



APPLICATION SPECIFICATION

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DOCUMENT NUMBER: AS-170071-0001	CREATED / REVISED BY: JGonzalez/JKachlic	CHECKED BY: JKachlic	APPROVED BY: MBanakis



APPLICATION SPECIFICATION

1.0 SCOPE

This specification covers the requirements for the installation of the zSFP+ Stacked Connector assemblies onto printed circuit boards, and rework instructions. See Figure 1 below.

Disclaimer: Molex does not guarantee the performance of the final product to match the information provided in this document. All information in this report is considered proprietary, confidential and the property of Molex Inc. This guide is not intended as a substitute for engineering analysis.

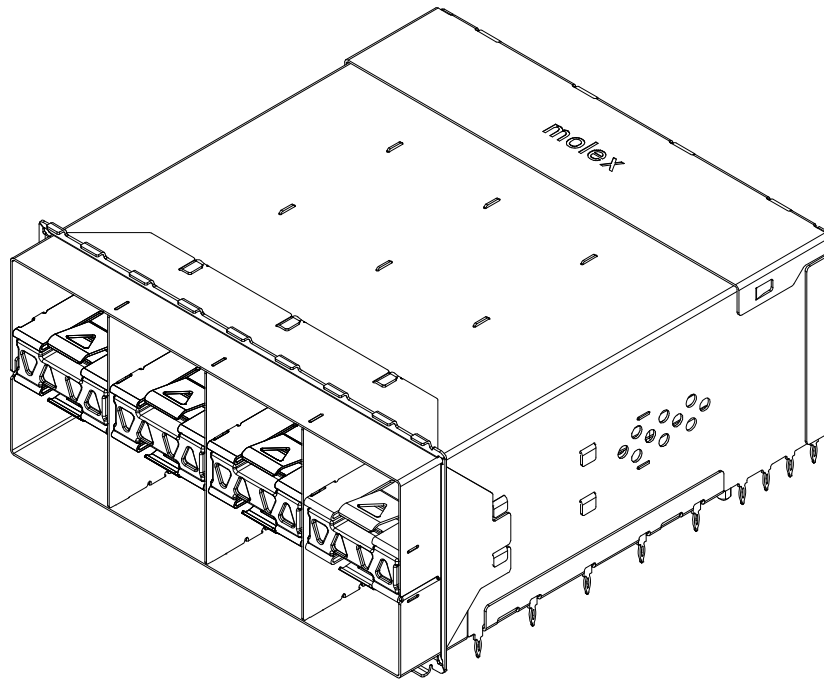


Figure 1
2X4 Assembly with Light Pipes

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2.0 PRODUCT DESCRIPTION

This specification covers the zSFP+ Stacked connector assemblies, available in a 2X1, 2X2, 2X4, 2X6, 2X8 configurations. The connectors consist of a housing with dual 20-position receptacle ports and with compliant pin contacts on 0.8mm centerline spacing. Connector assembly includes an Elastomeric Gasket or Metal Spring Fingers to reduce EMI leakage thru the customer bezel opening. Optional Light Pipes are available in a number of configurations to provide port information to be transmitted from LEDs mounted on the PCB to the front face of connector mid-section.

2.1 PRODUCT NAME AND PART NUMBERS

2.1.1 zSFP+ STACKED WITH ELASTOMERIC GASKET

Configuration	Product with light pipes	Drawing Number
	170071-10**	
170071-20**		
All configurations	170071-40**	SD-170071-0002
	170071-60**	
	170071-80**	
	170071-12**	

** - designates possible light pipe configurations

Configuration	Product without light pipes	Drawing Number
170071-1001		
170071-2001		
All Configurations	170071-4001	SD-170071-0001
170071-6001		
170071-8001		
170071-1201		

2.1.2 zSFP+ STACKED WITH METAL SPRING FINGERS

Configuration	Product with light pipes	Drawing Number
	171224-10**	
	171224-20**	
All configurations	171224-40**	SD-171224-0002
	171224-60**	
	171224-80**	
	171224-12**	

** - designates possible light pipe configurations

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Configuration	Product without light pipes	Drawing Number
All Configurations	171224-1001	SD-171224-0001
	171224-2001	
	171224-4001	
	171224-6001	
	171224-8001	
	171224-1201	

3.0 REFERENCE DOCUMENTS

Refer to the appropriate customer sales drawing for product part numbers.
Refer to PS-170071-0001 for the connector product spec.
Refer to AS-170071-0002 for connector routing guidelines.

4.0 GENERAL REQUIREMENTS

4.1 LIMITATIONS

The connectors are designed to operate in a temperature range of -40° to 80°C [-40° to 176°F].

