

**NOTE**

All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters. Unless otherwise specified, dimensions have a tolerance of ± 0.13 mm and angles have a tolerance of $\pm 2^\circ$. Figures and illustrations are for identification only and are not drawn to scale.

1. INTRODUCTION

This specification covers the requirements for application of the Pluggable Screwless Wire Connector System. The plug has a color-coded label to aid assembly. The plug terminates to 18 AWG solid wire and engages a printed circuit (pc) board mounted header. The header also has a section to accept a Micro MATE-N-LOK* Plug terminated to 20-30 AWG wire.

When corresponding with TE Connectivity Personnel, use the terminology provided in this specification to facilitate your inquiries for information. Basic terms and features of this product are provided in Figure 1.

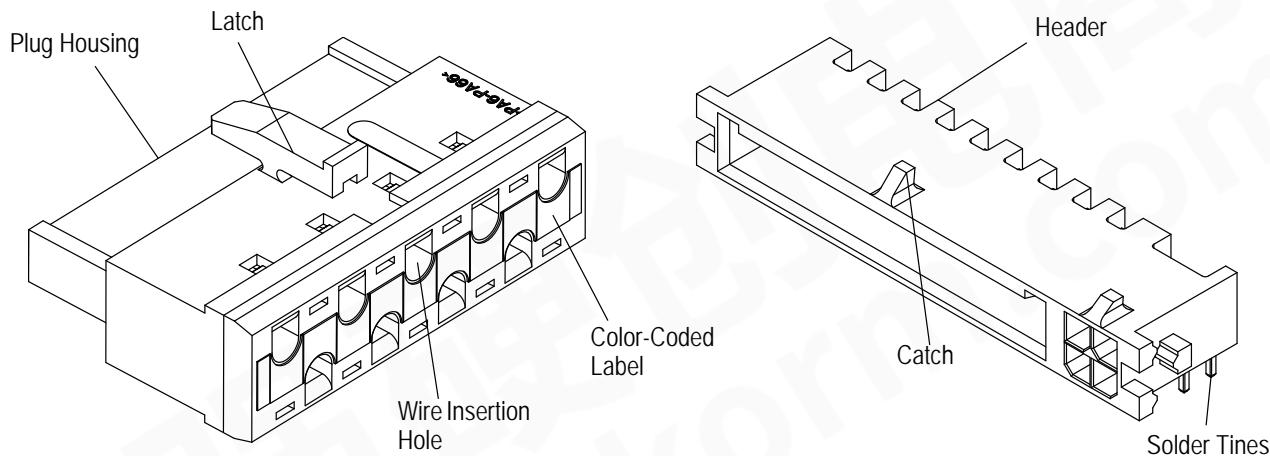


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

Revisions to this application specification include:

- Updated document to corporate requirements
- Updated company name and company logo

2.2. Customer Assistance

Reference Product Base Part Numbers 1604248 and 1877428 and Product Code K366 are representative numbers of Pluggable Screwless Wire Connector System. Use of these numbers will identify the product line and help you to obtain product and tooling information. Such information can be obtained through a local TE Representative, by visiting our website at www.te.com, or by calling PRODUCT INFORMATION or the TOOLING ASSISTANCE CENTER at the numbers at the bottom of page 1.

2.3. Drawings

Customer Drawings for specific products are available from the service network. The information contained in Customer Drawings takes priority if there is a conflict with this specification or with any technical documentation supplied by TE.

2.4. Specifications

Product Specification 108-2182 provides product performance requirements and test information. Application Specification 114-13000 provides information for the Micro MATE-N-LOK Plug.

2.5. Manuals

Manual 402-40 is available upon request and can be used as a guide in soldering. This manual provides information on various flux types and characteristics along with the commercial designation and flux removal procedures. A checklist is included in the manual as a guide for information on soldering problems.

3. REQUIREMENTS

3.1. Storage

A. Ultraviolet Light

Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the connector housing material.

B. Shelf Life

The connectors should remain in the shipping containers until ready for use. The connectors should be used on a first in, first out basis.

