

CP 6.5MM PITCH

Wire to Wire

CONNECTOR SYSTEM

<p>Receptacle Crimp Terminal (16 AWG to 20 AWG)</p>	<p>Receptacle Crimp Terminal (22 AWG to 24 AWG)</p>
<p>Series: 50597</p>	<p>Series: 50598</p>



<p>Plug Crimp Terminal (16 AWG to 20 AWG)</p>	<p>Plug Crimp Terminal (22 AWG to 24 AWG)</p>
<p>Series: 205033</p>	<p>Series: 205032</p>



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<p>DOCUMENT NUMBER: 2034380001-PS</p>		<p>DOC TYPE: PS</p>	<p>DOC PART: 000</p>	<p>CREATED / REVISED BY: MBN02</p>	<p>CHECKED BY: SMAHAJANSHET</p>	<p>APPROVED BY: NCSR</p>

Glow Wire Receptacle Housing	Receptacle Housing
	
Series: 151207	Series: 151049

Plug Housing	Retainer
	
Series: 203438	Series: 51143

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1.0 SCOPE

This Product Specification covers the performance requirements CP 6.5mm CENTER SPACING wire to wire series.

2.0 PRODUCT DESCRIPTION

2.1 DESCRIPTION, SERIES NUMBER, AND LINKS

DESCRIPTION	SERIES NUMBER	PART NUMBER
6.5 mm Pitch Glow Wire Receptacle Housing	151207	151207****
6.5 mm Pitch Receptacle Housing	151049	151049-****
6.5 mm Pitch Plug Housing	203438	203438****
Receptacle Crimp Terminal	50597	505978*10
	50598	505988*10
Plug Crimp Terminal	205033	2050338000
	205032	2050328000
Retainer	51143	51143**05

2.2 DIMENSIONS, MATERIALS, PLATINGS

Refer Sales Drawings 2034380000-SD, 1512070001-SD, SD-151049-0001, 505978010-SD, 505988010-SD, 2050328000-SD, 2050338000-SD, SD-51143-XX05 for information on dimensions, materials, plating and markings.

2.3 ENVIRONMENTAL CONFORMANCE

To find product compliance information:

- [Go to molex.com](#)
- Enter the part number in the search field.
- At the bottom of the page go to "Environmental" to see compliance status.

2.4 SAFETY AGENCY LISTINGS

UL File Number: E29179
 CSA File Number: 70056261
 VDE File Number: TBE

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3.0 APPLICABLE DOCUMENTS AND SPECIFICATION

3.1 MOLEX DOCUMENTS

- [CP 6.5 Connector System Test summary 2034380001-TS-000](#)
- CP 6.5 Connector System Application summary 2034380001-AS-000
- [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

- JIS C5402, JIS C60068 & MIL-STD-1344.
- UL-60950-1
- CSA-STD. C22.2 NO. 182.3-M1987
- IEC-60695-2-11
- IEC-60335-1

4.0 ELECTRICAL PERFORMANCE RATINGS

4.1 VOLTAGE

600 Volts AC (rms) / DC

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4.2 RATINGS AND APPLICABLE WIRES

Item	Standard				
	CKT	2	4	6	
Rated Current (MAX.) and Applicable wires	AWG. #16	12.5 A	11.8 A*	11.0 A	AWG # 16 ~ # 20 Φ3.3~Φ2.0 Ins. O.D.
	AWG. #18	11.3 A*	10.5 A*	9.7 A*	
	AWG. #20	10.0 A	9.2 A*	8.3 A	
	AWG. #22	8.6 A*	7.7 A*	6.7 A*	AWG # 22 ~# 24 Φ2.35~Φ1.25 Ins. O.D.
	AWG. #24	7.0 A	6.0 A*	5.0 A	

*Interpolated

Note: Ratings shown represent *MAXIMUM* current carrying capacity of a fully loaded connector with all circuits powered using UL1015 stranded wire. Ratings are based on a 30°C maximum temperature rise limit over ambient (see section 6.1.5 for specifications). Current is dependent on connector size, ambient temperature and related factors. Actual current rating is application dependent and should be evaluated for each use.



