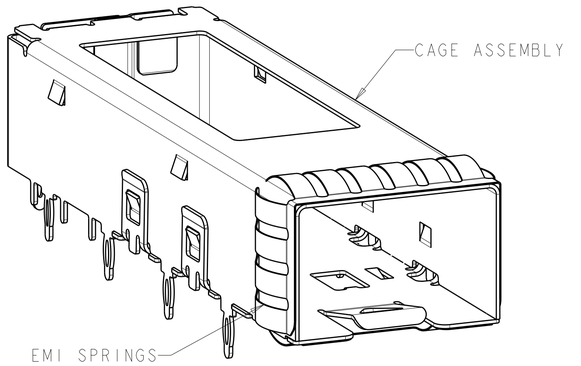
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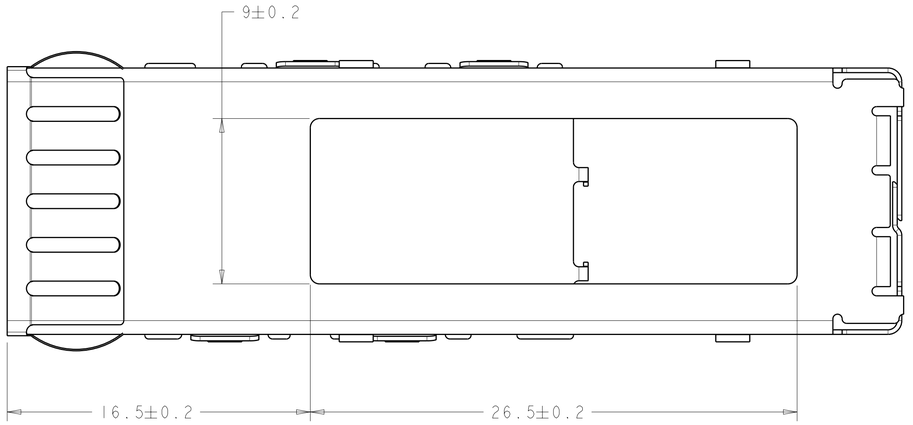
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GP	00

REVISIONS

P	LTR	DESCRIPTION	DATE	DWN	APVD
	B	REVISED PER ECO-09-022874	20OCT2009	CR	MS
	C	REVISED PER ECO-11-024172	07DEC2011	TX	AC



2007215-2
SCALE 5:1



2007215-2
SAME AS 2007215-1 EXCEPT AS SHOWN
TOP VIEW

1. MATERIAL:
CAGE ASSEMBLY - 0.25mm THICK NICKEL-SILVER ALLOY.
EMI SPRINGS - COPPER ALLOY.

2. FINISH:
EMI SPRINGS - 0.8um MIN TIN OVER 0.8um MIN NICKEL, NON PLATED EDGES PERMISSIBLE.

3. MATES WITH SFP MSA COMPLIANT TRANSCEIVERS.

4. PADS AND VIAS CHASSIS GROUND.

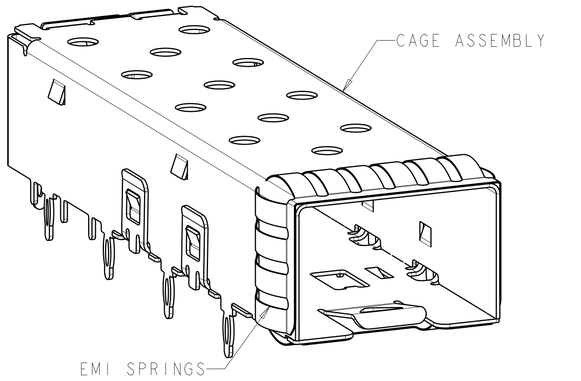
5. DATUMS AND BASIC DIMENSIONS ESTABLISHED BY CUSTOMER.

6. MINIMUM PC BOARD THICKNESS:
SINGLE SIDED = 1.50mm

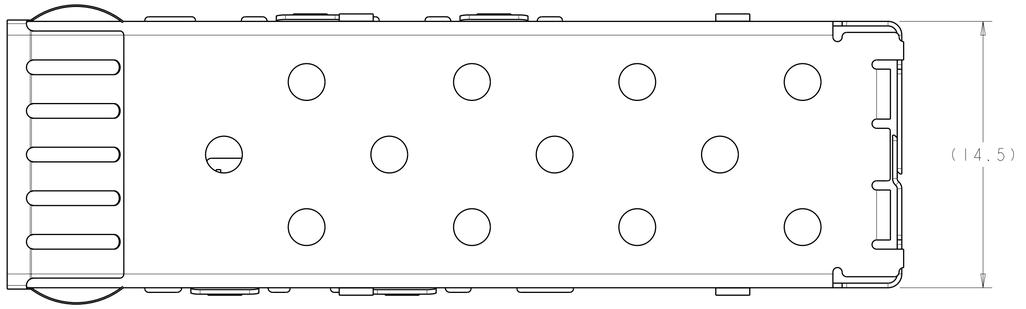
7. REFERENCE APPLICATION SPEC. 114-13120, HOLE A, FOR RECOMMENDED DRILL HOLE DIAMETER AND PLATING THICKNESS.

8. REFERENCE APPLICATION SPEC. 114-13120, HOLE C, FOR RECOMMENDED DRILL HOLE DIAMETER AND PLATING THICKNESS.

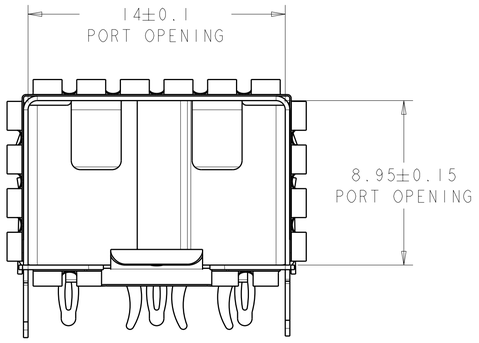
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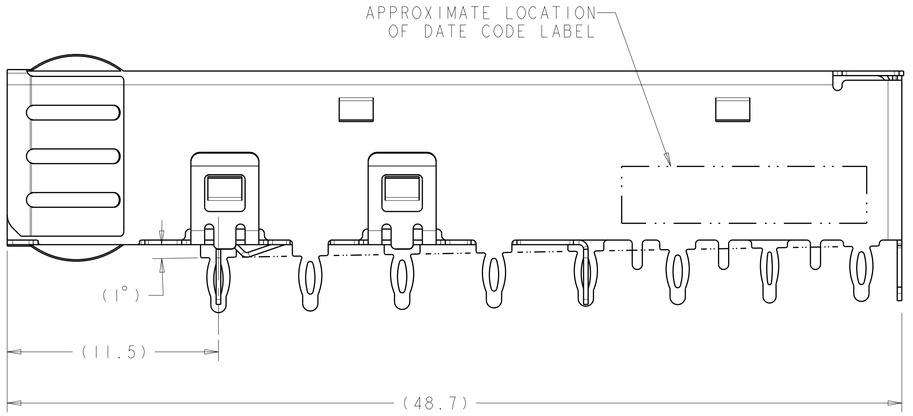


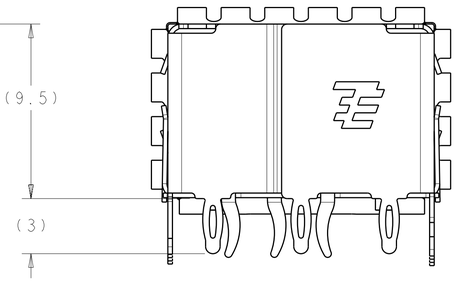
2007215-1
SCALE 5:1



2007215-1
TOP VIEW







勝特力電材超市-龍山店 886-3-5773766
勝特力電材超市-光復店 886-3-5729570
胜特力电子(上海) 86-21-34970699
胜特力电子(深圳) 86-755-83298787
http://www.100y.com.tw

HEATSINK OPENING	2007215-2
EMI HOLES	2007215-1
DESCRIPTION	PART NUMBER

THIS DRAWING IS A CONTROLLED DOCUMENT.

DIMENSIONS: mm

TOLERANCES UNLESS OTHERWISE SPECIFIED:
0 PLC ±0.1
1 PLC ±0.1
2 PLC ±0.1
3 PLC ±0.05
4 PLC ±0.05
ANGLES ±-

MATERIAL 1

FINISH 2

DWN M. SCHMITT 6AUG2007
CHK M. SCHMITT 6AUG2007
APVD B. WERTZ 6AUG2007
PRODUCT SPEC 108-2364
APPLICATION SPEC 114-13120
WEIGHT -

TE Connectivity

NAME SFP+ 1X1 CAGE ASSEMBLY, PCI, PRESS-FIT EMI SPRING FINGERS

SIZE	CAGE CODE	DRAWING NO	RESTRICTED TO
A1	00779	C-2007215	-

CUSTOMER DRAWING

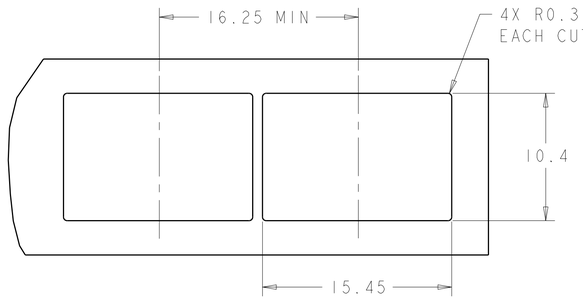
SCALE 6:1 SHEET 1 OF 2 REV C

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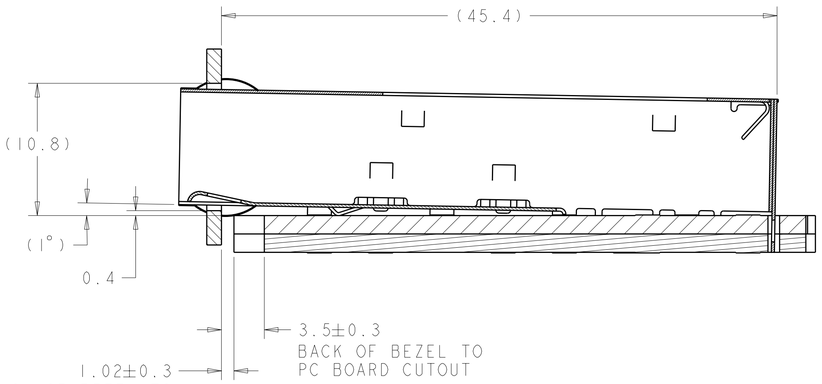
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GP	00

