




SINGLE ROW, HIGH TEMPERATURE SL SHROUDED HEADER SYSTEM

Straight Mount Header, With Active Latch & PC Board Snaps	Straight Mount Header, With Active Latch
	
Series: 70541	Series: 70543



Straight Mount Header, With Active Latch & PC Board Retention Tri-Pegs	Right Angle Mount Header, With Active Latch & PC Board Snaps
	
Series: 70545	Series: 70551



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DOCUMENT NUMBER: PS-70541		CREATED / REVISED BY: SMAHAJANSHET	CHECKED BY: NCSR	APPROVED BY: NCSR

<p>Right Angle Mount Header, With Active Latch</p>	<p>Right Angle Mount Header, With Active Latch & PC Board Retention Tri-Pegs</p>
	
<p>Series: 70553</p>	<p>Series: 70555</p>

<p>Right Angle Mount SMT Header, with active latch & PC board retention tri-peg</p>	<p>Straight Mount SMT Header, with active latch & some with Pick & Place Cap</p>
	
<p>Series: 70634</p>	<p>Series: 74099</p>

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1.0 SCOPE

This Product Specification covers the .100/ (2.54 mm) grid, single row, fully shrouded, “SL” header connector system.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

Description	Series Number
Straight Mount Header, with active latch and PC board snaps	70541
Straight Mount Header, with active latch	70543
Straight Mount Header, with active latch and PC board retention tri-pegs	70545
Straight Mount Header, low profile with PC board retention tri-pegs	70546
Right Angle Mount Header, with active latch and PC board snaps	70551
Right Angle Mount Header, with active latch	70553
Right Angle Mount Header, with active latch and PC board retention tri-pegs	70555
Right Angle Mount Header, low profile with PC board retention tri-pegs	70556
Straight Mount Header, with active latch	70563
Straight Mount Header, with low profile	70564
Straight Mount Header, with low profile with PC board retention tri-pegs	70566
Right Angle Mount Header, with active latch and PC board snaps	70571
Right Angle Mount Header, with active latch and PC board retention tri-peg	70575
Right Angle Mount SMT Header, with active latch and PC board retention tri-peg	70634
Straight Mount & Right-Angle Headers, with voided circuits	71164
Right angle Mount SMT Header, with active latch and PC board snaps	74098
Straight Mount SMT Header, with active latch, and some with Pick & Place Cap	74099
Right angle SMT Header, with active latch	74105

2.2 DIMENSIONS, MATERIALS, PLATING AND MARKINGS

2.2.1 Pin Height

2.2.1.1 Maximum pin height: .320/(8.13mm)

2.2.1.2 Minimum pin height: .200/(5.08mm)

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2.2.2 Centerline spacing (pitch): .100/(2.54mm)

2.2.3 Termination Method:

2.2.3.1 Thru Hole: Wave Solder

2.2.3.2 SMT: Reflow

2.2.4 Housings: Black Glass Filled Polyester, UL 94V-0

2.2.5 Pins: Phosphor Bronze

2.2.6 Plating: Gold and Tin

2.2.6.1 Gold: 30 micro inches/0.76 micrometers minimum Gold in select area
75 micro inches/1.91 micrometers minimum Tin in select area
Over Nickel underplate overall

or

Gold: 15 micro inches/0.38 micrometers minimum Gold in select area
75 micro inches/1.91 micrometers minimum Tin in select area
Over Nickel underplate overall

2.2.6.2 Tin: 150 micro inches/3.80 micrometers minimum Tin over Nickel underplate overall

2.2.7 Recommended PC Board thickness: .062/(1.57mm)

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

2.3.1 Underwriters Laboratory: UL# E29179

2.3.2 Canadian Standards Association: CSA# LR19980

3.0 APPLICABLE DOCUMENTS AND SPECIFICATION

3.1 MOLEX DOCUMENTS

[SL Shrouded header Test summary TS-70541-100-001](#)

[Molex Quality Crimping Handbook Order No. 63800-0029](#)

[Molex Solderability Specification SMES-152](#)

[Molex Heat Resistance Specification AS-40000-5013](#)

[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

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3.2 INDUSTRY DOCUMENTS

EIA-364: Electronic Industries Association, Recommended Standard
 MIL-STD-202: Test methods for electronics and electrical component parts
 IEC 68-2-14 and IEC 68-2-42
 UL-94: Tests for flammability of plastic material

