

.084/(2.13) DIAMETER SERIES CONNECTOR HOUSINGS AND TERMINALS

(HOT TIN-PLATED TERMINALS ONLY)

Male Crimp Terminal	Female Crimp Terminal
	
Series: 42023	Series: 42024

Plug Housing	Housing Cap
	
Series: 42021	Series: 42022

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DOCUMENT NUMBER: PS-42022-0001	CREATED / REVISED BY: MBN02	CHECKED BY: SMAHAJANSHET	APPROVED BY: NCSR

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1.0 SCOPE

This specification covers the .250-inch (6.35mm) centerline tin plated connector series terminated to 14 to 20 AWG wire using crimp technology.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

Description	Series Number
Terminal pin, Tin plated	42023-1A1*
Terminal socket, Tin plated	42024-A1*
Housing Plug, 1 circuit	42021-1*
Housing Plug, 2 circuit	42021-2*
Housing Plug, 3 circuit	42021-3*
Housing Plug, 4 circuit	42021-4*
Housing Plug, 6 circuit	42021-6*
Housing Plug, 9 circuit	42021-9*
Housing Plug, 12 circuit	42021-12*
Housing Plug, 15 circuit	42021-15*
Housing Cap, 1 circuit	42022-1*
Housing Cap, 2 circuit	42022-2*
Housing Cap, 3 circuit	42022-3*
Housing Cap, 4 circuit	42022-4*
Housing Cap, 6 circuit	42022-6*
Housing Cap, 9 circuit	42022-9*
Housing Cap, 12 circuit	42022-12*
Housing Cap, 15 circuit	42022-15*

2.2 DIMENSIONS, MATERIALS, PLATING AND MARKINGS

Dimensions & Plating: See individual sales drawings.

Material: RoHS compliant materials*.

*Refer to the "Product Environmental Compliance" section in Molex.com to know the individual PN RoHS compliance status

2.3 SAFETY AGENCY APPROVALS

UL File number: E29179

CSA File number LR: 19980

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3.0 APPLICABLE DOCUMENTS AND SPECIFICATION

3.1 MOLEX DOCUMENTS

- [MLX Connectors Test summary TS-42022-0001](#)
- [Molex Quality Crimping Handbook Order No. 63800-0029](#)
- [Molex Moisture Technical Advisory AS-45499-001](#)
- [Molex Package Handling Specification 454990100-PK](#)
- ATS – Application Tooling Specification*

*Application Tooling Specification for terminals is not provided in this document. ATS for terminals can be available from respective terminal part number page in Molex.com