REVISIONS

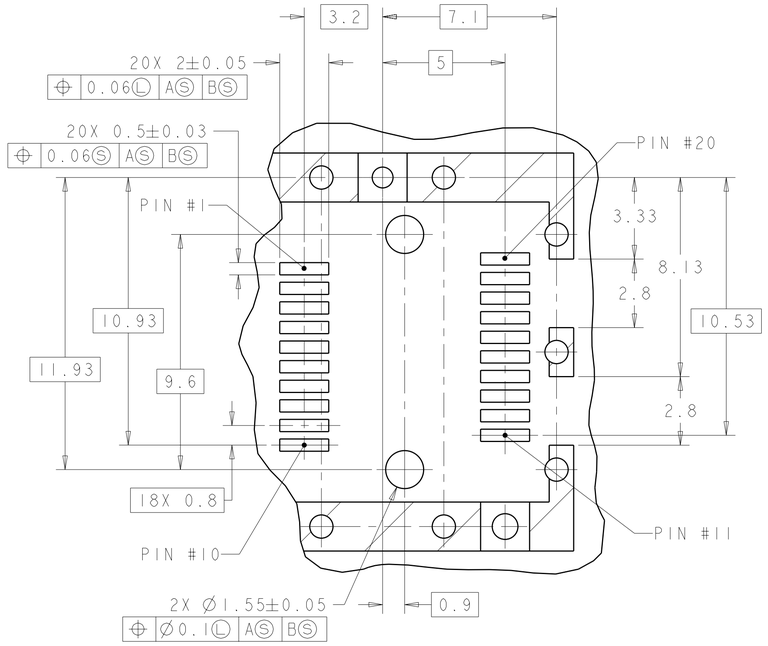
P	LTR	DESCRIPTION	DATE	DWN	APVD
	-	SEE SHEET 1	-	-	-



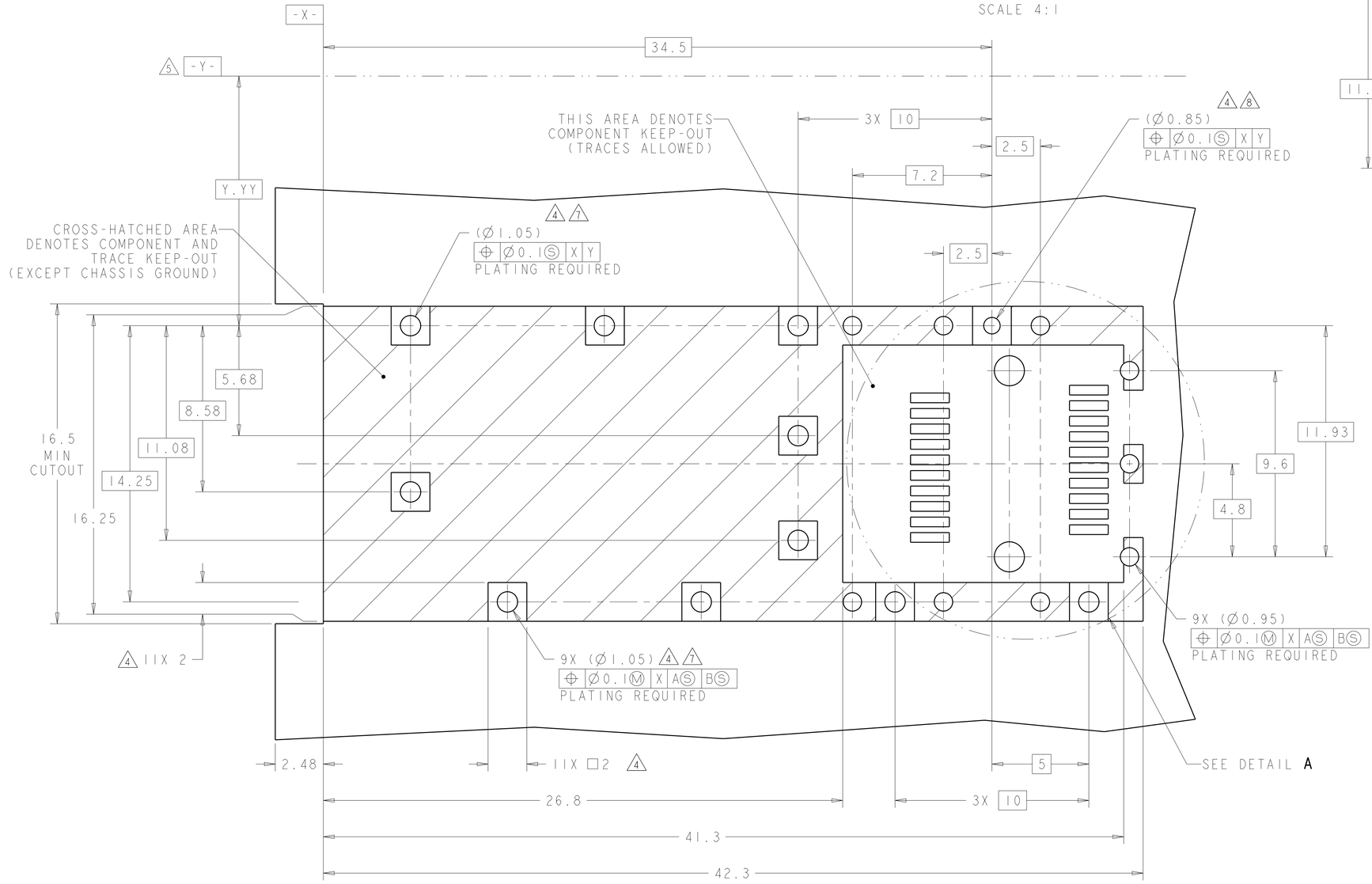
RECOMMENDED BEZEL CUTOUT
SCALE 4:1



CAGE ASSEMBLY MOUNTED ON RECOMMENDED
PC BOARD SHOWN THRU RECOMMENDED BEZEL
SCALE 4:1



DETAIL A
SCALE 8:1



RECOMMENDED PCB LAYOUT
SCALE 8:1

THIS DRAWING IS A CONTROLLED DOCUMENT.

DIMENSIONS: mm

TOLERANCES UNLESS OTHERWISE SPECIFIED:
0 PLC ±0.1
1 PLC ±0.1
2 PLC ±0.1
3 PLC ±0.05
4 PLC ±0.05
ANGLES ±-

MATERIAL -
FINISH -

DWN M SCHMITT 6AUG2007
CHK M SCHMITT 6AUG2007
APVD B WERTZ 6AUG2007
PRODUCT SPEC 108-2364
APPLICATION SPEC 114-13120
WEIGHT -

TE Connectivity

NAME SFP+ 1X1 CAGE ASSEMBLY, PCI, PRESS-FIT EMI SPRING FINGERS

SIZE A1 | CAGE CODE 00779 | DRAWING NO C-2007215 | RESTRICTED TO -

CUSTOMER DRAWING | SCALE 6:1 | SHEET 2 OF 2 | REV C

NOTE
All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters. Unless otherwise specified, dimensions have a tolerance of ±0.13 mm 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 requirements for application of SFP, SFP+, zSFP+ and SFP112 surface mount PT connectors and cage assemblies to interconnect SFP, SFP+, zSFP+ and SFP112 fiber optic or copper transceiver modules to printed circuit (pc) boards. The connectors are available in 20, 30, 40, and 70 positions with contact spacing on 0.8 mm centerlines; however, ONLY the 20-position connector is designed to be used with these cage assemblies. The cage assemblies are available in single port or ganged 1X2, 1X4, or 1X6 configurations (two, four, or six adjoined ports), and with or without a light pipe. The light pipe is used to transmit light from an LED on the pc board to a panel (information for cage assemblies with light pipe is not included in this document). Each cage assembly is designed to be inserted into a bezel after being seated onto the pc board.

The connector is supplied in tape-and-reel form for manual or high-speed automatic machine placement (typically vacuum pick and place). The cage assemblies are supplied in plastic tray packaging for manual placement.

When corresponding with TE Connectivity Personnel, use the terminology provided in this specification to facilitate inquiries for information. Basic terms and features of this product are provided in Figure 1.

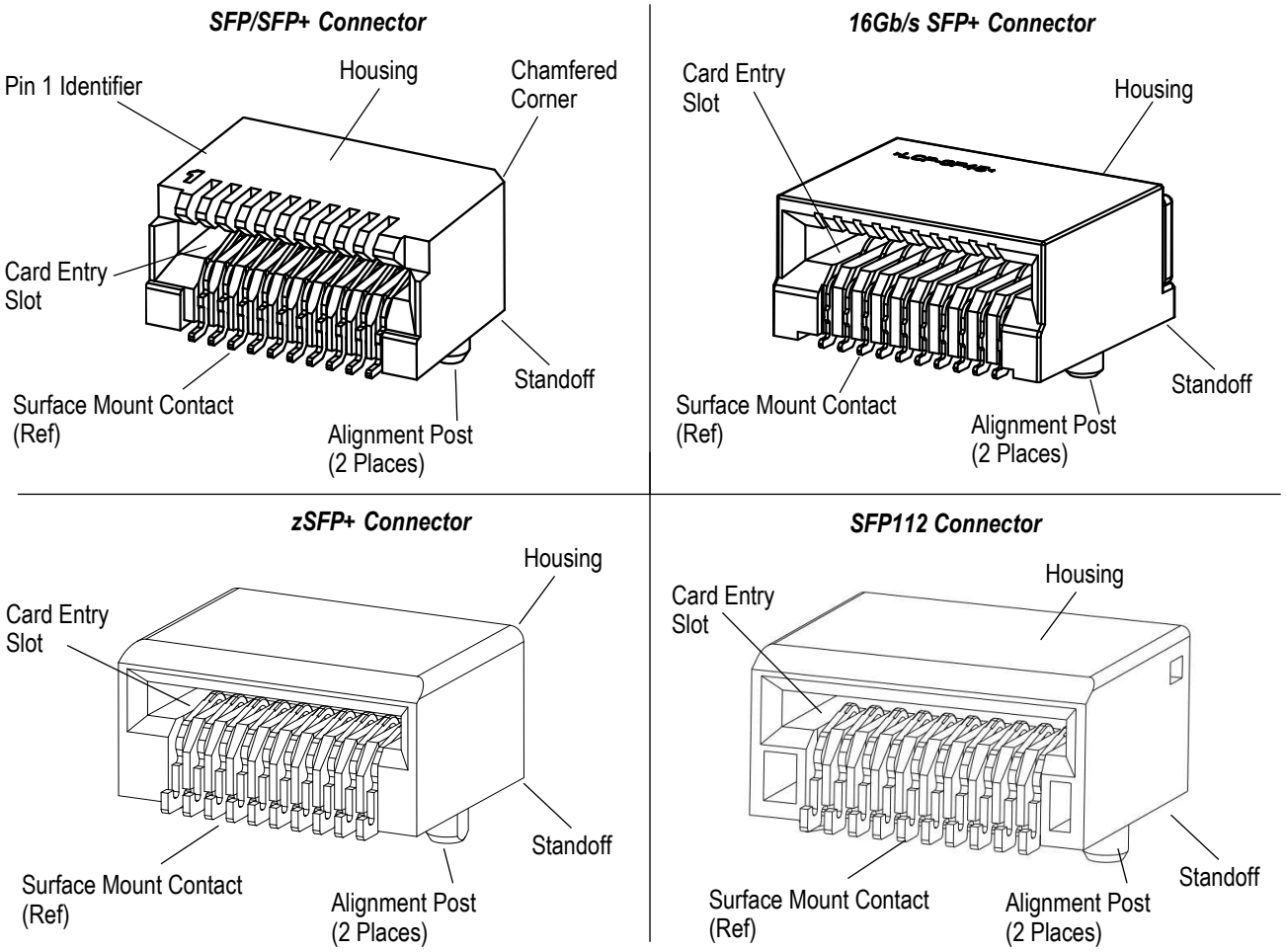
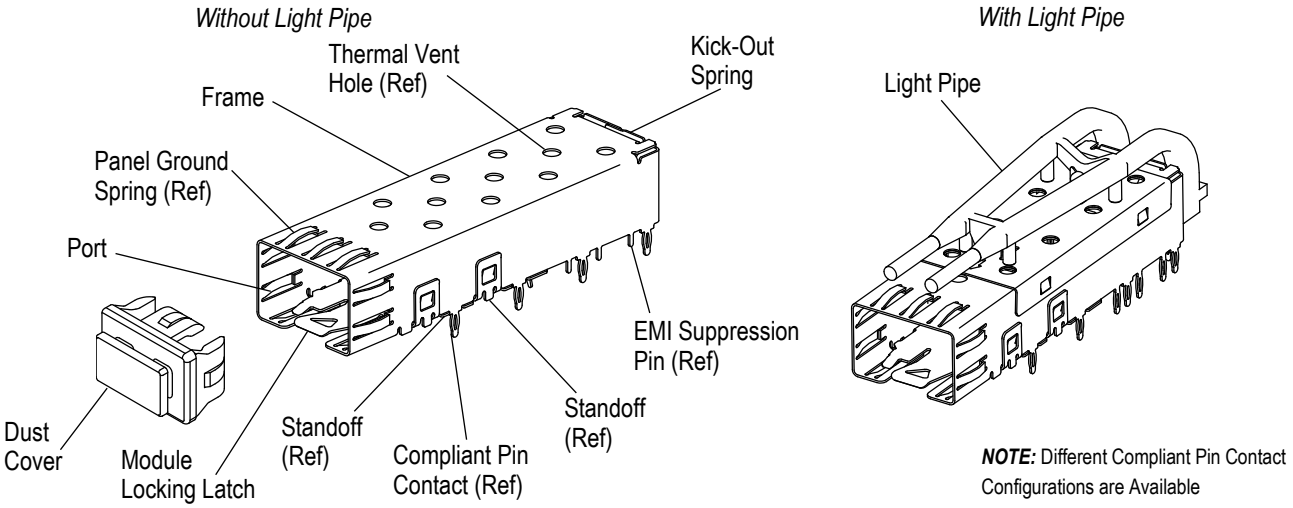