4.0 ELECTRICAL PERFORMANCE RATINGS

4.1 VOLTAGE

250 Volts

4.2 MAXIMUM CURRENT RATING

3.0 Amps Maximum

4.3 TEMPERATURE

Operating Temperature: - 40°C to + 105°C
 Non-Operating Temperature: - 30°C to + 60°C
 Processing Temperature: 245°C Maximum for Thru Hole Wave solder only
 260°C Maximum for IR reflow SMT and Thru Hole Paste

4.4 DURABILITY

Tin plated: 25 mating cycles
 Gold plated: 50 mating cycles

5.0 QUALIFICATION

Laboratory conditions and sample selection are in accordance with MIL-STD, IEC and EIA-364-1000.

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6.0 PERFORMANCE

6.1 ELECTRICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.1.1	Insulation Resistance	Per MIL-STD-202, Method 302, Condition B. Resistance measured after sequences 5.2.1 thru 5.2.4.	10000 Mega-ohms MINIMUM
6.1.2	Dielectric Withstanding Voltage	AC Voltage increased until breakdown. Per MIL-STD-202, Method 302, Condition B. Voltage measured after sequences 5.2.1 thru 5.2.4	600V AC RMS MINIMUM for 1 minute at sea level to 5,000 feet.
6.1.3	Temperature Rise	Mate connectors: measure the temperature rise at the rated current. EIA-364-70B, Method 2	Temperature rise: +30°C MAXIMUM (above ambient)
6.1.4	Current Cycling (T-Rise) (18-Day stability test)	Mate connectors, measure the temperature rise at the rated current, Test Method- 4 (45 minutes on and 15 minutes off per hour) per EIA-364-55 Test Condition A	Temperature rise: +30 °C MAXIMUM [over ambient]

6.2 MECHANICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.2.1	Header Pin Retention Force	Apply axial push force on the Header pin in the header housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute	17.79 N (4 lbf) MINIMUM retention force
6.2.2	Tri-Peg Insertion Force (in PCB)	Recommended Hole size .134 ± .002 inch (3.40 ± 0.05 mm). Insert connector at a rate of 1 ± ¼ inch (25 ± 6 mm) per minute.	44.48 N (10 lbf) MAXIMUM insertion force
6.2.3	Tri-Peg Retention Force (in PCB)	Recommended Hole size .134 ± .002 inch (3.40 ± 0.05 mm). Pull connector at a rate of 1 ± ¼ inch (25 ± 6 mm) per minute.	4.45 N (1 lbf) MINIMUM retention force
6.2.4	Board Snap Insertion Force (in PCB)	Recommended Hole size .134 ± .002 inch (3.40 ± 0.05 mm). Insert connector at a rate of 1 ± ¼ inch (25 ± 6 mm) per minute.	44.48 N (10 lbf) MAXIMUM insertion force

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6.2.5	Board Snap Retention Force (in PCB)	Recommended Hole size .134 ± .002 inch (3.40 ± 0.05 mm). Pull connector at a rate of 1 ± ¼ inch (25 ± 6 mm) per minute.	20 N (4.5 lbf) MINIMUM retention force
6.2.6	Header Housing Retention Force after Wave Solder	Apply a wave solder process of 260°C maximum. Axial pullout force on the housing at a rate of 1 ± ¼ inch (25 ± 6 mm) per minute.	13.34 N (3 lbf) MINIMUM retention force per pin
6.2.7	Connector Mate and Unmate Forces (Latch deactivated)	Mate connector (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	4.45 N MAX./ CIRCUIT Mate force & 0.56 N MIN./ CIRCUIT Unmate force

