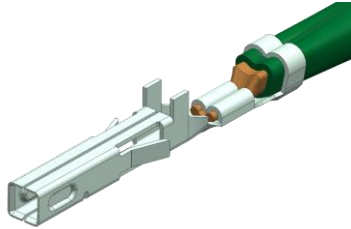
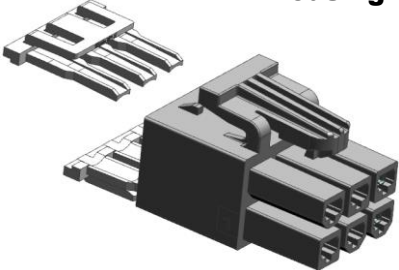
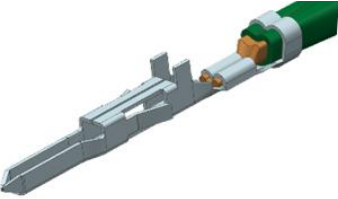
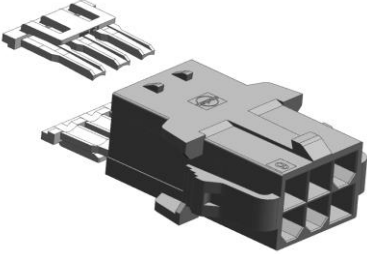
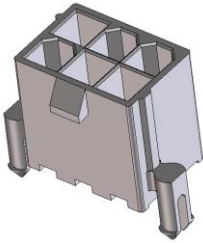
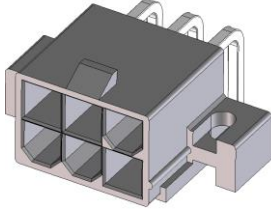


## MINI-FIT SIGMA CONNECTOR SYSTEM

See section 2.1 for series numbers

<b>Receptacle With TPA</b>	<b>Plug With TPA</b>	<b>Standard Header</b>
<p data-bbox="272 747 477 814"><b>Female Crimp Terminal</b></p>  <p data-bbox="237 1146 305 1171"><b>TPA</b></p> <p data-bbox="441 1222 607 1289"><b>Receptacle Housing</b></p> 	<p data-bbox="727 747 893 814"><b>Male Crimp Terminal</b></p>  <p data-bbox="685 1146 753 1171"><b>TPA</b></p> <p data-bbox="854 1222 974 1289"><b>Plug Housing</b></p> 	<p data-bbox="1065 772 1299 798"><b>Vertical Header</b></p>  <p data-bbox="1091 1167 1377 1192"><b>Right Angle Header</b></p> 

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# APPLICATION SPECIFICATION

## 1.0 SCOPE

This Application Specification covers the performance requirements for the MINI-FIT SIGMA Wire-To-Board, 4.20mm pitch dual row connector series using brass, phos bronze and high conductive copper alloy terminals with Tin and Gold plating terminated with 16 to 24 AWG wire using Molex crimp technology. The TPA (terminal position assurance) is intended to ensure the crimp terminals are fully seated and to prevent incidence of terminal back-out due to partially seated terminals. This document is NOT intended to be the final process definition nor is it intended to constrain design.

## 2.0 PRODUCT DESCRIPTION

### 2.1 PRODUCT NAME AND SERIES NUMBER(S)

WIRE-TO-BOARD CONNECTOR	
Description	Series Number
<b>MINI-FIT SIGMA DUAL ROW RECEPTACLE HOUSING</b>	172708
<b>Use with parts</b>	
Female Crimp Terminal	172718/202988
<b>Mates with parts</b>	
Right Angle Hdr, Dual Row	35318
Right Angle Hdr, Dual Row	44130
Right Angle Hdr, Dual Row	87427
Right Angle Hdr, Dual Row, Glow Wire Capable	172448
Right Angle Hdr, Dual Row, Reflow Capable	46991
Right Angle Hdr, Dual Row	5569
Vertical Hdr, Dual Row	5566
Vertical Hdr, Dual Row	35317
Vertical Hdr, Dual Row	43460
Vertical Hdr, Dual Row	47256
Vertical Hdr, Dual Row	87427
Vertical Hdr, Dual Row Glow Wire Capable	172447
Vertical Hdr, Dual Row Reflow Capable	46207
<b>MINI-FIT SIGMA SINGLE ROW RECEPTACLE HOUSING</b>	200453
<b>Use with parts</b>	
Female Crimp Terminal	172718/202988
<b>Mates with parts</b>	
Vertical Hdr, Single Row	172647
Right Angle Hdr, Single	5569
Right Angle Hdr, Single Row, Reflow Capable	172648
<b>MINI-FIT SIGMA TPA</b>	172709