Figure 1 (cont'd)

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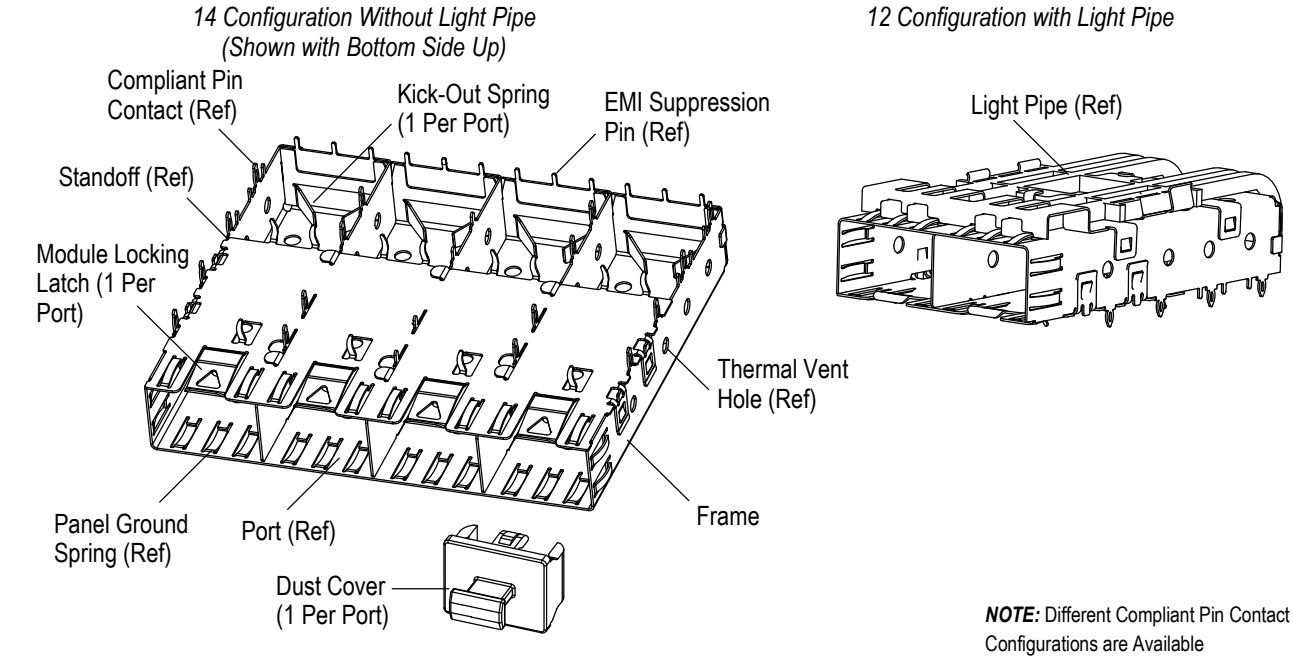
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SFP Single Port Cage Assembly



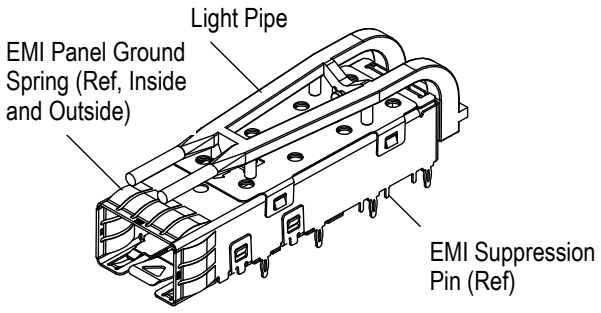
NOTE: Different Compliant Pin Contact Configurations are Available

SFP Ganged Cage Assembly



NOTE: Different Compliant Pin Contact Configurations are Available

SFP Enhanced EMI Single Port Cage Assembly
Enhanced EMI Panel Ground Springs with Light Pipe



SFP Enhanced EMI Ganged Assembly
14 Configuration
Enhanced EMI Panel Ground Springs without Light Pipe

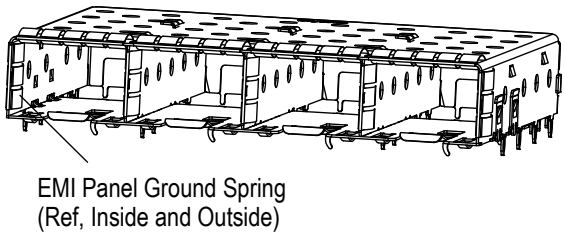
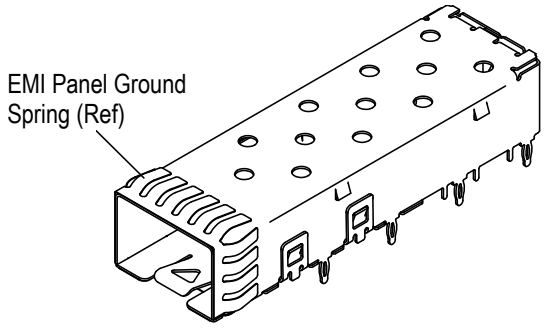
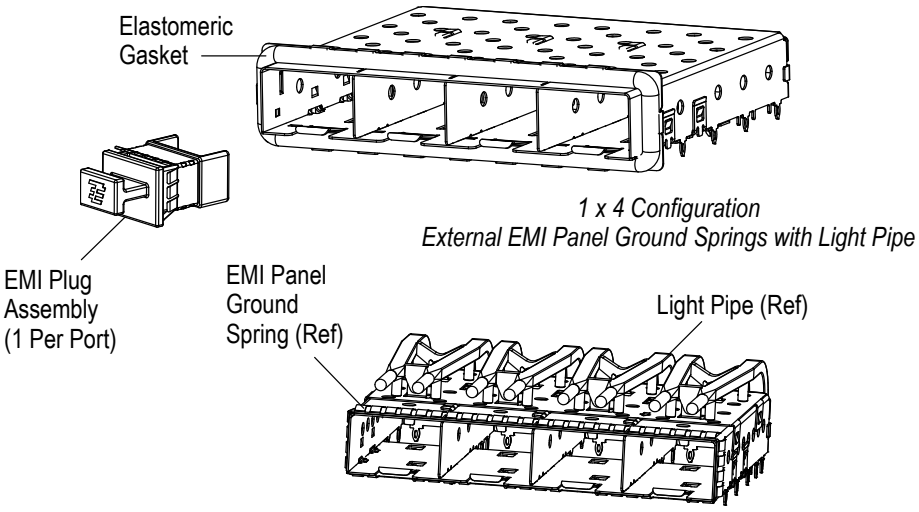


Figure 1 (cont'd)

SFP+ Single Port Cage Assembly
External EMI Panel Ground Springs without Light Pipe

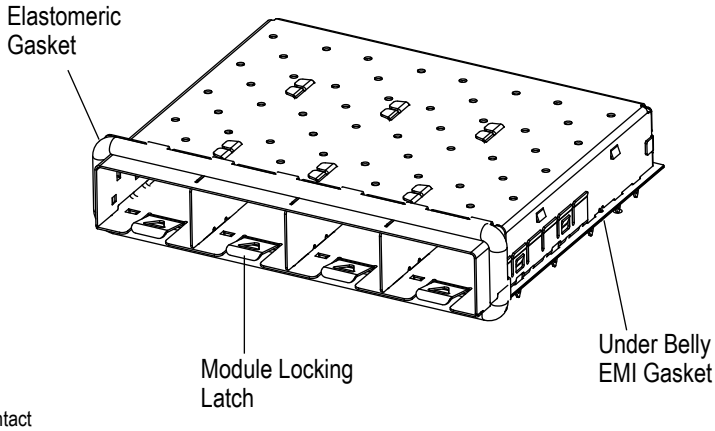


SFP+ Ganged Cage Assembly
1 x 4 Configuration Elastomeric Gasket without Light Pipe



1 x 4 Configuration
External EMI Panel Ground Springs with Light Pipe

zSFP+ Ganged Cage Assembly
1 x 4 Configuration Elastomeric Gasket without Light Pipe



NOTE: Different Compliant Pin Contact Configurations are Available

Figure 1 (end)

Each connector is a housing with right-angle surface mount contacts. SFP/SFP+ connectors feature an embossed “1” for Pin 1 identification, a chamfered corner for orientation, alignment posts that provide stability for placement on the pc board, standoffs to allow easy pc board cleaning after soldering, and a card entry slot that accepts a 1.0 ±0.1 mm thick integrated circuit card housed in the transceiver module. The 16G SFP+ connector, zSFP+ connector and SFP112 connectors don’t have an embossed “1” Pin 1 identification or chamfered corner orientation feature.

Each cage assembly is a frame with compliant pin contacts; available with or without electromagnetic interference (EMI) suppression pins. The cage assembly features thermal vent holes, a locking latch for holding the mating transceiver module in place, kick-out spring to release the transceiver module for removal, and panel grounding features (panel ground springs and elastomeric gasket) to provide electrical contact to the bezel. The dust cover (SFP cage assemblies) or the EMI plug assembly (SFP+ and zSFP+ cage assemblies)-one for each port-is used when the transceiver module is not mated to the cage assembly to prevent contaminants from entering the chassis.

The SFP+ and zSFP+ cage assemblies are available in two versions: elastomeric gasket, and external EMI panel ground springs (springs are on the outside of the cage assembly). The elastomeric gasket cage assembly is available in ganged only. The external EMI panel ground springs cage assembly is available in single port and ganged (12, 14, and 16). Both versions are available with or without light pipes.

2. REFERENCE MATERIAL

2.1. Revision Summary

- Rev. L: Added SFP112 connector information, revised soldering reflow profile.

2.2. Customer Assistance

Reference product base part numbers 1367073 and 1489669 and product code A438 are representative of SFP surface mount PT connectors and cage assemblies; reference product base part number 2110759 and product code L759 are representative of 16 Gb/s SFP+ surface mount PT connectors; reference product base part numbers 1888247 and 2007135 and product code K638 are representative of SFP+ surface mount PT connectors and cage assemblies; reference product base numbers 2170164 and 2198722 and product code L819 are representative of zSFP+ surface mount PT connectors and cage assemblies. reference product base numbers 2378765 and product code A187 is representative of SFP112 surface mount PT connectors(share zSFP+ cage assemblies). 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.

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.

2.3. 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 Specifications 108-1949 (SFP connector), 108-2424 (SFP 16Gb/s Fiber Channel PT connector), 108-1950 (SFP cage assemblies), 108-2364 (SFP+ and zSFP+ cage assemblies) and 108-115180 (SFP112 and zSFP+ cage assemblies) provides product performance and test information.

2.5. Instructional Material

Instruction Sheets (408-series) provide product assembly instructions or tooling setup and operation procedures. Documents available which pertain to this product are:

Document	Document Title

408-8848	SFP PT Connector and Cage Assembly Seating Tool Kit
408-8849	SFP Cage Assembly Extraction Tool
408-10300	SFP+ Cage Assembly Removal Tool Assemblies 1976584-1, 1976597-1, and 1976920-1

3. REQUIREMENTS

3.1. Safety

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

3.2. Limitations

A. Connector

The connector is designed to operate in a temperature range of -55° to 85°C [-67° to 185°F].

