

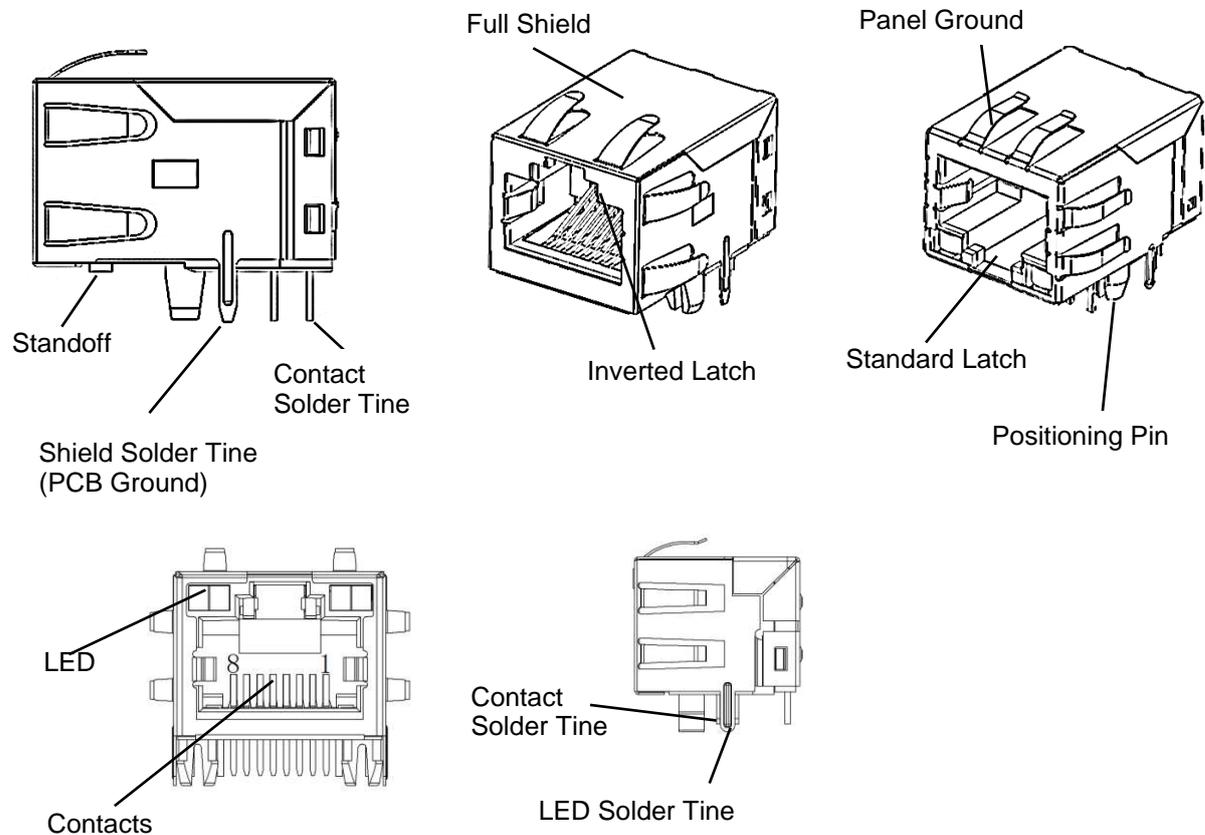
Class 1

RJ45 JACK WITHOUT MAGNET

1. INTRODUCTION

This specification covers the requirements for application of RJ45 Jack designed to be mounted to a Printed Circuit Board (PCB). The Jacks are available in ganged & stacked includes 1x1/ 1x2/ 1x4/ 1x8/ 2x1/ 2x2/ 2x4/ 2X6/ 2x8 configuration in 8, 16, 32, 64, 96, 128 positions with 8, 16, 32, 64, 96, 128 contacts, shielded designs to accommodate specific application requirements. This specification pertains to all shielded jacks with right-angled (R/A) orientation, with LED.

When corresponding with TE Personnel, use the terminology provided on this specification to help facilitate assistance. Basic terms and features of components are provided in Figure 1.



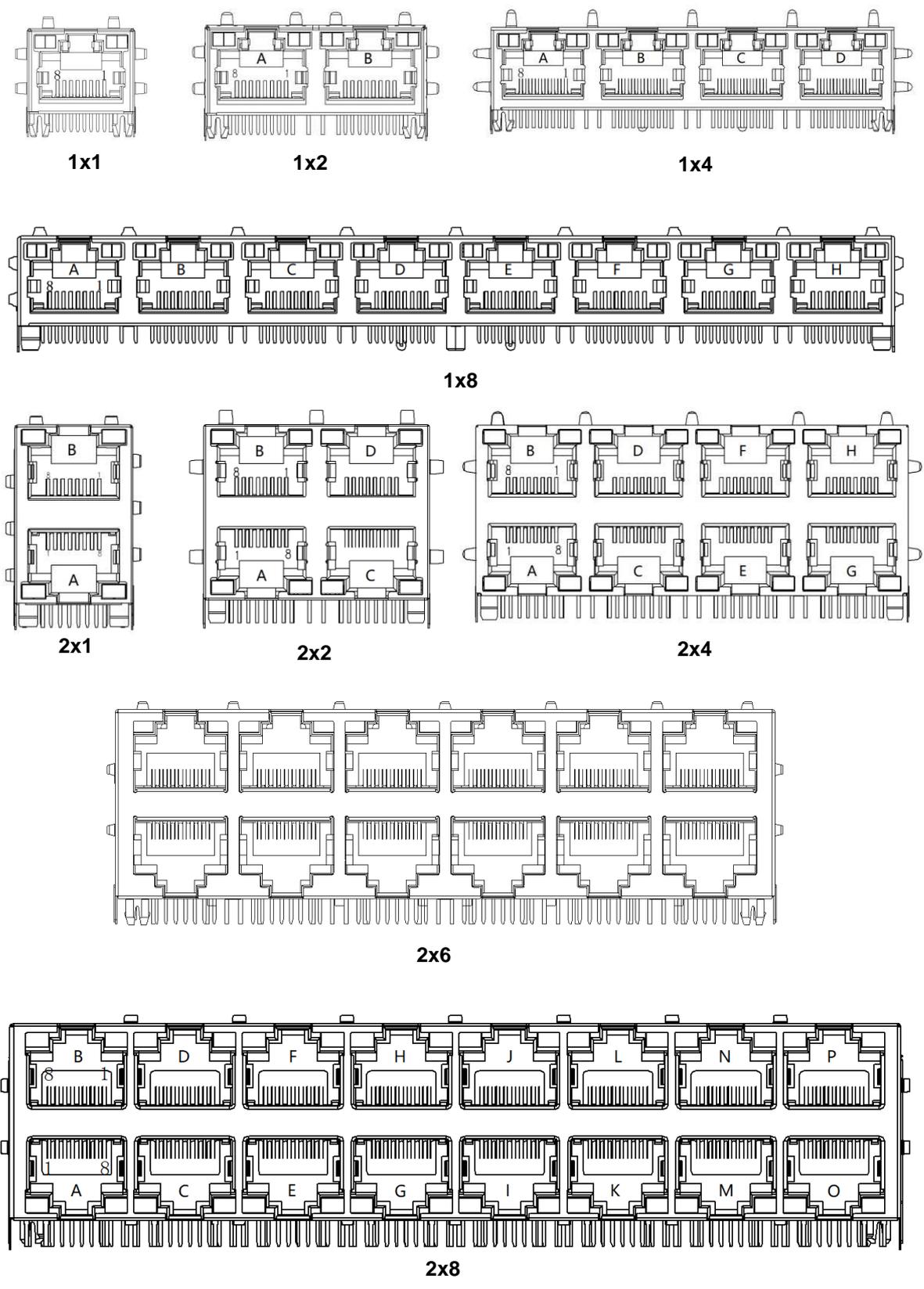


Figure 1: Basic terms and features of components

2. REFERENCE MATERIAL

2.1. Customer Assistance

Reference Base Numbers 2496699-X, 2496701-X, 2496702-X, 2497308-X, 2496703-X, 2496704-X, 2496705-X, 2496706-X, 2497307-X, 2496715-X identify the PCB mounted RJ45 jacks. These numbers are used in a service network of customer service to access tooling and product application information. This service is provided by your local TE Representative or, after purchase, by calling the Tooling Assistance Center or Product Information number at the bottom of page 1.