3.2 INDUSTRY DOCUMENTS

- UL-60950-1
- IEC / EN 61984
- CSA STD. C22.2 NO. 182.3-M1987

4.0 ELECTRICAL PERFORMANCE RATINGS

4.1 VOLTAGE AND SAFETY AGENCY RATINGS

600 Volts

4.2 APPLICABLE WIRES

14 to 20 AWG wire – Outside Insulation Diameter .130-inch (3.30mm) Maximum

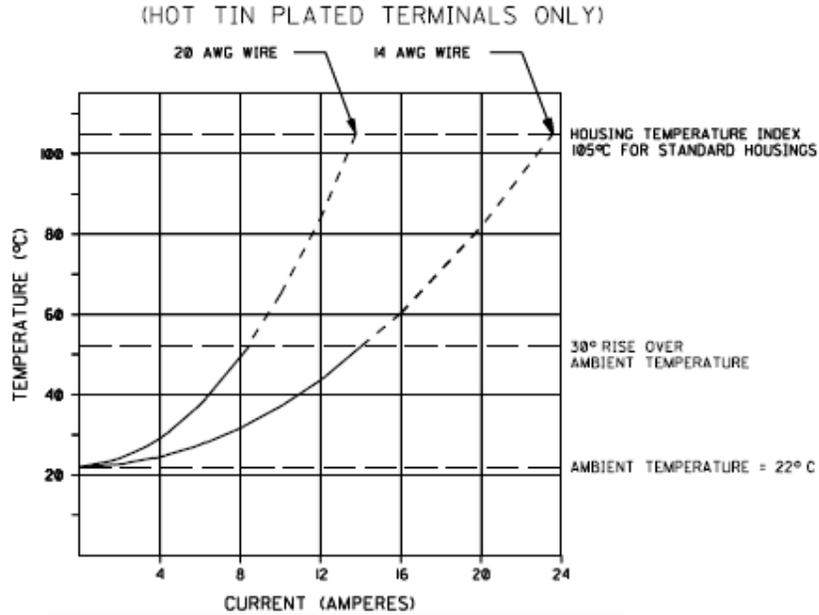
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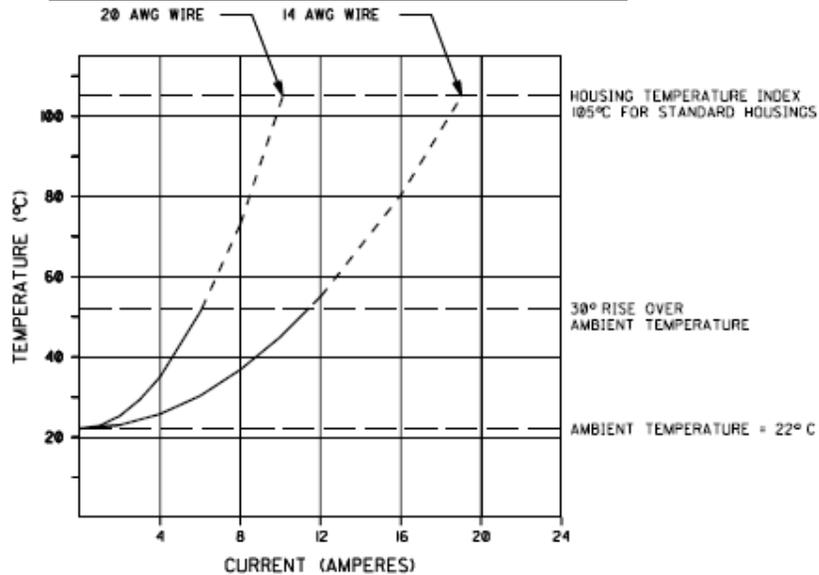
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THESE GRAPHS SHOW TYPICAL (AVERAGE) PERFORMANCE



TEMPERATURE VERSUS CURRENT FOR BRASS TERMINALS IN FOUR CIRCUIT HOUSINGS. ALL FOUR CIRCUITS CARRY THE INDICATED CURRENT (VALUES ABOVE THE 30°C RISE ARE EXTRAPOLATED)



TEMPERATURE VERSUS CURRENT FOR BRASS TERMINALS IN NINE CIRCUIT HOUSINGS. ALL NINE CIRCUITS CARRY THE INDICATED CURRENT (VALUES ABOVE THE 30°C RISE ARE EXTRAPOLATED)

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4.3 TEMPERATURE

Operating: -55° C to +105° C

4.4 DURABILITY

Tin plated: 50 mating cycles

As tested in accordance with MIL-STD-1344 test method (see sec 6.2.7 of this specification). Durability per MIL-STD-1344A method 2016

5.0 QUALIFICATION

Laboratory conditions and sample selection are in accordance with MIL-STD-1344

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6.0 PERFORMANCE

6.1 ELECTRICAL PERFORMANCE (HOT TIN PLATED TERMINALS ONLY)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Contact Resistance (low level)	Mate connectors with a maximum voltage of 20mV and a current of 100mA. (MIL-STD-1344A METHOD 3004.1)	3.5 milliohms Maximum (Initial)
2	Insulation Resistance	Mate connectors with a voltage of 500VDC between adjacent terminals (MIL-STD-1344A METHOD 3003.1).	1000 Megaohms Min. (Initial)
3	Dielectric Strength	Mate connectors with a voltage of 5000 VAC for 1 minute between adjacent terminals. (MIL-STD-1344A METHOD 3001.1)	No breakdown
4	Temperature Rise	Mate the connectors and measure the contact temperature at the rated current load. (IEC STD. 512-3)	Maximum Temperature of the terminal over ambient of 30° C (see sheet 5)