3.2. Special Characteristics

Pluggable Screwless Wire Connectors have an operating temperature range of -30 to 105°C [-22 to 221°F].

3.3. Material

The housings are made from UL 94 V-O rated material and the contacts are made from copper alloy with tin over nickel underplate finish.

3.4. Wire Selection and Preparation

A. Type

The wire size for these connectors is 18 AWG solid wire.

B. Preparation

Insulation strip length, as well as the maximum insulation diameter are provided in Figure 2.



CAUTION

Do not nick, scrape, or cut the wire conductor during the stripping operation.

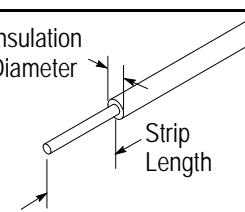
| WIRE SIZE (AWG) | STRIP LENGTH | INSULATION DIAMETER (MAX) |  |
|--------------------|--------------|---------------------------------|--|
| 18 | 9.53 ±0.80 | 2.90 | |

Figure 2

3.5. PC Boards

A. Material and Thickness

The pc board material shall be glass epoxy (FR-4, G-10). The connectors have been designed to accommodate a pc board thickness range of 1.4 to 1.8 mm. Contact the Product Information Center or the Tooling Assistance Center at the number listed at the bottom of page 1 for suitability of other board materials and thicknesses.

B. Tolerance

The maximum bow of the pc board shall be 0.03 mm over the length of the connector.

C. Layout

The mounting and contact holes in the pc board must be precisely located to ensure proper placement and optimum performance of the connector. See Figure 3.

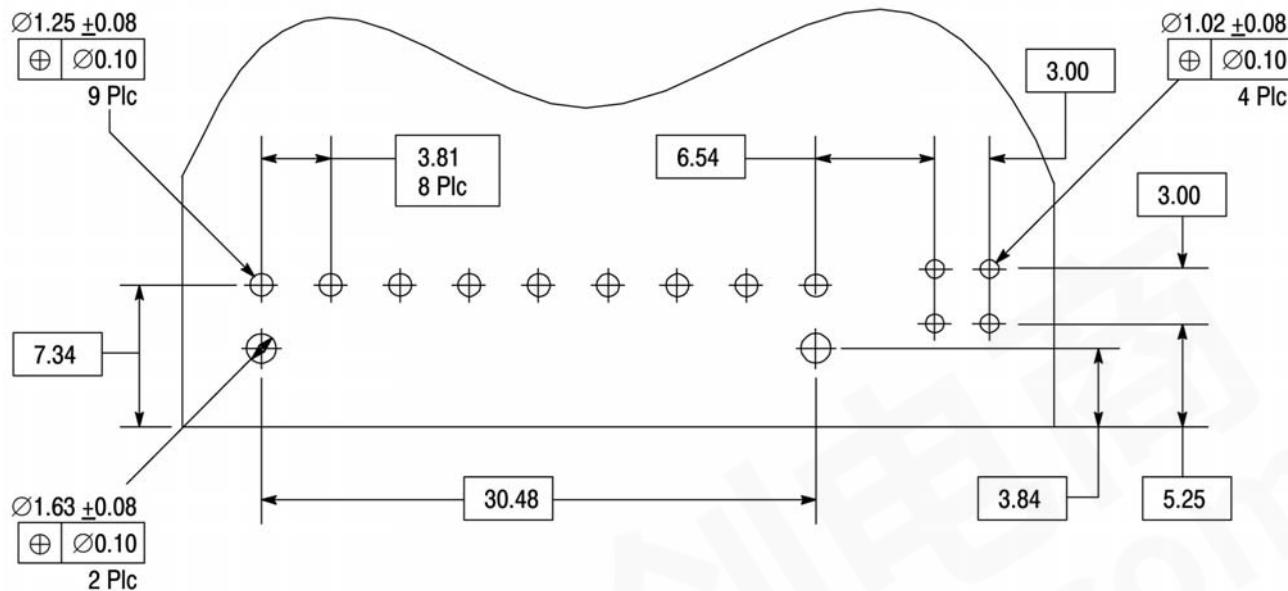


Figure 3

D. PC Board Holes

The holes in the pc board must be precisely located to ensure proper placement and optimum performance of the connector, and must be prepared to the requirements provided in Figure 4.