B. Transceiver Module

For applications using ganged cage assemblies, the width of the mating transceiver module (portion outside of the cage assembly) cannot exceed the width of the port of the cage assembly. This will prevent any possible interference between ports when inserting the transceiver modules. Port-to-port centerline spacing is 14.25 mm; therefore, the maximum width of the transceiver (outside of the cage assembly) cannot exceed 14 mm.

3.3. Material

The connector housing is made of liquid crystal polymer (LCP) thermoplastic, UL 94-V-0. The surface mount contacts are made of phosphor bronze plated with gold over nickel. The cage assemblies are made of copper alloy or stainless steel. The dust cover is made of thermoplastic, and the EMI plug assembly is made of zinc die cast with a copper alloy spring.

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. Reeled Components

The connectors are supplied in reels on carrier tapes approved under Electronic Industries Alliance (EIA)-481. These reels have a maximum diameter of 360 with 480 connectors per reel. Store coil wound reels horizontally and traverse wound reels vertically.

NOTE
Refer to Section 5 for carrier tape dimensions.

3.5. 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

3.6. PC Board

A. Material and Thickness

The pc board material shall be glass epoxy (FR-4 or G-10). The minimum pc board thickness must be 1.5 mm for mounting the connector and cage assembly to one side of the board. For mounting to both sides of the board, the minimum pc board thickness must be 3.0 mm for single port cage assemblies and

2.25 mm for SFP ganged, SFP enhanced EMI ganged, and SFP+ external EMI panel ground spring cage assemblies. zSFP+ cage assemblies with elastomeric gaskets require a minimum pc board thickness for mounting cages to both sides of the pc board. zSFP+ cages with EMI panel ground springs require a thickness of 2.25 mm.

B. Tolerance

Maximum allowable bow of the pc board shall be 0.08 mm over the length of the cage assembly. The coplanarity of the pc board circuit pads must be 0.03 mm.

C. Pads

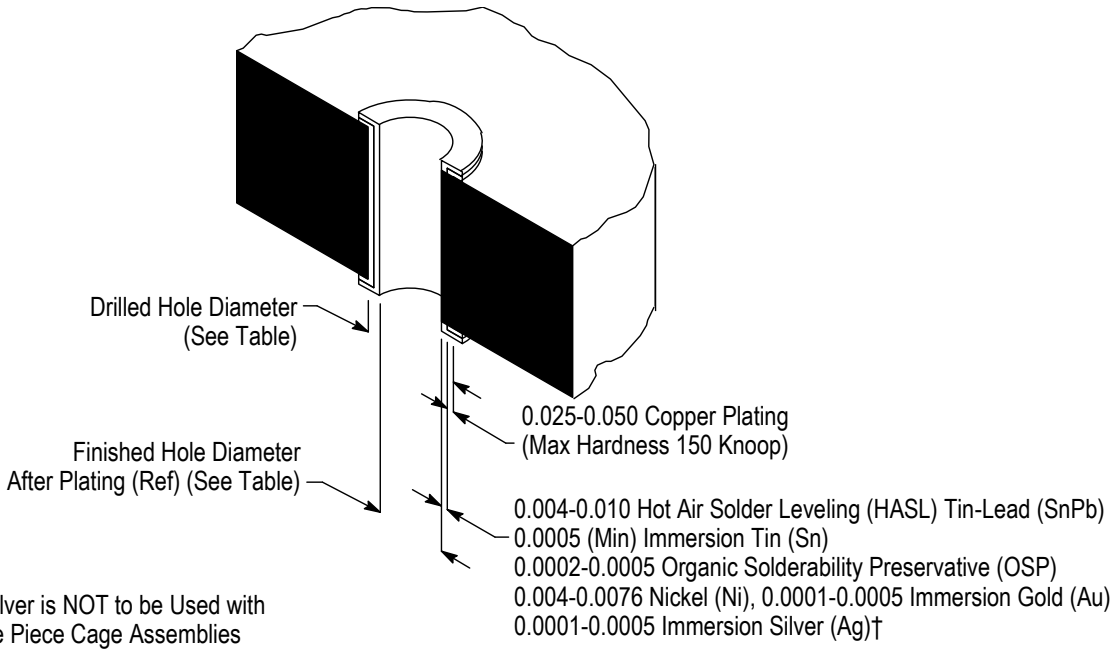
The pads must be solderable in accordance with EIA-364-52.

D. Hole Dimension

The holes for the cage assembly compliant pin contacts must be drilled and plated through. Recommended drilled hole diameter and plating type and thickness, and reference finished hole size are shown in Figure 2.

Holes for the EMI suppression pins must be drilled and can be used with or without plating. The finished hole diameter is provided on the customer drawing for the specific cage assembly. The finished hole diameter for connector alignment posts are provided on the customer drawing for the specific connector.

Recommended Hole Dimensions and Plating for Cage Assembly Compliant Pin Contacts



† Immersion Silver is NOT to be Used with SFP 1x1 Single Piece Cage Assemblies

HOLE (See Customer Drawing for Hole Designation; Also Shown in Figure 3 – *Sample* PC Board Layout)	DIAMETER	
	DRILLED HOLE	FINISHED HOLE (After Plating
A	1.15 ±0.02	1.05 (Ref)
B	1.05 ±0.02	0.95 (Ref)
C	0.95 ±0.02	0.85 (Ref)

Figure 2

E. Layout

The pc board holes and circuit pads must be precisely located to ensure proper placement and optimum performance of the connector and cage assembly. The layout must be designed using the dimensions provided on the customer drawing for the specific connector and cage assembly. A sample layout is provided in Figure 3.

When mounting cage assemblies to both sides of the board, the same EMI suppression pin holes must be shared by the cage assemblies on the opposite side of the board.

Sample Recommended PC Board Layout
(Connector and Single Port Cage Assembly)

Note: For a Specific PC Board Layout, Refer to the Customer Drawing for the Specific Connector and Cage Assembly

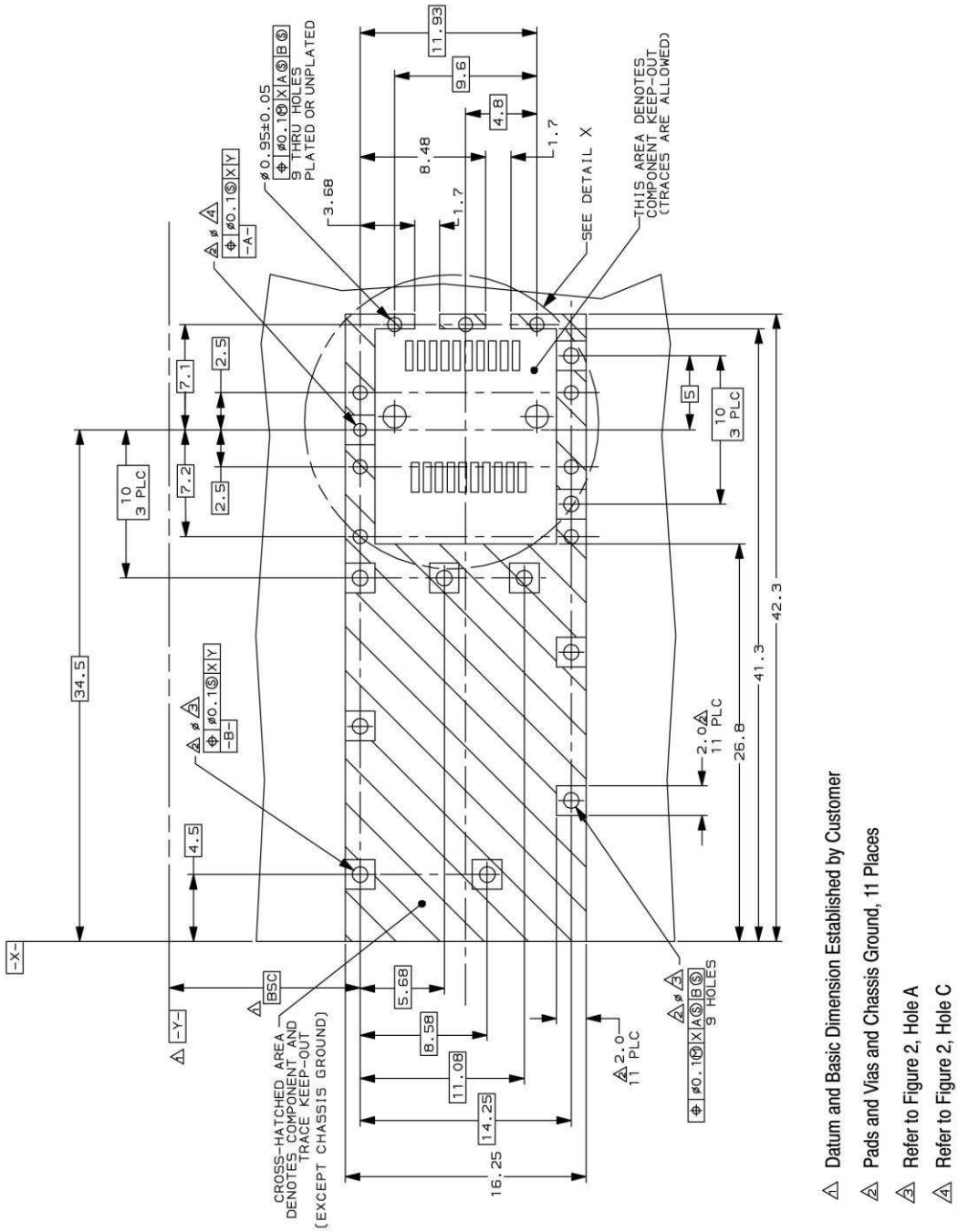


Figure 3 (Cont'd)

Detail X for PT connector solder pads except SFP112

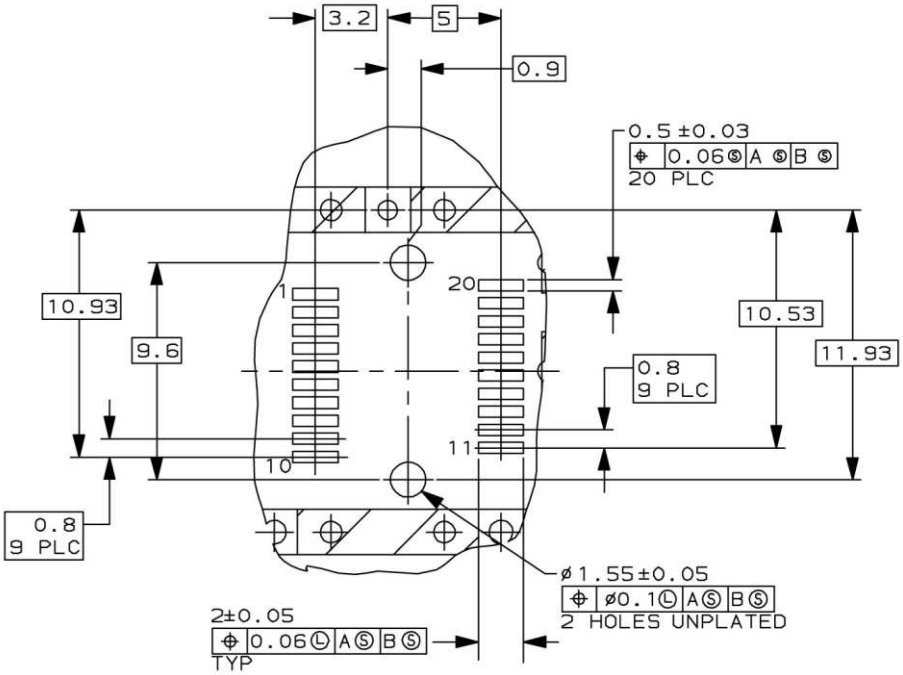


Figure 3 (Cont'd)

