

2 PIECE BOARD-TO-BOARD 201-01-123

1. SPECIFICATION DISTRIBUTION

No restrictions for issue

2. SCOPE

This specification contains the application notes for the 9159 two part connectors.

3. PRODUCTS

10-9159 – Standard SMT plug connector (drawing ref 10-9159-01_100S) See section 4 of this spec

20-9159 – Standard SMT Socket connector (drawing ref 20-9159-01_100S) See section 4 of this spec

11-9159 – Standard Wired plug connector (drawing 11-9159-01_100S) See section 5 of this spec

13-9159 – Right angle SMT plug (drawing ref 13-9159-01_100S) See section 4 of the spec

14-9159 – IDC Wired plug connector, right angle (drawing ref 14-9159-01_100S) See section 6 of this spec

24-9159 – IDC Wired socket connector, right angle (drawing ref 24-9159-01_100S) See section 6 of this spec

22-9159 – Standard Top loading socket connector (drawing 22-9159-01_100S) See section 7 of this spec

80-9159 – Standard locking latch (drawing 80-9159-4200-00-000S) See section 8 of this spec

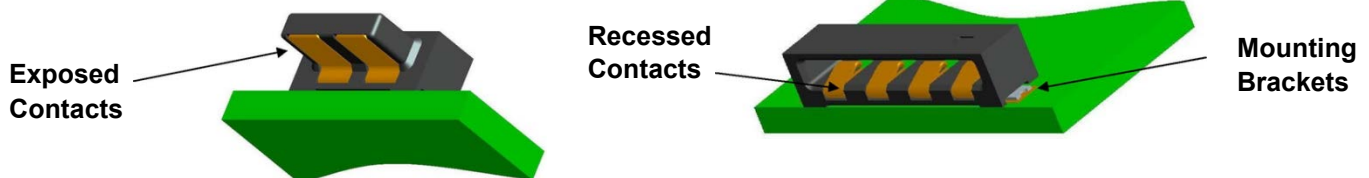
58-9159 – Special 2way shorting socket (drawing 58-9159-002-000-006S) see section 9 of this spec

Note: The connectors in the product series are available in standard white colour (black is special order). The colours used in this document are for illustration purposes only.

4. APPLICATION NOTES SMT PLUG & SOCKET

4.1. STANDARD SMT PLUG (10-9159) AND SOCKET (20-9159)

Plug Connector (exposed contacts) 10-9159-00X-101-X16



Socket Connector (recessed contacts) 20-9159-00X-101-X16

Provides board-to-board connection with zero gap between boards. Anchor brackets within connector provide additional anchoring to PCB

Standard SMT plugs and sockets are available in 2, 3, 4, 5 and 6 way versions. Refer to drawings 10-9159-01_100S and 20-9159-01_100S for full details.

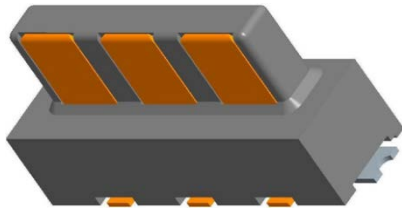
Refer to product spec 201-01-119 for details specifications

RoHS compliant

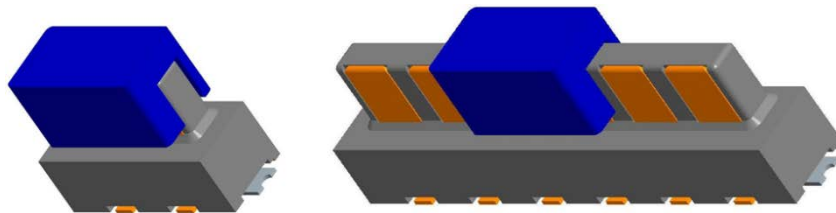
Reflow temperature profile, see spec 201-01-119

