



PRODUCT SPECIFICATION

1.0 SCOPE

This Product Specification covers the 3.50 mm (0.138 inch) pitch dual row MX150 sealed header which mates with the Molex MX150 in-line connection system terminated with 22 to 14 AWG wires using crimp technology.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

Product Name	Series
2X4 8 Way MX150 Header, Right Angle, Compliant Pin	34829
2X10 20 Way MX150 Header, Right Angle, Compliant Pin	34829
2X4 8 Way MX150 Header, Right Angle, Solder tail	34830
2X10 20 Way MX150 Header, Right Angle, Solder tail	34830

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

Housings: 30% glass filled PBT
 Terminals: Copper alloy
 Copper alloy
 Tin Plating: Tin over Nickel

2.3 SAFETY AGENCY APPROVALS

UL File Number	Not Applicable
CSA File Number	Not Applicable
TUV License number	Not Applicable

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Description	Document Number
2X4 8 Way MX150 Header, Right Angle, Compliant Pin	SD-34829-081
2X10 20 Way MX150 Header, Right Angle, Compliant Pin	SD-34829-201
2X4 8 Way MX150 Header, Right Angle, Solder tail	SD-34829-081
2X10 20 Way MX150 Header, Right Angle, Solder tail	SD-34829-201
Application specification	AS-34829-001

4.0 RATINGS

4.1 VOLTAGE-OPERATING

4.1.1 LOW VOLTAGE TYPE 1 APPLICATION: Voltage \leq 14 V

Connector - Typical operating voltage not to exceed 14 Volts peak.

Terminal - Maximum single line current dependent on terminal and wire.

See terminal product specification PS-33012-002.

Low voltage type 1 information applicable to all connector applications.

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4.1.2 LOW VOLTAGE TYPE 2 APPLICATION: 14 V ≤ Voltage ≤ 60 V

Terminal - Maximum single line current dependent on terminal and wire.
See terminal product specification PS-33012-002

Information

This interconnect system **is not** designed for hot mating. Extra signal circuits or HVIL is needed for hot mating/unmating application. The information provided in this section is based on the connector only. For high voltage application, please consult with related safety agency or engineer with customer's particular safety spec.

4.1.3 Smallest Clearance and Creepage Values of MX150 Header

Connector (S/N: **334829/334830**):

Clearance (in X direction) = **0.90** mm

Clearance (in Y direction) = **2.70** mm

Creepage (in X direction) = **2.20** mm

Creepage (in Y direction) = **5.70** mm

4.1.4 Material Group (CTI) Information

Material Group II (400 < CTI < 599)

4.1.5 Operating Voltage (According to IEC60664-1)

Application Pollution Degree	Voltage (R.M.S.)
Pollution degree 1	V < 320V (Creepage = 0.75mm)
Pollution degree 2	V < 63V (Creepage = 0.90mm)
Pollution degree 3	V < 10V (Creepage = 1.00mm)

*All information in section 4.1.3 - 4.1.5 is based on IEC 60664-1 data and pending validation testing.

4.2 CURRENT AND APPLICABLE WIRE

Current is dependent on connector wire size, ambient temperature and related factors. Actual maximum current rating is application dependent and should be evaluated for each use.

AWG	Amperes	Wire range Insulation Diameter
22	10	1.50 - 1.65 mm (0.059 - 0.065 inch)
20	12.5	1.70 - 1.85 mm (0.067 - 0.073 inch)
18	15	1.91 - 2.06 mm (0.075 - 0.081 inch)
16	17	2.18 - 2.34 mm (0.086 - 0.092 inch)
14	22	2.34 - 2.69 mm (0.092 - 0.106 inch)

4.3 TEMPERATURE

Operating: - 40 C° to + 125 C°

Non-operating: - 40 C° to + 125 C°

4.4 SEALING

- System sealing validated to wire within diameter range of 1.5mm to 2.69mm
- Meets IP6K9K

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4.5 DIELECTRIC WITHSTAND STRENGTH

Connectors withstand 1500V AC between adjacent terminals for 1 minute.

Test performed with following conditions

- JISC5402 5.1/MIL -STD-202 Method 301
- AWG14 Wire In Receptacle side
- MX150 2X10 Header

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Contact Resistance (Low Level)	Mate connectors: limiting the open circuit voltage of 20 mV and a maximum current of 100 mA .	10 milliohms MAXIMUM
2	Contact Resistance @ Rated Current (Voltage Drop)	Mate connectors: apply a 5 ampere/ 1.0 mm² current	10 milliohms MAXIMUM
3	Isolation Resistance	Apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	20 Meg ohms MINIMUM
4	Temperature Rise (via Current Cycling)	Mate terminals: measure the temperature rise at the rated current after: 1008 hours of bench top testing (45 minutes ON and 15 minutes OFF per hour).	Temperature rise over Ambient: +55 C° MAXIMUM

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	Connector Mate/ Unmate Forces	Mate and unmate connector (male to female) at a rate of 50 ± 6 mm (2 ± ¼ inch) per minute.	*75 Newtons MAXIMUM
			Unmate 110 Newtons MINIMUM
6	Terminal Retention Force (in Housing)	Axial pullout force on the terminal in the housing at a rate of 50 ± 6 mm (2 ± ¼ inch) per minute.	50 Newtons MINIMUM

*For 20 way connector, the connector mating force requirement is 110N maximum.

5.3 ENVIROMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
7	Durability	Mate connectors up to 10 cycles prior to environmental tests.	10 milliohms MAXIMUM & Discontinuity < 1 microsecond

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8	Thermal Shock (Electrical)	Mate connectors per durability; expose to 100 cycles of: <u>Temperature C°</u> <u>Duration (Minutes)</u> -40 +0/-3 30 +125 +3/-0 30	10 milliohms MAXIMUM & Discontinuity < 1 microsecond
9	Temperature/ Humidity (Sealing)	Mate connectors per durability and expose connector system to forty 8 -hour cycles of combined heating and humidity exposure -40 °C and 125 °C at 0% to 90% RH	28 kPa for 15 seconds MINIMUM pressure/vacuum & Submersion for 30 minutes & Isolation Resistance of 20 Meg ohms @ 500 VDC MINIMUM
10	Fluid Resistance (Sealing)	Submerge connector assemblies in the following fluids: gasoline, *diesel fuel, engine oil, ethanol, power steering fluid, automatic transmission fluid, engine coolant, and brake fluid.	Submersion for 30 minutes & Isolation Resistance of 20 Meg ohms @ 500 VDC MINIMUM
11	Vibration/ Mechanical Shock (Electrical)	Mate connectors per durability. Connector assembly shall be vibrated for (8 hours / axes @ 12.1 Grms, 10 shocks @ 35 Gs / axes) Coupled to engine.	10 milliohms MAXIMUM & Discontinuity < 1 microsecond
12	Solderability	<i>Aging method 1. 8 hours ±15 minutes steam</i> <i>Aging method 2. 16 hours ±15 minutes dry heat (155 °C)</i>	<i>The solder coverage shall be</i> 95% MINIMUM

6.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage.

7.0 GAGES AND FIXTURES

All applicable gages and fixtures are referenced in the appropriate control plans.

8.0 OTHER INFORMATION

Products conform to USCAR-2 class III environment. For product family performance not specific, Please refer to in-line connector specification PS-33472-000.

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