2.2. Drawings

Customer Drawings for product numbers are available from the service network. The information on the customer drawing takes priority over this specification and any other document supplied by TE.

2.3. Product Specifications

Product Specifications 108-161621 covers test and performance requirements.

2.4. Soldering specification

Manual 402-40 is available upon request and can be used as a guide to soldering. This manual provides information on various flux types and characteristics 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. Safety

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

3.2. Material

The RJ45 Jack housing is made of PA46(Black). The contacts are made of Phosphor Bronze under plated with nickel and plated with gold. Positioning pins are made of PA46(Black). The shield is made of brass plated with nickel.

3.3. Storage

Ultraviolet Light

Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the RJ45 Jack material.

Shelf Life

RJ45 Jack should remain in the shipping containers until ready for use to prevent damage. The products should be used on a first in, first out basis to avoid storage contamination that could adversely affect signal transmissions and degrade shield appearance.

Chemical Exposure

Do not store RJ45 Jack near any chemicals listed below, as they may cause stress corrosion cracking in the components.

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

Soldering ability over time

To ensure a good solderability of RJ45 Jack, conditions below should be followed:

Table 1: Storage time and conditions

Packaging type	Condition	Maximal storage time
Tray	Original and unopened package, at temperature $\leq 30^{\circ}\text{C}$	1 year
Reel		

If storage time exceeds one year, a complete quality check on function & mechanical before parts can be used.

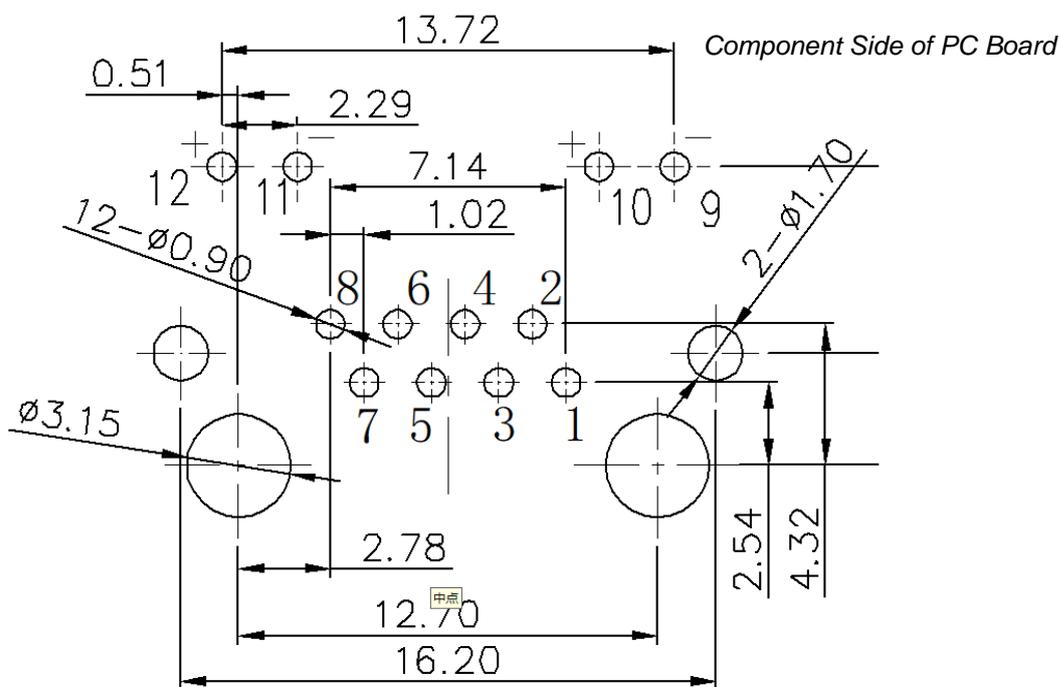
3.4. PCB Layout

The solder tine hole layout for 8, 16, 32, 64, 96, 128 positions RJ45 jacks is typical for all jacks with comparable positions. The mounting hole location will depend on the number of ports and contact positions. The PCB layout views shown represent the component side of the PCB.

The mounting holes must be placed in accordance with the customer drawing to ensure proper alignment and optimum continuity for circuits after soldering. The holes must be drilled to specific dimensions to prevent stubbing during placement of the RJ45 Jack on the PCB.

A. Single-Port shielded Jack with inverted Latch (Tab up)

The hole patterns that apply to all single-port jacks with inverted Latch are provided in the following figure 2.



Unit: mm

Figure 2: 8 Position Jack, Tab up with LED (2496699-X) PCB Layout

B. 1x2 shielded Jack with inverted Latch (Tab up)

The hole patterns that apply to all 1x2 jacks with inverted Latch are provided in the following figure 3.

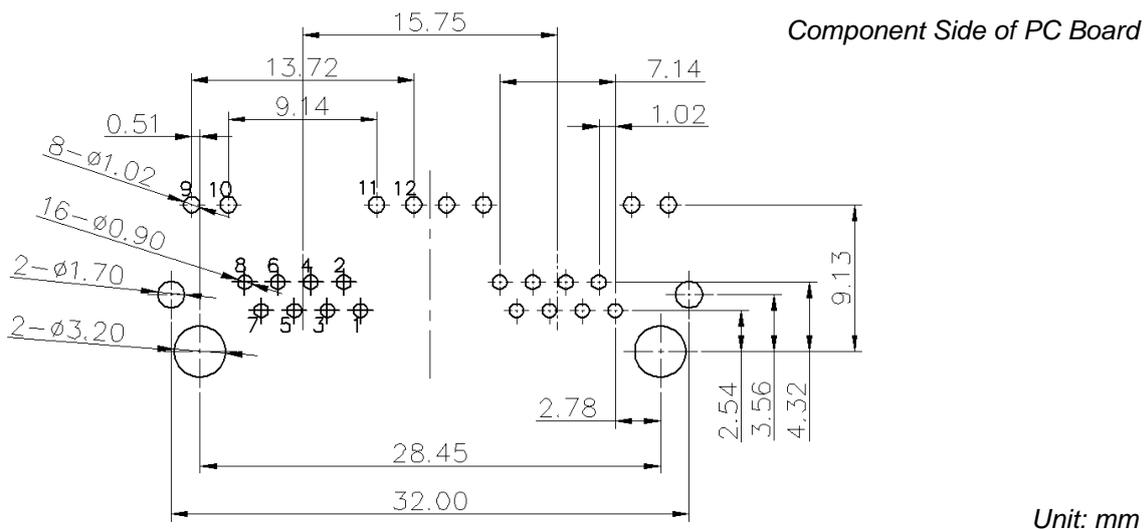


Figure 3: 16 Position Jack, Tab up with LED (2496701-X) PCB Layout

C. 1x4 shielded Jack with inverted Latch (Tab up)

The hole patterns that apply to all 1x4 jacks with inverted Latch are provided in the following figure 4.