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# APPLICATION SPECIFICATION

WIRE-TO-WIRE CONNECTOR	
Description	Series Number
<b>MINI-FIT SIGMA DUAL ROW RECEPTACLE HOUSING</b>	172708*
<b>Use with parts</b>	
Female Crimp Terminal	172718/202988*
Male Crimp Terminal	172765/203070*
<b>Mates with parts</b>	
Mini-Fit Sigma Dual Row Free Hang Plug Housing	172762
Mini-Fit Sigma Dual Row Panel Mount Plug Housing	172767
<b>MINI-FIT SIGMA SINGLE ROW RECEPTACLE HOUSING</b>	
<b>Use with parts</b>	
Female Crimp Terminal	172718/202988*
Male Crimp Terminal	172765/203070*
<b>Mates with parts</b>	
Mini-Fit Sigma Single Row Free Hang Plug Housing	200471
Mini-Fit Sigma Single Row Panel Mount Plug Housing	200488
<b>MINI-FIT SIGMA TPA</b>	
	172709

\*Note: 1. The Terminals 172718 shall use with 172765, and 202988 shall use with 203070 meanwhile. It is forbidden to cross use.

2. For W-to-W connector system, Mini-Fit Sigma Receptacle can only mate with Mini-Fit Sigma Plugs and TPA cannot mate with other plugs and TPA such as Mini-Fit TPA 2.0.

## 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See the appropriate sales drawings for the information on dimensions, materials, platings and markings.

SD-172718-0000	Famel Crimp Terminal
2029880001(SD)	Famel Crimp Terminal
SD-172765-0000	Male Crimp Terminal
2030700001(SD)	Male Crimp Terminal
1727080002-SD	Mini-Fit Sigma Receptacle Dual Row Housing
2004531000(SD)	Mini-Fit Sigma Receptacle Single Row Housing
1727620001-SD	Mini-Fit Sigma Dual Row Free Hang Plug Housing
1727670002-SD	Mini-Fit Sigma Dual Row Panel Mount Plug Housing
2004710001-SD	Mini-Fit Sigma Sigle Row Free Hang Plug Housing
2004880001-SD	Mini-Fit Sigma Sigle Row Panel Mount Plug Housing
1727090002-SD	Mini-Fit Sigma TPA

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# APPLICATION SPECIFICATION

## 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

2131370000-PS	Mini-Fit Sigma Product Specification
2029880002-PS	Mini-Fit Sigma Product Specification
AS-45499-001	Technical Advisory Moisturizing Nylon Connector Parts

## 4.0 GENERAL APPLICATION NOTES

### 4.1 Appearance:

- Parts conform to class "B" requirements of cosmetic specification PS-45499-002 except where noted on the sales drawings.

### 4.2 Connector Application

- This connector system is designed to mate gold plating to gold plating OR tin plating to tin plating. Never cross mate tin plated parts to gold plated parts.
- Connectors are not to be mated or unmated while circuits are live except per the current interrupt rating listed in product specification: 2131370000- PS and 2029880002-PS

### 4.3 Chemical Exposure:

- Do not store terminals or header assemblies near any chemicals listed below as they may cause corrosion in terminal contacts.

Alkalis	Ammonia	Citrates	Phosphates	Citrates	Sulphur Compounds
Amines	Carbonates	Nitrites	Sulphur Nitrites		Tartrates

### 4.4 Packaging

- Parts shall be packaged to protect against damage during handling, transit and storage. Nylon parts should remain in their original packaging until ready for use. Refer to Molex specification AS-45499-001 for moisturizing nylon connector parts.

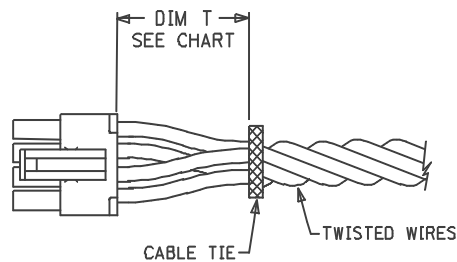
## 5.0 CRIMPED TERMINAL EXTRACTION

- Male and Female terminal extraction tool: See Molex part# 63824-6210 instructions online on website. Do not reuse terminals that have been removed with the extraction tool. The housings can be reused if it was not damaged.

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## 6.0 TIE AND OR WIRE TWIST LOCATION

CKT Size	Dim T Min.
2-6	.50" (12.7 mm)
8	.75" (19.1 mm)
10-12	1.00" (25.4 mm)
14-16	1.34" (34.0 mm)
18-20	1.45" (37.0 mm)
22-24	1.57" (40.0 mm)



Note: Pictorial view shown for illustration purpose.

- 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. This dimension is a general recommendation and may need to be adjusted for different wire gauges and wire type and insulation thickness and insulation material.
- Wires are to be dressed in such a manner to allow the terminals to float freely in the housing pocket.

## 7.0 CONNECTOR TESTING

- Do not probe female terminal – use only Flat faced pogo pin styles that will not enter the terminal opening.
- Refer the 2131370000- PS and 2029880002-PS for information on testing.

## 8.0 TERMINALS AND HOUSINGS

- 72718/202988 series terminals should only be used with Receptacle housing series’ 172708 (Dual row) and 200453(Single Row)
- 172765/203070 series terminals should only be used with Plug housing series’ 172762/172767 (Dual row) and 200471/200488(Single Row).