SFP112 SMT overall host PCB layout sample recommendation

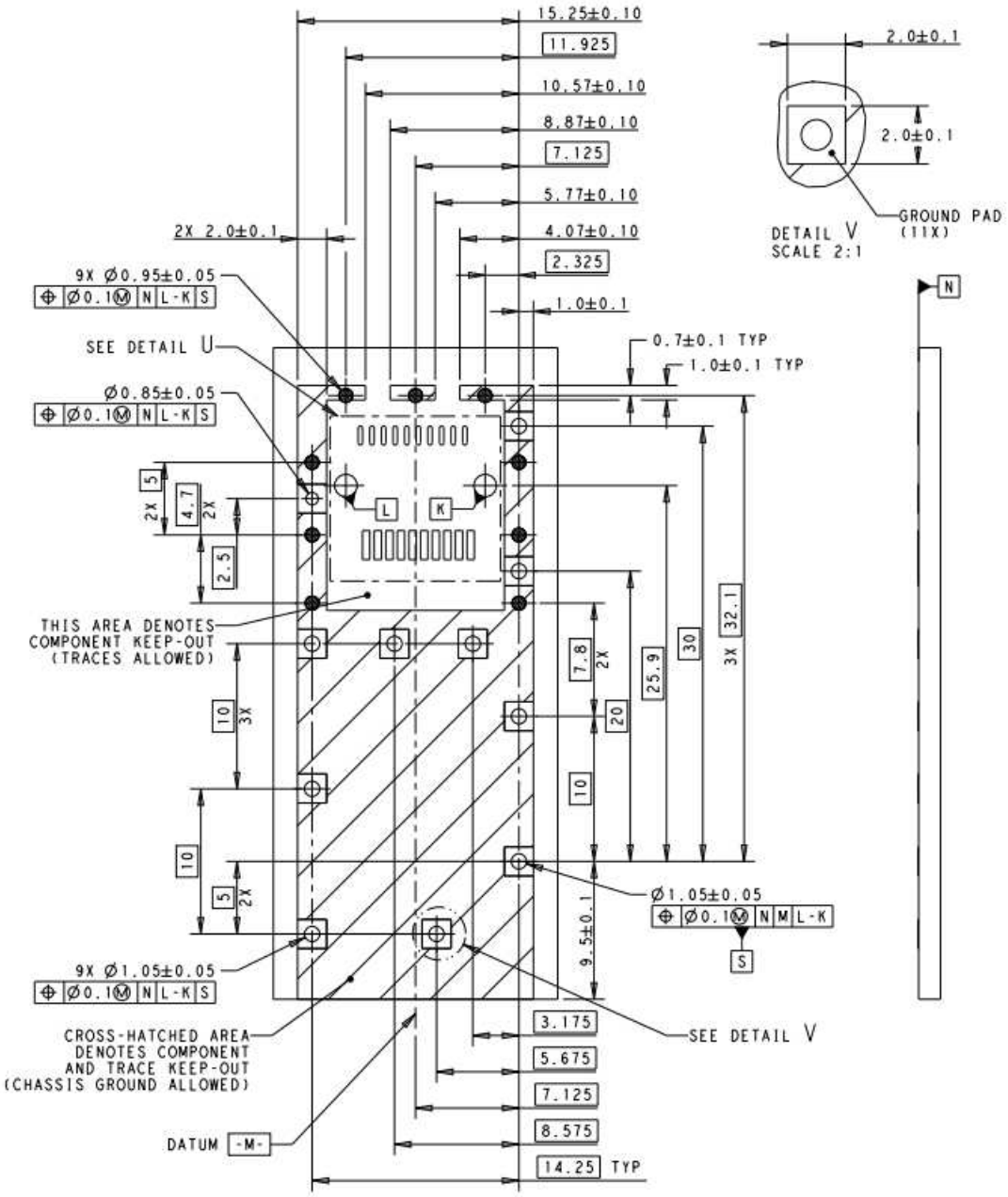


Figure 3 (Cont'd)

Detail U for SFP112 PT connector solder pads

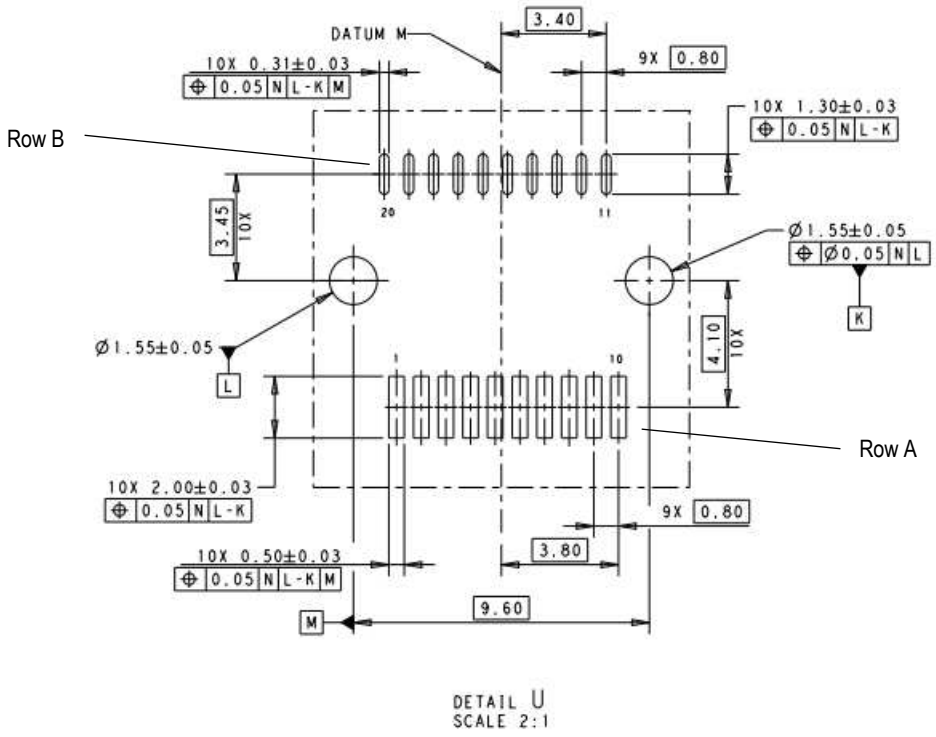


Figure 3 (end)

3.7. Solder Paste Characteristics

1. Alloy type for tin-lead solder shall be 63 Sn/37 Pb, 60 Sn/40 Pb, or 62 Sn/36 Pb/2 Ag.

   Alloy type for lead-free solder shall be compatible with pure tin or gold; for example, SAC305 (96.5 Sn/3 Ag/0.5 Cu) or SAC405 (95.5 Sn/4 Ag/0.5 Cu).
2. Flux incorporated in the paste shall be rosin, mildly active (RMA) type.
3. Paste will be at least 80% solids by volume.
4. Mesh designation -200 to +325 (74 to 44 square micron openings, respectively).
5. Minimum viscosity of screen print shall be 510% cp (centipoise).
6. Minimum viscosity of stencil print shall be 7.510% cp (centipoise).

3.8. Solder Volume

Minimum solder volume (V) (before curing) for each circuit pad is calculated by multiplying the pad length (L) by the pad width (W) by the stencil thickness (T):

SFP/SFP+/ zSFP+: 2.0(L) x 0.5(W) x 0.15(T) = 0.15 mm^3 (V)

SFP112 Row A: 2.0(L) x 0.5(W) x 0.15(T) = 0.15 mm^3 (V)

SFP112 Row B: 1.3(L) x 0.31(W) x 0.15(T) = 0.06 mm^3 (V)

NOTE
Solder volume may vary depending on solder paste composition.

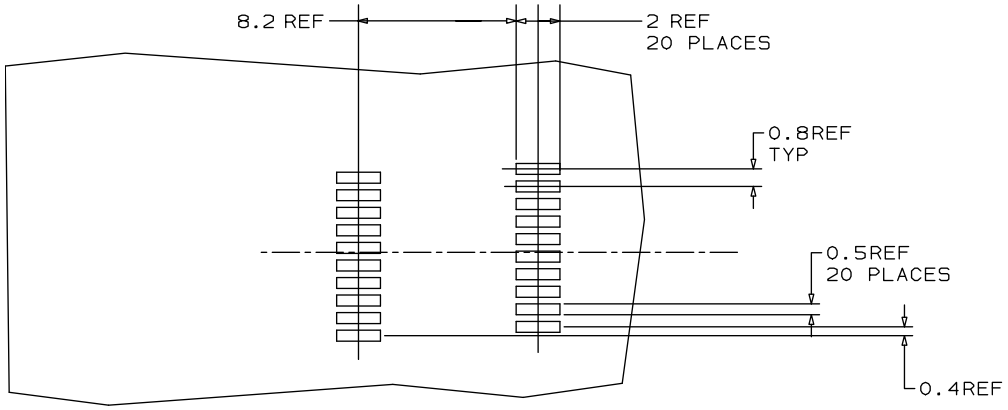
3.9. Solder Paste Thickness

Solder paste thickness for the connector contact solder tines must be at least 0.15 mm.

3.10. Stencil

The stencil aperture is determined by the circuit pad size and stencil thickness. It may be any shape as long as it prevents solder bridging from one pad to another. Generally, a thinner stencil will need a larger aperture to maintain the given volume of solder paste. The stencil should be 0.15 mm thick. The stencil layout must be designed using the dimensions provided on the customer drawing for the specific connector. Sample stencil layout is provided in Figure 4.

Sample Recommended Connector Stencil Layout



NOTE: *For Specific Circuit Pad Locations, Refer to the Customer Drawing for the Specific Connector*

Figure 4

3.11. Solder Mask

When soldering, solder mask is recommended between all circuit pads to minimize solder bridging between pads. The mask must not exceed the height of the pad. If a trace is run between adjacent pads on the pc board, a solder mask must be applied over the trace to prevent bridging and wicking of solder away from the connector contact solder tines. Mask most suitable is Liquid Photo Imageable.

CAUTION
All traces must be covered by solder mask in the solder deposit area. Exposed traces could cause bridging and create a short, or wick solder away from the solder tines, producing a weak solder joint.

3.12. Connector Placement

CAUTION
Connectors should be handled only by the housing to avoid deformation, contamination, or damage to the contact solder tines.

NOTE
The connector must be soldered to the pc board BEFORE seating the cage assembly.

A. Registration

The connector contact solder tines must be aligned with matching circuit pads and alignment posts aligned with matching holes before placing the connector onto the pc board.

B. Position

Optimally, the connector contact solder tines should be centered on the pc board circuit pads. However, slight misalignment is permissible as shown in Figure 5.

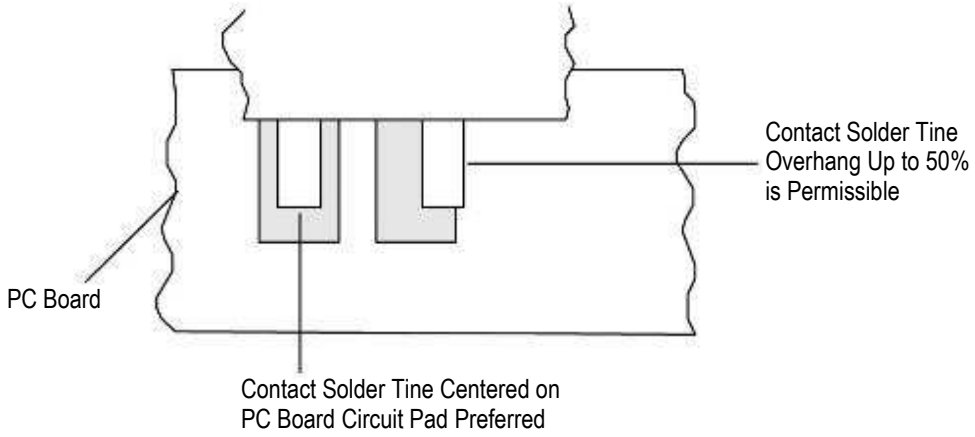


Figure 5

C. Seating

Because the connector alignment posts are for clearance and fit only, the force required to seat the connector is minimal. Apply only that force necessary to seat the contact solder tines into the top surface of the solder paste. The alignment posts must be inserted into the pc board holes and the standoffs must be seated on the board. See Figure 6.