4.2 MATERIAL

The connector housing and wafers (parts that hold the terminal contacts) are made of molded thermoplastic, UL 94-V-0. All terminal contacts in the connector are made of a high performance alloy under-plated with overall nickel, plated with matte tin at the leads and plated with gold at the contact interface area. The cage assembly is made of an un-plated Nickel Silver alloy.

4.3 STORAGE

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

4.4 SHELF LIFE

The connector assembly should remain in the shipping container until ready for use to prevent deformation to the contact leads, compliant pins and mounting posts. The connector assemblies should be used on a first in, first out basis to avoid storage contamination that could adversely affect performance.

4.5 CHEMICAL EXPOSURE

Do not store connector assemblies near any chemicals listed below as they may cause stress corrosion cracking in the terminal contacts or mounting posts.

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

5.0 PC BOARD REQUIREMENTS

5.1 MATERIAL THICKNESS

The pc board material shall be glass epoxy (FR-4 or G-10). The recommended minimum pc board thickness shall be 1.57 mm.

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5.2 TOLERANCE

Maximum allowable bow of the pc board shall be 0.08 mm over the length of the connector assembly.

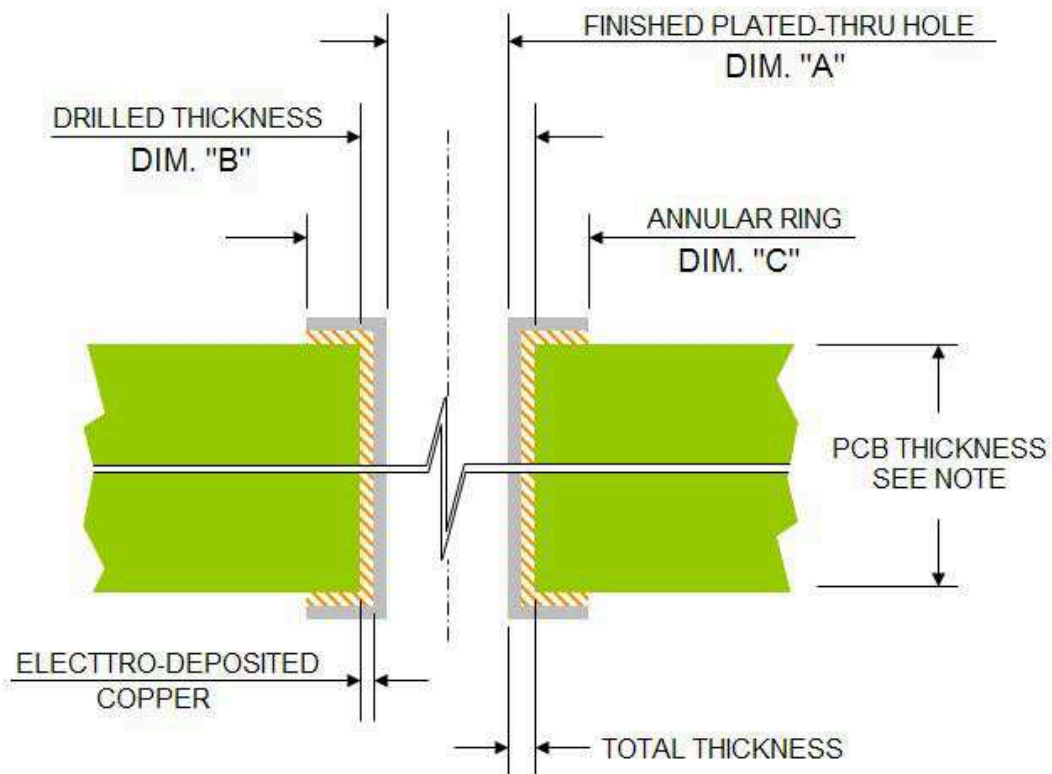
5.3 HOLE DIMENSIONS

The holes for the connector assembly must be drilled and plated through to dimensions specified in Figure 2.

5.4 LAYOUT

The holes for the connector assembly must be precisely located to ensure proper placement and optimum performance of the connector assembly. Recommended hole pattern, dimensions, and tolerances are provided in Figure 3.