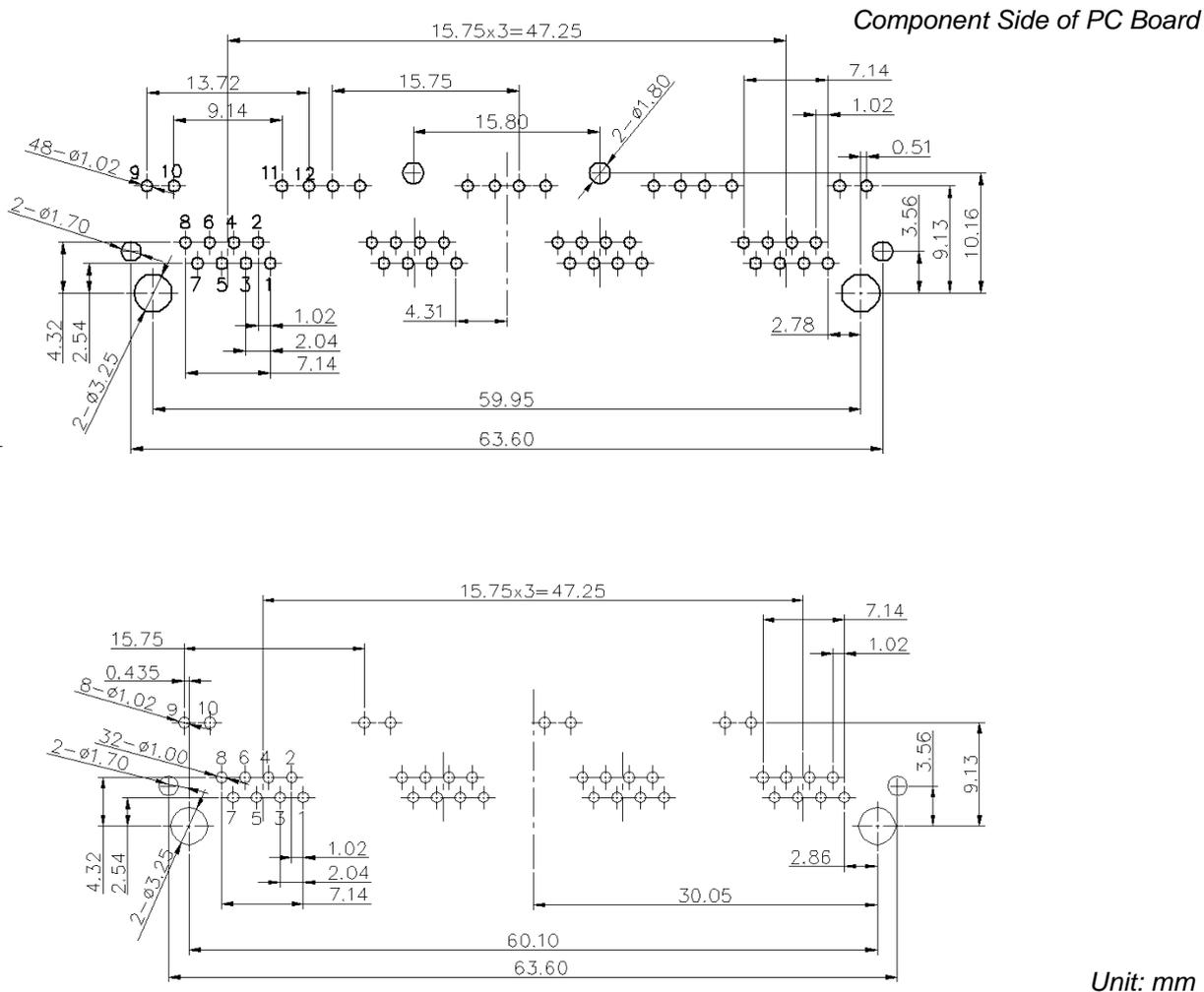
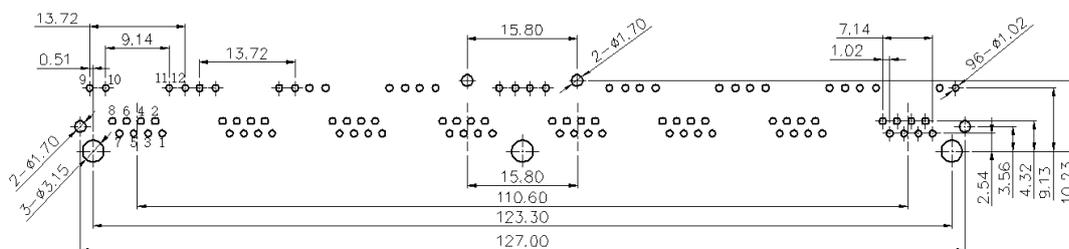


Figure 4: 32 Position Jack, Tab up with LED (2496702-X, 2497308-X) PCB Layout

D. 1x8 shielded Jack with inverted Latch (Tab up)

The hole patterns that apply to all 1x8 jacks with inverted Latch are provided in the following figure 5.

Component Side of PC Board



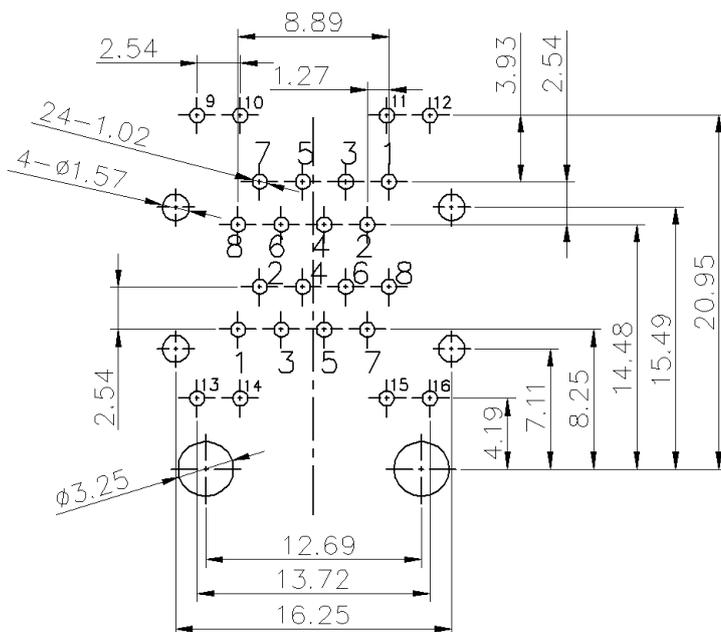
Unit: mm

Figure 5: 64 Position Jack, Tab up with LED (2496703-X) PCB Layout

E. 2x1 shielded Jack with Inverted & Standard Latch (Tab up & down)

The hole patterns that apply to all 2x1 jacks with Inverted (Top) & Standard (Bottom) Latch are provided in the following figure 6.

Component Side of PC Board



Unit: mm

Figure 6: 16 Position Jack, Tab up & down with LED (2496704-X) PCB Layout

F. 2x2 shielded Jack with Inverted & Standard Latch (Tab up & down)

The hole patterns that apply to all 2x2 jacks with Inverted (Top) & Standard (Bottom) Latch are provided in the following figure 7.