Recommended solder paste thickness 0.15mm

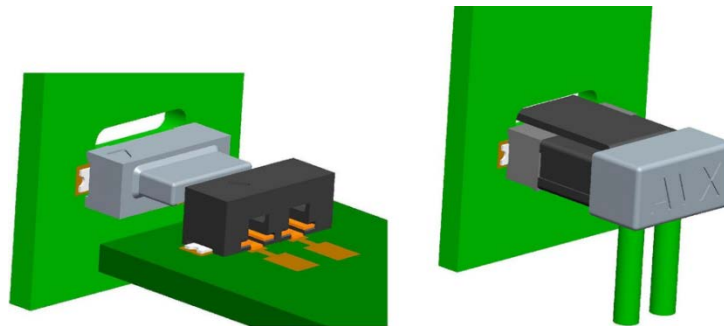
4.2. RIGHT ANGLE SMT PLUG (13-9159)



Plug connector (exposed contacts) 13-9159-00X-101-X16



Supplied with centrally located cap to aid pick and place, cap to be removed after soldering operation.



Allows assembly of boards at right angles.

With 24-9159 IDC wired socket.

5. APPLICATION NOTES STANDARD WIRED PLUG ASSEMBLY

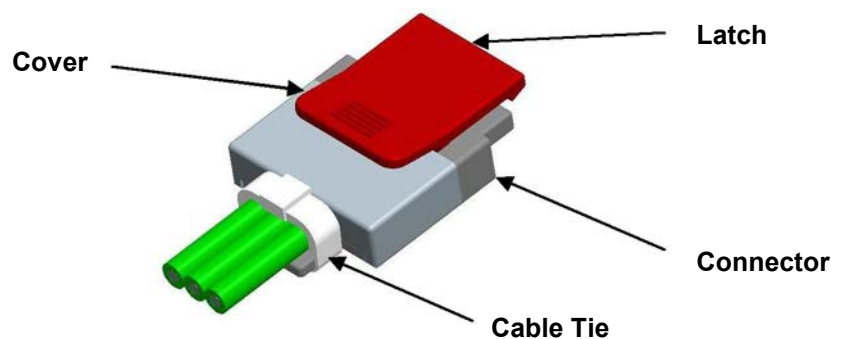
5.1. STANDARD WIRED PLUG ASSEMBLY (11-9159)

The assembly shown is for a full connector using all the optional components.

Minimum cable diameter 1mm, maximum cable diameter 1.6mm using accessory covers.

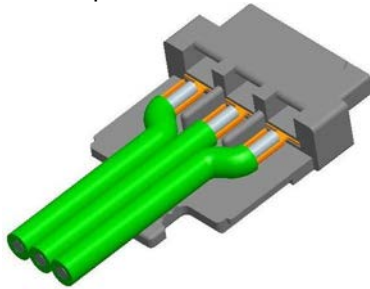
Larger wires can be terminated but cover cannot then be used.

The cable tie will not retain smaller wires (less than 1mm).



5.2. WIRED PLUG CONNECTOR ASSEMBLY PROCESS (11-9159)

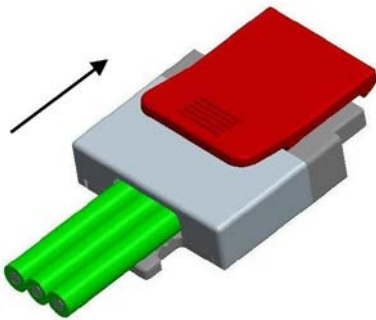
Step 1: Strip wire insulation back 2mm of the centre conductor is exposed.



Solder wire in solder bucket, we recommend using low melting point solder to reduce possible damage to connector.