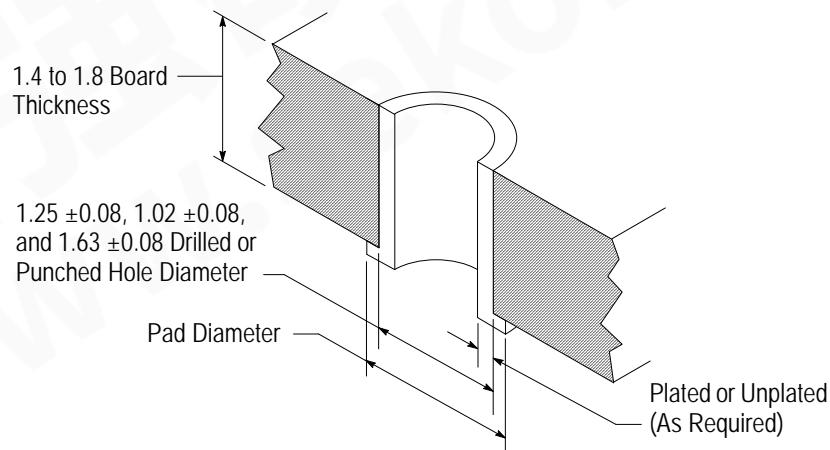


Figure 4

3.6. Connector Placement



CAUTION

The connector should be handled only by the housing to avoid deformation, contamination, or other damage to the contact tines.

The connectors are applied to a pc board manually. Determine which hole in the pc board is to receive the number one contact tine. Start all solder tines into the board; then, when the contact tines start to engage the board, press the connector until it seats on the pc board.

The header has features that engage the pc board to help in retention during soldering.

3.7. Soldering Header

Pluggable Screwless Wire Headers can be soldered. Refer to Paragraph 2.5 for informational material that is available for establishing soldering guidelines.

A. Flux Selection

The connector solder tines must be fluxed prior to soldering with a mildly activated flux. Selection of the proper flux will depend on the type of pc board and other components mounted to the board. Additionally, the flux will have to be compatible with the wave solder line, manufacturing, and safety requirements.

B. Cleaning

After soldering, removal of fluxes, residues, and activators is recommended. Consult with the supplier of the solder and flux for recommended cleaning solvents.

C. Drying

Headers can withstand a continuous temperature of -30 to 105°C [-22 to 221°F].



CAUTION

Excessive temperatures may cause housing degradation.

D. Checking Installed Connector

The housing must seat on the pc board to within the tolerance shown in Figure 5.

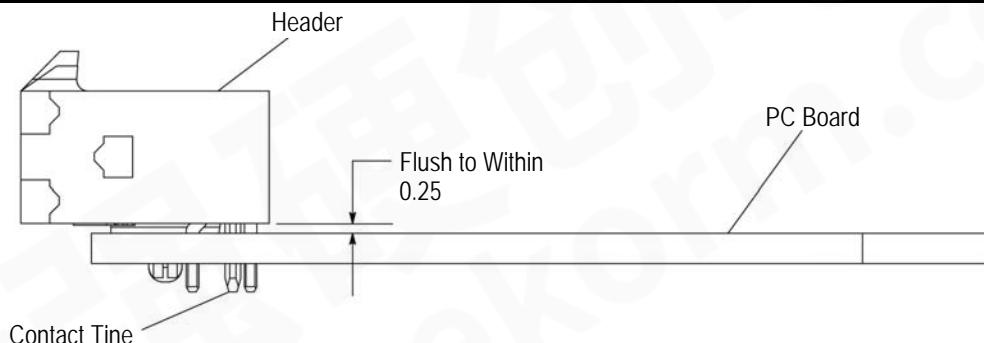


Figure 5

3.8. Wire Insertion

The stripped wire is inserted into wire insertion hole of the plug until it bottoms. Pull back gently to ensure that the wire has engaged with the contact. See Figure 6. Plug can be hand-held, fixtured, or engaged with header as shown during wire insertion.

