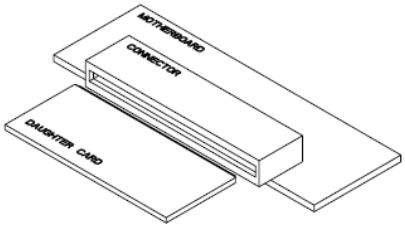
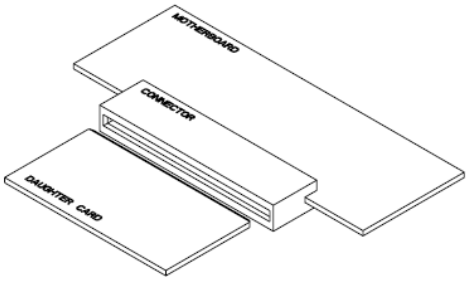
NOTE
All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters [and inches]. Unless otherwise specified, dimensions have a tolerance of ±0.13 [±.005] and angles have a tolerance of ±2°. Figures and illustrations are for identification only and are not drawn to scale.

1. INTRODUCTION

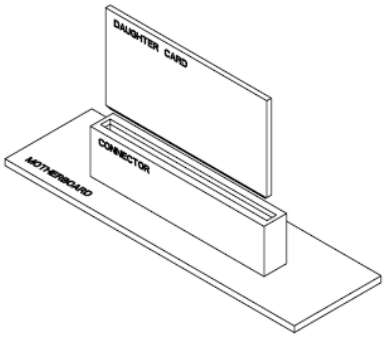
This specification covers the general requirements for application of card edge power connectors onto printed circuit (pc) boards for use in computer and electronic equipment. The connectors are designed to connect a module pc board (daughter card) to a main pc board (motherboard). These connectors are available in vertical, right-angle, or straddle-mount configuration with through-hole, press-fit (compliant pin), or surface-mount contacts. Each connector has a double row of contact cavities for power contacts and/or signal contacts. All connectors, except the straddle-mount configuration, feature standoffs to allow easy pc board cleaning after soldering.



RIGHT-ANGLE



STRADDLE MOUNT



VERTICAL

2. REFERENCE MATERIAL

2.1. Revision Summary

Initial release of application specification

2.2. Customer Assistance

Reference Product Description of card edge / CE and Product Code EE24 are representative of these 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 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 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.

© 2020 TE Connectivity Ltd. family of companies.
All Rights Reserved.
*Trademark

TE Connectivity, TE connectivity (logo), and TE (logo) are trademarks. Other logos, product, and/or company names may be trademarks of their respective owners.

2.4. Manuals

Manuals (402-series) can be used as a guide to soldering. These manuals provide information on various flux types and characteristics with the commercial designation, flux removal procedures, and a guide for information on soldering problems. Documents available which pertain to this product are:

402-40 Solderability and Soldering
402-58-1 Lead-Free Soldering Guidelines for Wave Soldering Specific to Power Products
402-58-2 Lead-Free Soldering Guidelines for Reflow Soldering Specific to Power Products

2.5. Specifications

Product Specifications (108-series) provide product performance and test information. Documents which pertain to each card edge are available in system and associated to each part number.

Qualification Test Report (501-series) is a test report confirming successful qualification of the information in product specifications. Documents which pertain to each card edge are available in system and associated to each part number.

Test Specification 109-11 provides solderability requirements and evaluation methods, and Workmanship Specification 101-21 provides solder fillet requirements.

3. REQUIREMENTS

3.1. Safety

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

3.2. Limitations

These connectors are designed to operate in a temperature range of -55° to 105°C [-67° to 221°F].

3.3. Material

The connector housing is made of glass-filled polyester. The contacts are made of copper alloy plated with nickel; Contact areas are plated with precious metal and press-fit contacts tines are plated with tin.

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 connectors should remain in the shipping containers until ready for use to prevent deformation to the contacts. The connectors 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.

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

3.5. PC Board (Motherboard)

A. Material and Thickness

The pc board material shall be glass epoxy (FR-4 or G-10). The pc board thickness range refer to customer drawing for detail.

NOTE
Customer to decide the suitability of other board materials

B. Tolerance

Maximum allowable bow of the pc board shall be 0.03 mm [.001 in.] over the length of the connector. For connectors with press-fit contacts, maximum allowable recycle of the pc board holes shall be three times.

C. Pads

For connectors with surface-mount contacts, the pc board circuit pads must be solderable in accordance with test specification 109-11.

D. Hole Dimensions and Layout

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

3.6. Daughter Card Configuration

The mating daughter card configuration must be in accordance with the dimensions and tolerances provided on the customer drawing for the specific connector.

3.7. Soldering

A. Wave Soldering

Refer to 402-58-1

B. Reflow Soldering

Refer to 402-58-2.

3.8. Connector Placement (Connector with Press-Fit Contacts)

CAUTION

Connectors should be handled only by the housing to avoid deformation, contamination, or damage to the contacts.

A. Registration

When placing connectors on the pc board, press fit contacts and guide posts must be aligned and started into the matching holes before seating the connector onto the mother board.

B. Insertion Force

The force required to seat the connector with press--fit contacts onto the pc board can be calculated by:

Number of EON features× maximum insertion force per EON feature= insertion force N [lbf].

The insertion force per EON feature could be found on relate product specification.

3.9. Checking Installed Connector

A. Connector with Press-Fit Contacts

The widest section of each press-fit contact must be inside its intended pc board hole. The connector standoffs must be seated on the pc board.