6.3 ENVIRONMENTAL PERFORMANCE (Un-mated Environment) *

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT						
6.3.1	Shock (Thermal)	Expose to 10 cycles of: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Temperature °C</td> <td>Duration (Minutes)</td> </tr> <tr> <td>-40+0/-3</td> <td>30</td> </tr> <tr> <td>+105 +3/-0</td> <td>30</td> </tr> </table> Per IEC 68-2-14.	Temperature °C	Duration (Minutes)	-40+0/-3	30	+105 +3/-0	30	Visual: No Damage
Temperature °C	Duration (Minutes)								
-40+0/-3	30								
+105 +3/-0	30								
6.3.2	Thermal Aging	Expose to 240 hours at 105 ± 2°C Per MIL-STD-202F Method 108A.	Visual: No Damage						
6.3.3	Humidity (Steady State)	Expose to temperature of 40 ± 3°C at 96 ± 5% relative humidity for 240 hours. Per MIL-STD-202F Method 108A Test Condition A.	Visual: No Damage						
6.3.4	Flowers of Sulphur	Exposed to Sulphur vapors for 24 hours at 65 ± 3°C . Per IEC 68-2-42.	Visual: No Damage						
6.3.5	Cold Resistance	Mate connectors; expose to 96 hours at -40 ± 3°C .	10 milliohms MAXIMUM (change from initial) & Visual: No Damage						

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7.0 SOLDER INFORMATION

7.1 SOLDER PROCESS TEMPERATURES

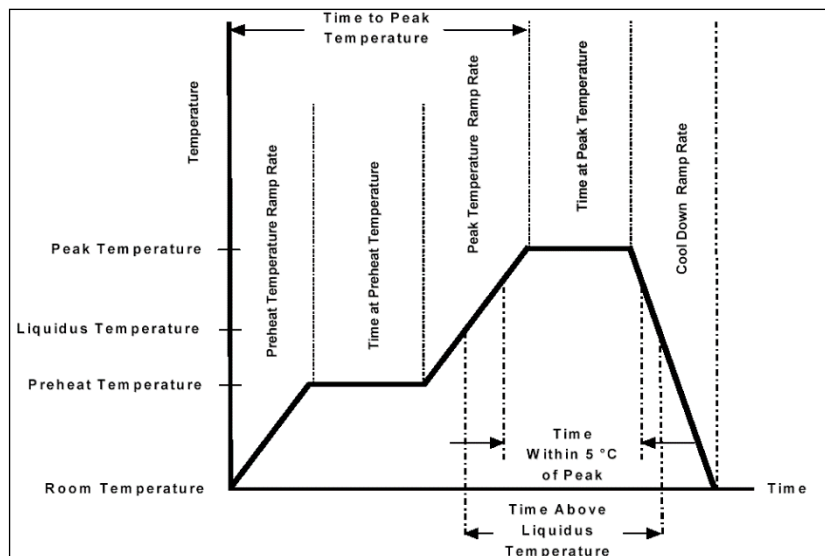
Wave Solder: 245°C Max.
 Reflow Solder: 260°C Max.

[Molex Solderability Specification SMES-152](#)
 (Click Here)

7.2 REFLOW SOLDERING PROFILE

(This profile is per AS-40000-5013 and is provided as a guideline only. Please see notes for additional information)

[Molex Connector Heat Resistance Specification AS-40000-5013](#)
 (Click Here)



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Description	Requirement
Average Ramp Rate	3°C/sec Max
Preheat Temperature	150°C Min to 200°C Max
Preheat Time	60 to 180 sec
Ramp to Peak	3°C/sec Max
Time over Liquidus (217°C)	60 to 150 sec
Peak Temperature	260 +0/-5°C
Time within 5°C of Peak	20 to 40 sec
Ramp - Cool Down	6°C/sec Max
Time 25°C to Peak	8 min Max

Notes:

1. Temperature indicated refers to the PCB surface temperature at solder tail area.
2. Connector can withstand 1 reflow cycle.
3. Actual reflow profile also depends on equipment, solder paste, PCB thickness, and other components on the board. Please consult your solder paste & reflow equipment manufacturer for their recommendations to adopt a suitable process.

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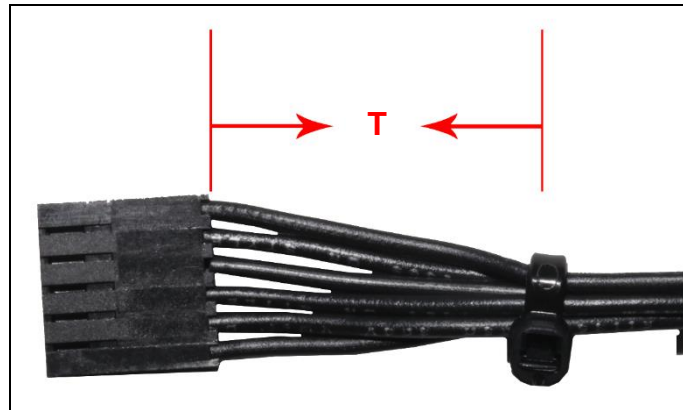
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8.0 PACKAGING

Parts shall be packaged to protect against damage during normal handling, transit and storage. Connector housing assemblies are packaged in plastic tubes in the “pre-loaded” condition. Refer Molex.com specific part number webpage to get the exact packaging document for that item.