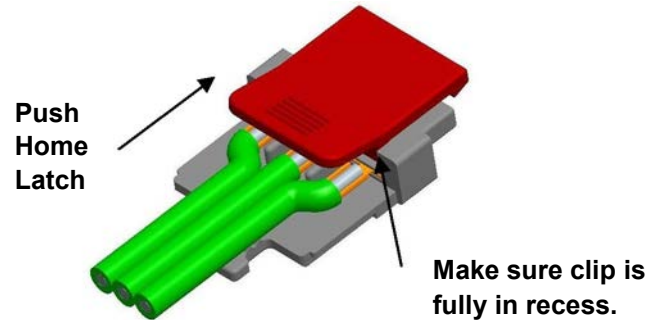
No excess solder peaks on wire joint. Any excess solder may prevent the correct assembly of the latch of cover.

Step 3: Fit cover. The slots in the cover slide over the ribs on the edges of the connector moulding.



If the cover does not slide easily up to the rear of the connector body, check for obstructions, miss-routed cable or excessive solder on joints

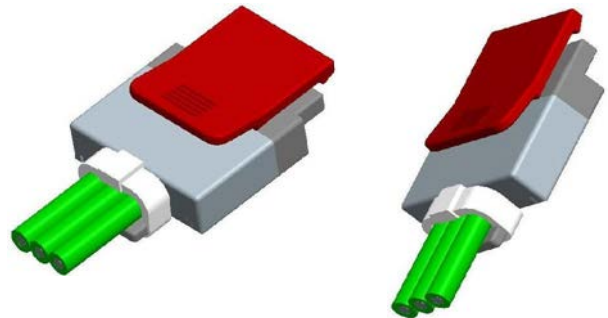
Step 2: Insert optional latch.



Solder wire in solder bucket, we recommend using low melting point solder to reduce possible damage to connector.

No excess solder peaks on wire joint. Any excess solder may prevent the correct assembly of the latch of cover.

Step 4: Fit cable tie. The cable tie wraps around the wires and anchors them to the connector body neck and also retains the cover to the connector.



Loop cable tie around the wires and the neck at the end of the connector base. The ratchet should be pulled tight to achieve wire anchoring. Trim off the excess cable tie.

5.3. WIRED PLUG OPTIONS (11-9159)

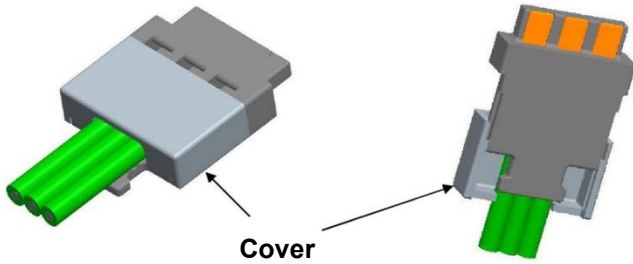
The standard wired plug connector is supplied with the cable tie only. The connector can be used in this format, but there are two optional parts available to fit this connector.

A cover is available to protect the soldered contacts and prevent tampering or touching of the soldered contact joint.

Also a latch is available which securely locks the mating plug connector to the mating socket.

Please note the latch will only operate on standard sockets (20-9159).

5.3.1. WIRED PLUG OPTIONS – COVER



The cover is available for each size of connector to fit the wired plug. The cover may be used with or without latch.

