

Commercial MATE-N-LOK Connectors (Continued)

Contacts

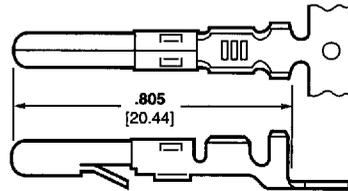
Pin diameter .084 [2.13]
Stock thickness .012 [.305]
These contacts are to be used in Commercial MATE-N-LOK housings only.

Related Product Data

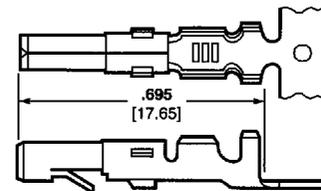
Product Specification
108-1000 Commercial MATE-N-LOK Connectors

Application Specification
114-1012 Commercial MATE-N-LOK Contacts

Performance Characteristics — pg. 24 and 25
Housings — pg. 30, 31, 32 and 33
Technical Documents — pg. 80
Application Tooling — pg. 81-85



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 Form	Strip Form	Loose Form		
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	90066-8
		Phos. Brz., Pre-tin	350079-4	—	350078-4	61173-4		
		Brass, Gold ¹	350079-5	61174-5	350078-5	61173-5		
24-18 [.2-.8]	.060-.100 1.52-2.54	Brass, Pre-tin	61116-1	60618-1	61314-1	60617-1	466320-1 ³ 466320-2 ³ 466320-4 ³	90123-2 90123-5 ⁴
		Phos. Brz., Pre-tin	61116-4	60618-4	61314-4	60617-4		
		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	90124-2
		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	90124-2
		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 page 85 for further information.

⁴Use Hand Tool No. 90123-5 for .043-.075 [1.09-1.90] insulation diameter.

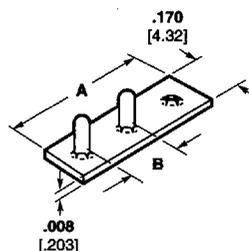
Notes:

- 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)
- 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

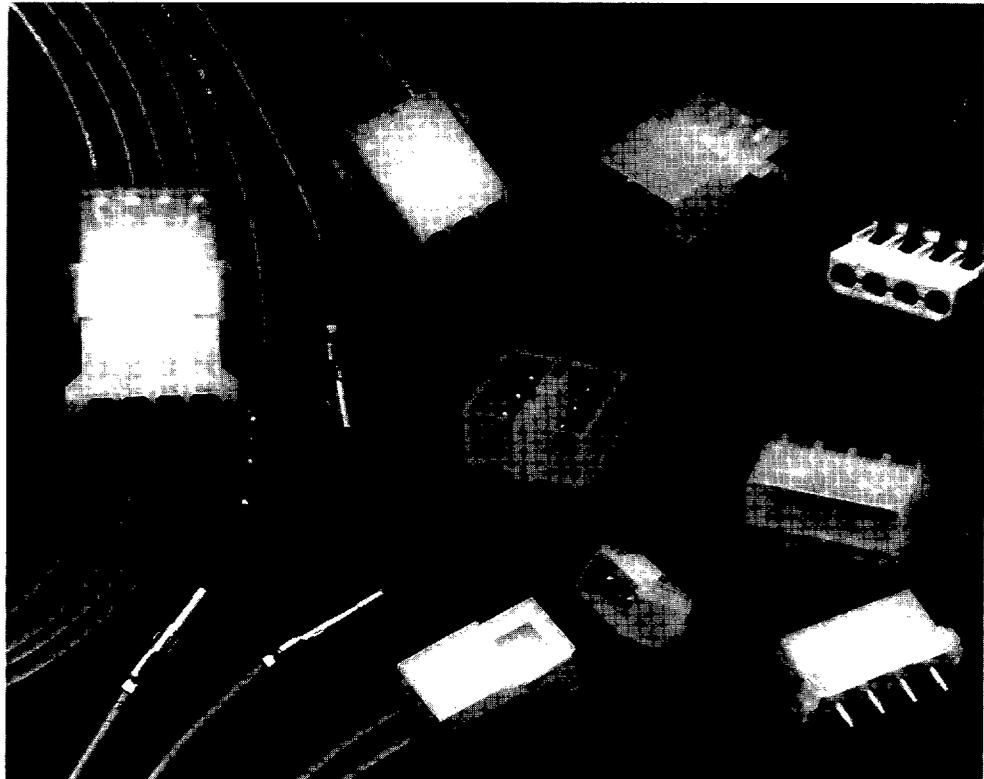
Note: Commoning tabs are designed to be used with pin housings.

Dimensions are for reference only.

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
- 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
- Ultra-violet (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-381



Performance Characteristics

The Commercial MATE-N-LOK Connector performance characteristics found on pages 24 and 25 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, 250V 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

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.