B. Connector with Through-Hole Contacts

All solder joints should conform to those specified in Workmanship Specification 101-21 and all other requirements specified in this document. Each contact solder tine must be fully inserted into the pc board hole, and the solder fillet must be 360° around the solder tine with no skips or voids.

C. Connector with Surface-Mount Contacts

It is imperative that the contact solder tines are sufficiently pressed into the solder paste. The mounting hardware must be secure.

3.10. Daughter Card Mating and Unmating



When mating or unmating the daughter card, care should be taken to prevent longitudinal rocking of the daughter card with respect to the connector. Angles greater than 3° could cause damage to the housing or misregistration of the contacts and daughter card circuit pads.

The daughter card must be inserted straight into the connector card slot until the card is seated. To remove the daughter card from the connector, the daughter card must be pulled straight out of the connector card slot.

3.11. Connector Removal

A. Connector with Through-Hole or Surface-Mount Contacts

These connectors must be removed from the pc board using standard de-soldering methods, then removed from the pc board using a push bar (or flat rock) covering all contacts protruding through the board. A housing support and pc board support must also be used during removal.

B. Connector with Press-Fit Contacts

The connectors are suggested to be removed from the pc board using customized removal tool (Customer Supplied), to avoid the damage to the pc board.

3.12. Repair

These connectors are not repairable. Damaged connectors must be removed, discarded, and replaced with new ones. DO NOT re-use connectors after being removed from the pc board.

4. QUALIFICATION

These connectors are recognized by Underwriters Laboratories Inc. (UL) in File E28476

5. TOOLING

5.1. Application Tooling

No tooling is required for manual placement of the connectors onto the pc board. Manually-operated tools, and automatic and semi-automatic machines for power assisted application of the connectors are available. The application tooling must provide sufficient amount of downward force to insert the contacts into the pc board holes.

5.2. PC Board Support (Customer Supplied, Connector with Press-fit Contacts),

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

The board support must also be used when removing these connectors from the pc board.

5.3. Seating Tool

Seating tool may be required to seat press-fit connectors onto the pc board, such information can be obtained through a local 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.

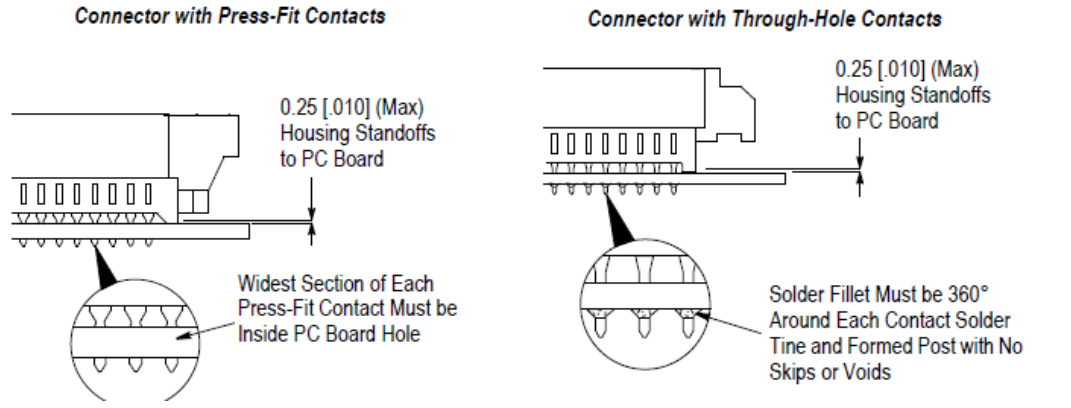
Each seating tool is specifically designed for specific connector. Power for the seating tool must be provided by application tooling (with a ram) capable of supplying sufficient amount of downward force to insert the contacts into the pc board holes.

5.4. Push Bar (Flat Rock)

Commercially available bar stock with a flat surface large enough to cover all contacts can be used to seat connectors with low force press-fit contacts. The push bar must be used with application tooling.

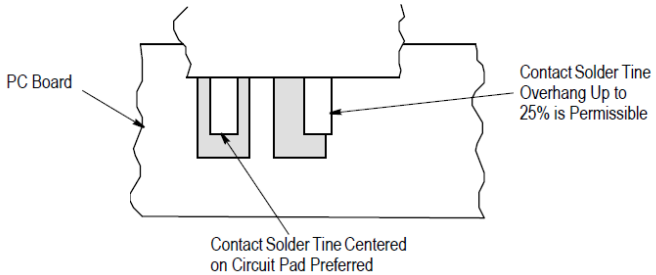
6. VISUAL AID

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.



Connector with Surface-Mount Contacts

Optimally, the contact solder tines should be centered on the pads; however, slight misalignment is permissible as long as the entire solder tine is on the pad.



Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

TE Connectivity:

3631B101LL ROX05SJ18R SBCHE154R7K TE50BR39J 1-794222-0 1-962915-1 141991-2 1969656-1 2310537-1 175977-2 1903112-2 2-292161-3 3430B2F51RTDF 936348-1 SBCHE64R7K U5254-000005-030PA 1393431-1 2005330-1 650075-000 MPT100C18RF CRGCQ2010J3K3 RH73H2A40MKTN 2377783-2 2834055-1 917696-1 3-1393225-0 CPF0402B37K4E1 SMW73R0JT 2380312-2 1743455-2