

**NOTE**



All numerical values are in metric units. Dimensions are in millimeters. Unless otherwise specified, dimensions have a tolerance of  $\pm 0.13$  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 Dual-Pole 500A Rack Bus Bar Power Connector as Receptacle side. All the connectors are designed to engage specified bus bar board system. This power connector consists of dual-pole power contact, sensor pin and insulation housing. TE Connectivity Dual-Pole 500A Rack Bus Bar Power Connector is recommended to use in server, storage, data center, switch, etc., based on Open Rack V2.0 Standard, or other industrial equipment.

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 as reference Figure 1.

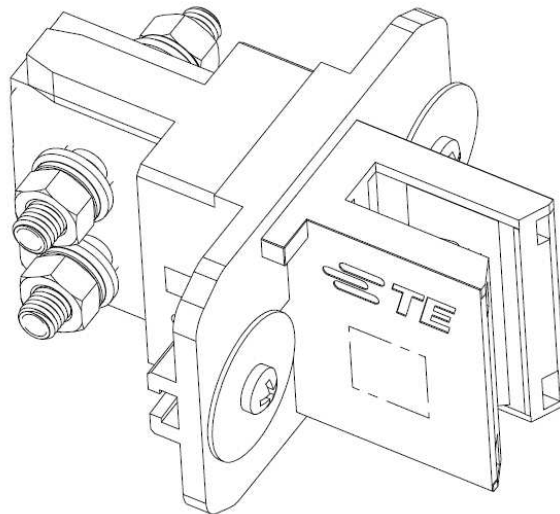


Figure 1 The Reference Product View of Dual-Pole 500A Rack Bus Bar Power Connector

## 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 in product code 1080 are representative of Dual-Pole 500A Rack Bus Bar Power Connector.

TE P/N: 2204866-\* Dual-Pole 500A Rack Bus Bar Power Connector.

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](http://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.

108-128050 Product Specification of Dual-Pole 500A Rack Bus Bar Power Connector.

501-128050 Qualification Test Report of Dual-Pole 500A Rack Bus Bar Power 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)
- Open Rack Standard V2.0, Open Compute Project

## 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, and the contacts are made of high conductivity copper alloy, silver plating over nickel base-plated at product contact area, detail please refer to the customer drawing.

### 3.3. Storage

#### A. Ultraviolet Light

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

**B. Shelf Life**

The connector or components should remain in the shipping containers until ready for use to prevent deformation to the contacts. The connector or components 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 connector or components near any chemical listed below as they may cause stress corrosion cracking in the contacts.

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

**3.4. Panel Board**

**A. Thickness**

The recommended panel board thickness: 1.2mm.

**B. Cutout**

The panel must be cut using the dimension provided on the customer drawing of Pluggable Bus Bar cable-mount connector. Reference samples for recommended panel cutouts are shown in the below figure. Other detail please refer to customer drawing.