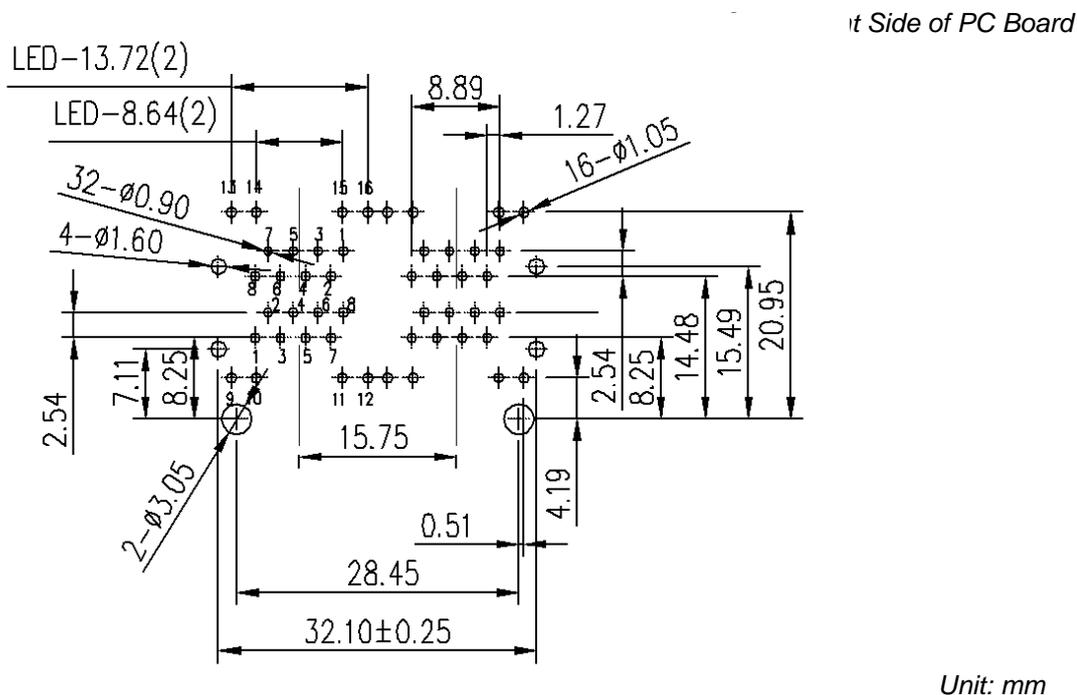


Figure 7: 32 Position Jack, Tab up & down with LED (2496705-X) PCB Layout

G. 2x4 shielded with Inverted & Standard Latch (Tab up & down)

The hole patterns that apply to all 2x4 jacks with Inverted (Top) & Standard (Bottom) Latch are provided in the following figure 8.

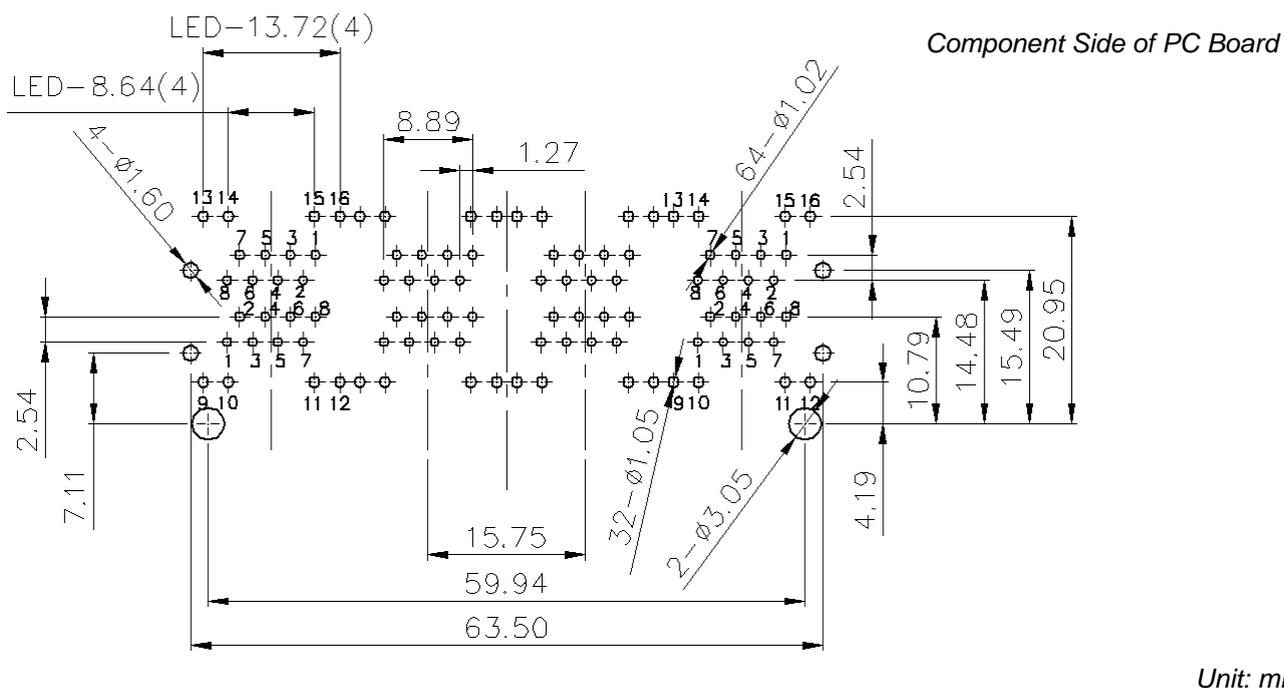


Figure 8: 64 Position Jack, Tab up & down with LED (2496706-X) PCB Layout

H. 2x6 shielded with Inverted & Standard Latch (Tab up & down)

The hole patterns that apply to all 2x6 jacks with Inverted (Top) & Standard (Bottom) Latch are provided in the following figure 9.