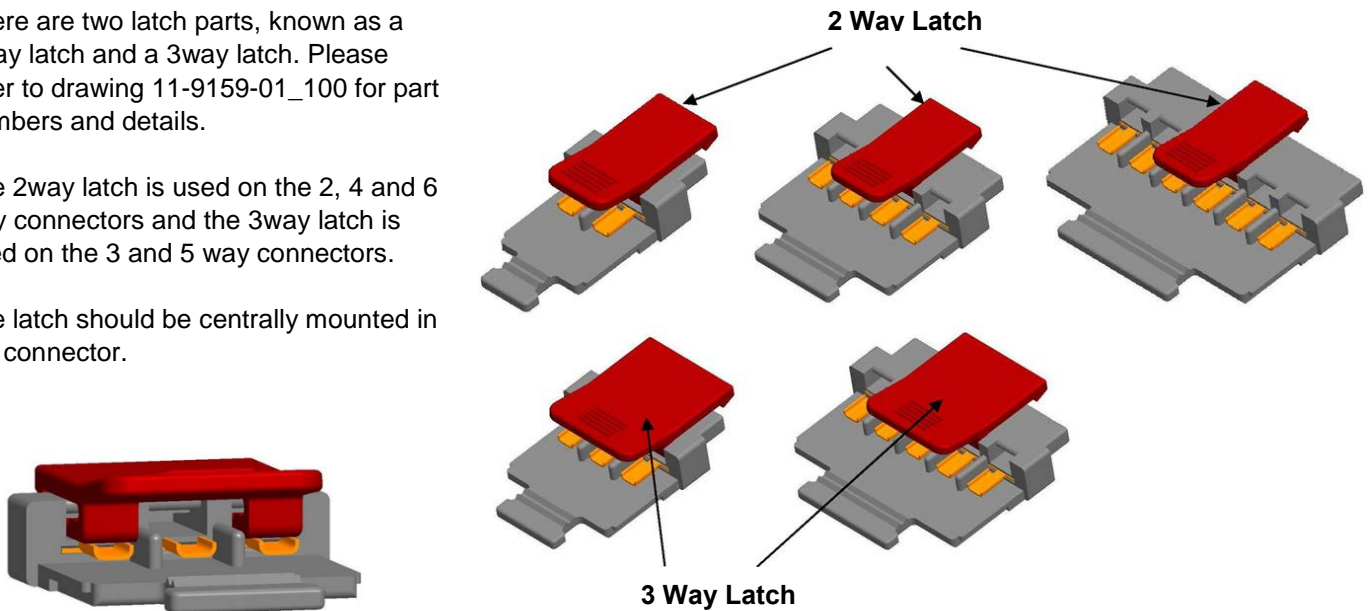
Please note that the cover only accepts the number of wires suitable for connector to a maximum insulation diameter of 1.6mm. If wire of a larger size is required, then the standard cover cannot be used. Please refer to drawing 11-9150-01_100S for part numbers.

5.3.2. WIRED PLUG OPTIONS – LATCH

There are two latch parts, known as a 2way latch and a 3way latch. Please refer to drawing 11-9159-01_100 for part numbers and details.

The 2way latch is used on the 2, 4 and 6 way connectors and the 3way latch is used on the 3 and 5 way connectors.

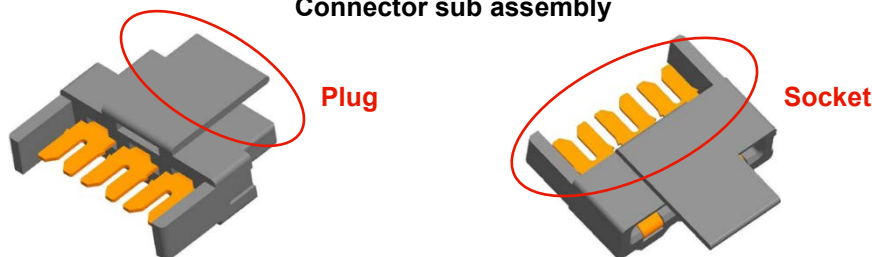
The latch should be centrally mounted in the connector.