9.0 CABLE TIE AND/ OR TWIST LOCATION FOR MATING COMPONENT (RECEPTACLE HOUSING)

Circuit Sizes			Dimension T Minimum
2	4	6	0.50" (12.7mm)
	8		0.75" (19.1mm)
10		12	1.00" (25.40mm)
14		16	1.25" (31.75mm)
18		20	1.50" (38.09mm)
22		24	1.75" (44.45mm)



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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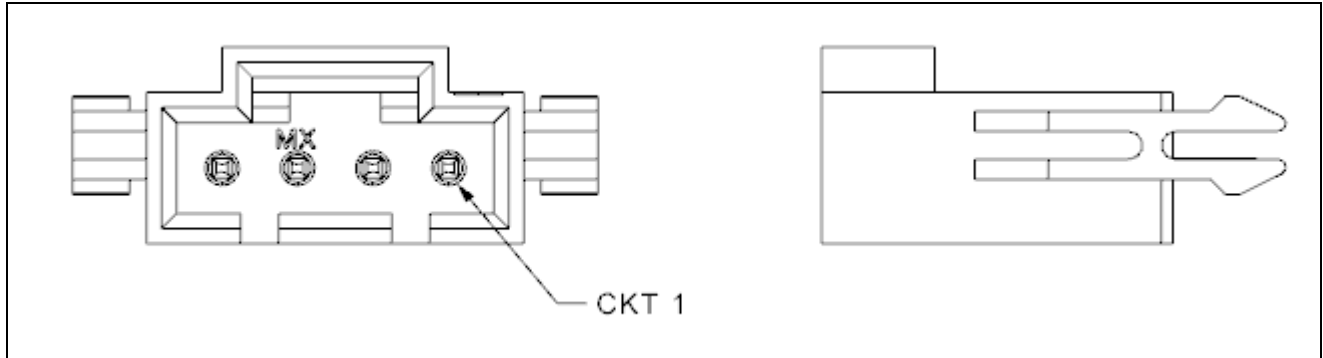


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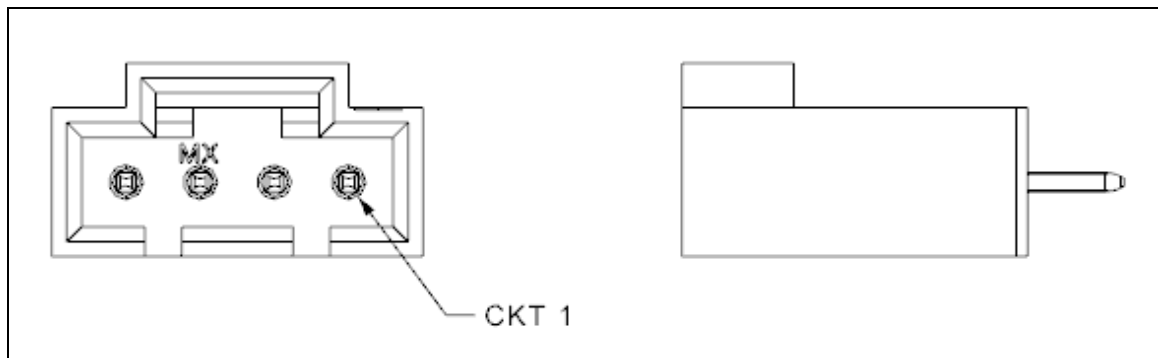
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10.0 POLARIZATION AND KEYING OPTIONS

