Sliding Power Connector

1. INTRODUCTION

This specification covers the requirements for application of Sliding Power Connectors onto printed circuit boards for use in power supplies.

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.

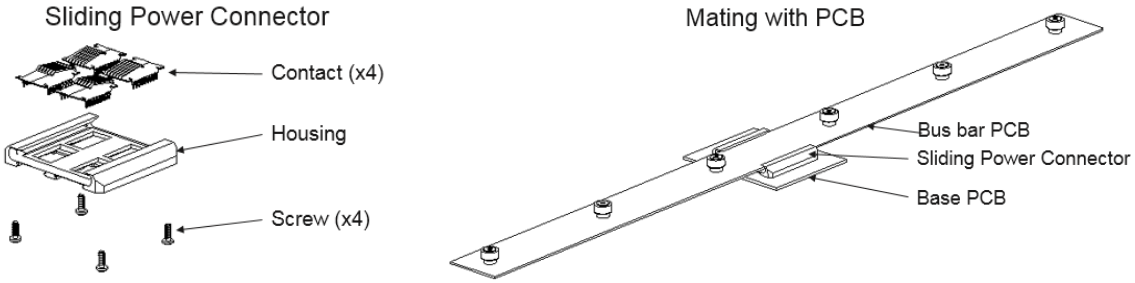


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

Initial release of application specification.

2.2. Customer Assistance

Reference Product Base Part Number 2204740, 2204767, 2334014 and Product Code L849 are representative of Sliding Power Connectors. 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 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

Product specification 108-128065 provides expected product performance and test information.

2.5. Standards

These connectors comply with Electronic Industries Alliance (EIA) – 364, “Electrical Connector Test Procedures Including Environmental Classifications.”

3. REQUIREMENTS

3.1. Safety

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

3.2. Limitations

The connectors are designed to operate in a temperature range of – 40 ºC to 125ºC.

Voltage rating for these connectors are based upon a circuit pad diameter of 1.60±0.05 and UL Material Group IIIb. This material group has a comparative tracking index (CTI) 4. Voltage rating according to contact centerline spacing and circuit pad travel is 300V AC or DC.

3.3. Material

Housing is made of glass filled high temperature thermoplastic, UL 94 V-0. Contact is made of high – conductivity copper alloy with gold plating over nickel plating on contact area. Screw is made of steel with zinc plating.

3.4. Storage

A. Ultraviolet Light

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

B. Shelf Life

The product should remain in the shipping containers until ready for use to prevent deformation to components. The product should be used on a first in, first out basis to avoid storage contamination that could adversely affect performance.

C. Chemical Exposure

Do not store product near any chemical listed below as they may cause stress corrosion cracking in the material.

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

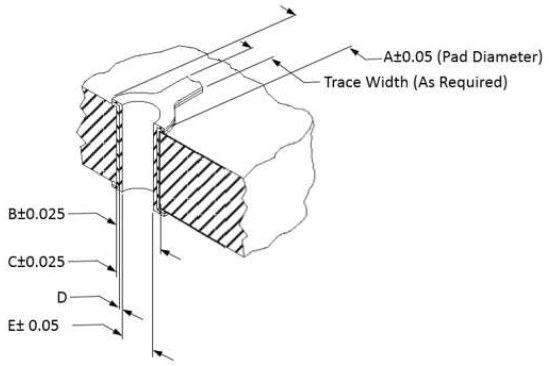
3.5. Base PCB

A. Material and Thickness

Material shall be glass epoxy (FR-4 or G-10) and thickness shall be 1.50mm minimum.

B. Hole Dimensions and Durability

The contact holes must be drilled and plated through to specific dimensions to prevent stubbing during placement of the connector on the Base PCB and to ensure optimum continuity for circuits after soldering. If applicable, holes for the retention plastic legs may be used with or without plated through holes. The drilled holes size, plating types, plating thickness and finished holes size must be as stated to provide unrestricted insertion. See Figure 2.



Item	Dimension(mm)	Remark
A	1.6	Pad Diameter
B	1.15	Drilled Hole Diameter
C	0.051	Copper Plating(Max Hardness 150 Knop)
D	0.008 Min.	Tin Plating
	0.0002~0.0005	Organic Solderability Preservative
E	1.016	Finished Hole Diameter(After Plating Sn)
	1.05	Finished Hole Diameter(After Plating OSP)

Figure 2

For connectors with press-fit contacts, the Base PCB holes cannot withstand connector removal more than three times. The radius of any board hole must not increase more than 0.038mm or decrease less than 0.0508mm.

C. Pads

The Base PCB circuit pads must be solderable in accordance with Test Specification TEC-109-11.

D. Layout

The holes in the Base PCB must be precisely located to ensure proper placement and optimum performance of the connector. The Base PCB layout must be designed using the dimensions provided on the customer drawing for the specific connector.

3.6. Bus bar PCB

A. Material

Material shall be glass epoxy (FR-4 or G-10).

B. Dimensions and Finish

The Bus bar PCB must be designed using the dimensions and finish provided on the customer drawing for the specific connector. Copper thickness and layers must be designed to ensure current capacity for specific application.