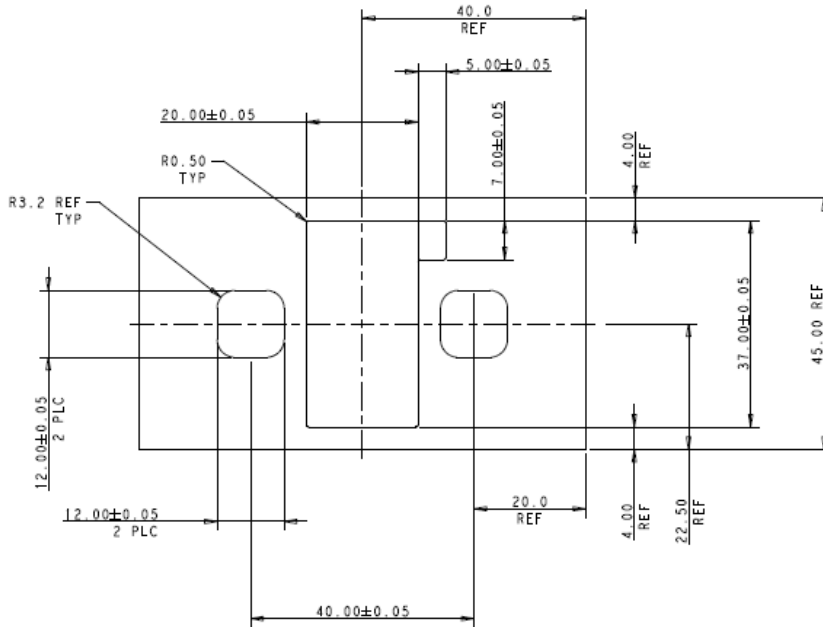


Figure 2 The recommended panel board layout view for Dual-Pole 500A Rack Bus Bar Power Connector.

### 3.5. Panel Mounting

The connector is mounted from rear panel. Then self-screw mounted into the hole of housing from the front of panel, refer to the below Figure.

When to secure with the panel, Pluggable Bus Bar cable-mount connector is designed to float in the panel cutout. The horizontal and vertical floating capability between connector and panel board is  $\pm 2.0\text{mm}$ .

When the connector is mounted in panel board, the shoulder of screw must be tap on the flange of plastics hole. Detail please refer to the below Figure.

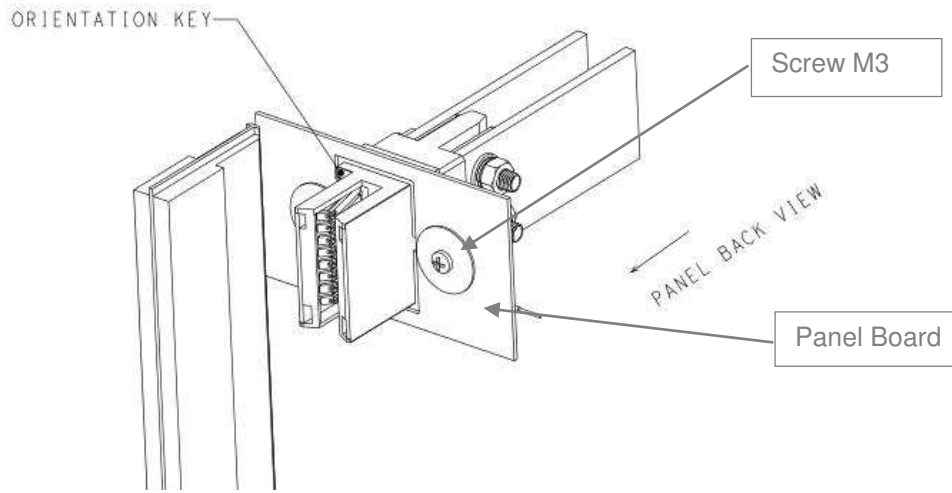


Figure 3. The reference panel board assembly view

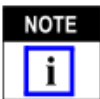
### 3.6. Recommended Bus Bar Board

Connector is designed to mate with Laminated Mating Bus Bar Board for Dual-Pole application, or mate with solid Mating Bus Bar Board for single pole application.

In the back of Rack shelf, connector is screw-mounted with separate bus bar board, flexible bus bar, or PCB, in accordance with the actual application.

#### A. Material

For the optimum performance, the bus bar board must be made of highly conductive copper (101% @ 20°C [68°F] according to International Anneal Copper Standards {IACS}), such as C10100, C10200, C11000, etc.



The bus bar may NOT be made of aluminum.

#### B. Plating

Mating Bus Bar Board: 3.0~8.9um [.000120 to .000350 inch] silver plating over 1.27~ 8.9 um [.000050 to .000350 inch] matte nickel base-plating on bus bar copper contact surface.

Separate Screw-mounting Bus Bar Board, Flexible Bus Bar, or PCB: 3.0~8.9um [.000120 to .000350 inch] Tin plating over 1.27~ 8.9 um [.000050 to .000350 inch] matte nickel base-plating on bus bar copper contact surface.