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## 9.0 TERMINAL INSERTION INTO HOUSING

9.1 Terminals are to be inserted in the housing as shown below in Figure 1 and 3. Notice the orientation of the stop tabs. Do not force terminals into the housing cavity. The terminal and housing are designed with features that provide some light resistance during insertion as well as retention after insertion but if excessive resistance is felt during insertion pull terminal back out and double check that the terminal orientation is per Figure 1 and 3. Terminals are to be inserted until they are fully seated as shown in Figure 2 and 4 and cannot fall out or be pulled out easily. The terminal stop tabs provide a stopping surface and the locking tangs provide a light audible click to indicate a fully inserted terminal.

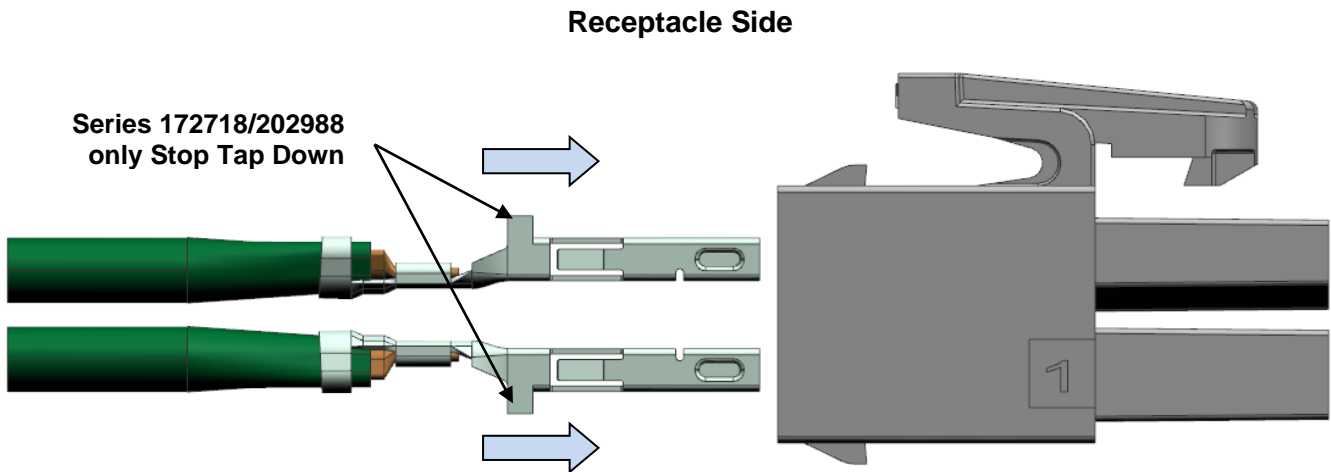


Figure 1

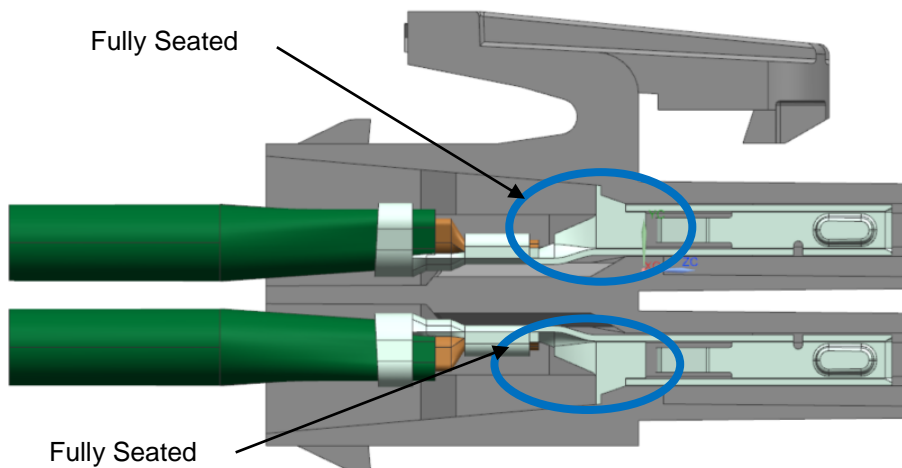


Figure 2

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### Plug Side

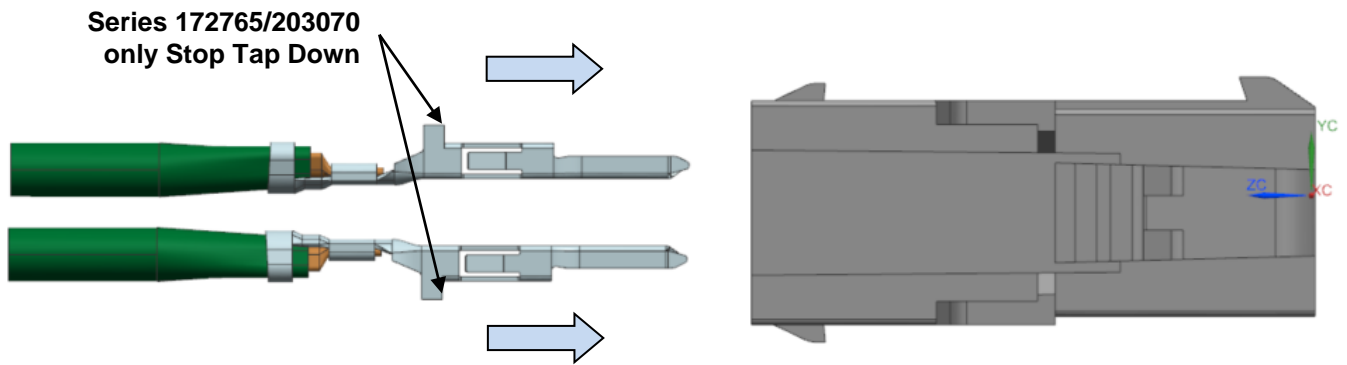


Figure 3

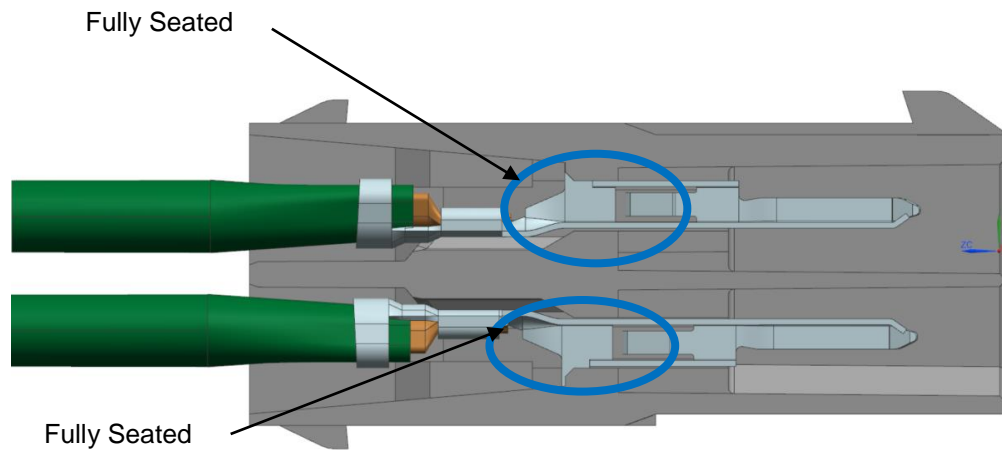


Figure 4

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9.2 Terminal and Housing is designed in such a way of housing pocket can accept orientation only in 0 degree. I.e 90, 180, 270 degrees oriented terminals will not enter pocket as shown in Figure 5