Recommended Hole Dimensions



DIM. "A" MM / (INCH)	DIM. "B" MM / (INCH) - # DRILL	DIM. "C" MM / (INCH)
0.56+/-0.05 (.022+/-0.002)	0.660 (.026) - # 71	0.91 (.036)
0.37+/-0.05 (.0146+/-0.002)	0.457 (.018) - # 77	0.73 (.029)

**DETAIL FOR
COMPLIANT PIN HOLES**
Figure 2

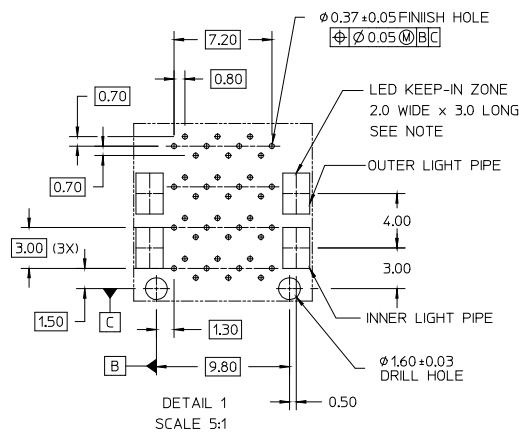
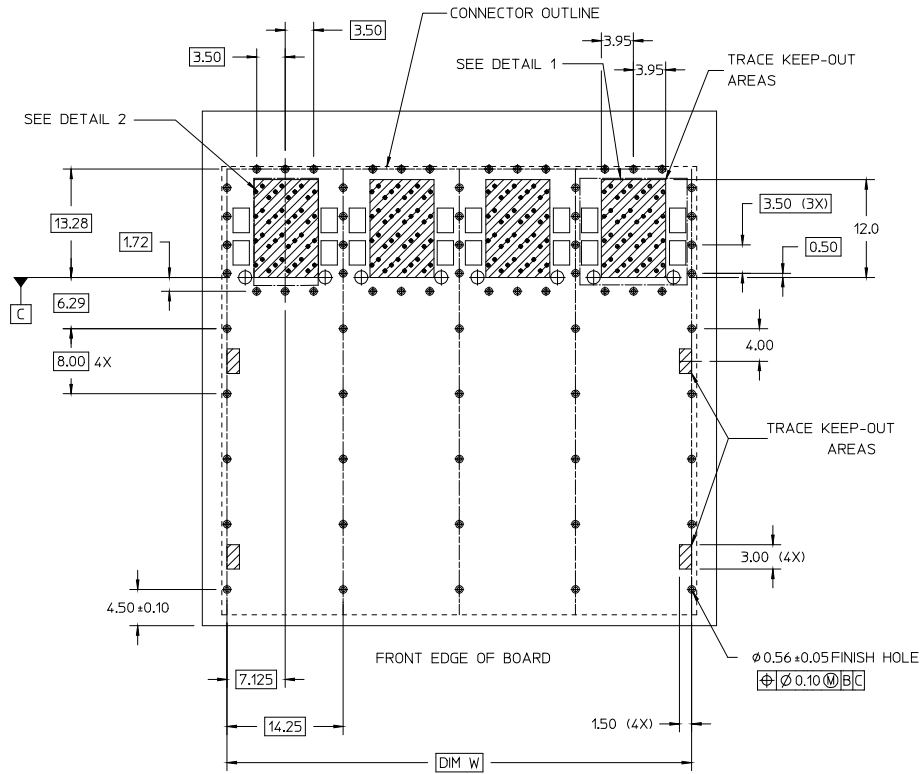
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Recommended PC Board Layout for the Connector Assembly

2X4 Connector Example
(Dim W - 4 X 14.25=57.00)



Connector Module Detail
Figure 3

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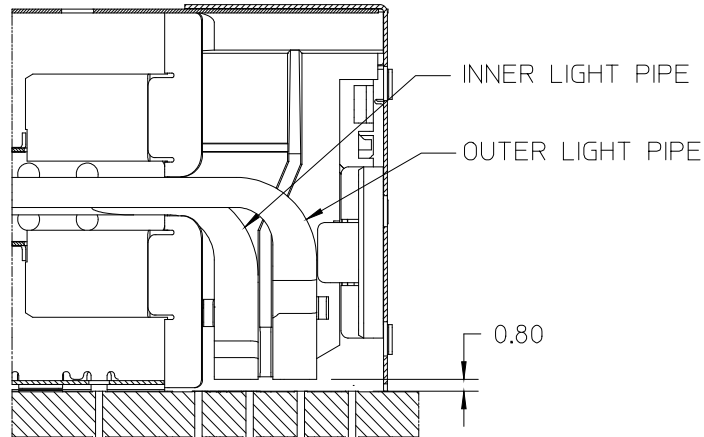
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6.0 LED POSITION REQUIREMENTS / LIGHT PIPE CLEARANCE

LED Package size must fit within the specified Keep In Zone of 2.0mm wide X 3.0mm long after surface mounting to PCB pads. LED position should be centered for optimal light transmission but can be safely offset +/-0.50mm. Connector Light Pipes are positioned above the Keep In Zones with a Vertical gap of 0.80mm (refer to figure 4). Light Pipes are not rigidly fixed and will flex to accommodate some interference with the LED package.



