

NOTE



All numerical values are in metric units. Dimensions are in millimeters. Unless otherwise specified, dimensions have a tolerance of ± 0.13 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 application requirement of TE Connectivity (TE) Power Distribution Tap Connector. These taps are designed to be mounted onto a printed circuit (pc) board to provide high electrical current to the pc board. The taps can also be attached to a bus bar, terminal, or threaded pin. The taps are available in six types: low-profile (insulated and uninsulated), high-profile (insulated), and board-to-board (vertical, right-angle receptacle, and right-angle pin). These taps have ACTION PIN* contacts. The uninsulated low-profile tap is available in 6- and 10-position with 2.54 ϕ 7.62 [.100 ϕ .300] or 3.18 ϕ 6.35 [.125 ϕ .250] contact centerline spacing, and all others are available in 10-position with 2.54 ϕ 7.62 [.100 ϕ .300] contact centerline spacing which is the standard dual in-line package (DIP) outline.

The low-profile taps are available with or without anti-rotation embossments. The insulated tap offers protection from other components. The high-profile tap features anti-rotation embossments and protects the attached tap with plastic walls (housing) and a cover. A screw is included with some taps or can be customer supplied for use with a bus bar or terminal. It is recommended installing a Belleville washer (customer supplied) between a tap and screw to provide additional locking. The board-to-board taps are insulated and provide a separable connection between pc boards. A threaded pin and hex nut (uninsulated) is available for use with the board-to-board tap to provide board-to-board connection. The hex nut secures the pin to the pc board.

The taps are inserted into the pc board using manual application tooling.

When corresponding with 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.

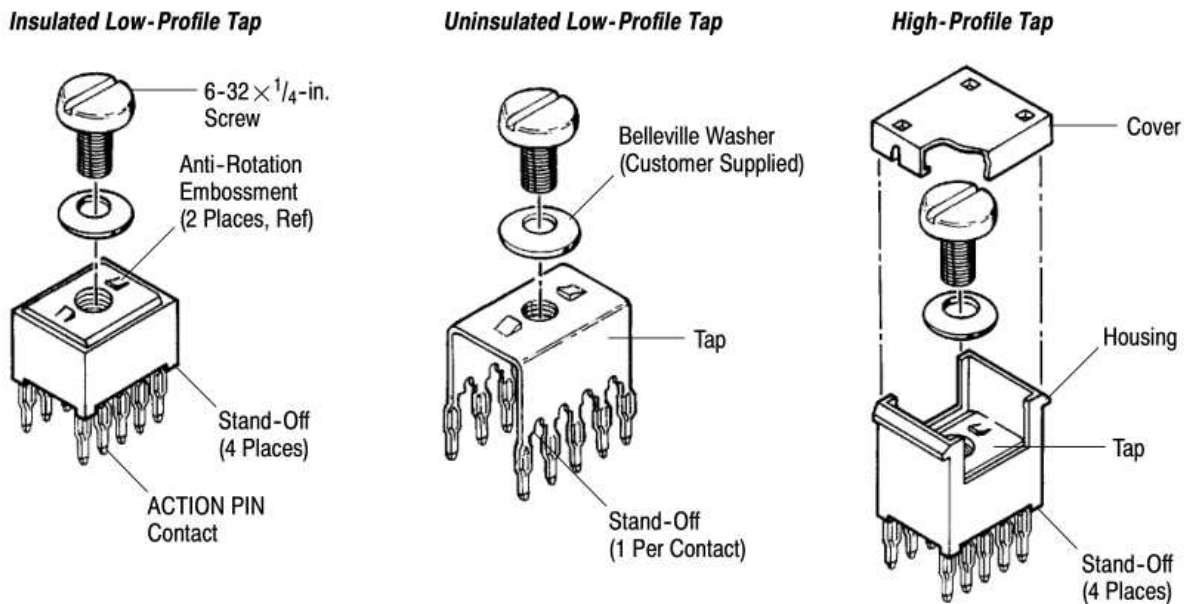


Figure 1 (Cont'd)