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4.3 TEMPERATURE

Operating Temperature Range (includes T-Rise from applied current): - 40°C to + 105°C#
 #Including terminal temperature rise

4.4 DURABILITY

Plating Type	Number of Cycles
Tin Plated	30

4.5 GLOW WIRE SERIES

151207 and 203438

5.0 QUALIFICATION

Laboratory condition, sample selection and test sequences are in accordance with JIS C5402, JIS C60068 & MIL-STD-1344.

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6.0 PERFORMANCE

6.1 ELECTRICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.1.1	Low Level Contact Resistance (LLCR)	Mate connectors with dry circuit (20 mV Max., 10 mA) on mated connector. (JIS C5402 5.4)	10 mΩ MAX Value excludes bulk resistance of terminal
6.1.2	Insulation Resistance	Mate connectors, apply a voltage of 500 V DC between adjacent terminal or ground (JIS C5402 5.2/MIL-STD-202 Method 302)	1000 MΩ MIN
6.1.3	Dielectric Withstanding Voltage	Mated connectors apply 1500V AC (rms) for 1 minute between adjacent terminal or ground. (JIS C5402 5.1/MIL-STD-202 Method 301)	No voltage breakdown
6.1.4	Contact Resistance on Crimped Portion	Crimp the applicable wire on to the terminal, measure by dry circuit, 20mV MAX., 10mA.	5 mΩ MAX
6.1.5	Temperature Rise	Mate connectors, carrying rated current load	Temperature Rise 30°C MAX.

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6.2 MECHANICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION		REQUIREMENT
6.2.1	Insertion and Withdrawal Force	Insert and withdraw connectors at the speed rate of 25±3mm/minute.		Refer to 7.0
6.2.2	Crimping Pull Out Force (Receptacle and Plug)	Fix the crimped terminal, apply axial pull out force on the wire at the speed rate of 25±3mm/minute. (JIS C5402 6.8)	AWG. #16	127.4 N MIN.
			AWG. #18	107.8 N MIN.
			AWG. #20	58.8 N MIN.
			AWG. #22	39.2 N MIN.
			AWG. #24	29.4 N MIN.
6.2.3	Terminal Insertion Force (Receptacle and Plug)	Insert the crimped terminal to housing at the speed rate of 25±3 mm/minute.		39.2 N MAX.
6.2.4	Terminal / Housing Retention Force (Receptacle and Plug)	Apply axial pull out force at the speed rate of 25±3 mm/minute on the terminal assembled in the housing.		39.2 N MIN.
6.2.5	Lock Strength	Mate connectors, apply axial pull out force at the speed rate of 25±3 mm/minute.		49.0 N MIN.
6.2.6	Retainer Insertion Force	Insert a retainer into the housing at the speed rate of 25±3 mm/minute.		29.4 N MAX.
6.2.7	Durability	Mate and un-mate connectors with a rate of 10 cycles/minute. (a) Mate and un-mate connectors to 4 cycles (b) Mate and un-mate connectors to 23 cycles (c) Mate and un-mate connectors to 30 cycles		Contact resistance 20 mΩ MAX
6.2.8	Vibration	Amplitude: 1.5mm P-P Sweep time: 10-55-10 Hz in 1-minute Duration: 2 hours in each X.Y.Z. axes. (MIL STD-202 Method 201)		Contact resistance 20 mΩ MAX Discontinuity < 1 μs Visual: No damage
6.2.9	Shock	490m/s ² {50G}, 3 strokes in each X.Y.Z. axes. (JIS C60068-2-27/MIL-STD-202 Method 213) DC1mA		Contact resistance 20 mΩ MAX Discontinuity < 1 μs