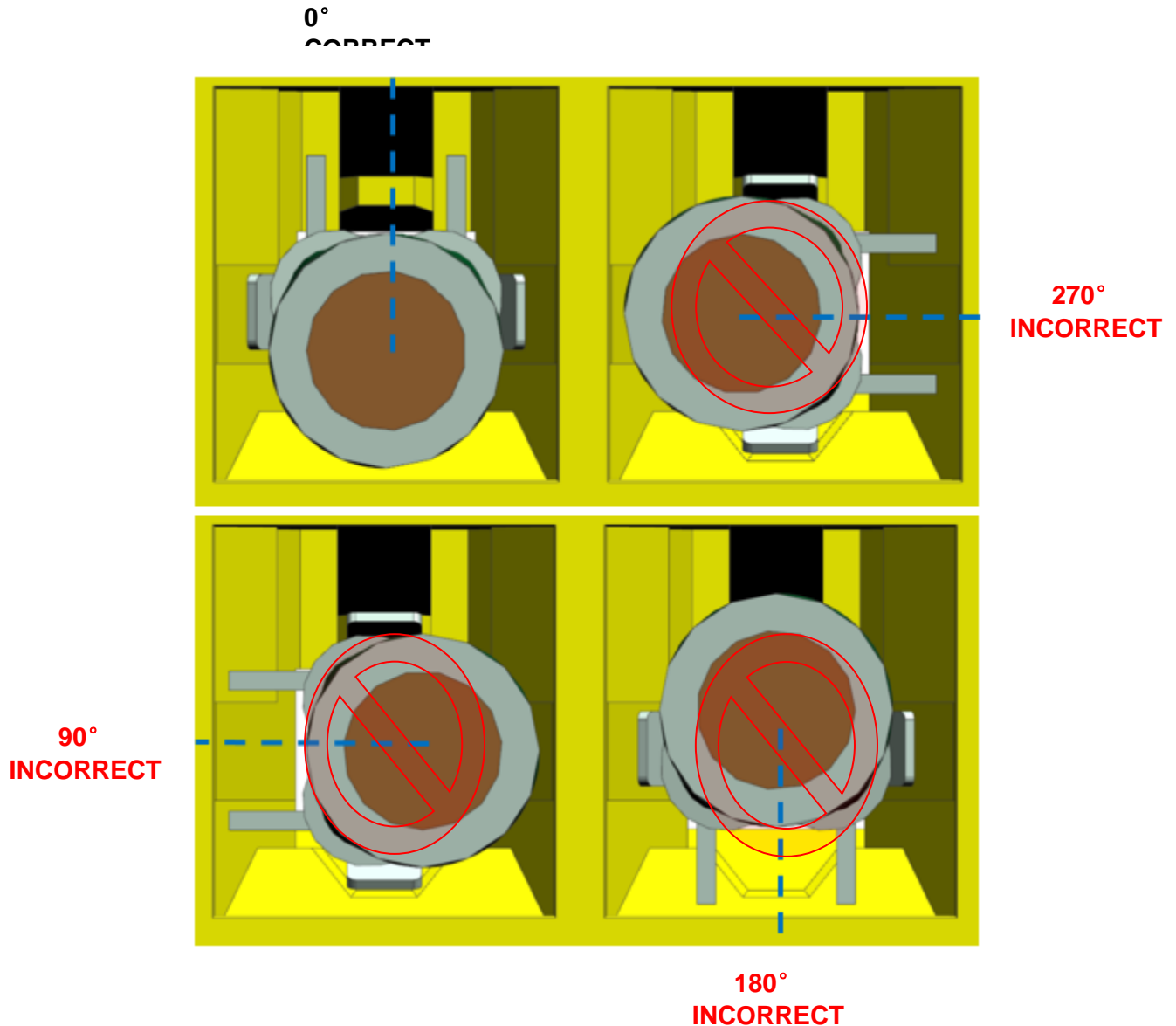
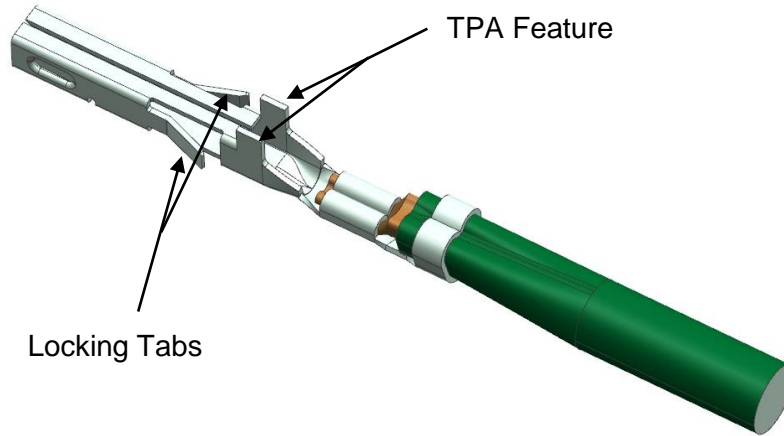


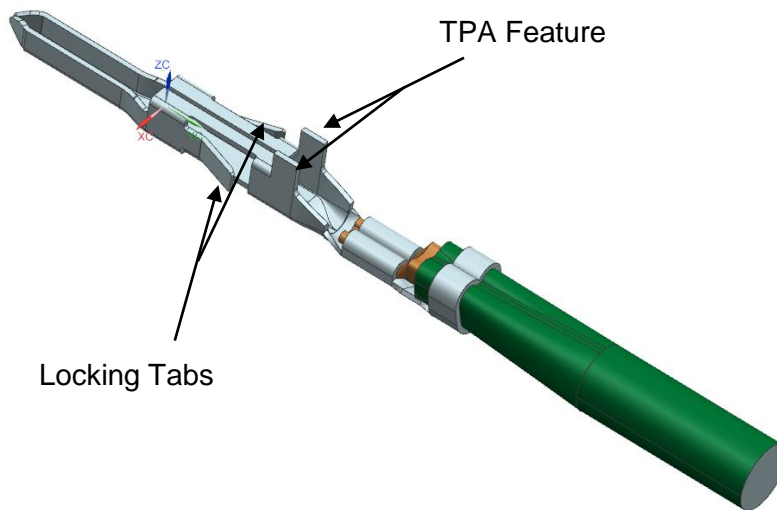
Figure 5

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**Female Terminal**



**Male Terminal**

- Ensure terminals are fully seated and locked during terminal insertion to the receptacle/plug housing.

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## 10.0 MINIFIT SIGMA PLUG HOUSING INSERTION INTO PANEL CUTOUT

The plug panel locking latch is available for multiple thickness panel, pls refer proper SD for more details. Insertion in the Panel cut-off from the mating side of Plug. The panel locking latch features, when used properly, provide an audible click to indicate proper installation, and inserted as shown below in Figure.