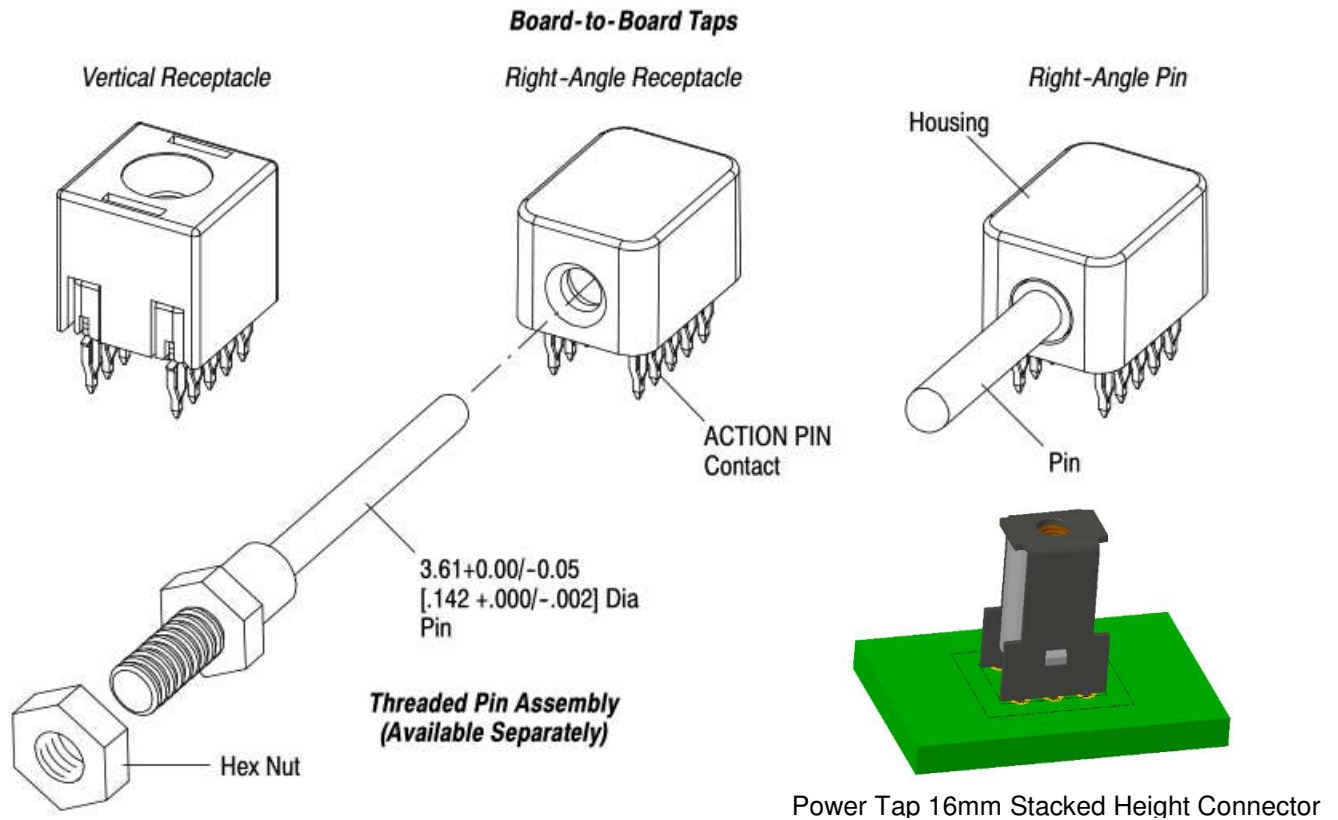


Figure 1 (End)

2. REFERENCE MATERIAL

2.1. Revision Summary

Initial release of Application Specification includes:

Updated document to corporate requirements.