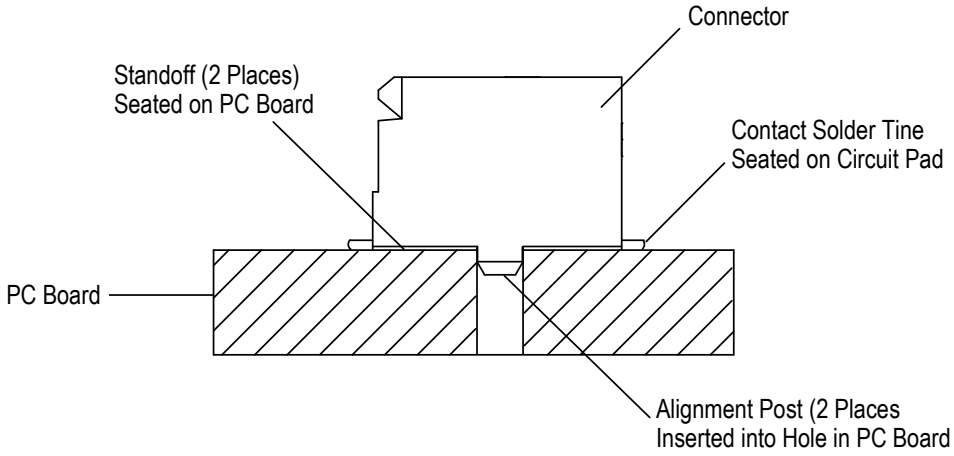


Figure 6

3.13. Soldering

A. Process

The connector must be soldered using non-focused infrared (IR) reflow or equivalent soldering technique. When mounting to both sides of the pc board, the surface tension of the solder, when it is in the liquid state, will hold the connector on the board.

Reflow temperature and time may vary depending on the size of the pc board and placement of other components. The reflow temperature and approximate time to which the connector can be subjected is specified in Figure 7.

CAUTION

Excessive temperatures may cause connector housing degradation. It is recommended that component temperatures not exceed 230°C [446°F] when using tin-lead solder and 260°C [500°F] when using lead-free solder.

Reflow Soldering Profiles

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts_{max} to Tp)	3° C/second max.
Preheat Temperature Min (Ts_{min}) Temperature Max (Ts_{max}) Time (ts_{min} to ts_{max})	 150 °C 200 °C 60-180 seconds
Time maintained above: Temperature (T_L) Time (t_L)	 217 °C 30-90 seconds
Peak/Classification Temperature (Tp)	230°C ~250°C
Time within 5 °C of actual Peak Temperature (tp)	20-40 seconds
Ramp-Down Rate	6 °C/second max.
Time 25 °C to Peak Temperature	8 minutes max.

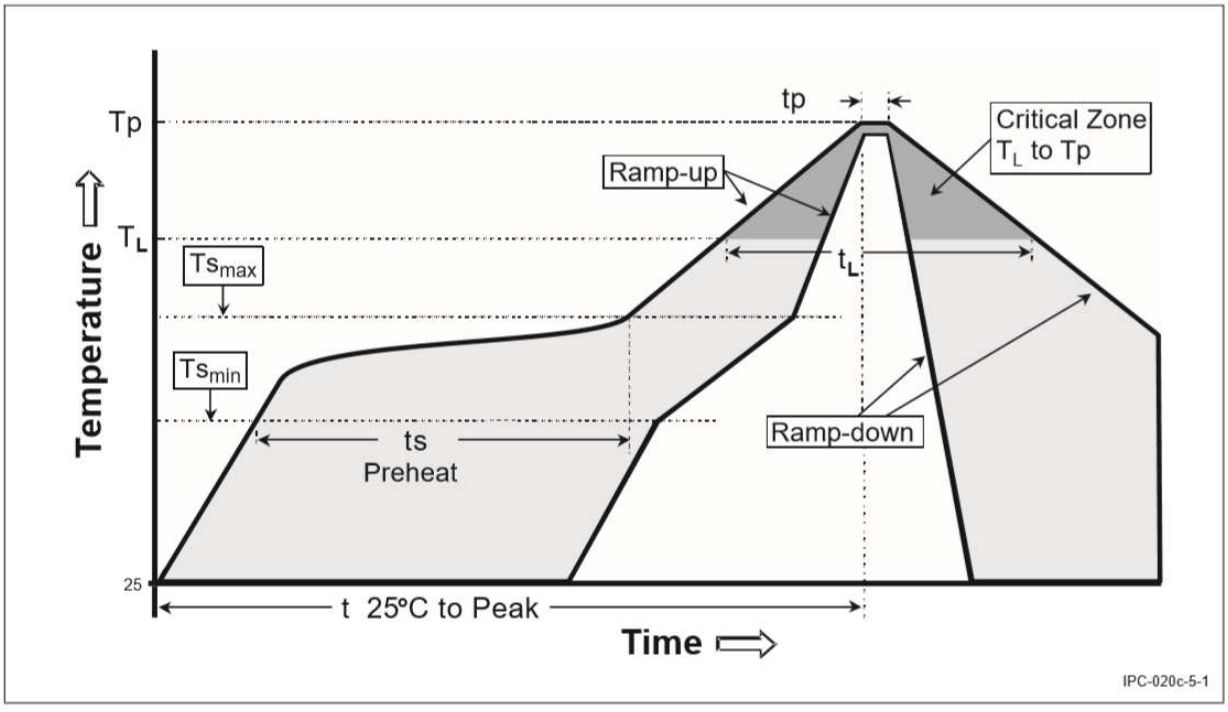


Figure 7

B. Cleaning

After soldering, removal of fluxes, residues, and activators is necessary. Consult with the supplier of the solder and flux for recommended cleaning solvents. Cleaners must be free of dissolved flux and other contaminants. It is recommended cleaning the pc board on its edge. If using aqueous cleaner, standard

equipment such as a soak-tank or an automatic in-line machine should be used. Common cleaning solvents that will not affect the connector for the time and temperature specified are listed in Figure 8.

DANGER
Consideration must be given to toxicity and other safety requirements recommended by the solvent manufacturer. Refer to the manufacturer'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. Both are carcinogenic (cancer-causing).

CLEANER		TIME (Minutes)	TEMPERATURE (Max)
NAME	TYPE		
ALPHA 2110	Aqueous	1	132°C [270°F]
BIOACT EC-7	Solvent	5	100°C [212°F]
Butyl CARBITOL	Solvent	1	Ambient Room
Isopropyl Alcohol	Solvent	5	100°C [212°F]
KESTER 5778	Aqueous		
KESTER 5779	Aqueous		
LONCOTERGE 520	Aqueous		
LONCOTERGE 530	Aqueous		
Terpene	Solvent		

Figure 8

C. Drying

When drying cleaned assemblies and pc boards, make certain that temperatures do not exceed 85°C [185°F]. Excessive temperatures may cause connector housing degradation.

3.14. Checking Installed Connector

All solder joints must conform to those specified in Workmanship Specification 101-21 and all other requirements specified in this document. The installed connector must have solder fillets evenly formed around each contact solder tine. Solder must have 95% minimum coverage over the circuit pad. See Figure 9.

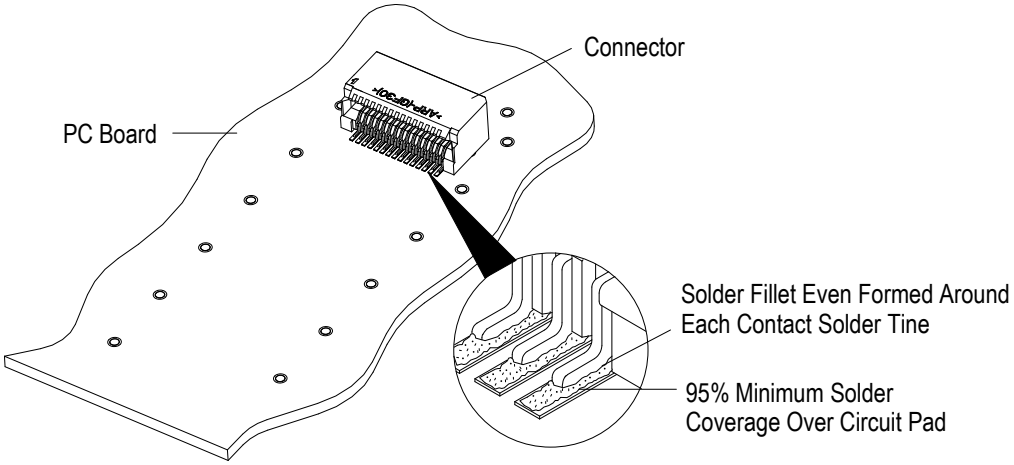


Figure 9

3.15. Bezel

A. Thickness

The bezel thickness range shall be 0.8 mm through 2.6 mm.

ALPHA, BIOACT, CARBITOL, LONCOTERGE, and KESTER are trademarks of their respective owners.

B. Cutout

The bezel must provide a cutout that allows proper mounting of the cage assembly. The cage assembly panel grounding feature must be compressed by the bezel in order to provide an electrical ground between the cage assembly and bezel for EMI suppression. Care must be used to avoid interference between adjacent cage assemblies and other components. The minimum allowable distance between cage assemblies must be considered to ensure proper assembly. Dimensions for bezel cutout and minimum allowable distance between cutouts are shown in Figure 10.

CAUTION
It is strongly recommended that the bezel configuration shown for non-peripheral component interconnect (PCI) application and the bezel configuration shown for PCI application be used only for the cage assemblies indicated. Requirements for non-PCI applications were intended to be used in the communications industry only.

3.16. PC Board and Bezel Position

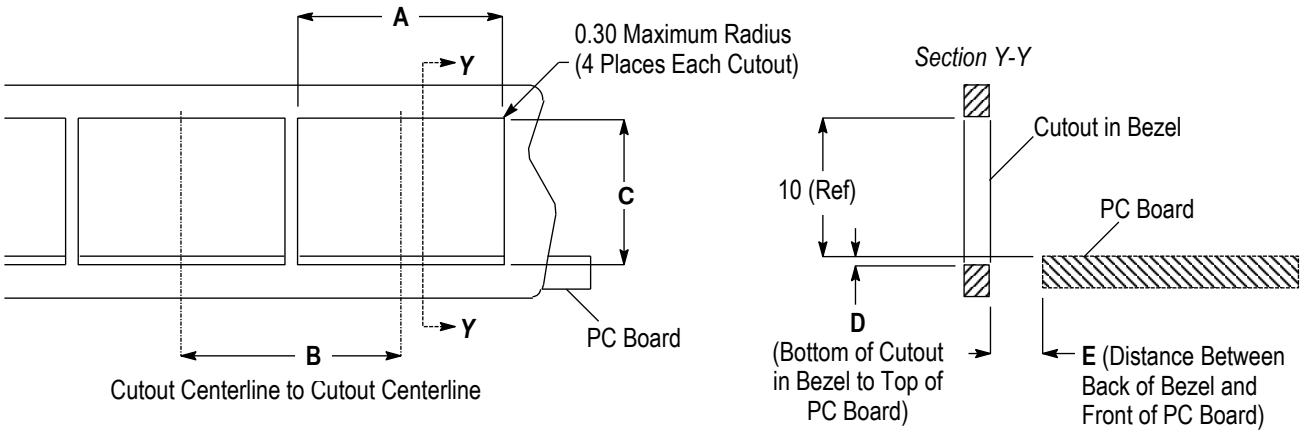
The bezel and pc board must be positioned in relation to each other to avoid interference with the function of the cage assembly module locking latch and to ensure proper function of the panel grounding feature. This relationship must conform to the dimensions given in Figure 10.