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6.2 MECHANICAL PERFORMANCE (HOT TIN PLATED TERMINALS ONLY)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	Connector Insertion and Withdrawal	Insert and withdraw connectors at a rate of 0.5 inches per minute (12.7 mm per minute) (MIL-STD-1344A METHOD 2013.1)	1.5 lbf Max. Insertion 0.5 lbf Min. Withdrawal (per terminal initial)
6	Retention Force in Housing	Axial pull out force on the terminal in the housing at a rate of .5 inches per minute (12.7 mm per minute) (MIL-STD-1344A METHOD 2012.1)	15 lbf minimum
7	Durability	Mate connectors up to 50 cycles at a maximum rate of 5 cycles per minute (MIL-STD-1344A METHOD 2016)	3.5 milliohm Max
8	Vibration	Amplitude: .060" (1.5 mm) peak to peak Sweep: 10-55-10 Hertz in one minute Duration: 2 hours in each X-Y-Z axis (MIL-STD-1344A METHOD 2005.1) (TEST CONDITION I)	Appearance: No Damage Contact Resistance: 5.0 milliohm Maximum Discontinuity: 1 micro second maximum
9	Mechanical Shock	50 G's with three shocks in each X-Y-Z axis (MIL-STD-1344A METHOD 2004.1) (TEST CONDITION A)	Appearance: No Damage Contact Resistance: 6.0 milliohm Maximum Discontinuity: 1 microsecond Maximum
10	Wire Pull Out Force (Axial)	Apply an axial pullout force on the wire at a rate of 1 +/- ¼ inch per minute (25 +/- 6 mm per minute) (MIL-STD-1344A METHOD 2003.1)	AWG Pullout Force 14AWG = 50 lbf 16AWG = 45 lbf 18AWG = 30 lbf 20AWG = 14 lbf
11	Terminal Insertion Force (Axial)	Apply an axial insertion force on the terminal at a rate of 1 +/- ¼ inch per minute (25 +/- 6 mm per minute) (MIL-STD-1344A METHOD 2012.1)	3.5 lbf Maximum
12	Plug Latch strength	Mate connectors and pull apart until both latches break, record the maximum force.	35.0 lbf Minimum
13	Panel retention for cap	Insert cap housing into panel cut out as per the sales drawing requirements, push cap opposite the way it was assembled until the locking barbs break, record the maximum force	75.0 lbf Minimum

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6.3 ENVIRONMENTAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
14	Thermal Shock	Mate connectors, expose to 25 cycles of: -55 +0/-3 °C for 30 minutes +85 +3/0 °C for 30 minutes (MIL-STD-1344A METHOD 1003.1) (TEST CONDITION A-1)	Appearance: No damage Contact Res: 3.75 milliohm Maximum Dielectric strength: 5000 Vac for 1 minute
15	Humidity-temperature cycling	Mate connectors, expose to a temperature – humidity cycling between 25 °C and 65 °C at 95% Rh, -10 °C with humidity not controlled (MIL-STD-1344A METHOD 1002.1) (TYPE II)	Appearance: No damage Contact Res. = 6.0 m Ohm max Dielectric strength: 5000 VAC for 1-minute Insulation Resistance: 100 M Ohm min.
16	Salt spray	Expose unmated connector assemblies to a salt spray concentration of 5% at 35 °C for 48hours (MIL-STD-1344A METHOD 1001.1)	7.00 milliohm maximum Dielectric Strength: 5000 VAC for 1 minute

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Individual Tests

Connector
Insertion / withdrawal Force

Retention Force in housing

Wire Pullout force (Axial)

Terminal Insertion Force
(Axial)

Plug latch strength

Panel retention for cap

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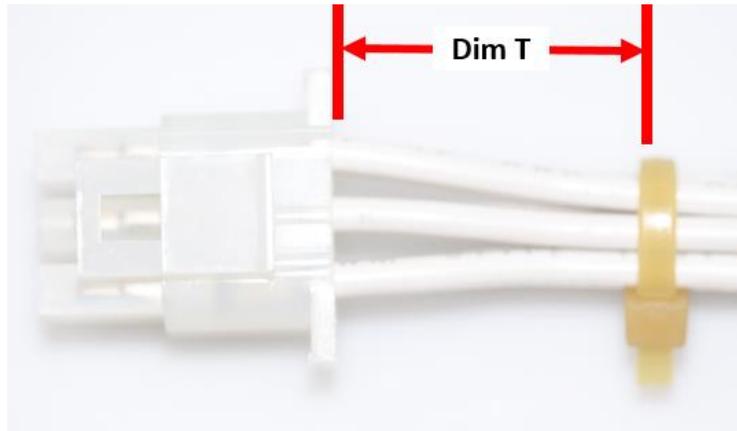
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7.0 PACKAGING

Parts shall be packaged to protect against damage during normal handling, transit and storage. Refer Molex.com specific part number webpage to get the exact packaging document for that item.