2.2. Customer Assistance

Reference Product Part Number are representative of TE Power Tap Connector series as below:

1. Power Tap STD 6P Connector (Centerline: .125x .250) P/N: 5055323-9, 3-5055323-5
2. Power Tap STD 10P Connector (Centerline: .125x.250, .100x.300) P/N: 1-5055323-0, 5055558-4
3. Power Tap HC 4P Connector (Centerline: .200 x .400) P/N: 5213815-*
4. Power Tap HC 6P Connector (Centerline: .200 x .400) P/N: 5213816-*
5. Power Tap 16mm stacked height 6P connector P/N: 5055324-1

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 Representative, by visiting our website at www.te.com, or by calling PRODUCT INFORMATION at the numbers at the bottom of page 1.

2.3. Drawings

Customer Drawings for product part numbers are available from the service network. If there is a conflict between the information contained in the Customer Drawings and this specification or with any other technical documentation supplied, the information contained in the Customer Drawings takes priority.

2.4. Specifications

Production Specification as below provide expected product performance and test information.

- 108-11030 Product Specification of TE Power Tap Connector
- 108-1624 Product Specification of TE Power Tap Right Angle Connector
- 501-215 Qualification Test Report of TE Power Tap Connector

2.5. Standards

- EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications
- 109-197: Test Specification (TE Connectivity Test Specification vs EIA Test Methods)

2.6. Instructional Material

Instruction Sheets (408--series) provide product assembly instructions or tooling setup and operation procedures. Documents available which pertain to this product are:

- 408--3001 Power Distribution Taps with Action Pin Posts
- 408--6923 Arbor Manual Arbor Frame Assembly 58024-1
- 408--9049 Power Distribution Tap Extraction Tool 68380-1
- 408--9112 Power Distribution Tap Insertion Tip 58133-1
- 2204551 Press Tooling drawing for 5055324-1 Power Tap 16mm SH connector

3. REQUIREMENTS

3.1. Safety

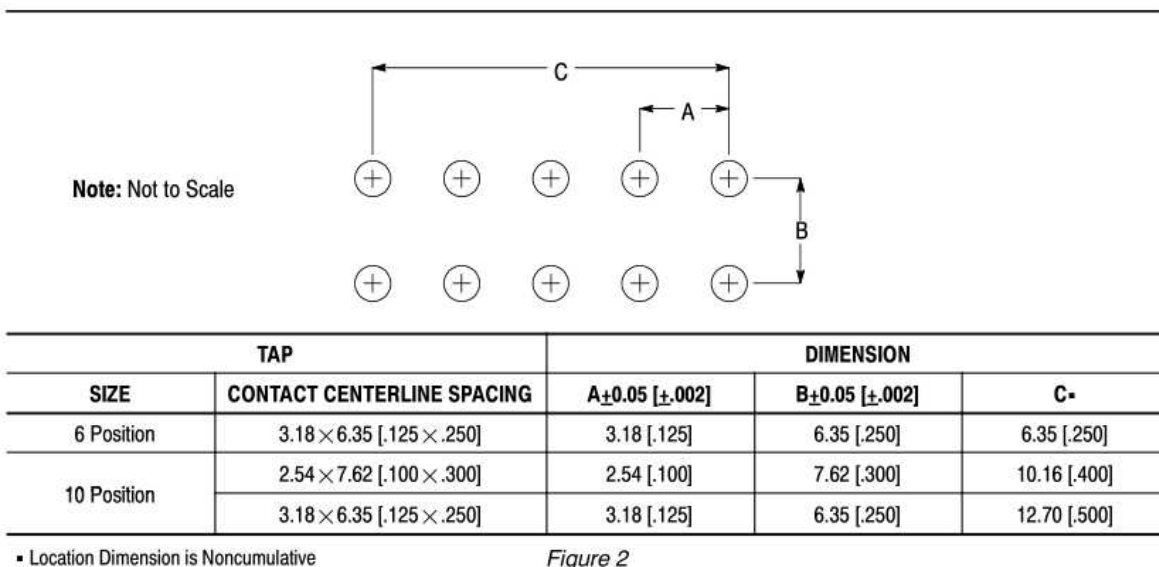
Do not stack product shipping containers so high that the containers buckle or deform.