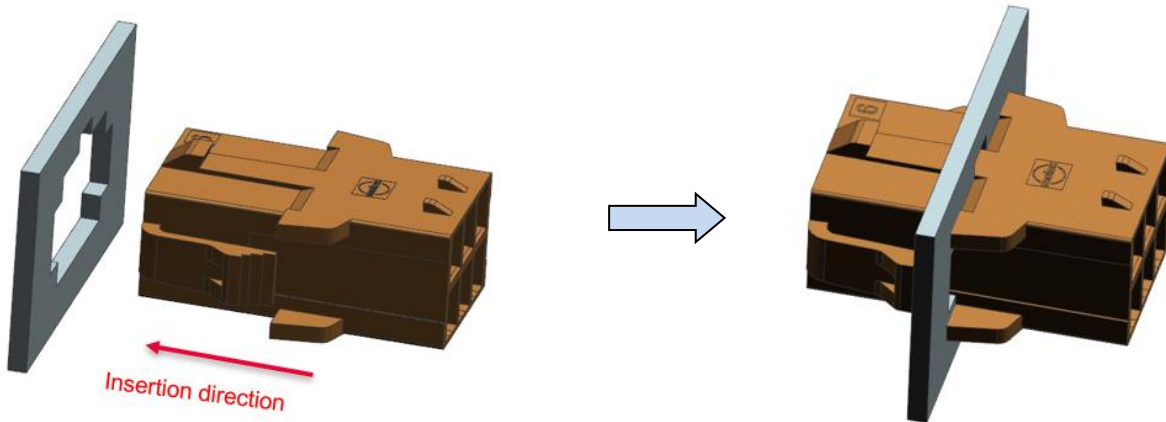
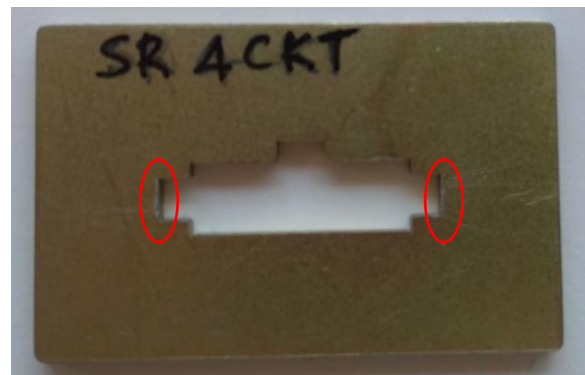
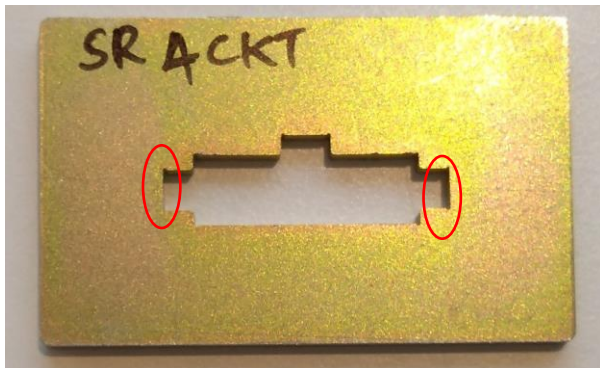


Figure 5

Sharp edges on the Panel cutout will restrict or will make plug housing insertion difficult. Hence sharp edges need to be removed before inserting the plug housing parts as shown in below images.



Sharp corners removed at latch insertion area

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## 11.0 TPA ASSEMBLY

The TPA and Housing are designed with latches and locking features that hold the TPA in place after assembly. The TPA's are placed into the housing after terminals inserted in Housing. See Figures 6 and 7 for proper TPA orientation after assembly. In this case just push the TPA a bit further to allow the other latch to engage. The TPA is NOT designed to increase terminal retention in the housing. It is intended to ensure the crimp terminals are fully seated and to prevent the incidence of terminal back-outs due to partially seated terminals.