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6.3 ENVIRONMENTAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.3.1	Humidity	Mate connectors and expose into 60±2°C and 90-95%Relative Humidity for 96 hours. (expose to room temperature for 1~2hrs after pick up) (JIS C60068-2-3/MIL-STD-202 Method 103)	Contact resistance 20 mΩ MAX Insulation resistance 1000 MΩ MIN Dielectric Strength No voltage breakdown Visual: No damage
6.3.2	Heat Resistance	Mate connectors and expose into 105±2°C for 96 hours. (expose to room temperature for 1~2hrs after pick up) (JIS C60068-2-2/MIL-STD-202 Method 108)	Contact resistance 20 mΩ MAX Visual: No damage
6.3.3	Temperature Cycling	Mate connectors and expose into below condition 5 cycle of: a) - 55°C 30 minutes b) +105°C 30 minutes c) 3 minutes transit time Expose to room temperature for 1~2hrs after pick up. (JIS C0025)	Contact resistance 20 mΩ MAX Visual: No damage
6.3.4	Cold Resistance	Mate connectors and expose into -40±2°C for 96 hours. (expose to room temperature for 1~2hrs after pick up) (JIS C60068-2-1)	Contact resistance 20 mΩ MAX Visual: No damage
6.3.5	Salt Spray	Mate connectors and expose into a salt spray from the 5±1% solution at 35±2 °C for 48±4 hours. Wash with water and dry after pick up. (JIS C60068-2-11/MIL-STD-202 Method 101)	Contact resistance 20 mΩ MAX Visual: No damage
6.3.6	SO ₂ Gas	Mate connectors, and 24 hours expose to 50±5 ppm SO ₂ gas at 40±2°C	Contact resistance 20 mΩ MAX Visual: No damage
6.3.7	NH ₃ Gas	Mate connectors, and exposure into NH ₃ gas evaporating from 28% Ammonia solution for 40mins. (25milli liter in 1 liter)	Contact resistance 20 mΩ MAX Visual: No damage

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7.0 INSERTION / WITHDRAWAL FORCE

No. of ckt.	Unit	Insertion Force (MAX.)			Withdrawal Force (MIN.)		
		1st	6th	30th	1st	6th	30th
2	N	19.6	18.6	18.6	1.2	1.2	1.0
4		24.5	22.5	22.5	2.4	2.4	2.0
6		29.4	26.4	26.4	3.6	3.6	3.0

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8.0 TEST SEQUENCE

Test Group →	Full Qualification Test									
	Grp 1	Grp 2	Grp 3	Grp 4	Grp 5	Grp 6	Grp 7	Grp 8	Grp 9	Grp 10
Samples →	5	5	5	5	5	5	5	5	5	5
Test or Examination ↓										
Examination of connector	1,7	1,4	1,7	1,7	1,9	1,7	1,5	1,5	1,5	1,5
Contact Resistance (LLCR)			2,4,6	2,4,6	2,4,6,8	2,4,6	2,4	2,4	2,4	2,4
Insulation Resistance	2,5									
Dielectric Withstanding Voltage	3,6									
Contact resistance on crimped portion										
Insertion Force										
Withdrawal Force										
Crimping Pull Out Force										
Terminal Insertion Force										
Terminal/Housing Retention Force										
Lock Strength										
Retainer Insertion Force										
Durability		2(c)	3(c)	3(c)	3(c)	3(c)				
Temperature Rise		3								
Vibration					5					
Shock					7					
Heat Resistance			5							
Cold Resistance						5				
Humidity	4									3
Temperature Cycling				5						
Salt Spray							3			
SO ₂ Gas								3		
NH ₃ Gas									3	

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Test Group →	Screen Test				
	Group 11	Group 12	Group 13	Group 14	Group 15
Test or Examination ↓					
Examination of connector	1,4	1,4	1,12	1,4	1,3
Contact Resistance (LLCR)			3,11		
Insulation Resistance					
Dielectric Withstanding Voltage					
Contact resistance on crimped portion		2			
Insertion Force			2, 6, 9		
Withdrawal Force			4, 7, 10		
Crimping Pull Out Force		3			
Terminal Insertion Force	2				
Terminal/Housing Retention Force	3				
Lock Strength				3	
Retainer Insertion Force					2
Durability			5 ^(a) , 8 ^(b)	2 ^(c)	
Temperature Rise					
Vibration					
Shock					
Heat Resistance					
Cold Resistance					
Humidity					
Temperature Cycling					
Salt Spray					
SO ₂ Gas					
NH ₃ Gas					

(a), (b) and (c) denote the number of durability cycle.
(Refer to item 6.2.7)

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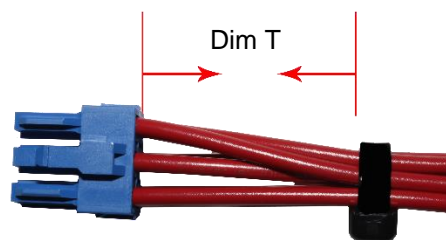
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9.0 PACKAGING

Parts shall be packaged to protect the parts from damage during standard shipping, storage, and handling. For details kindly refer to Packaging specification 2034380001-PK, 1512070001-PK, PK-151049-0001, 505978010-PK and 2050320000-PK.