3.2. Material

The insulation housing is made of thermoplastics, flammability class UL94 V-0, and the pc board material shall be glass epoxy (FR--4). The pc boards shall have a minimum thickness of 1.58 [.062] for low-- and high--profile taps and a minimum thickness of 1.37 [.054] for board--to--board taps.

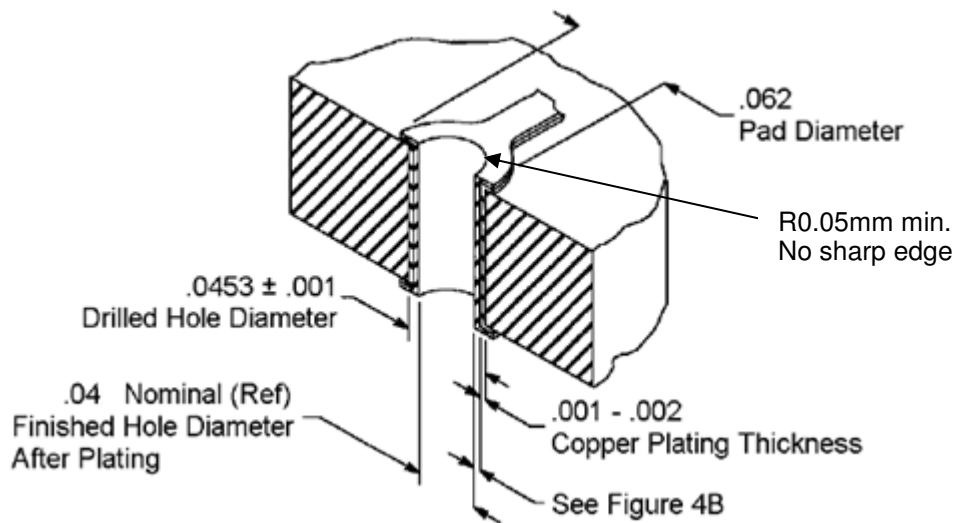
3.3. Recommended PCB Layout

Recommended pattern and dimensions, as well as tolerances, are shown in Figure 2.



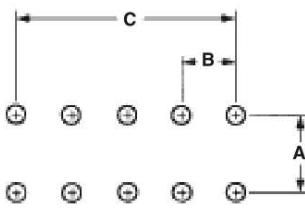
Hole Type	PCB thickness	Drilled Hole Diameter	Plating Thickness		Finished Hole Diameter		Copper Hardness (Knoop)
			Copper	Tin	After Plating	After Reflow	
A	3mm ref. 1.37mm min	.0453 ± .001" 1.15 ± 0.02 mm	.001~.003	.00002 min	.040 ± .003" 1.015 ± 0.05mm	.036 to .043" 1.00 ± 0.09mm	150 max

Figure. The recommended PCB spec of Power Tap STD 6P/10P connector



Surface Finish	
Thickness	Plating
.0002 -.0006	Hot Air Solder Leveling, Tin-Lead
.00002 Minimum	Immersion Tin
.000008 - .00002	Organic Solderability Preservative
.000004 Minimum	Immersion, Silver

Figure. PTH Dimension



Type	A	B	C
4 Position	10.16 .400	5.08 .200	5.08 .200
6 Position	10.16 .400	2.54 .100	5.08 .200
I	—	5.08 .200	5.08 .200
II	—	2.54 .100	5.08 .200
III	10.16 .400	5.08 .200	5.08 .200
IV	7.62 .300	2.54 .100	7.62 .300

PT Type	PCB thickness	Drilled Hole Diameter	Plating Thickness		Finished Hole Diameter		Copper Hardness (Knoop)
			Copper	Tin	After Plating	After Reflow	
PT HC	3~5mm ref. 1.6mm min	.063 ± .001" 1.60 ± 0.02 mm	.001~.003	.00002 min	.058 ± .003" 1.46 ± 0.07mm	.054 to .061" 1.36~1.54mm	150 max

Figure. The recommended PCB spec of Power Tap HC connector

The recommended PCB hole spec of special Power Tap HC connector 5167892-*, please refer to the product drawing.