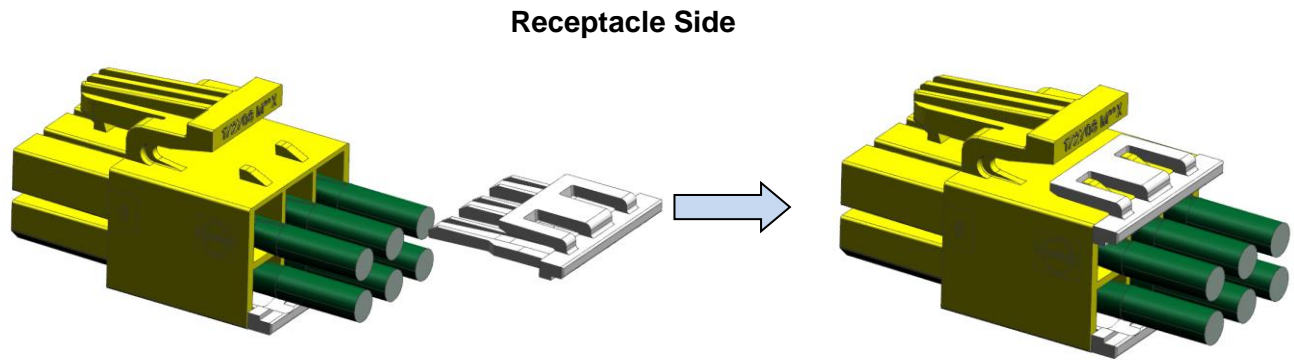


Figure 6

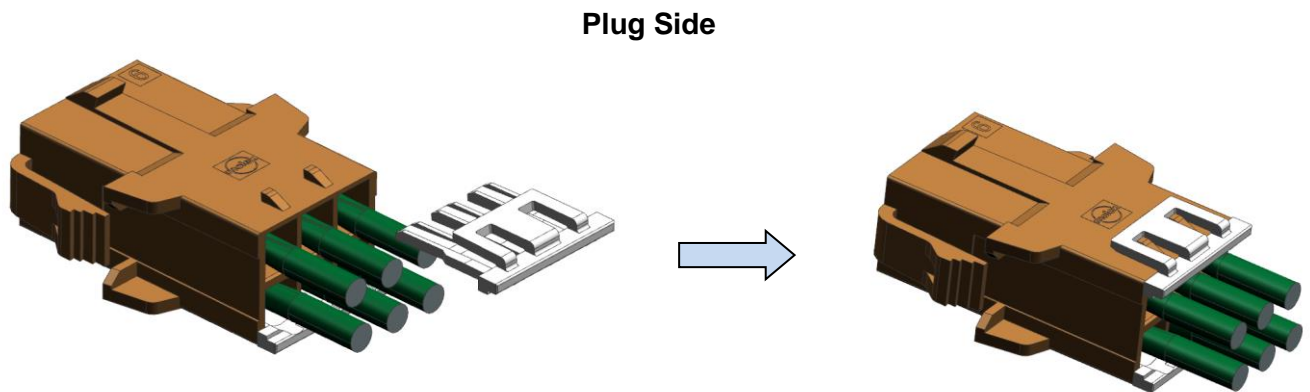
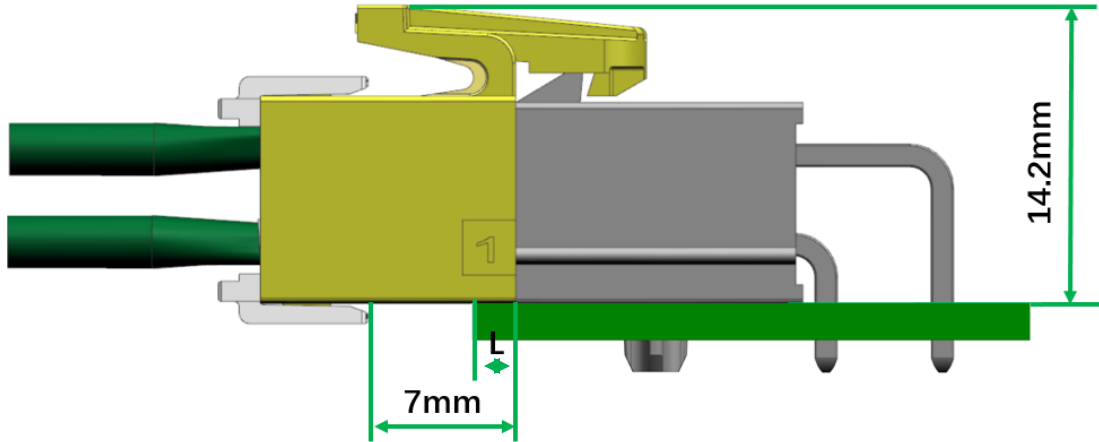


Figure 7

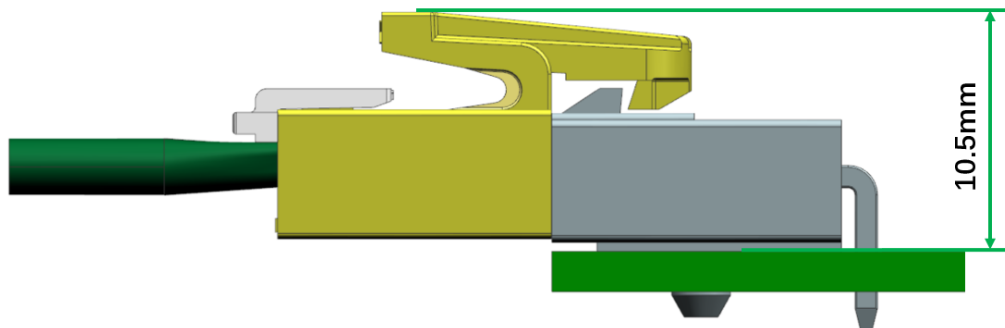
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## 12.0 HEADER ASSMBLY

- Mate the receptacle side to with the appropriate Header, pls refer proper SD for more details
- 



Dual Row



Single Row

Notes: To avoid interface between the PCB and the receptacle. Customer could adjust the position of Header from edge of the PCB (Dimension "L") as in the SD