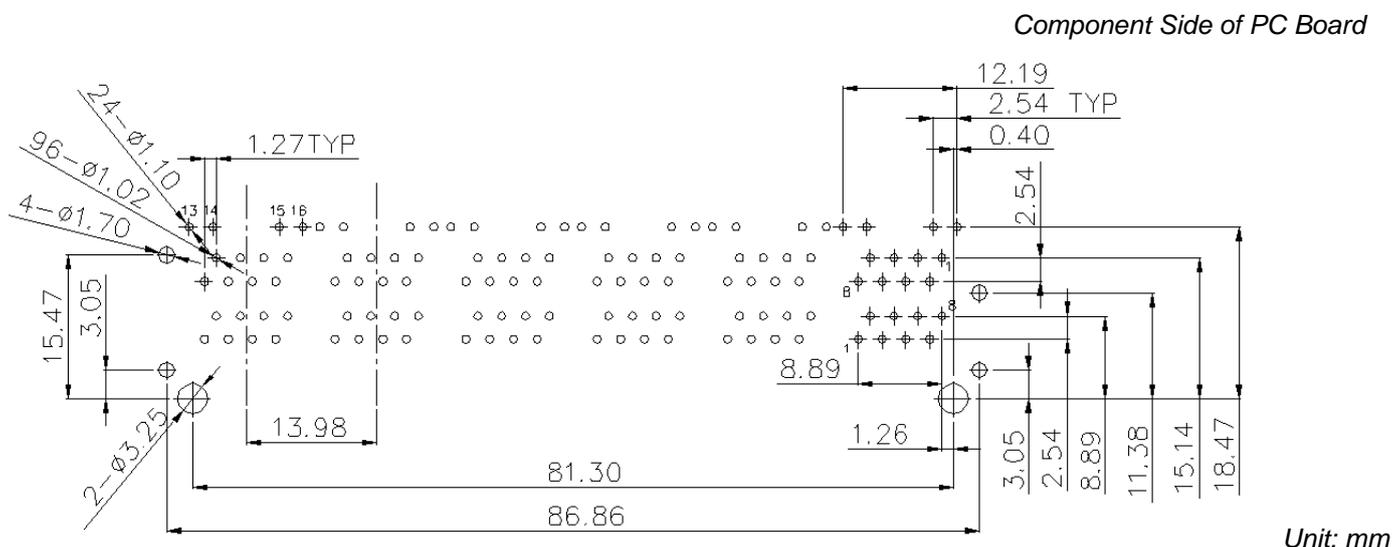


Figure 9: 96 Position Jack, Tab up & down with LED (2497307-X) PCB Layout

I. 2x8 shielded Jack with Inverted & Standard Latch (Tab up & down)

The hole patterns that apply to all 2x8 jacks with Inverted (Top) & Standard (Bottom) Latch are provided in the following figure 10.

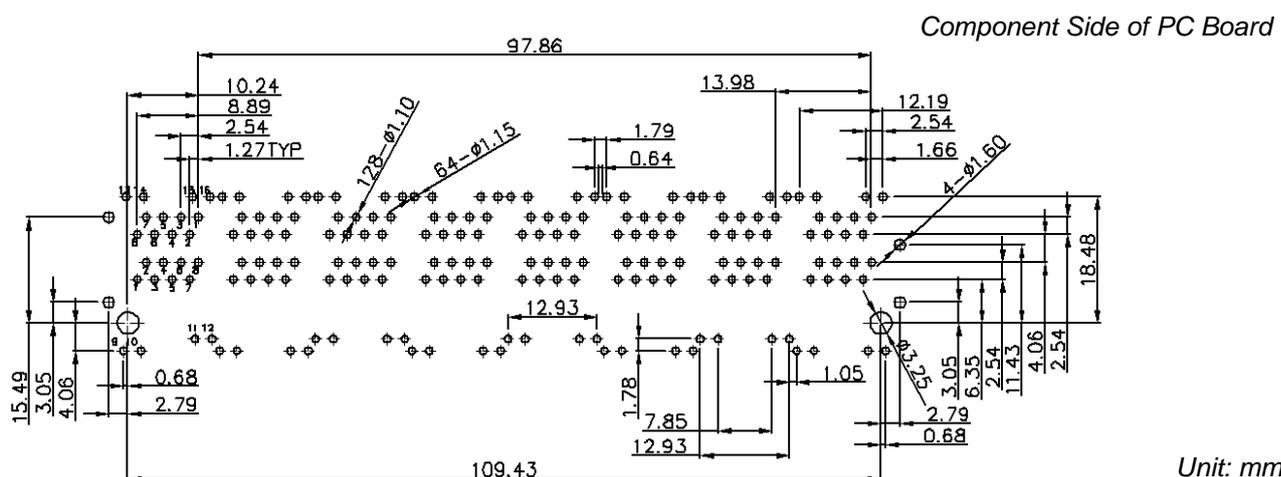


Figure 10: 128 Position Jack, Tab up & down with LED (2496715-X) PCB Layout

3.5. PCB Contact Tine Holes

Plated through holes should be used for contact solder tines and, when applicable, shield solder tines. The drilled hole size, plating types, and plating thickness are dependent on your application

requirements. The finished hole size must be as stated to provide unrestricted insertion, proper retention in the PCB, and to ensure adequate application of solder to the tines. See Figure 10.

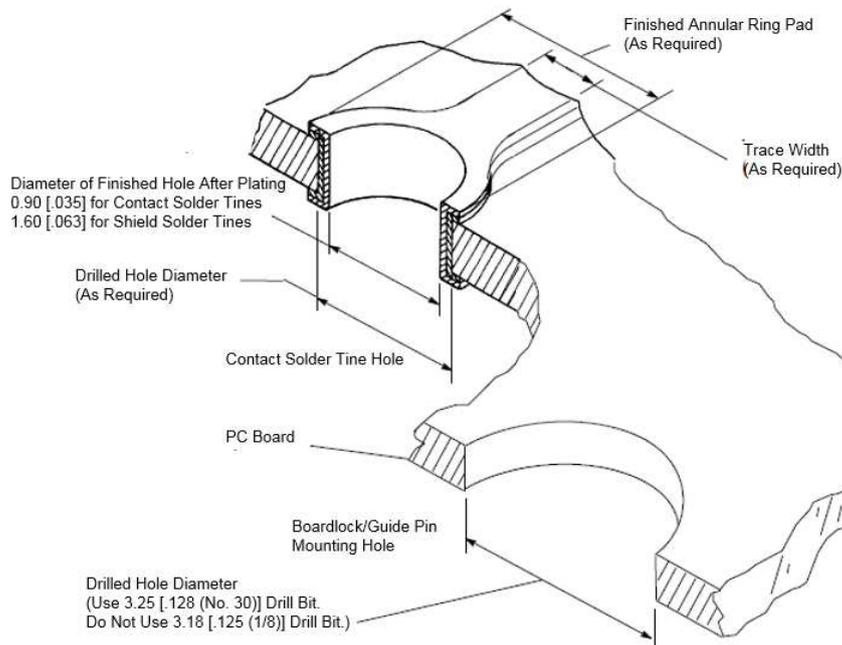


Figure 11: Contact Tine Holes dimensions in PCB

3.6. Jack placement



The connector should be handled only by the housing to avoid deformation, contamination, or other damage to the contact solder tines and, where applicable, shield solder tines

A. Alignment

The RJ45 Jack shall be flush and evenly seated on the PCB. A hold-down may be used to hold the jack in place during the soldering process.

B. Position

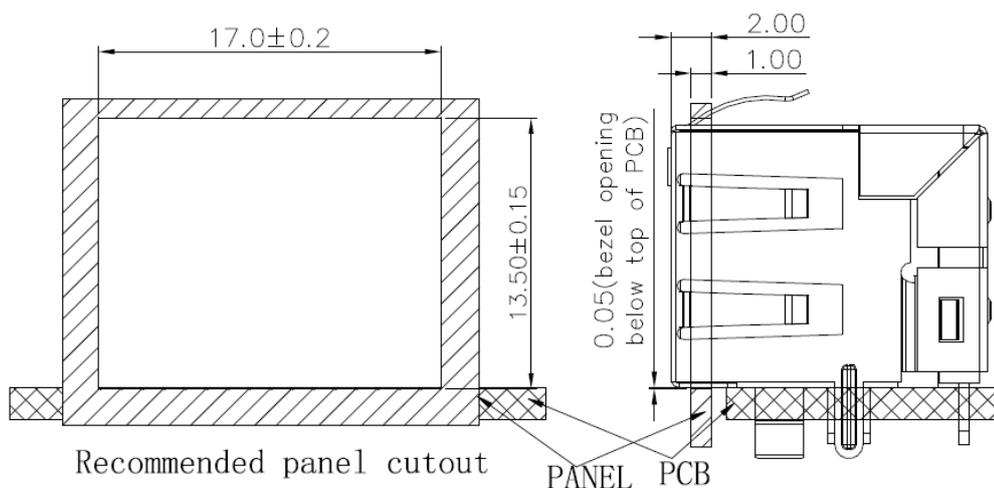
Determine which hole in the PCB is to receive the number one contact tine, then orient the jack so the number one solder tine is aligned with the hole. Insert all solder tines into the board, then press on the top of the jack until it seats on the PCB.