3.4. Installing the Power Tap

A. Seating onto PC Board

When seating the tap onto the pc board, a maximum insertion force of 178 N [40 in.-lbs] per contact for low- and high-profile taps and 111 N [25 in.-lbs] per contact for board-to-board taps is required. The tap standoffs must be seated on the pc board not exceeding the dimension given in Figure 4.

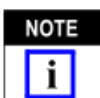
If the threaded pin is used with a board-to-board tap, the pin must be secured to the pc board using the hex nut.

If desired, the tap can be soldered to the pc board following locally approved soldering guidelines.

B. Connecting to Terminal or Bus Bar

Power Tap current rating in actual application, it is not recommended to be exceeded. Detail Power Tap current rating please refer to Product Specification 108-11030.

It is recommended installing a Belleville washer (customer supplied) between the tap and screw. The screw must be tightened to a torque of no more than 1.02 Nm [9 in.-lbs].



The maximum torque must not be exceeded; otherwise, the screw threads could be stripped.

C. Pin Insertion

The recommended minimum pin insertion depth is given in Figure 4.

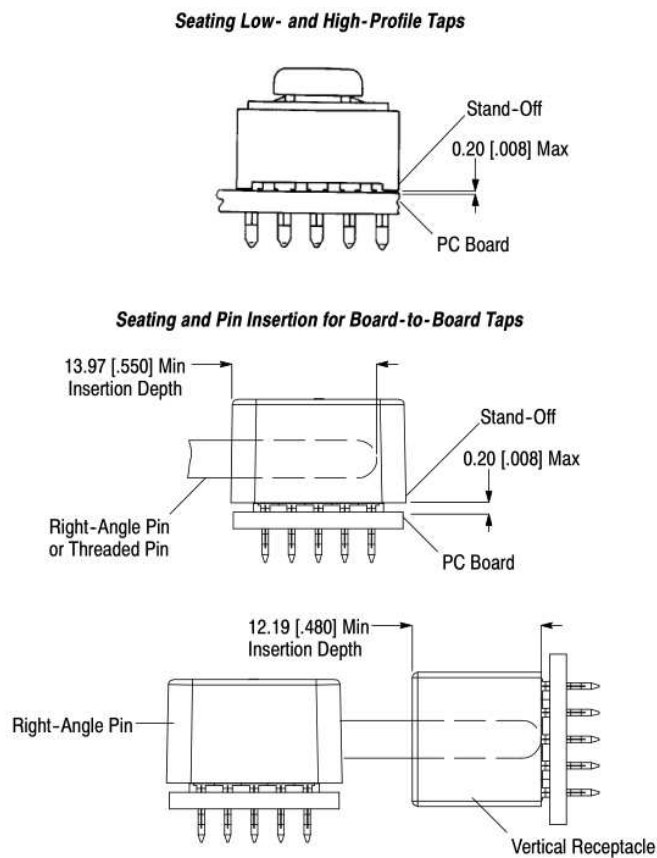


Figure 4

D. Removal.

The Low- and high-profile taps may be removed without damage to the plated-through holes by using an extraction tool. Board-to-board taps must be removed by pushing evenly against the contacts with tooling described in Section 5.

If a tap is soldered to the pc board, it must be removed using standard de-soldering methods.

E. Replacement and Repair

The components of the tap assembly are not repairable. Any defective or damaged taps or components must be replaced. A tap must not be re-used after it has been removed from the pc board.

4. TOOLING

4.1. Application Power Unit

The manual arbor frame assembly or the power distribution block assembly power unit can be used to provide the necessary force to drive tooling (locating block and support block) for a specific purpose.

4.2. Insertion Tooling

The impact tool (with insertion tip) or an application power unit (with the locating block and support block) is recommended for inserting the low-- and high--profile taps into the pc board. For inserting board-to-board taps into the pc board, an application power unit (with flat rock tooling and pc board support) must be used for even pressure on the housing.

For Power Tap 16mm SH connector 5055324-1, the insertion tooling please refer to Press Tooling drawing 2204551.