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

Commercial MATE-N-LOK Connectors

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

Mounting Housing Panel 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

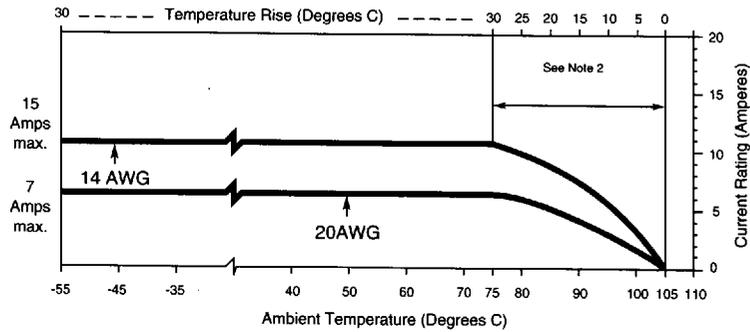
Product Specifications

108-1000 Commercial MATE-N-LOK Connectors

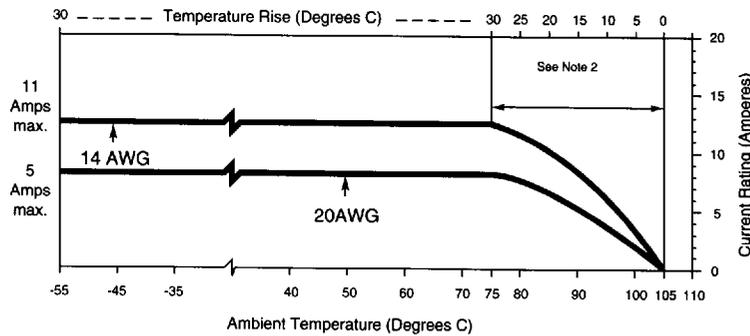
108-1077 Commercial MATE-N-LOK PC Board Headers

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

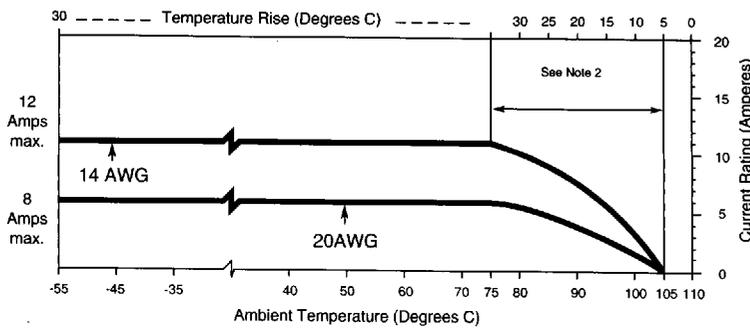
4 Circuit Connector (Wire-to-Wire)



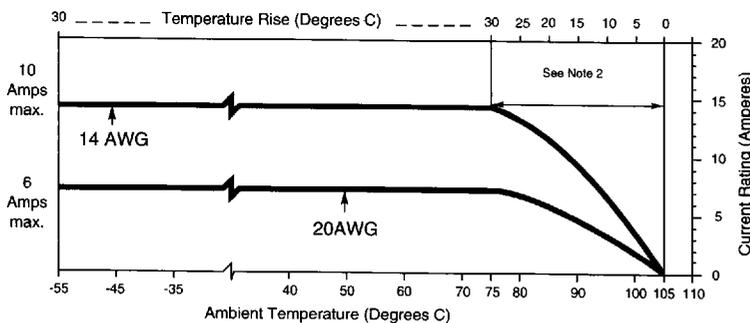
12 Circuit Connector (Wire-to-Wire)



4 Circuit Vertical Header (Wire-to-Board)



12 Circuit Vertical Header (Wire-to-Board)



- 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.