3.7. Shielding

Shielded RJ45 Jack features brass or stainless shells which provide continuity for EMC (Electromagnetic Compatibility) applications. When mated with corresponding shielded RJ45 plugs, shielding and grounding continuity are achieved. When the shield solder tines are soldered to the PCB they provide electrical continuity to any ground path on the PCB and, where applicable, panel ground tabs on the shield provide electrical continuity to any ground path through the equipment panel.

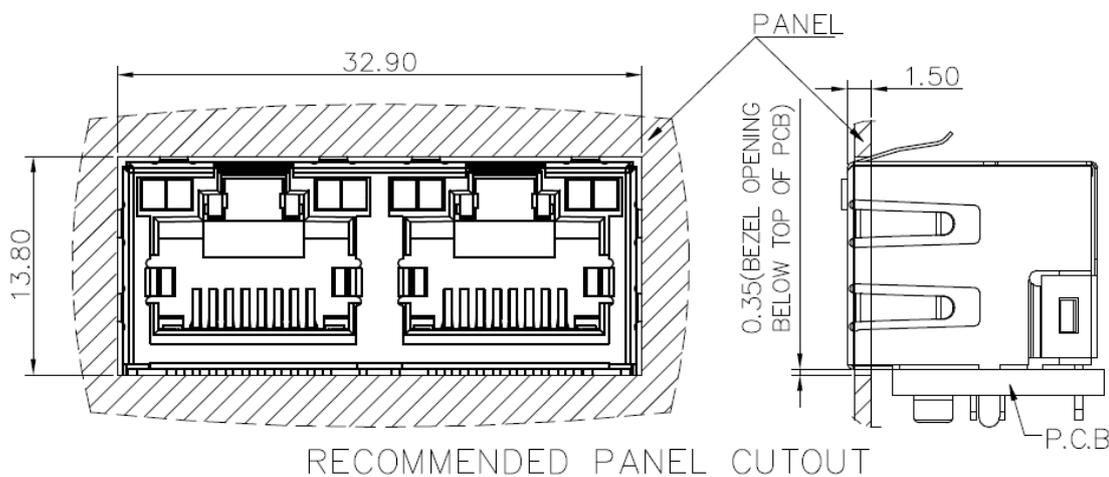
3.8. Panel Cutout

After the modular jack is secured to the PCB, the modular jack can be positioned in a cutout in a panel. Dimensions for recommended panel cutout are shown in following figure 12,13,14,15,16,17,18,19, 20.