P/N: 2204551-1 for single connector,

P/N: 2204551-2 for dual connector with 13mm pitch,

P/N: 2204551-3 for dual connector with 21.6mm pitch.

4.3. PC Board Support

A pc board support must be used to provide proper support for the pc board and to protect the pc board and tap from damage. The pc board support must be designed using the following recommendations:

- it should be at least 25.4 [1] wider than the pc board
- it should have a flat surface with a cutout or holes deep enough to allow adequate clearance for the contacts

4.4. Extraction Tool

The extraction tool is recommended for removing low-- and high--profile taps from the pc board. For board-to-board taps, an application power unit (with flat rock tooling and pc board support) is recommended

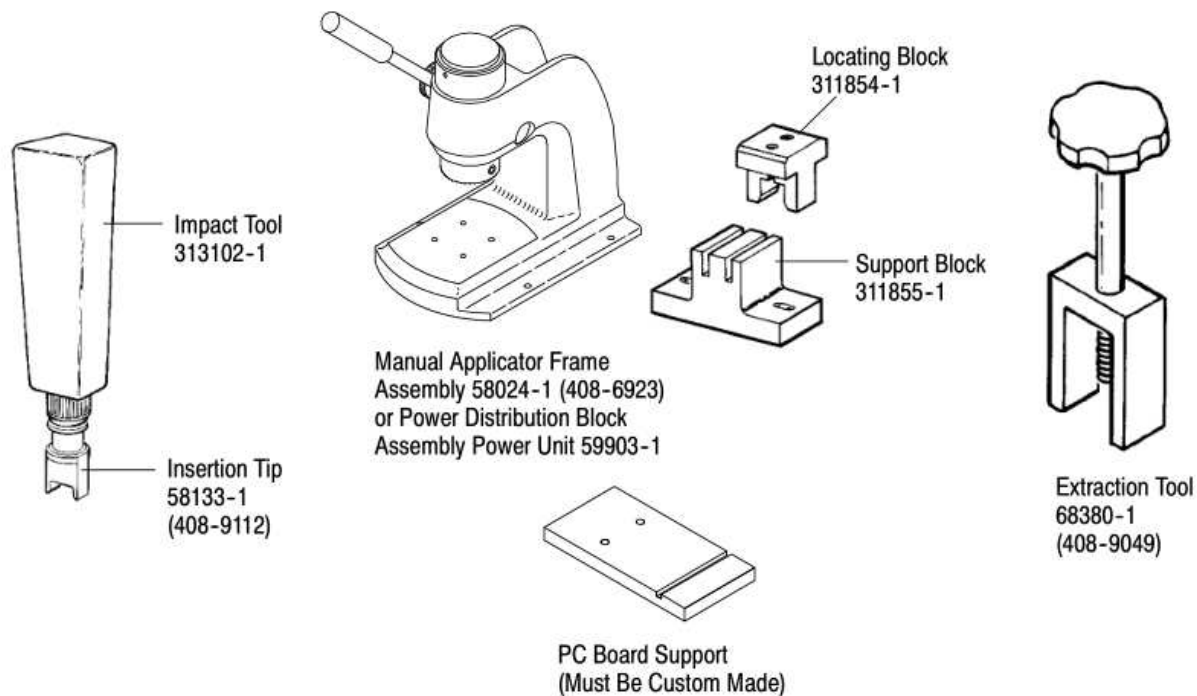
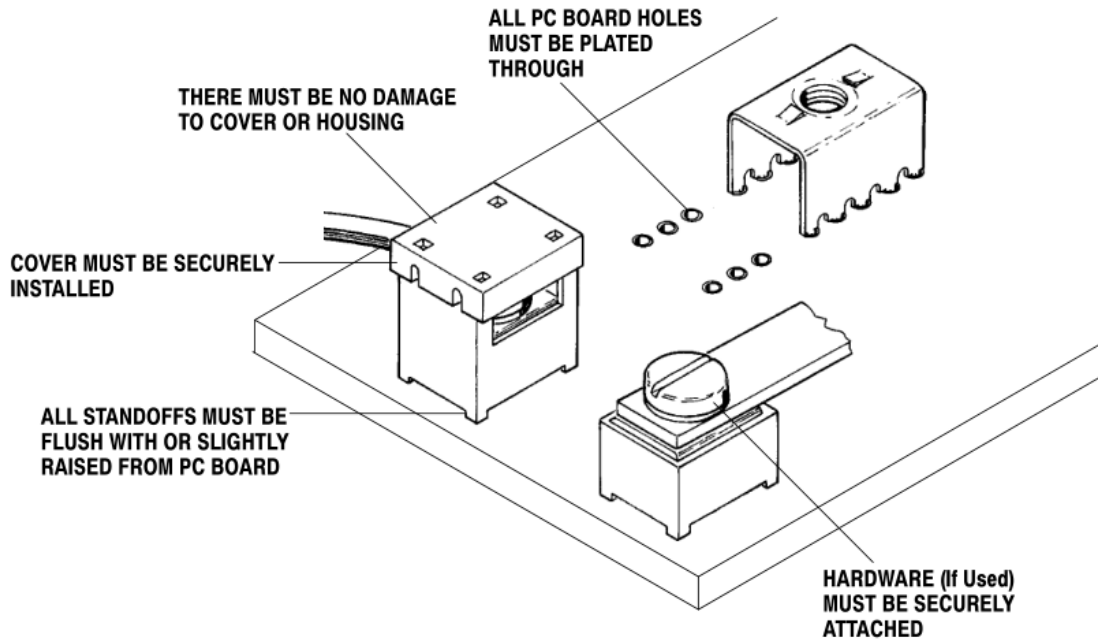


