—	—	—
	UL94V-0	In-Line	173956-1 ³	172807-1 ³	—	—	—	—	—
			172165-1	173956-1 ³	—	—	—	—	—
			172808-1 ³	172157-1 ²	Tin-Lead ⁶	770166-1	770872-1	770605-1	770966-1
			172337-1	172233-1 ⁴	Duplex ⁵	770166-2	770872-2	770605-2	770966-2
UL94V-2	In-Line	173957-1 ³	172808-1 ³	—	—	—	—	—	
		172166-1	172329-1 ²	Tin-Lead ⁶	—	—	—	—	
		172809-1 ³	172344-1 ⁴	Duplex ⁵	—	—	—	794044-2	
		172338-1	173957-1 ³	—	—	—	—	—	
4	UL94V-0	Dual Row	172958-1 ³	172158-1 ²	Tin-Lead ⁶	770170-1	770873-1	770606-1	770967-1
			172167-1	172234-1 ⁴	Duplex ⁵	770170-2	770873-2	770606-2	770967-2
	UL94V-2	Dual Row	172339-1	172809-1 ³	—	—	—	—	—
			172168-1	172330-1	—	—	—	—	—
6	UL94V-0	Dual Row	172168-1	172958-1 ³	—	—	—	—	—
			770579-1	172159-1	Tin-Lead ⁶	770174-1	770874-1	770607-1	770968-1
8	UL94V-0	Dual Row	770579-1	172331-1	—	—	—	—	—
			172340-1	172160-1	Tin-Lead ⁶	770178-1	770875-1	770608-1	770969-1
9	UL94V-0	Matrix	172169-1	172161-1	Duplex ⁵	770178-2	770875-2	770608-2	770969-2
			172169-1	—	Tin-Lead ⁶	794065-1	794073-1	770609-1	770970-1
10	UL94V-0	Dual Row	770580-1	172332-1	—	—	—	—	—
			172341-1	172161-1	Duplex ⁵	770182-1	770876-1	—	—
12	UL94V-0	Dual Row	770581-1	172161-1	Tin-Lead ⁶	770182-2	770876-2	—	—
			172170-1	172333-1	—	—	—	—	—
	UL94V-2	Matrix	172342-1	172162-1	Tin-Lead ⁶	770186-1	794040-1	—	—
			172171-1	172162-1	Duplex ⁵	770186-2	794040-2	—	—
14	UL94V-0	Dual Row	770582-1	—	Tin-Lead ⁶	794066-1	770621-1	770611-1	770972-1
			172342-1	—	Duplex ⁵	794066-2	770621-2	770611-2	770972-2
15	UL94V-0	Matrix	172171-1	172334-1	—	—	—	—	—
			770583-1	172163-1	Tin-Lead ⁶	770190-1	770859-1	—	—
16	UL94V-0	Dual Row	770583-1	—	Duplex ⁵	770190-2	770859-2	—	—
			770584-1	—	Tin-Lead ⁶	794068-1	794075-1	770613-1	770974-1
18	UL94V-0	Dual Row	770584-1	—	Duplex ⁵	794068-2	794075-2	770613-2	770974-2
			770585-1	—	Tin-Lead ⁶	794069-1	794076-1	770614-1	—
20	UL94V-0	Dual Row	770585-1	—	Duplex ⁵	794069-2	794076-2	770614-2	—
			770586-1	—	Tin-Lead ⁶	794070-1	794077-1	770615-1	—
22	UL94V-0	Dual Row	770586-1	—	Duplex ⁵	794070-2	794077-2	770615-2	—
			770587-1	—	Tin-Lead ⁶	794071-1	794078-1	770616-1	—
24	UL94V-0	Dual Row	770587-1	—	Duplex ⁵	794071-2	794078-2	770616-2	—
			—	—	Tin-Lead ⁶	794072-1	794079-1	770617-1	—
—	—	—	—	Duplex ⁵	794072-2	794079-2	770617-2	—	

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-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

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

Mini-Universal MATE-N-LOK Connectors