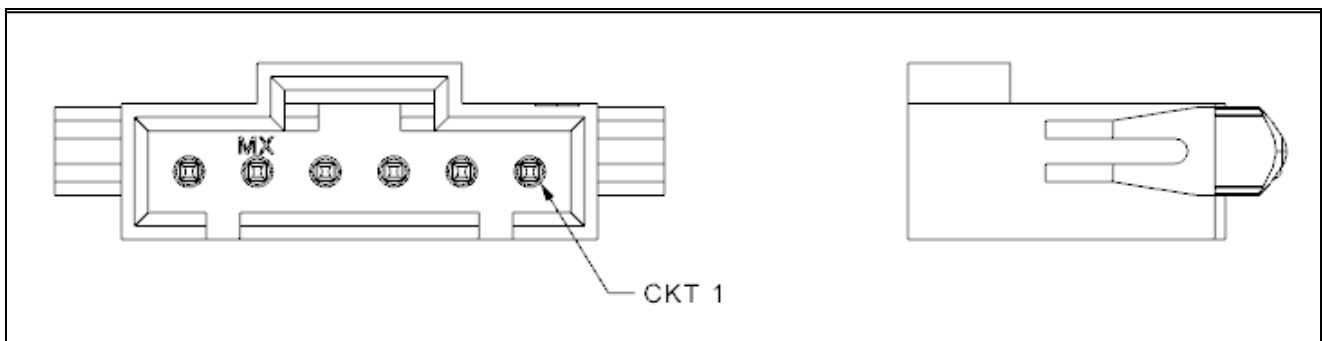
10.1 Straight Mount Header, with active latch & PC board snaps (Series: [70541](#))



10.2 Straight Mount Header, with active latch (Series: [70543](#))



10.3 Straight Mount Header, with active latch & PC board retention tri-pegs (Series: [70545](#))



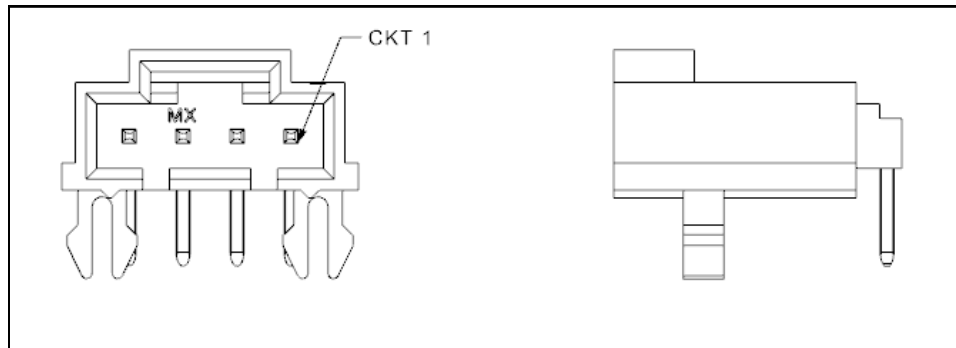
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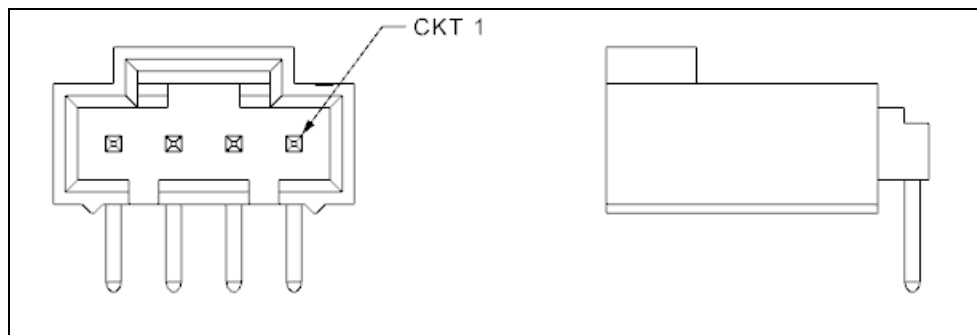
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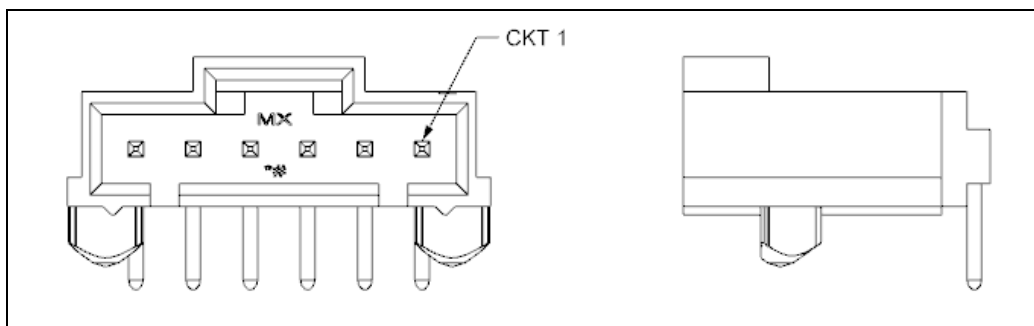
10.4 Right Angle Mount Header, with active latch & PC board snaps (Series: [70551](#))