#### C. Bus Bar Board Design

The bus bar must be rigidly constructed and capable of preventing movement that could cause stubbing or misalignment of the contact with the bus bar.

Mating Bus Bar Board total thickness must be  $6.0 \pm 0.20\text{mm}$ , and the recommended middle insulation layer thickness is  $1.0 \pm 0.05\text{mm}$ .

Separate Screw-Mounting Bus Bar Board, flexible bus bar, or PCB thickness 3.0mm.

#### D. Mating Edge Treatment:

The recommended guide chamfer feature of Mating Bus Bar Board is 2.0\*2.0mm, 1.0\*1.0mm min. per actual application.

The leading edge must have a full radius or a gradual taper to provide a lead-in and ease mating of the connector with the bus bar.

All the dimension shall be in accordance with customer specific application requirement.

Detail please refer to the below Bus Bar Figure.

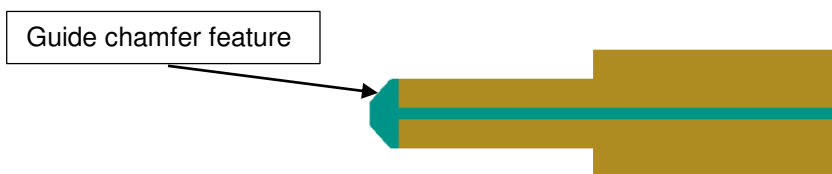


Figure 4. Recommended guide chamfer feature(2.0\*2.0mm) view of Laminated Mating Bus Bar Board.

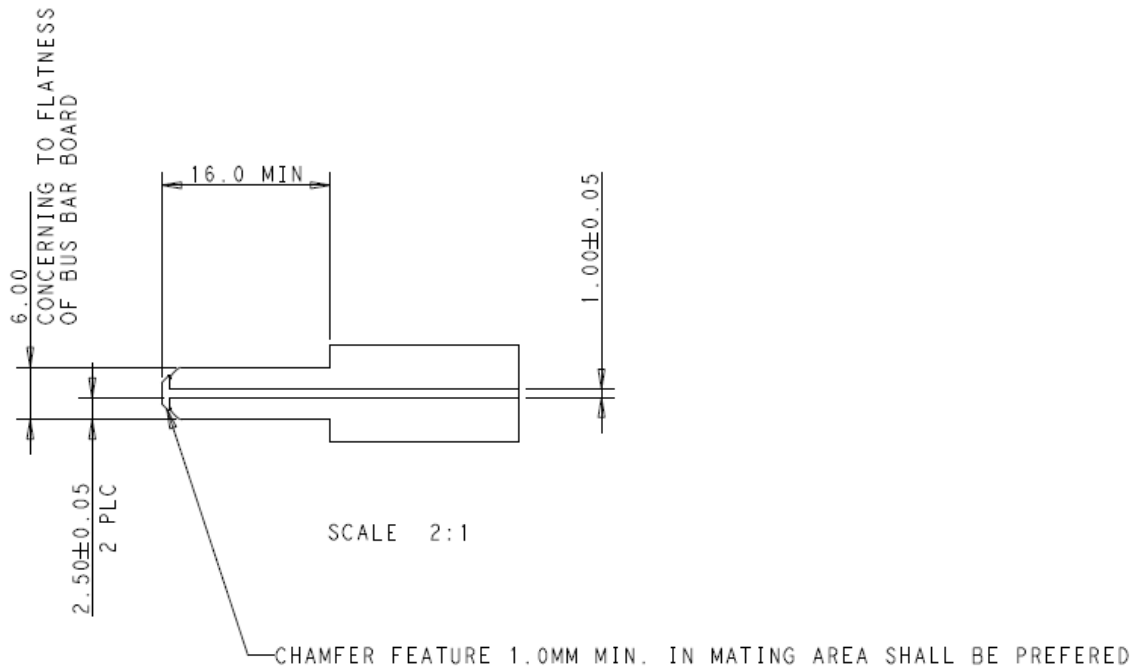


Figure 5. Laminated Mating Bus Bar Board View.