CAGE ASSEMBLY CONFIGURATION	DIMENSION (Non-PCI Application)									
	SFP CAGE ASSEMBLY					SFP+ AND zSFP+ CAGE ASSEMBLY (with ELASTOMERIC GASKET)				
	A ±0.1	B (Min)	C ±0.1	D ±0.1	E ±0.9	A ±0.1	B (Min)	C ±0.1	D ±0.1	E ±0.3
Single Port	15.25	16.25	10.40	0.40	2.9	---	---	---	---	---
1 x 2 Ganged	29.50	30.75	10.15	0.15	2.9	29.70	34.10	10.4	0.23	3.5
1 x 4 Ganged	58.00	59.25	10.15	0.15	2.9	58.20	62.60	10.4	0.23	3.5
1 x 5 Ganged	72.25	73.5	10.15	0.15	2.9	---	---	---	---	---
1 x 6 Ganged	86.50	87.75	10.15	0.15	2.9	86.70	91.10	10.4	0.23	3.5

CAGE ASSEMBLY CONFIGURATION	DIMENSION (Non-PCI Application)				
	SFP+ and zSFP+ CAGE ASSEMBLY (With External EMI Panel Ground Springs)				
	A ±0.1	B (Min)	C ±0.1	D ±0.1	E ±0.3
Single Port	15.25	16.25	10.4	0.23	3.5
1 x 2 Ganged	29.70	30.75	10.4	0.23	3.5
1 x 4 Ganged	58.20	59.25	10.4	0.23	3.5
1 x 6 Ganged	86.70	87.75	10.4	0.23	3.5

Recommended Bezel Cutout (Minimum Pitch)
and PC Board and Bezel Position
for Cage Assemblies without Light Pipe

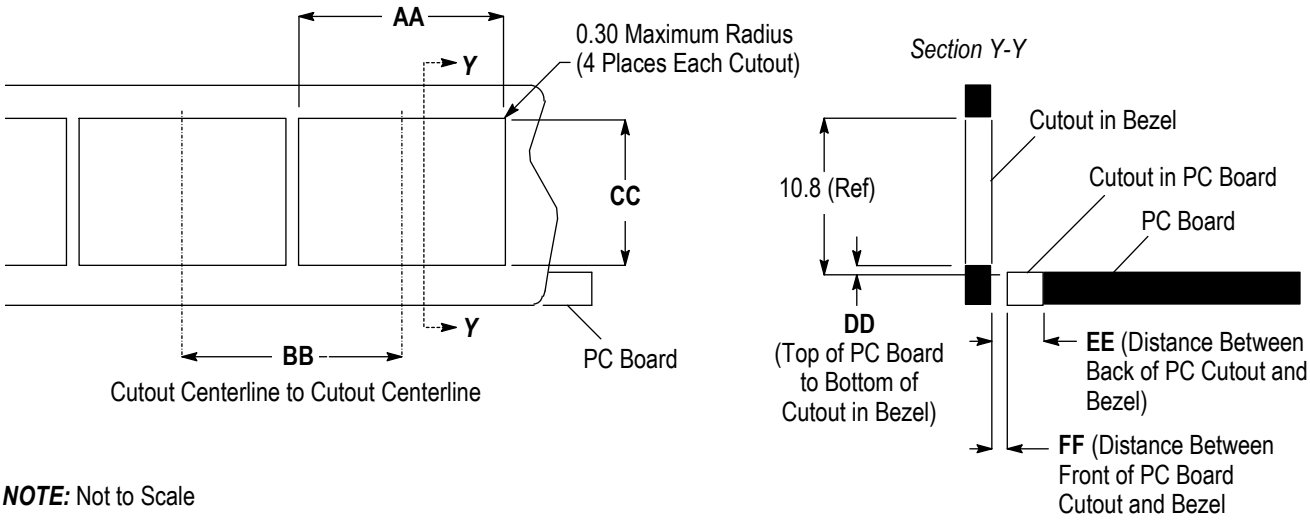
Non-PCI Application



NOTE: Not to Scale

Figure 10 (cont'd)

Non-PCI Application



NOTE: Not to Scale

CAGE ASSEMBLY CONFIGURATION	DIMENSION (PCI Application)					
	SFP and SFP+ CAGE ASSEMBLY					
	AA ±0.1	BB (Min)	CC ±0.1	DD ±0.1	EE ±0.3	FF ±0.3
Single Port	15.25	16.25	10.40	0.40	3.5	1.02
1 x 6 Ganged	86.50	87.75	10.15	0.65	3.5	1.02

Figure 10 (end)

3.17. Cage Assembly Placement

NOTE
The connector must be soldered to the pc board BEFORE seating the cage assembly.

A. Registration

The compliant pin contacts and EMI suppression pins must be aligned with matching holes in the pc board, then inserted into the pc board simultaneously to prevent twisting or bending of these parts.

B. Seating

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

Amount of Compliant Pin Contacts 44.5 N [10 lbs] (Force per Compliant Pin Contact) = Seating Force

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

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

Seating Height (Cage Assembly Seated) + Height of Seating Tool + Combined Thicknesses of PC Board and PC Board Support Fixture = Shut Height (Ram Down)

NOTE
The shut height may need to be adjusted to maintain the 0.10 mm maximum gap between the standoffs of the cage assembly and the pc board.

The cage assembly must be seated on the pc board not exceeding the dimensions shown in Figure 11.

NOTE: Single Port Cage Assembly Shown-Requirements Also Apply to Ganged Cage Assemblies
Requirements Do Not Apply to Cage Assemblies with Light Pipe

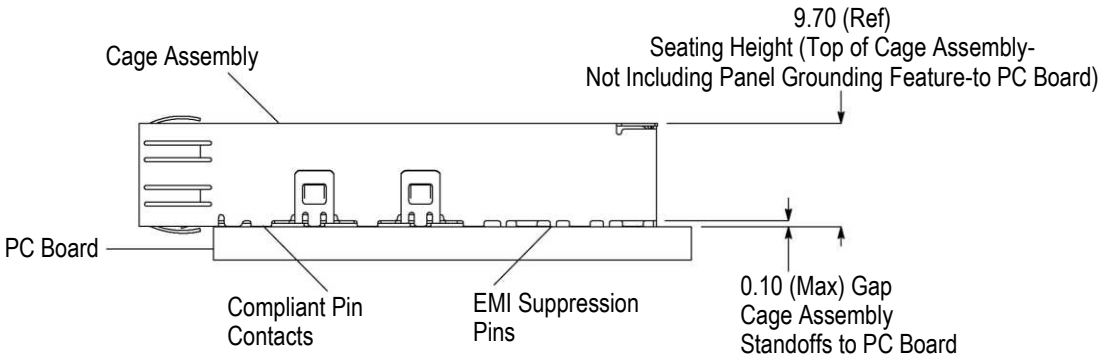
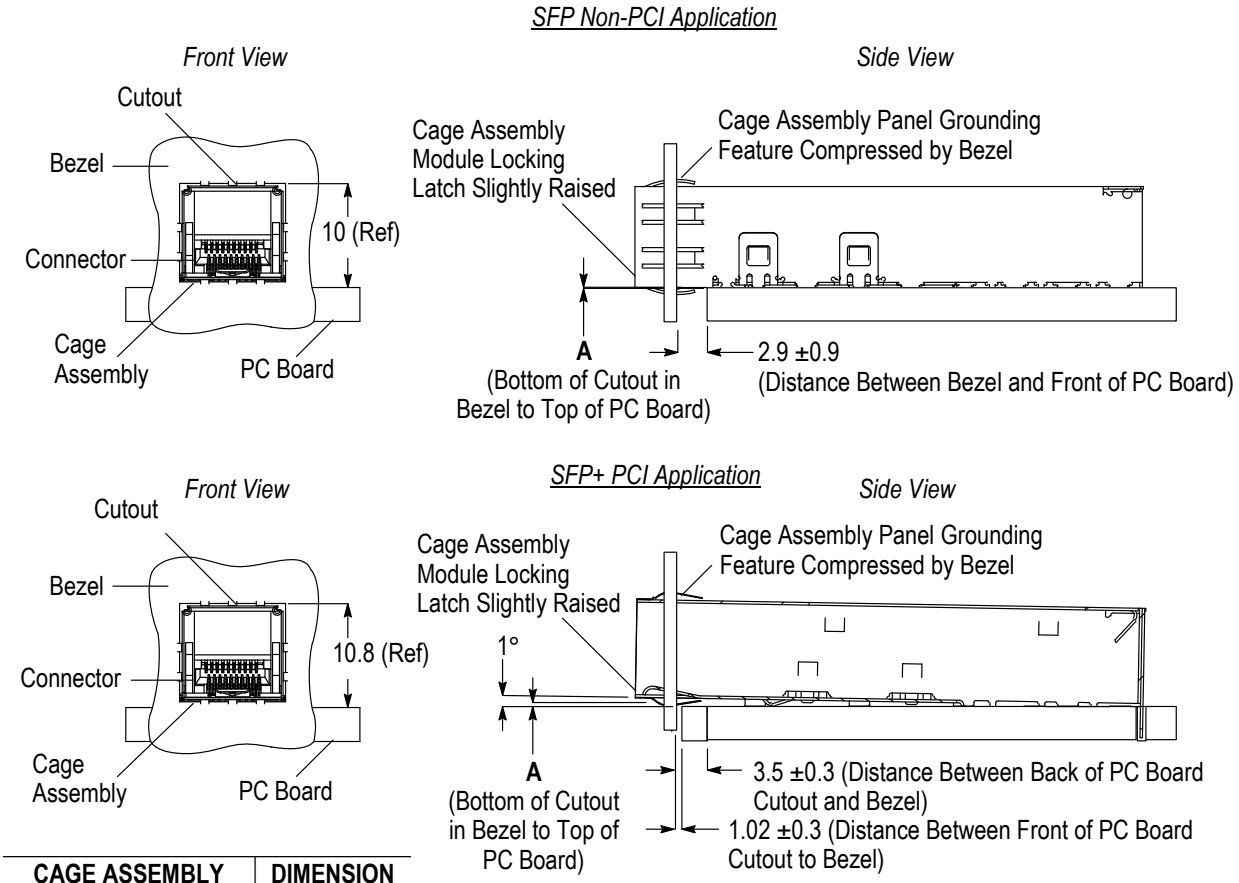


Figure 11

3.18. Checking Installed Cage Assembly

After installation, the cage assembly panel grounding feature must be compressed by the bezel. A slight bow in the cage assembly is permitted. The bezel must not interfere with the function of the module locking latch. The bezel and pc board must be positioned according to the dimensions shown in Figure 12.

NOTE: Single Port Cage Assembly Shown-Requirements Also Apply to Ganged Cage Assemblies without Light Pipe Requirements Do Not Apply to Cage Assemblies with Light Pipe



CAGE ASSEMBLY (Without Light Pipe)	DIMENSION A ±0.1
Single Port	0.40
Ganged	0.15

Figure 12

3.19. Port Protection

A dust cover (for SFP cage assembly) or EMI plug assembly (for SFP+ and zSFP+ cage assemblies) must be installed into the port when the transceiver module is not mated with the cage assembly.

3.20. Removal and Repair

For removal of the single port cage assembly, a flat metal bar (or similar object) can be partially inserted into the port of the cage assembly (the object MUST NOT touch the connector; otherwise, damage to the surface mount contacts could occur), then the cage assembly can be removed by lifting it off of the pc board.

The cage assembly must be removed from the pc board before removing the connector. Standard de-soldering methods must be used to remove the connector from the pc board. The connector and cage assembly MUST NOT be re-used after removal.

For removal of a ganged cage assembly, an extraction tool must be used (refer to Section 5).

The connector and cage assembly are not repairable. Any defective or damaged products MUST NOT be used.

4. QUALIFICATION

SFP, SFP+, 16Gb/s SFP+ and zSFP+ surface mount PT connectors are Recognized by Underwriters Laboratories Inc. (UL) in File E28476.