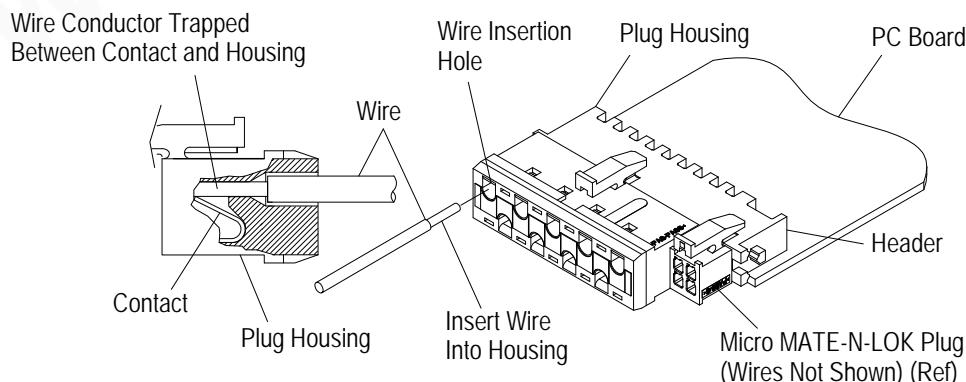


Figure 6

3.9. Strain Relief

Wires must be bundled together and supported with fixed clamps. Wires must remain perpendicular to the housing and avoid an excessively sharp bend radius. The maximum distance for the fixed clamp, measured from the housing to the fixed clamp, is shown in Figure 7.

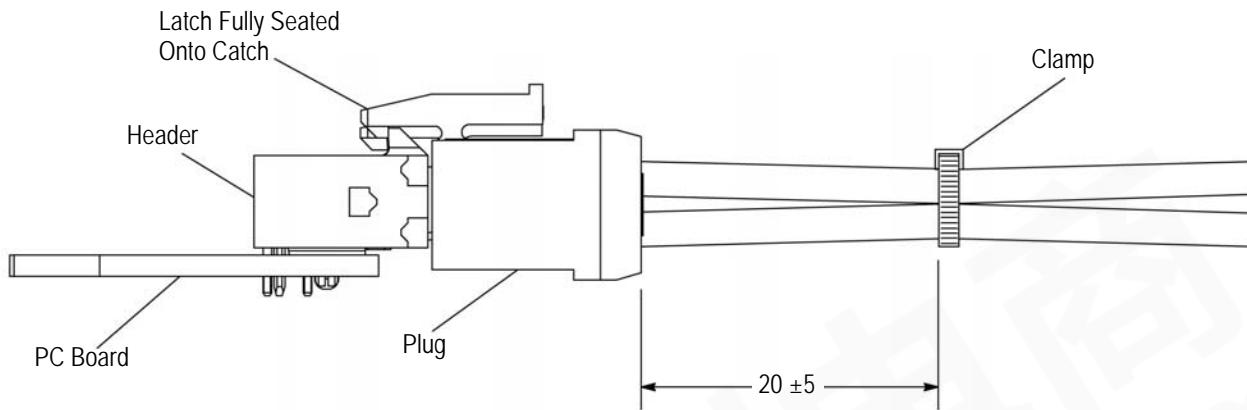


Figure 7

3.10. Connector Repair/Replacement

If the connector should become damaged, it must be replaced. The connector may be removed from the pc board by normal desoldering methods and replaced with a new connector.

4. QUALIFICATIONS

Pluggable Screwless Wire Connectors have been evaluated to Underwriters Laboratories (UL) File E28476 to both the U.S. Standard UL 1977 and the Canadian National Standard C22.2 No. 182.3-M1987.

5. TOOLING

Even though no special tooling is required for the hand placement of Pluggable Screwless Wire Connectors on a pc board, the following information should be considered.

• PC Board Support

A customer-supplied pc board support should be used to prevent bowing of the pc board during the placement of a connector on the board.