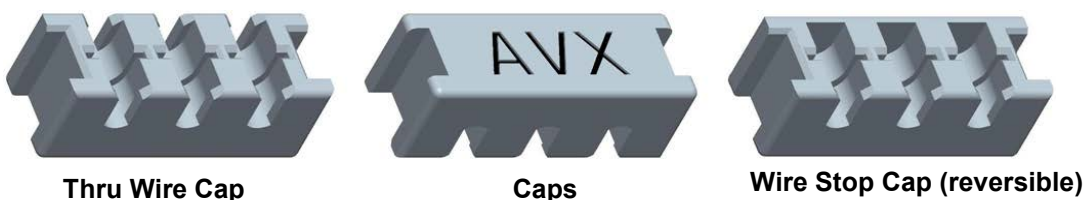
6. APPLICATION NOTES IDC WIRED RIGHT ANGLED PLUG AND SOCKET

6.1. IDC WIRED PLUG ASSEMBLY (14-9159) AND SOCKET ASSEMBLY (24-9159)

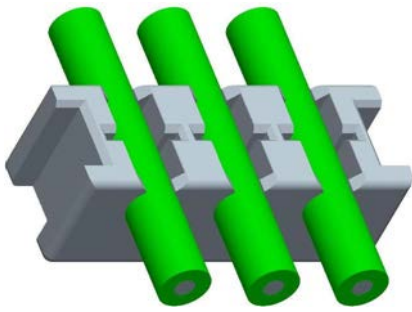
Connector sub assembly



Connectors available for 22AWG and 24AWG stranded wire with an insulation diameter of 1.10mm to 1.60mm. Assembly is permanent.

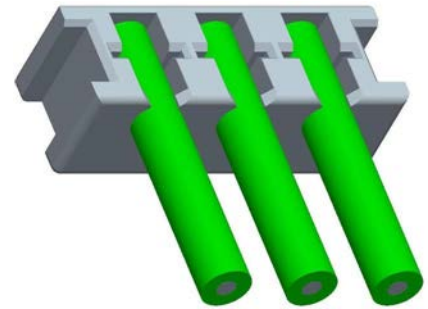


6.2. WIRE INSERTION IN CAP



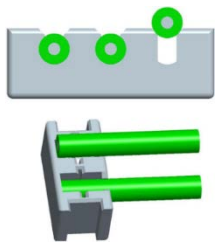
Insert wires into slots in cap. On wire stop version push wire end against the stop face.

See section 6.3 for tool assisted wire insertion.

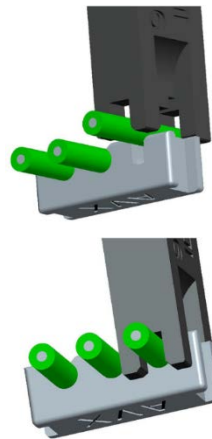


6.3. WIRE INSERTION IN CAP WITH TOOL

Use wire insertion tool inserted into the universal handle.



Lay the wire on the top of slot. On wire stop versions align end of wire with stop.



Align tool with wire and push down into slot.

6.4. IDC WIRED CONNECTOR ASSEMBLY

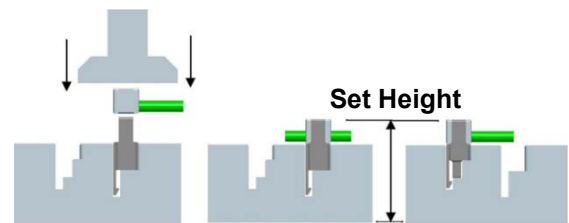
Step 1: Insert the connector sub assembly into the correct slot in the assembly support block.



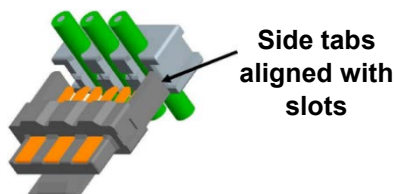
14-9159 Plug

24-9159 Socket

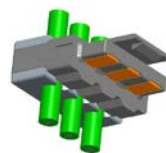
Step 3: Using a flat bottom (flat rock) tool in a press to push the cap down until it butts onto the body. Set height approx. 15.95mm.



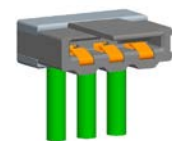
Step 2: Insert the loaded cap onto the end of the contacts. Make sure the side tabs are correctly aligned. The same procedures apply to the plug or socket.