Figure 5

5. VISUAL AID

The illustration below shows a typical application of power distribution taps. 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.

LOW- AND HIGH-PROFILE TAPS



BOARD-TO-BOARD TAPS

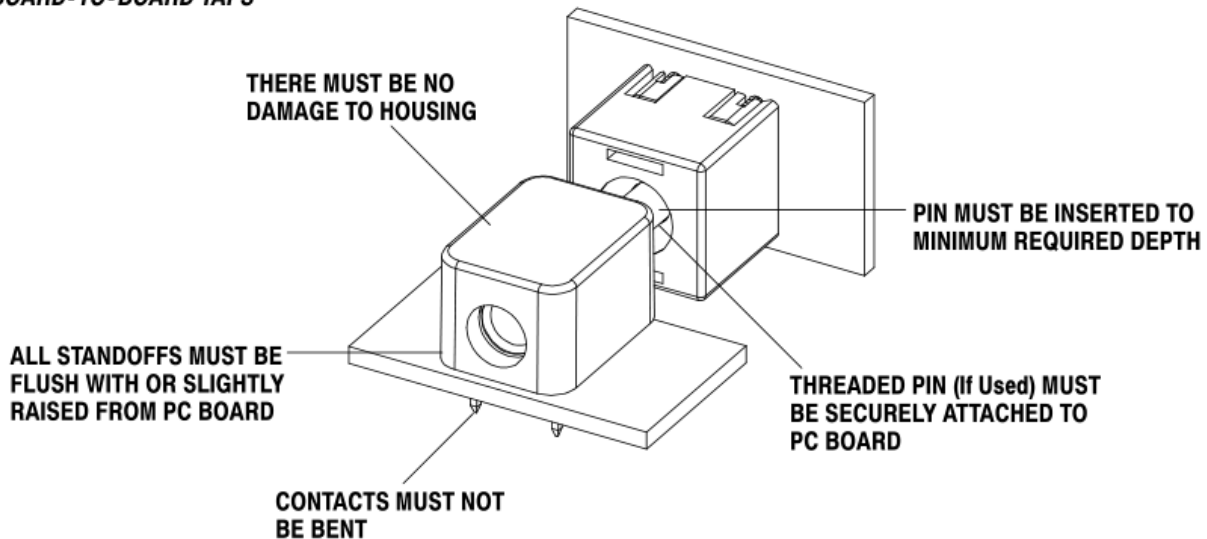


FIGURE 6. VISUAL AID