6. VISUAL AID

The illustration below shows a typical application of this product. This illustration should be used by production personnel to ensure a correctly applied product. Applications which DO NOT appear correct should be inspected using the information in the preceding pages of this specification and in the instructional material shipped with the product or tooling.

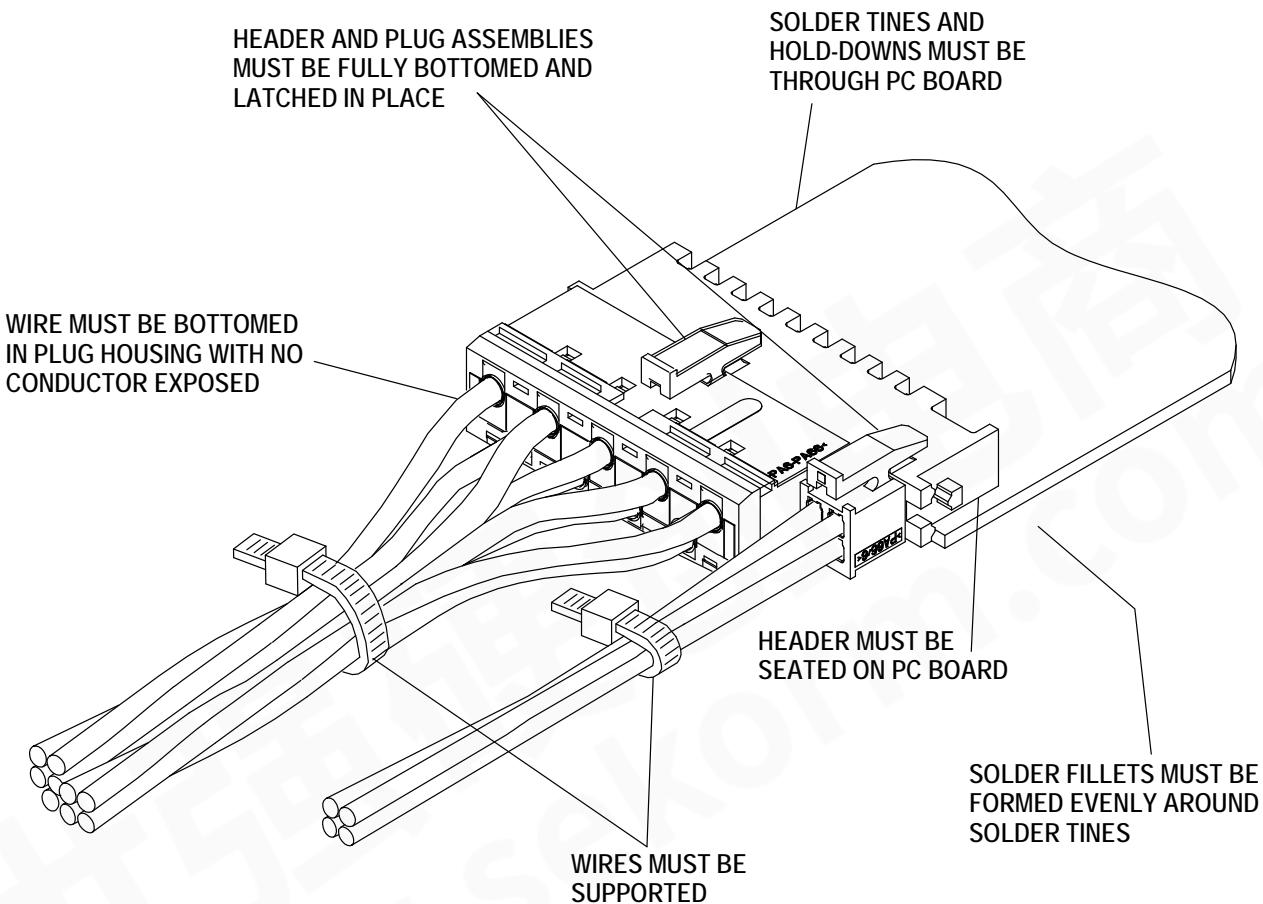


FIGURE 8. VISUAL AID