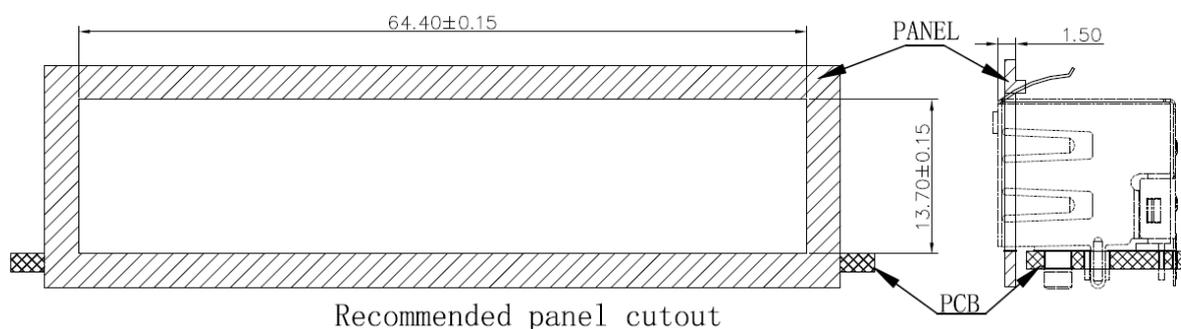
Unit: mm

Figure 12: 8 Position Jack, Tab up with LED (2496699-X) Panel cutout



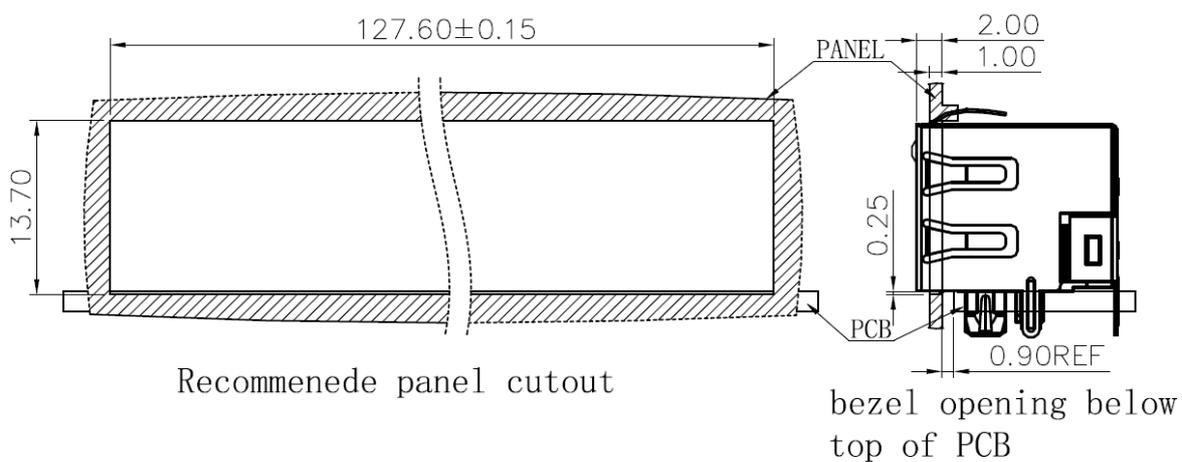
Unit: mm

Figure 13: 16 Position Jack, Tab up with LED (2496701-X) Panel cutout



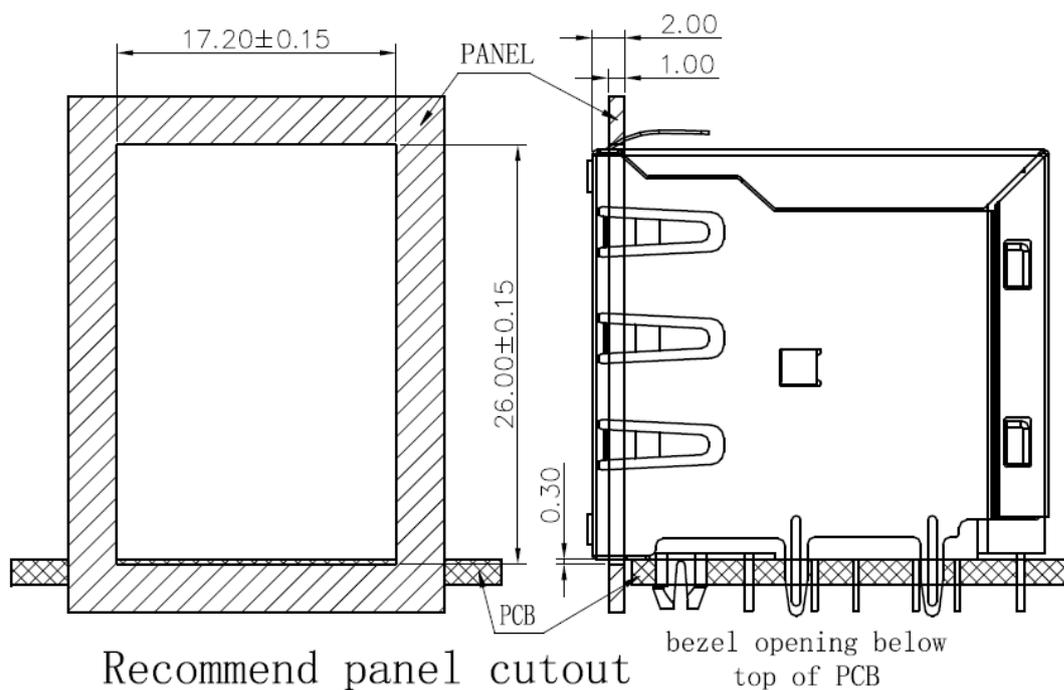
Unit: mm

Figure 14: 32 Position Jack, Tab up with LED (2496702-X, 2497308-X) Panel cutout



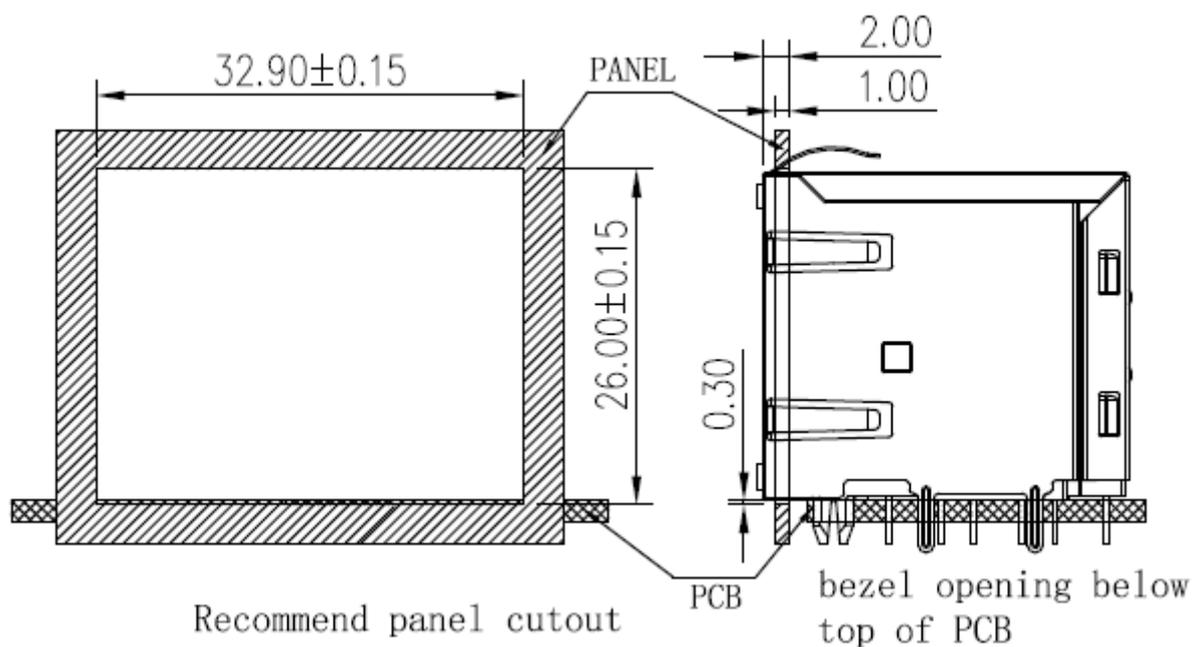
Unit: mm

Figure 15: 64 Position Jack, Tab up with LED (2496703-X) Panel cutout



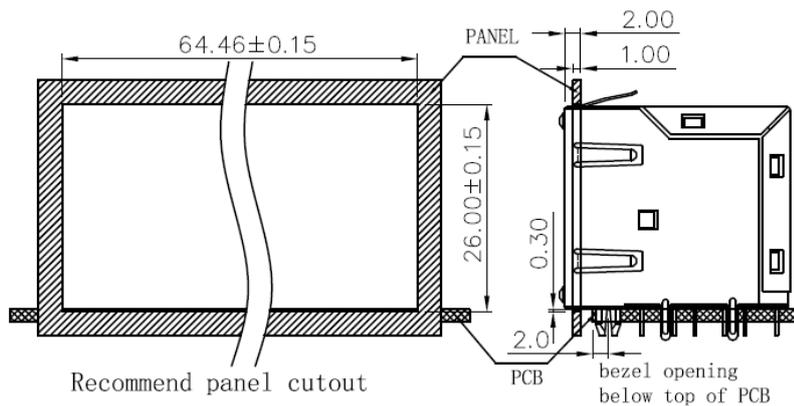
Unit: mm

Figure 16: 16 Position Jack, Tab up & Tab down with LED (2496704-X) Panel cutout



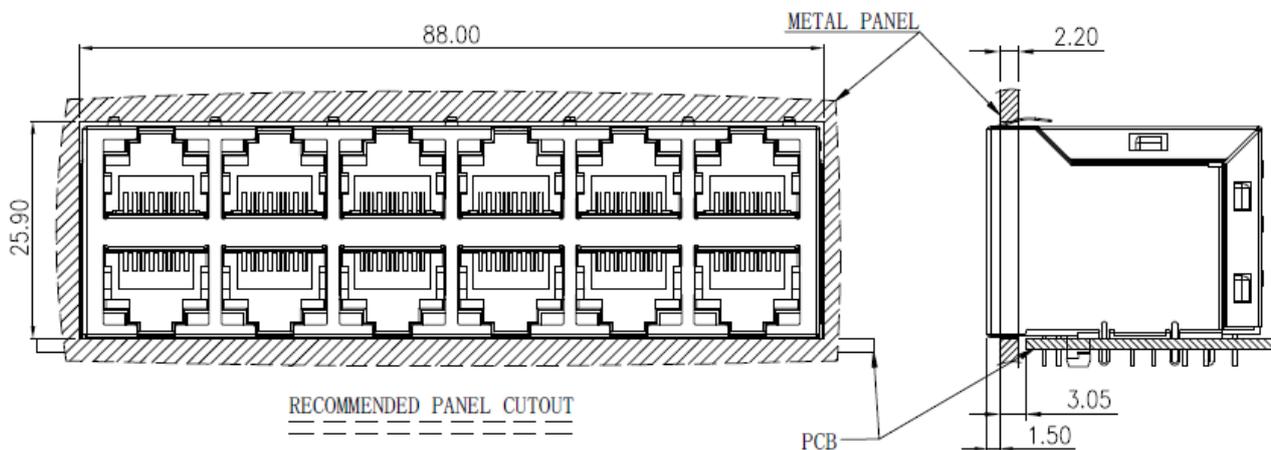
Unit: mm

Figure 17: 32 Position Jack, Tab up & down with LED (2496705-X) Panel cutout



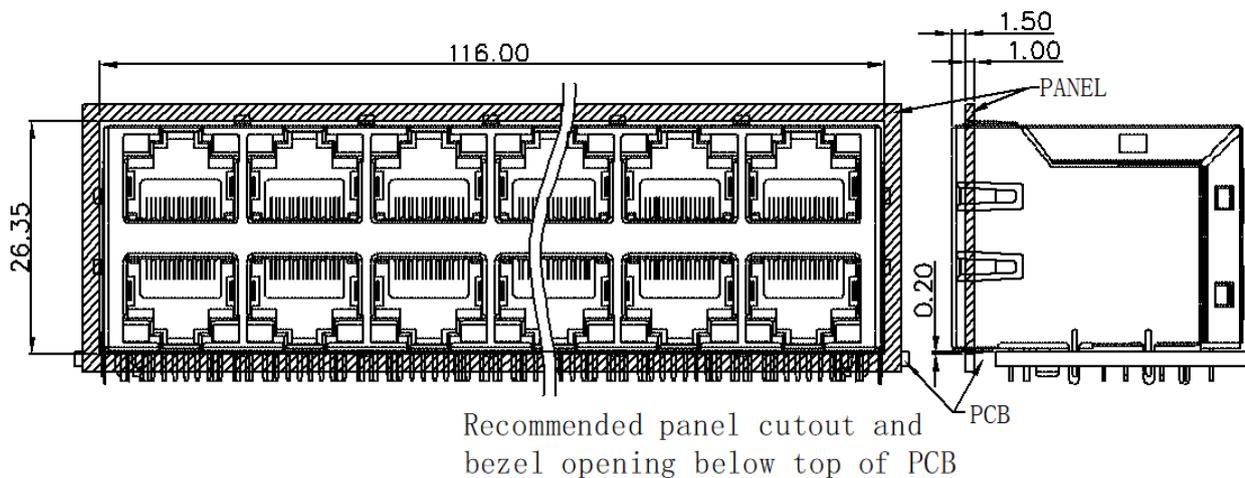
Unit: mm

Figure 18: 64 Position Jack, Tab up & down with LED (2496706-X) Panel cutout



Unit: mm

Figure 19: 96 Position Jack, Tab up & down with LED (2497307-X) Panel cutout



Unit: mm

Figure 20: 128 Position Jack, Tab up & down with LED (2496715-X) Panel cutout

Soldering Guidelines

RJ45 Jack with integrated Magnetics can be soldered using wave or equivalent soldering techniques. We recommend using SN60 or SN62 solder for these connectors. The temperatures and exposure time shall be within the ranges specified in Table 2.