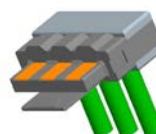
Wire stop can be mounted with the wires down or up from the connector (latch on top of connector).



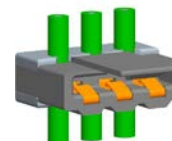
Plug – thru wire assembly



Socket – wire stop assembly (wires down)



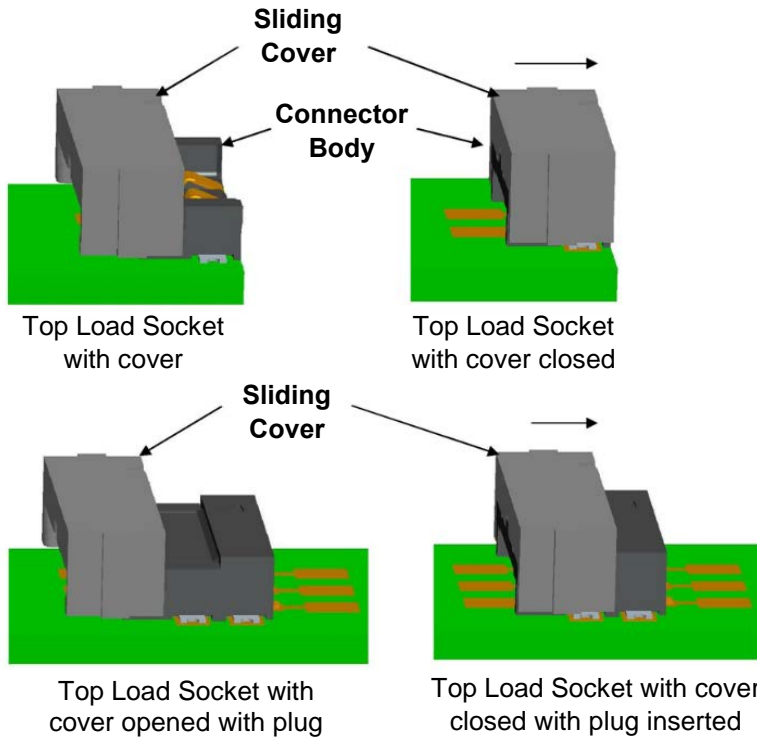
Plug – wire stop assembly (wires up)



Socket – thru wire assembly

7. APPLICATION NOTES STANDARD TOP LOADING SOCKET

7.1. STANDARD TOP LOADING SOCKET (22-9159)



The top-loading socket is designed to be used with the standard plug connector (10-9159) when used in an end to end strip configuration.

The purpose of the top load socket is to allow the fitting and removal of a PCB in a line of connected PCB's without the disassembly of the entire row of PCB's.

The principal used is that the top load socket has a sliding top cover which when slid back allows the plug to be removed vertically.

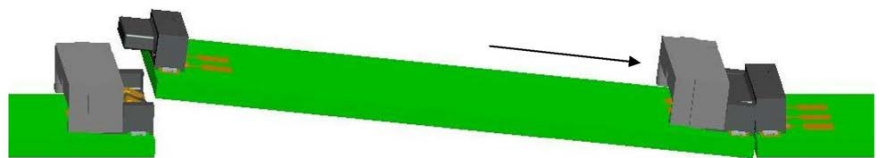
7.2. TOP LOADING SOCKET BOARD REMOVAL/FITTING PROCESS

To assemble new strips of PCB's, ensure all top covers of Top load sockets are close and insert plugs into the top load sockets in a normal mating manner.

To remove a PCB from a assembled strip of PCB's, slide back the top covers of the board to be removed and also the adjacent board and remove the PCB by lifting out the free end and sliding out the socket from the under the plug on the other end.

To fit a PCB you simply reverse the procedure above. The details below show the process of fitting a PCB into a line of pre-assembled PCB's.