SECTION VIEW
RIGHT SIDE OF MODULE

Figure 4

CAUTION Light Pipes are made from an optical grade polymer and cannot withstand heat above the 80 C connector use temperature without deformation or loss of properties.

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7.0 ASSEMBLY PLACEMENT INSTRUCTIONS

The following requirements also apply to the connector assemblies used for rework purposes.

CAUTION Connector assemblies should be handled by the overall cage to avoid deformation, contamination, or damage to the terminal pin contacts, and the panel ground springs.

7.1 REGISTRATION

Individual connector modules have a set of plastic alignment posts which enter the PCB datum holes first. These posts will assist in the alignment of the cage compliant pins, then they will align the signal compliant tails. Connector assembly should sit parallel to the PCB with all cage complaints inside their respective mounting holes prior to applying the seating load.

7.2 SEATING

Using proper seating force and seating height is essential to interconnection performance. The force used to seat the connector assembly must be applied evenly to prevent deformation or other damage to the pin contacts. The force required to seat the connector assembly onto the pc board can be calculated by:

Amount of signal compliant pin contacts x 12.0 N (Mean Force per Compliant Pin Contact = Peak Seating Force)

CAUTION Over-driving of the connector assembly will deform parts critical to the quality of the connector. Maximum force occurs prior to the connector assembly bottoming on the pc board.

The shut height of the seating application tool must be specifically set for proper seating of the connector assembly. The shut height can be calculated by:

Seating Height (Connector Assembly Seated) + Height of Seating Tool (loaded onto Connector Assembly) + Combined Thickness of PC Board and PC Board Support Fixture = Shut Height (Ram Down)

The seating height, measured from the top of the cage assembly (not including the front half of the cage assembly that overhangs the pc board, is given in Figure 5.

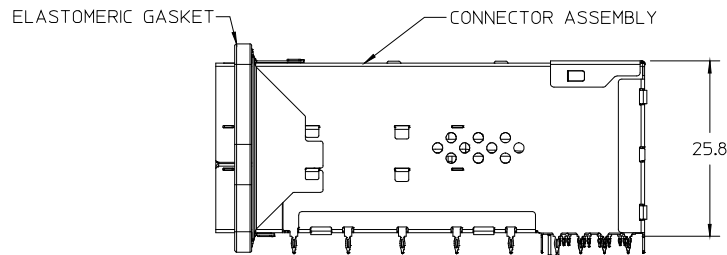
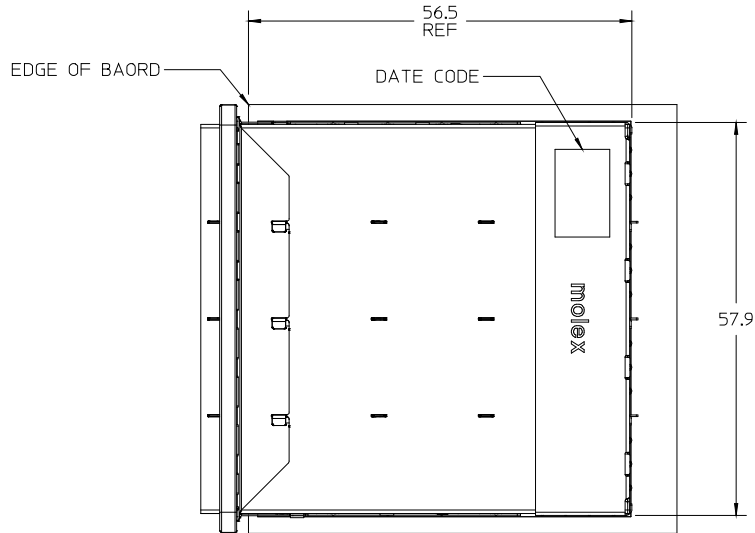
The connector assembly must be seated on the pc board not exceeding the dimensions shown in Figure 5.

CAUTION Side supports may be required on application tool to constrain part from any side movement. Side movement will collapse/bend pins. Side movement can be seen as insertion force increases toward maximum (minimum hole size and silver plating).

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**2X4 Connector Assembly Example
Figure 5**

7.3 REPAIR AND REWORK

Damaged or defective connector assemblies must be removed and replaced.