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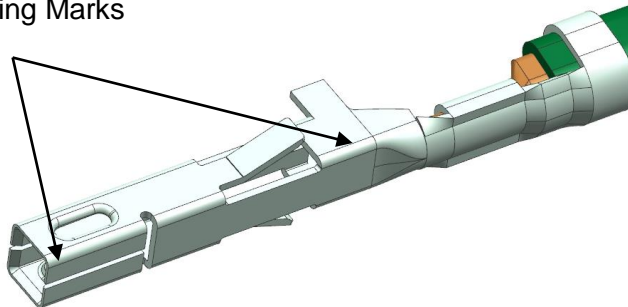
## 13.0 TERMINALS

### 13.1 Crimp Terminal Appearance

- Forming marks on female terminal are normal. These are due to stretching of the plating during the forming process and are superficial cracks on the plating surface.
- 

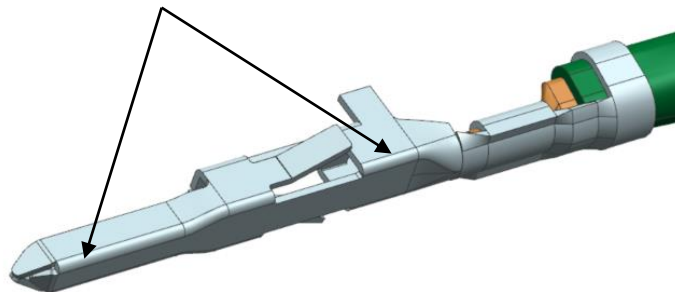
#### Female Terminal

Forming Marks



#### Male Terminal

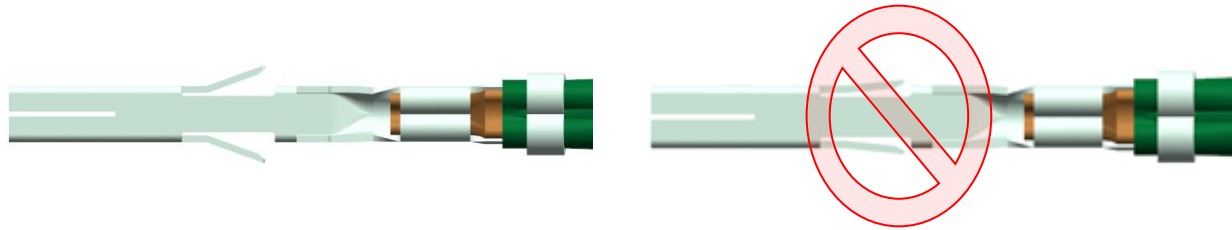
Forming Marks



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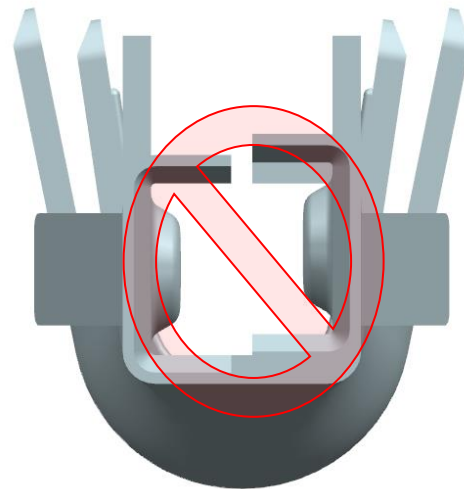
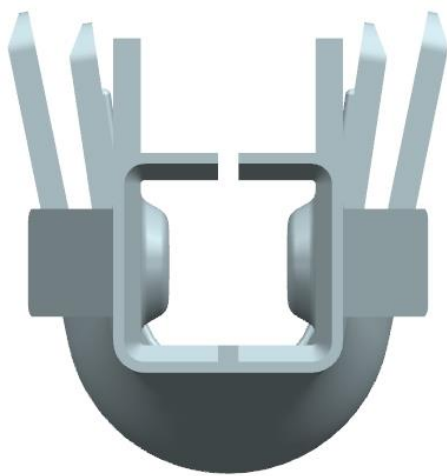
### 13.2 Crimp Terminal Function

- DO NOT use terminals with damaged locking tabs or front face:



Normal Locking Tab

Collapsed Locking Tab



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# APPLICATION SPECIFICATION

## 13.3 Crimp Terminal Handling

- Due to exposed terminal interface, keep crimp terminals on prepackaged reel until they are crimped onto wires. Store and handle crimped terminals so the interface does not make contact with other terminals or foreign objects. If terminal interface is damaged please discard prior to assembly.

## 13.4 Crimping

- For acceptable crimp tools and specifications see application tooling section on Molex.com listed for each terminal part number.
- Use with multi strand wire only. Single strand wire should not be used.
- Male and female crimp terminals are designed for single wire crimping only, no double wire crimping is allowed.
- Use only Molex specified crimp tooling, refer to Molex.com for acceptable crimp tooling. Crimped terminals must also meet Molex crimp specifications. Using crimp tooling/specifications other than specified voids any product warranties and will negatively impact mechanical and electrical performance.

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