8.0 CABLE TIE AND/ OR TWIST LOCATION

Circuit Sizes	Dimension T Minimum in mm
2	22.18
3	32.27
4	42.35
6	22.18
9	32.27
12	42.23
15	52.31



The “T” dimension defines a “free” length of wire, or a length of wire that is not subject to significant bias by external factors such as a wire tie, wire twisting, or other means of bending or deforming of the wires that repositions them from their natural relaxed state or location where they enter the housing. Wires are to be dressed in such a manner to allow the terminals to float freely in the pocket. This dimension is general recommendation and may need to be adjusted for different wire gauges and wire type and insulation thickness and insulation material.

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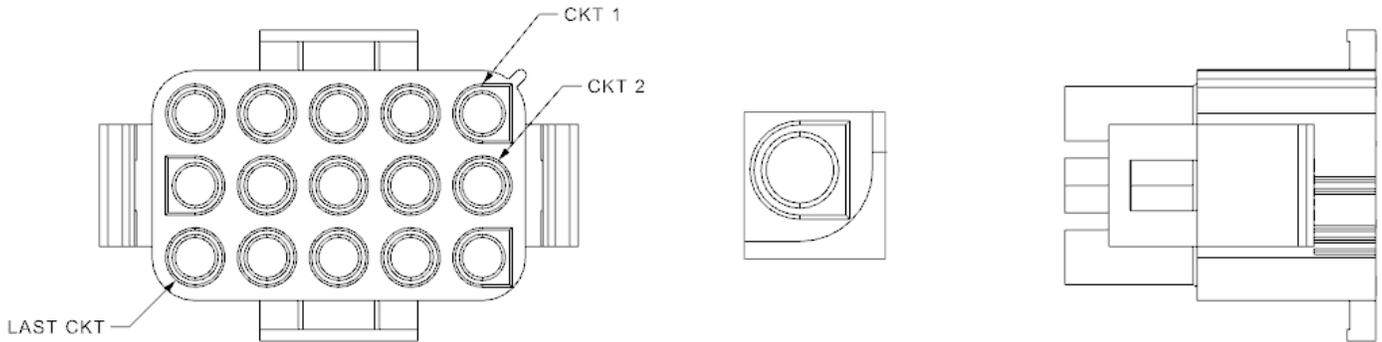


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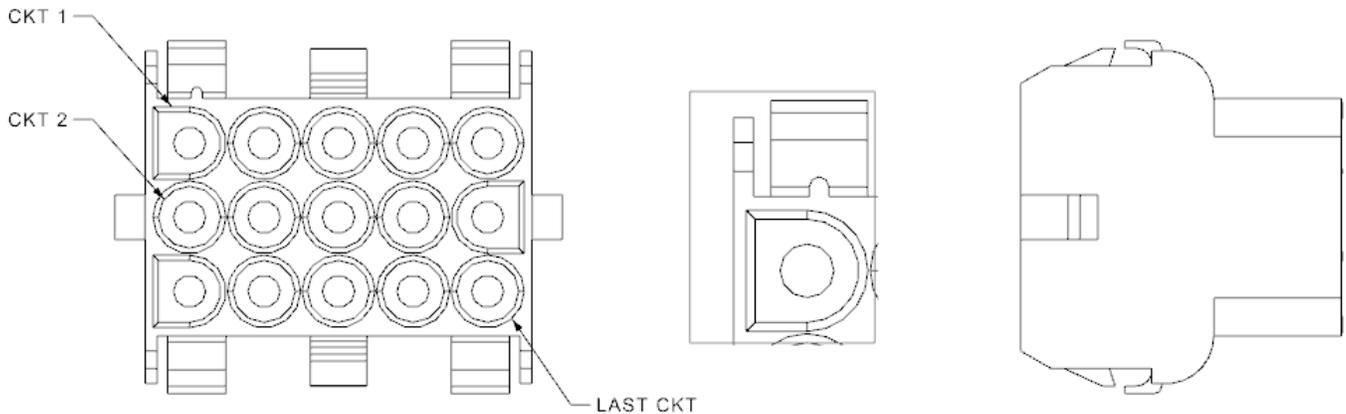
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9.0 POLARIZATION AND KEYING OPTIONS

9.1 Housing, Plug (Series: [42021](#))



9.2 Housing, Receptacle (Series: [42022](#))



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