10.0 CABLE TIE AND / OR TWIST TIE LOCATION

CKT Size			Dim T Min.
2	4	6	0.50" (12.7mm)



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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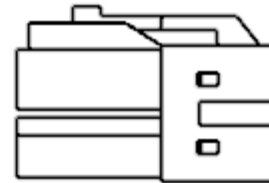
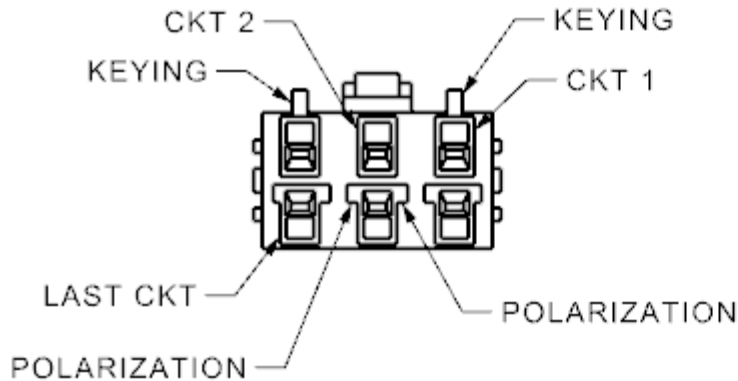
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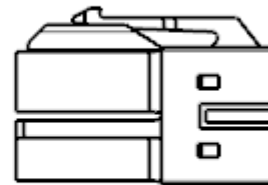
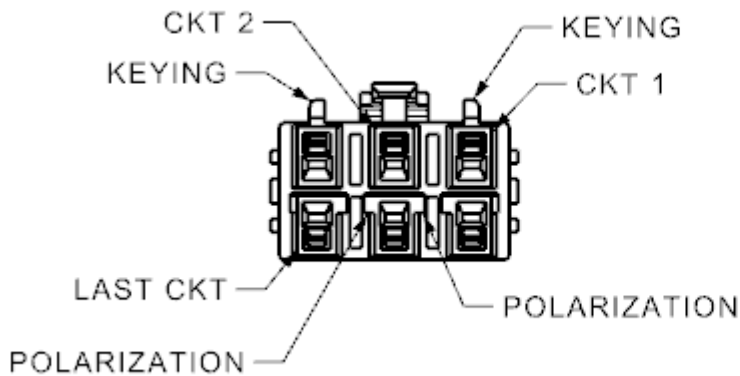
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11.0 POLARIZATION AND KEYING OPTIONS

11.1 Glow wire Receptacle Housing (Series: [151207](#))



11.2 Receptacle Housing (Series: [151049](#))



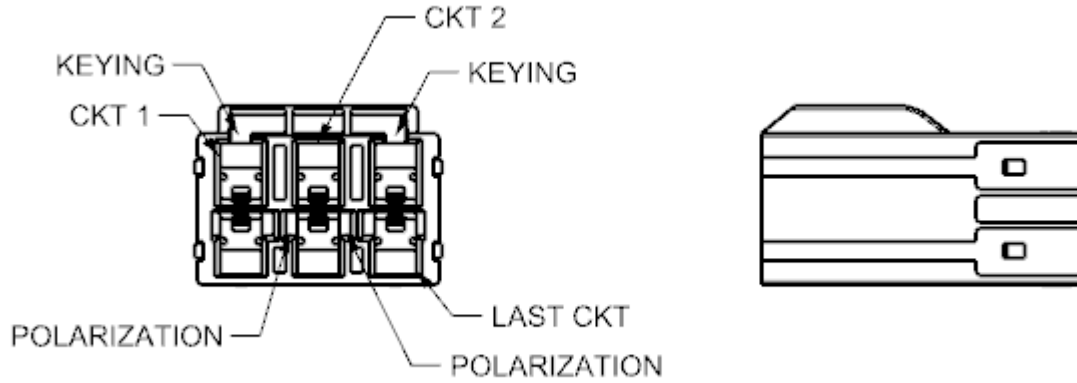
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11.3 Plug Housing (Series: [203438](#))



NOTE: Each series number comes with different colored polarization, Refer respective part number sales drawing.

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