Table 2: Temperature and exposure time

SOLDERING PROCESS	TEMPERATURE		TIME (At Max Temp)
	CELSIUS	FAHRENHEIT	
Wave Soldering	260	500	10 Seconds



The connector should not be cleaned by immersion in liquid or by an aqueous spray-in-air process. The manual removal of the flux or the use of no-clean flux is recommended.

3.9. Checking Installed Jack

The Jack must be seated on the PCB as shown in figure 19.

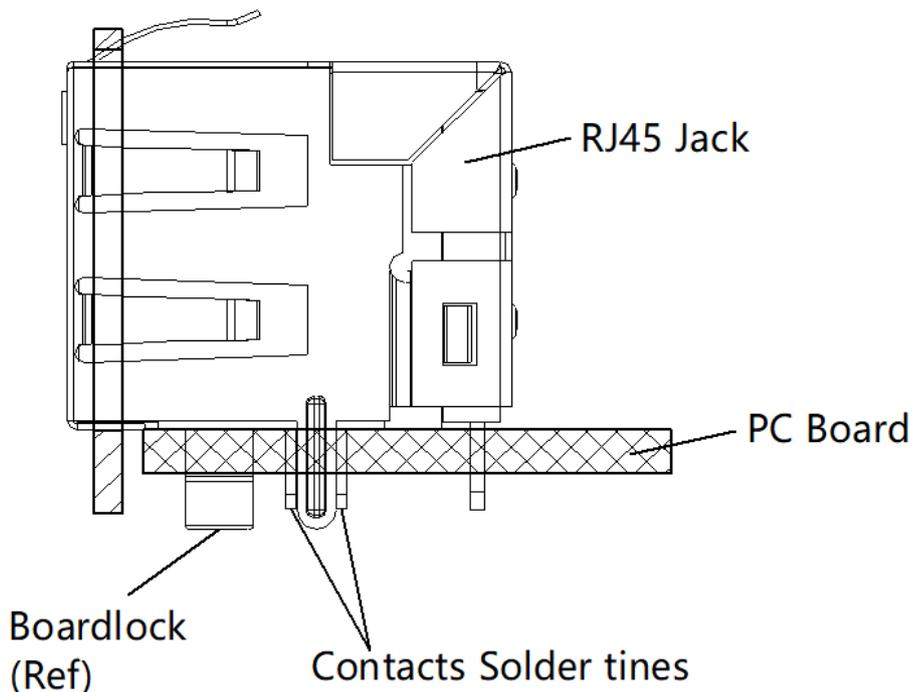


Figure 21: RJ45 Jack installed on PCB

3.10. Repair/Removal

If the jack should become damaged, it must be replaced. It may be removed from the PCB by normal desoldering methods and replaced with a new jack.



When repairing or replacing a RJ45 Jack, be careful not to damage other PCB components during the desoldering process.

4. QUALITY

RJ45 Jack are recognized by Underwriters Laboratories Incorporated (UL) in File 81956.

5. TOOLING

No special tooling is required for hand placement of RJ45 Jack onto a PCB. However, a backup support that provides relief for protruding components is needed to prevent deformation of contact solder tines and, when applicable, shield solder tines.

6. VISUAL AID

Figure 20 shows typical installation applications of RJ45 Jack and 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.

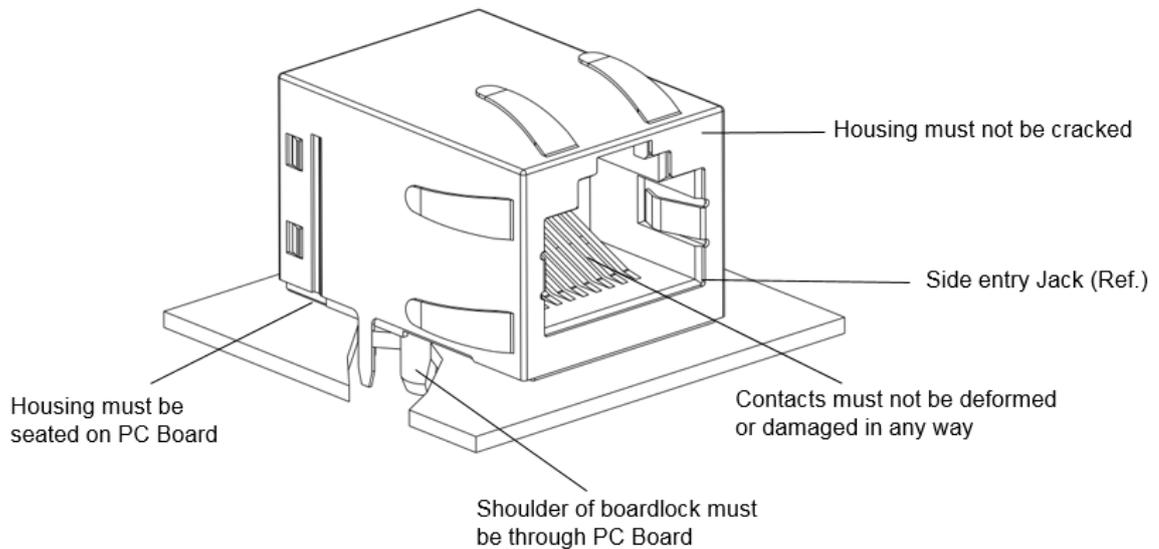


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