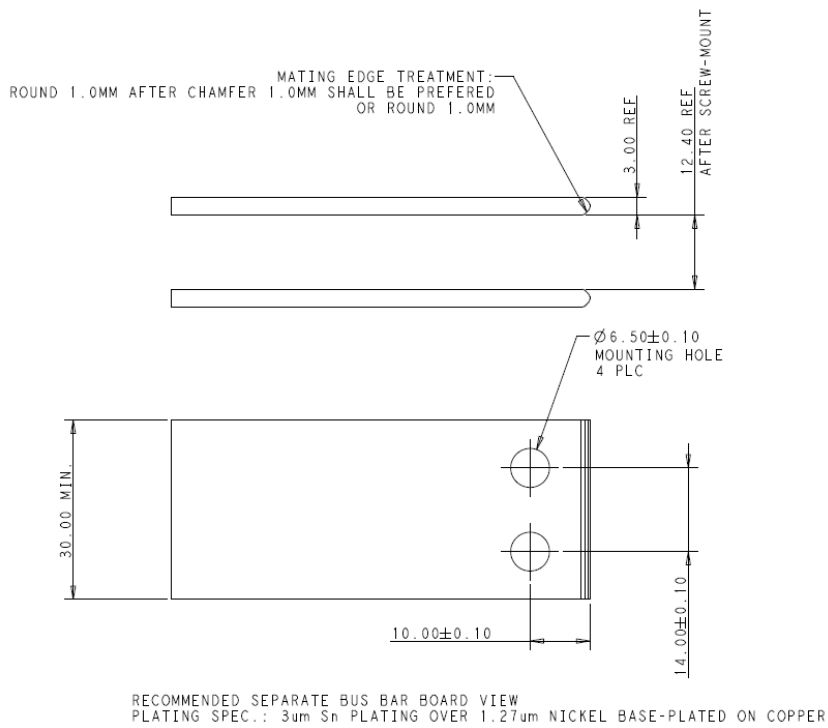


Figure 6. Separate Screw-Mounting Bus Bar Board View.

### 3.7. Sensor Contact

Sensor contact is designed to control and detect system status, mated with TE FASTON Receptacle 110 straight or flag type connector. Please refer to TE Catalog 82004, 1654369-1, FASTON Terminals and Connectors.

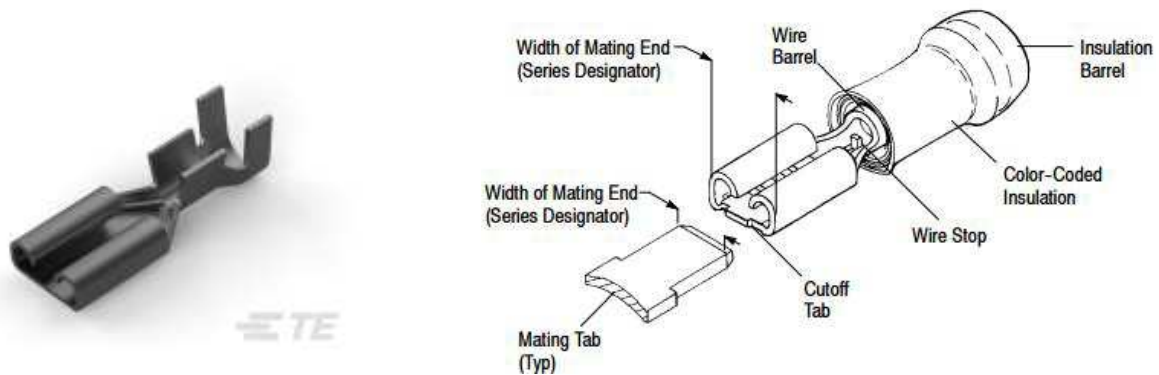


Figure 7. Reference Sensor Contact Application View.

### 3.8. Mating

#### A. Polarization

For the floating panel-mount cable receptacle, polarization is provided by the feature of housing. Detail see Figure 3 (feature "hole for screw")

#### B. Mating Length

Product mating length is 20.5mm max. for power contact and sense contact.