Slide the cover back on the mating socket(s); slide fully back to stop. Insert the socket end of the new PCB onto the free plug.



Drop the plug end of the PCB into the top-loading socket.



Slide the covers forward over the plugs at both ends until they lock into the normal position.

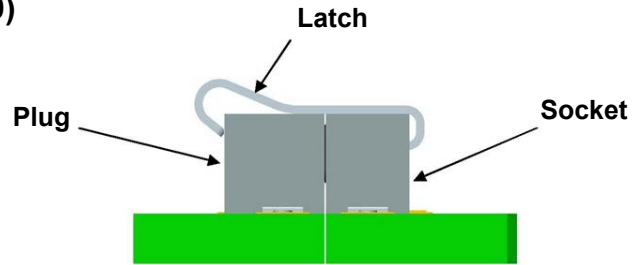


8. APPLICATION NOTES STANDARD RETAINING CLIP

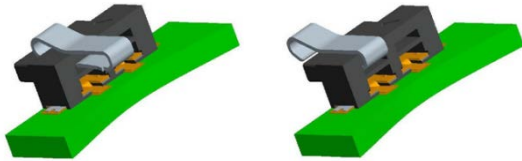
8.1. STANDARD RETAINING CLIP (80-9159)

The retaining clip is designed to lock together a pair of mating plug (10-9159) and socket (20-9159) connectors.

This clip will not fit the top load socket or the wired plug.

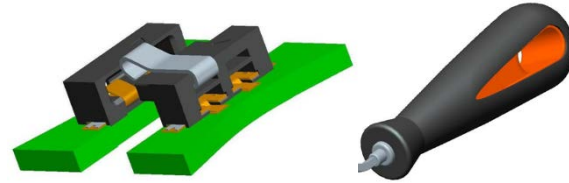


8.2. INSERTING THE RETAINING CLIP



Slide retaining clip into slot in rear of plug. We offer an insertion tool to assist with the fitting of the clip.

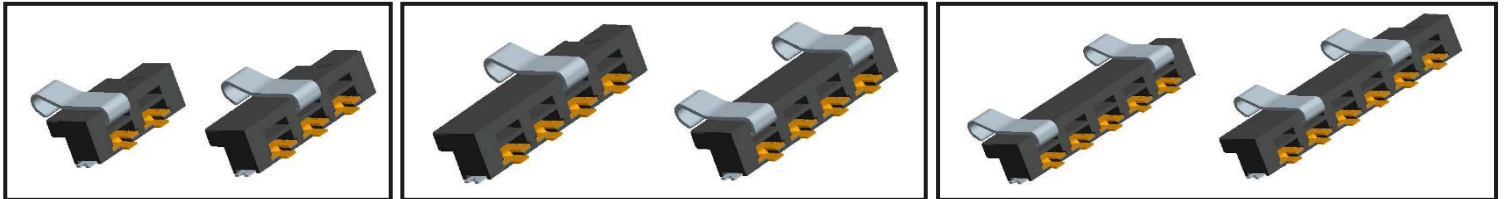
Tool reference 06-9159-7025-01-000



Mate plug onto socket, correctly positioned clip should latch over socket insulator with no gap between connectors.

8.3. RECOMMENDED NUMBER OF CLIPS

It is recommended to use one clip on the 2 and 3 way connector and two clips on the 5 and 6 way connector. The 4 way will normally only require one clip but two may be used.



9. APPLICATION NOTES SPECIAL SHORTING LINK

9.1. SPECIAL SHORTING LINK (58-9159)

The special shorting link is designed to fit at the end of a PCB strip section to short the final 2 contacts and provide a return loop.

This allows the user to use the same PCB's throughout and simply clip the special shorting link on the last plug to complete the circuit.

The special shorting link is only available as a 2way socket.

The connector has a built in integral latch, which locks in onto the mating plug connector.