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	Plating	PC Board Headers		
								Vertical Pin	Right Angle Pin	Vertical Socket Standard 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	—	—	—	—
2	UL94V-2	In-Line	Socket: FH	1-480318-0	1-480401-1	Pin: FH UV Stable	—	—	—	—
			Socket: FH UV Stable	1-480393-1	1-480319-0	Pin: FH	Pre-tin	350209-1	350422-1	—
3	UL94V-2	In-Line	Socket: FH Positive Lock	1-480720-0	1-480498-1	Pin: FH UV Stable	—	—	—	—
			Socket: FH	1-480303-0	794012-1	Pin: FH Positive Lock	Pre-tin	350539-1	350540-1	—
4	UL94V-2	In-Line	Socket: PM	1-480304-0	1-480305-0	Pin: FH	Duplex ¹	350209-2	—	—
			Socket: FH Positive Lock	1-480721-0	—	—	Pre-tin	350210-1	350423-1	643488-1
6	UL94V-2	Matrix	Socket: FH UV Stable	1-480388-0	1-480387-0	Pin: FH UV Stable	—	—	—	—
			Socket: PM Positive Lock	1-480270-0	1-480271-0	Pin: MM Positive Lock	Duplex ¹	2-380999-0	350425-1	—
8	UL94V-2	In-Line	Socket: PM Positive Lock	1-480273-0	1-480276-0	Pin: PM Positive Lock	Pre-tin	—	—	—
			Pin: PM Positive Lock	1-480276-0	1-480273-0	Socket: PM Positive Lock	Duplex ¹	—	—	—
9	UL94V-2	Matrix	Socket: FM Positive Lock	1-480459-0	1-480460-0	Pin: FM Positive Lock	—	—	—	—
			Socket: FM Positive Lock	—	770861-1	Pin: FM Positive Lock	—	—	—	—
10	UL94V-2	Dual Row	Socket: FH Positive Lock	1-480283-0	1-480345-0	Pin: FH Positive Lock	Pre-tin	350212-1	350426-1	—
			Pin: PM Positive Lock	1-480277-0	1-480284-0	Pin: MM Positive Lock	Duplex ¹	350212-2	350426-2	—
12	UL94V-2	Dual Row	Socket: PM Positive Lock	1-480274-0	1-480274-0	Socket: PM Positive Lock	Pre-tin	—	—	350642-1
			Pin: PM Positive Lock	1-480324-0	1-480286-0	Pin: MM Positive Lock	Duplex ¹	—	—	—
15	UL94V-2	Matrix	Socket: FH Positive Lock	1-480285-0	1-480339-0	Pin: FH Positive Lock	Pre-tin	1-380991-0	350219-1	—
			Pin: PM Positive Lock	1-480278-0	1-480288-0	Pin: MM Positive Lock	Duplex ¹	2-380991-0	—	—
16	UL94V-2	Dual Row	Socket: MM Positive Lock	1-480287-0	1-480288-0	Pin: MM Positive Lock	Pre-tin	350213-1	350220-1	—
			Pin: PM Positive Lock	1-480323-0	1-480275-0	Socket: PM Positive Lock	Duplex ¹	350213-1	350220-2	—
16	UL94V-2	Dual Row	Socket: MM Positive Lock	1-480438-0	1-480323-0	Socket: PM Positive Lock	Pre-tin	—	—	350643-1
			Pin: MM Positive Lock	1-480439-0	1-480323-0	Pin: PM Positive Lock	Duplex ¹	—	—	—
										350644-2
										350214-1
										350427-1
										350214-2
										350427-2

FH: Free Hanging **PM: Panel Mount** **MM: Motor Mount** **FM: Flange Mount**
¹Duplex Finish—Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

Commercial MATE-N-LOK Connectors

Commercial MATE-N-LOK Connectors (Continued)

Commercial MATE-N-LOK 4 Position In-Line Mating Combinations

Flammability Rating	Connector Type	Connector Part No.	Housing Part No.	Housing Type	Plating	Mating Connector Part Number				PC Board Pin Headers							
						Socket Connectors		Vertical		Edgmount		Standard		Mid Mount Reverse Pol.		Right Angle W/Fixed Belt Reverse Pol.	
						Insulation Displacement Connector	AWG	PC Board Vertical Socket Header	Standard Tail	Long Tail	Surface Mount	Edgmount	Standard	Mid Mount Reverse Pol.	W/Fixed Belt	W/Fixed Belt Reverse Pol.	
UL94V-2	Socket Housing Positive Lock	1-480772-0	—	—	Pre-tin Duplex ¹	—	—	350543-1	350544-1	—	—	—	—	—	—	—	
								350543-2	350544-2	—	—	—	—	—	—	—	—
	Socket Housing Detent Lock	1-480424-0	1-480426-0	Pin	Pre-tin Duplex ¹	—	—	350211-1	350424-1	770829-1	175332-2	641737-1	84089-1	174804-1	174804-2	174552-1	
								350424-2	350424-2	—	175332-3	770846-1	—	174804-3	—	—	—
	Pin Housing Detent Lock	1-480426-0	1-480424-0	Socket	Pre-tin	—	—	—	—	—	—	—	—	—	—	—	
																	770156-2
	Pin Housing Detent Lock High Temp	3-480426-0	3-480425-0	Socket High Temp	Duplex ¹	—	—	—	—	—	—	—	—	—	—	—	—
	Socket Header	770997-1	1-480426-0	Pin	Pre-tin	—	—	—	—	—	—	—	—	—	—	—	—
	Insulation Displacement Connector (IDC)	770156-2	770156-3	770156-4	770156-5	Pre-tin	—	—	—	—	—	—	—	—	—	—	—
Socket Housing	770827-1	1-480426-0	Pin	Pre-tin	—	—	—	—	—	—	—	—	—	—	—	—	
																	350424-2
Insulation Displacement Connector (IDC)	794036-1	794036-2	794036-3	794036-4	Pre-tin	—	—	—	—	—	—	—	—	—	—	—	
																	794036-1
Right Angle Pin Header	1-641737-1	770827-1	Socket	Pre-tin	—	—	—	—	—	—	—	—	—	—	—	—	
																	1-641737-1

PM: Panel Mount
¹Duplex Finish — Plated with .000030 (.000762) min. gold in mating area, matte tin-lead on solder tail end over .000050 (.00127) min. nickel underplate on entire contact.
 Note: These connectors are used by the disk drive industry.

Commercial MATE-N-LOK
Connectors