10.5 Right Angle Mount Header, with active latch (Series: [70553](#))



10.6 Right Angle Mount Header, with active latch & PC board retention tri-pegs (Series: [70555](#))



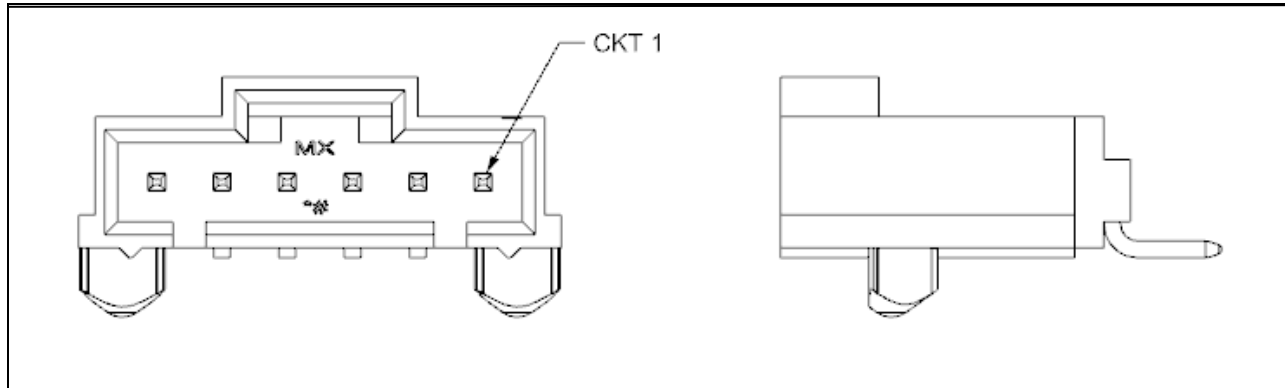
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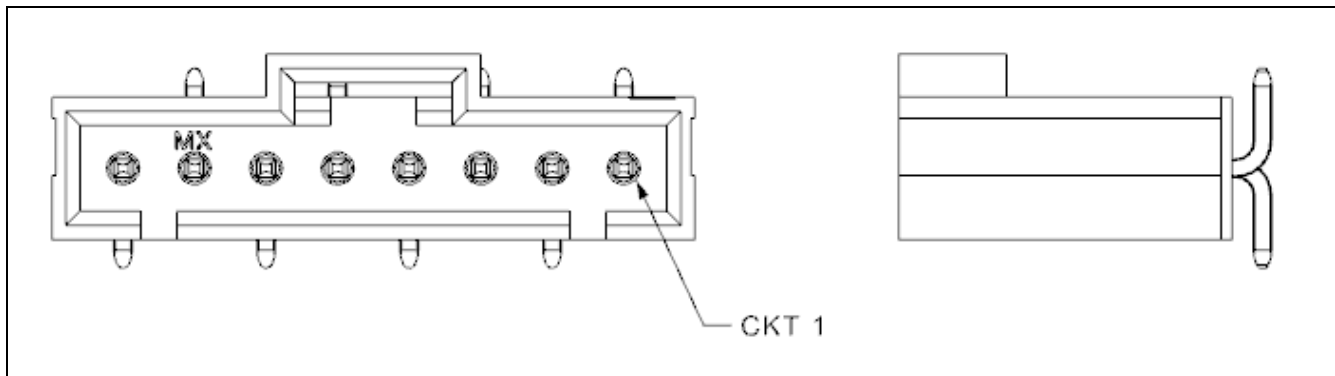
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**10.7 Right Angle Mount SMT Header, with active latch & PC board retention tri-peg
(Series: [70634](#))**



**10.8 Straight Mount SMT Header, with active latch & some with Pick & Place Cap
(Series: [74099](#))**



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