#### C. Misalignment

When mating connectors, misalignment capability is  $\pm 2.0$ mm.

#### D. Mating/Un-mating Force

Please refer to Product Specification, Mating Force Spec. 100N max. (Test Record 84N ref.) Unmating force 20N min. (Test record 40N ref.)

#### E. Rack system misalignment.

The steel guide module is recommended to assemble with Rack Node, to improve the misalignment capability of Rack system. The tolerance between guide pin and guide hole or module, is always recommended to be  $\pm 0.25$ mm ref. TE P/N: 223969-1.



Figure 9. Reference Guide module View.

### 3.9. Repair

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

### 4. TOOLING

Dual-Pole 500A Rack Bus Bar Power Connector shall be screw-mounted with separate bus bar board by M5 Nut (4 pcs), the recommended torque 15~20Kgf.cm.

Dual-Pole 500A Rack Bus Bar Power Connector housing shall be screw-mounted with panel board by M3 screw (2 pcs), the recommended torque 3.9 Kgf.cm. Refer to the reference application view.

### 5. VISUAL AID

The below illustration shows a typical application of Pluggable Bus Bar Cable-mount 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.

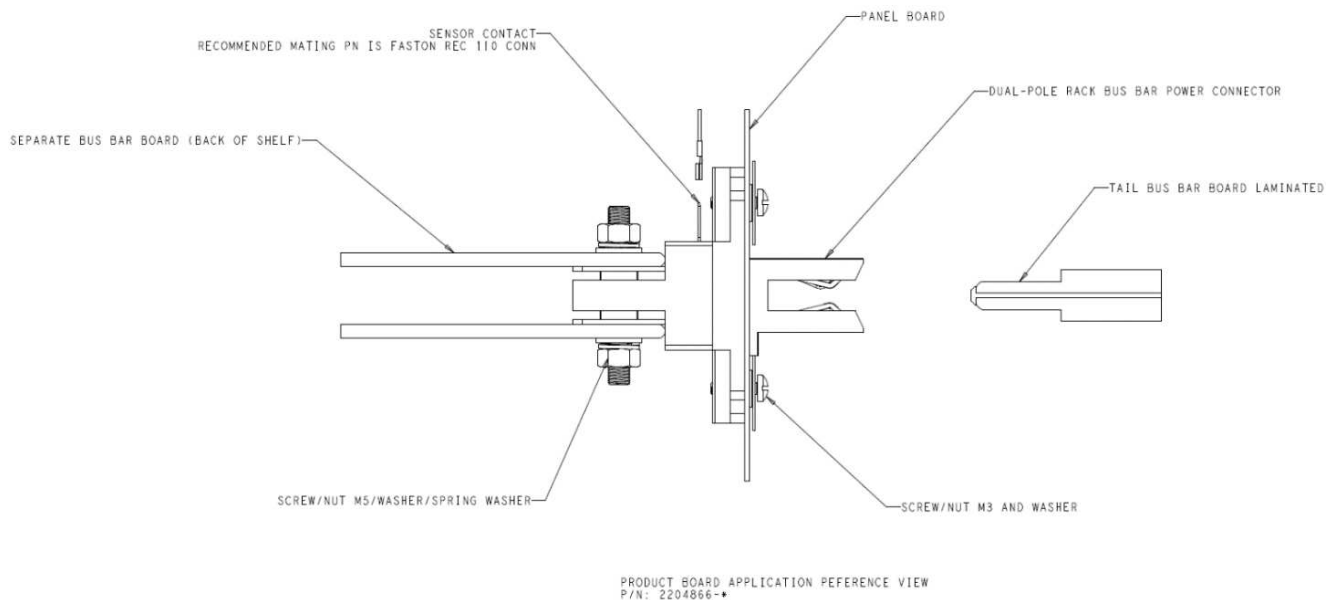


Figure 9. Visual Aid of TE Connectivity Dual-Pole 500A Rack Bus Bar Power Connector