If repair or rework to the pc board requires normal soldering (not reflow or wave) after the connector assembly has been seated onto the pc board, the following must apply:

If after soldering, removal of fluxes, residues and activators are necessary, remove the elastomeric EMI gasket prior to cleaning and reapply after. Consult with the supplier of the solder and flux for recommended cleaning solvents. Cleaners must be free of dissolved flux and other contaminants. Even when removing a “no clean” solder paste residue; it is imperative that the connector contact interface be kept clean of flux and residue (since it acts as an insulator).

DANGER Consideration must be given to toxicity and other safety requirements recommended by the solvent manufacture. Refer to the manufacture’s Material Safety Data Sheet (MSDS) for characteristics and handling of cleaners. Trichloroethylene and Methylene Chloride is not recommended because of harmful occupational and environmental effects.

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8.0 VISUAL AIDS

The Illustrations below show the typical application of the connector assembly. The illustrations should be used by production personal 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. Refer to Figure 6a and 6b.

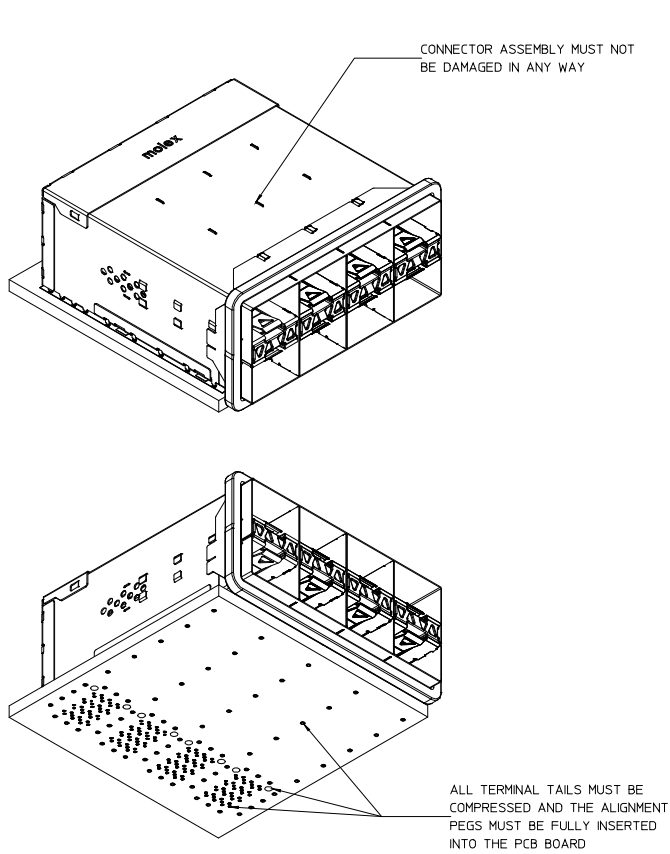


Figure 6a

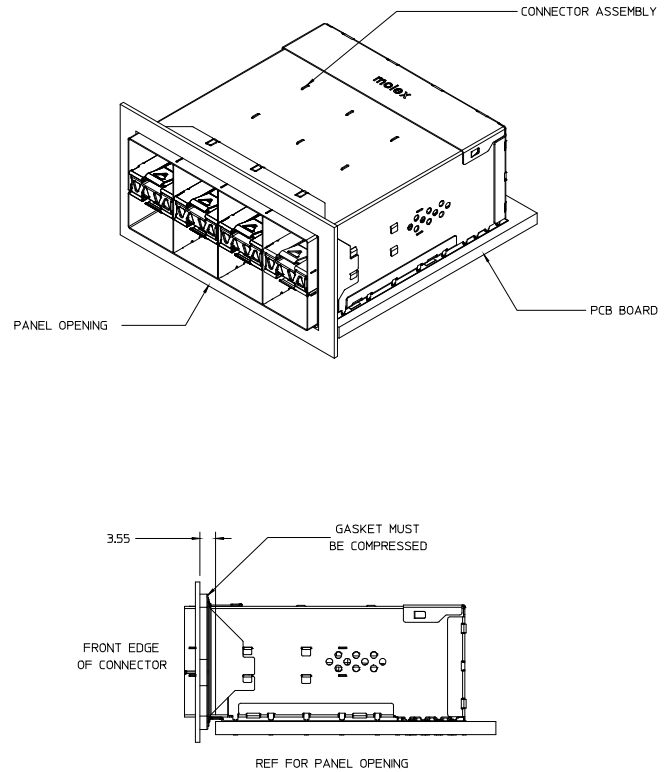


Figure 6b

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