C. Floating Design

The Bus bar PCB must be designed with spring component for floating function to decrease or eliminate the tolerance influence of system manufacturing and assembly, which may affect reliable contact function between the Bus bar PCB and the Sliding Power Connector. The design of spring component must ensure that it can provide enough force to make the Bus bar PCB and the Sliding Power Connector to be leaning together shown as Figure 3 when it is in worst case compression condition which contains all system level manufacturing and assembly tolerances.

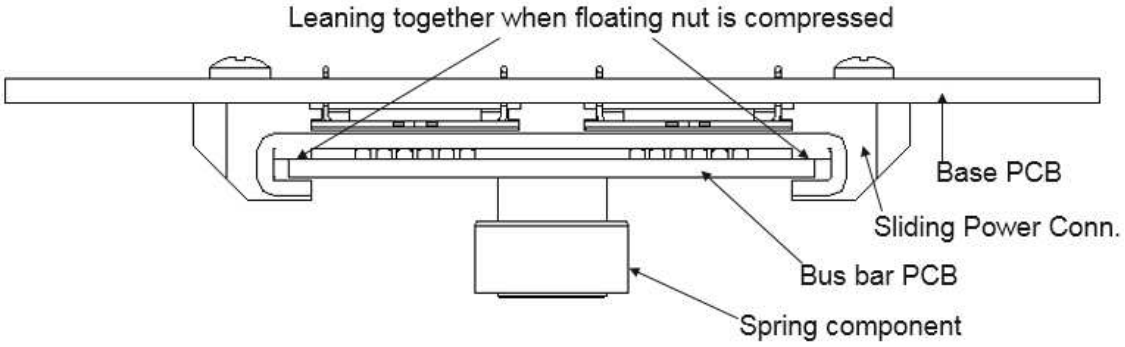


Figure 3

3.7. Connector Placement

A. Registration

When placing connectors on the Base PCB, contacts and, if applicable, mounting holes must be aligned and started into the matching holes before seating the connector onto the Base PCB.

B. Insertion Force

The force required to seat the connector with press-fit pins onto the Base PCB can be calculated by:

Insertion force = Number of connector press-fit pins X Maximum insertion force per pin

The maximum amount of insertion force per press-fit pin is 70N.

3.8. Locking Screw

The connector must be locked against the Base PCB with self-tapping screws of 3.0mm outer diameter. The screws must be tightened with torque of 0.40~0.60N*m for manual or electrical screwdriver.

3.9. Checking Installed Connector

The connector must be seated on the Base PCB within the tolerance shown in Figure 4.

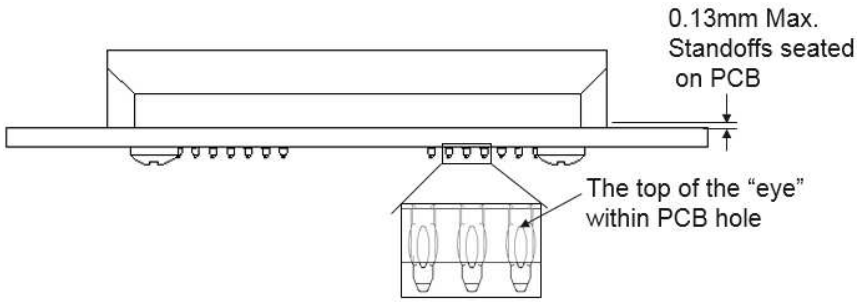


Figure 4

3.10. Connector Removal

The connector must be removed from the Base PCB using a push bar (or flat rock) and PCB support.

The force retaining the connector with press-fit pins on the Base PCB can be calculated by:

Retention force = Number of connector press-fit pins X Minimum retention force per pin

The minimum amount of retention force per press-fit pin is 6.7N.

3.11. Repair

The connectors are not repairable. Damaged or defective connectors must not be used.

4. QUALIFICATION

Sliding Power Connectors are listed by Underwriters Laboratories Inc. (UL) in File E28476.

5. TOOLING

5.1. Application Tooling

The application tooling (such as an arbor press) used to seat these connectors must provide sufficient amount of downward force to insert the contacts into the Base PCB holes.

5.2. PCB Support

A PCB support must be used to prevent bowing of the Base PCB during the placement of the connectors on the PCB. The PCB support must have a flat surface with holes or a channel large enough and deep enough to receive any protruding components. The PCB must be secured to the board support to prevent movement during seating. Refer to Figure 5.

5.3. Rock Tooling

Rock tooling must be sized to cover all Contacts and avoid the Contact’s fingers. Refer to Figure 5.

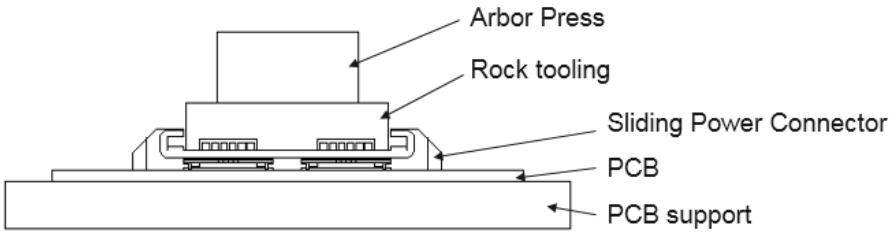


Figure 5

6. VISUAL AID

The illustration below shows a typical application of Sliding Power Connector. 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.