5. TOOLING

No tooling is required for manual placement of the connector onto the pc board. For placement of the single port cage assembly onto the pc board, flat rock tooling can be used; extreme caution must be taken not to touch or damage the panel grounding feature during seating. Tooling is available for seating and removing a ganged cage assembly.

For automatic machine placement of the connector, the robotic equipment must have a true position accuracy tolerance sufficient to properly locate the connector. This includes gripper and fixture tolerances as well as equipment repeatability. It must use the connector datum surfaces to ensure reliable placement.

Tooling part numbers and instructional material packaged with the tooling are given in Figure 13.

5.1. Seating Tool Kit

The seating tool kit (consists of a seating tool and wall support) is used to seat a ganged cage assembly onto the pc board. The seating tool and wall support are also available separately.

5.2. Extraction Tool

The cage assembly extraction tool is used to remove a ganged cage assembly from the pc board by pushing the compliant pin contacts and EMI suppression pins out of their holes without overstressing the contacts.

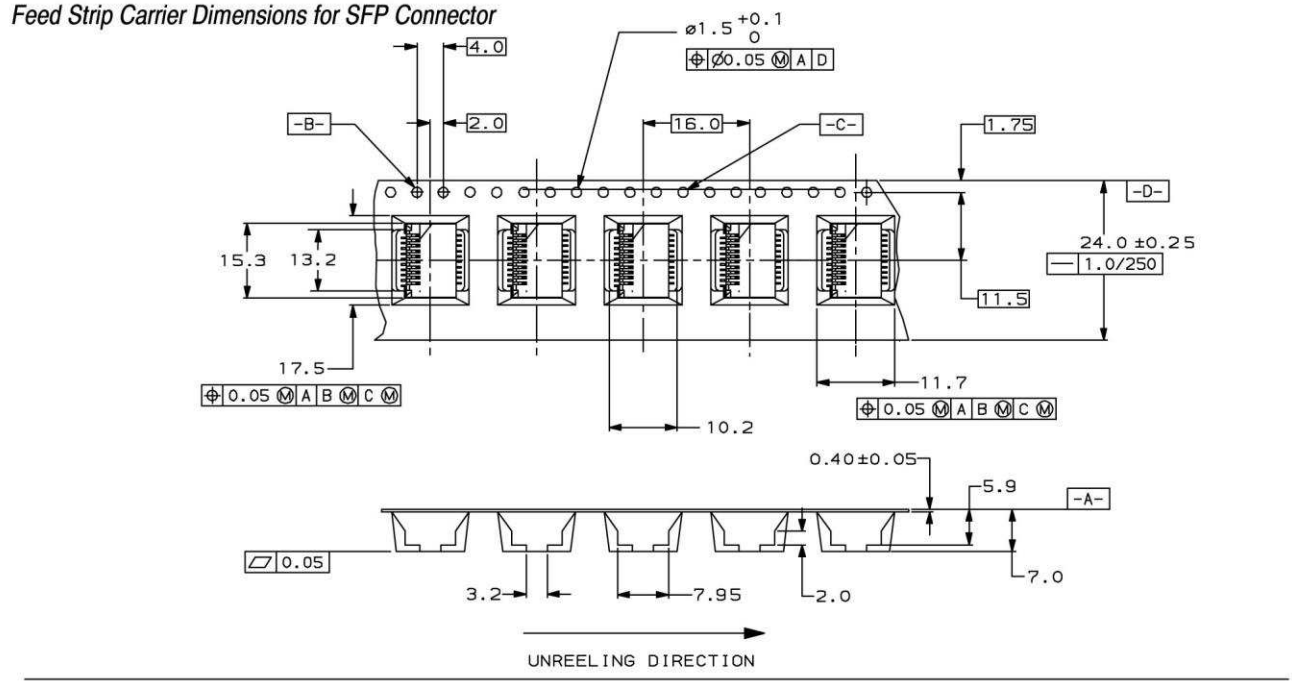
5.3. Application Tool

Power for the seating tools and extraction tools must be provided by application tool (with a ram) capable of supplying a downward force of 44.5 N [10 lb] per compliant pin contact. For available application tools, call PRODUCT INFORMATION at the number at the bottom of page 1.

5.4. PC Board Support Fixture

A pc board support must be used with the seating tool and extraction tool. The support fixture provides proper support for the pc board and protects the pc board and cage assembly from damage. When using the seating tool or extraction tool, the support fixture must be customer designed according to the instructions included with the tool being used.

Feed Strip Carrier Dimensions for SFP Connector



Feed Strip Carrier Dimensions for SFP+ 16Gb/s Connector

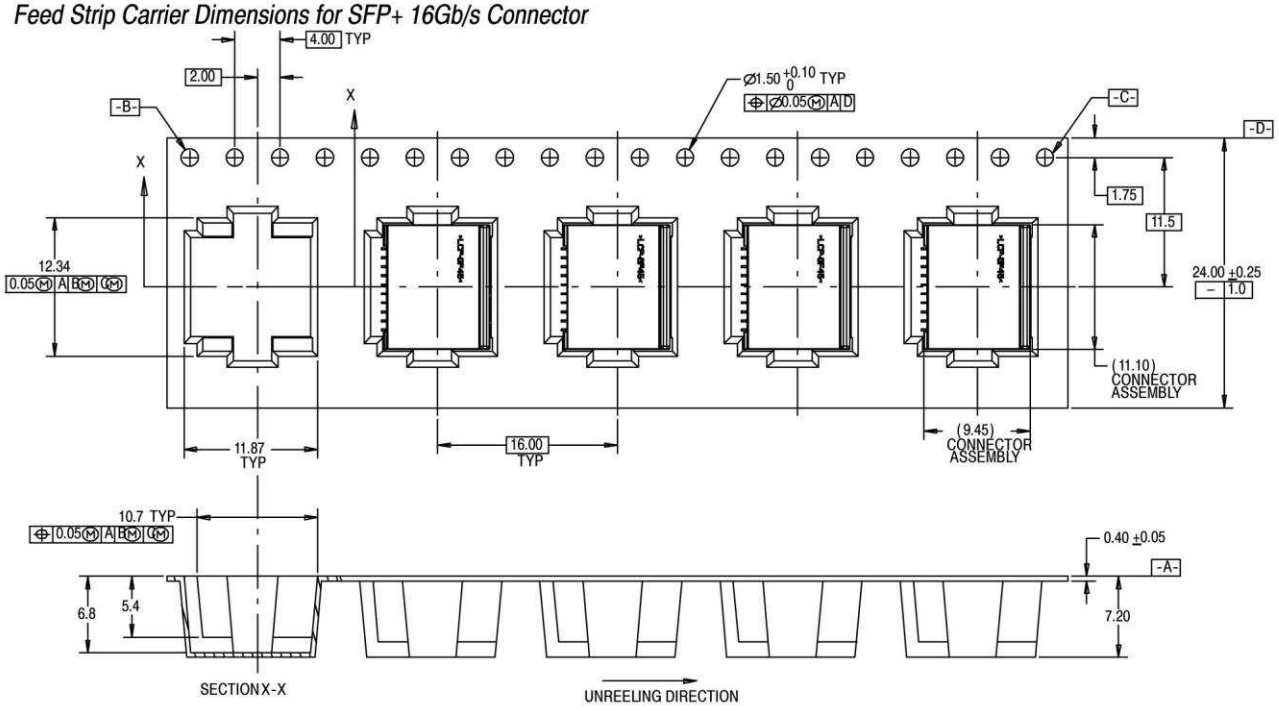
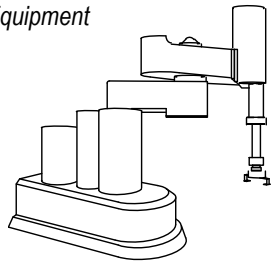
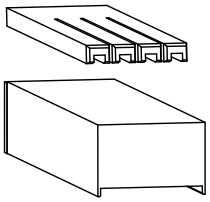


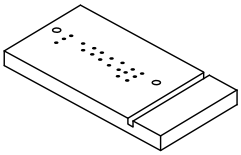
Figure 13 (cont'd)

Robotic Equipment

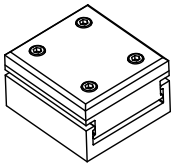




SFP PT Connector and Cage Assembly Seating Tool Kits 1725609-[ ] (408-8848)

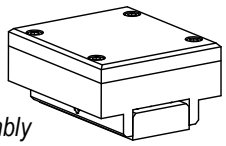


PC Board Support Fixture (Application Specific, Customer Supplied)



SFP+ Cage Assembly Removal tool Assemblies (See Table) (408-10300)

SFP+ PT Connector and Cage Assembly Seating Tool Kits 2018002-[ ] (No Document Available)



SFP Cage Assembly Extraction Tools (See Table) (408-8849)

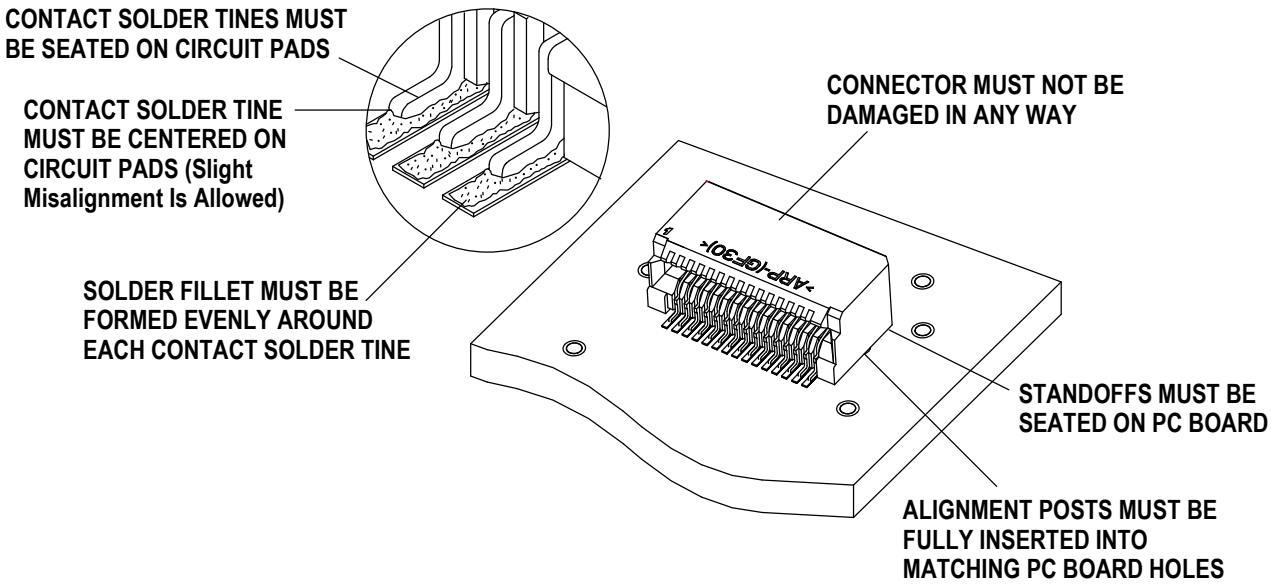
CAGE ASSEMBLY		SEATING TOOL KIT▪	EXTRACTION OR REMOVAL TOOL
TYPE	CONFIGURATION		
SFP	1 x 2	1725609-3	1213709-1
	1 x 4	1725609-1	1725612-1
	1 x 6	1725609-2	1213710-1
SFP+ and zSFP+	1 x 2	2018002-3	1976920-1
	1 x 4	2018002-1	1976584-1
	1 x 5	2018002-6	2215058-5
	1 x 6	2018002-2	1976597-1

▪The seating tool kit cannot be used to seat the connector or single port cage assembly.

Figure 13 (end)

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 or tooling.



***NOTE*: Single Port Cage Assembly Shown**
Requirements Also Apply to Ganged Cage Assembly
Requirements Do Not Apply to Cage Assembly with Light Pipe

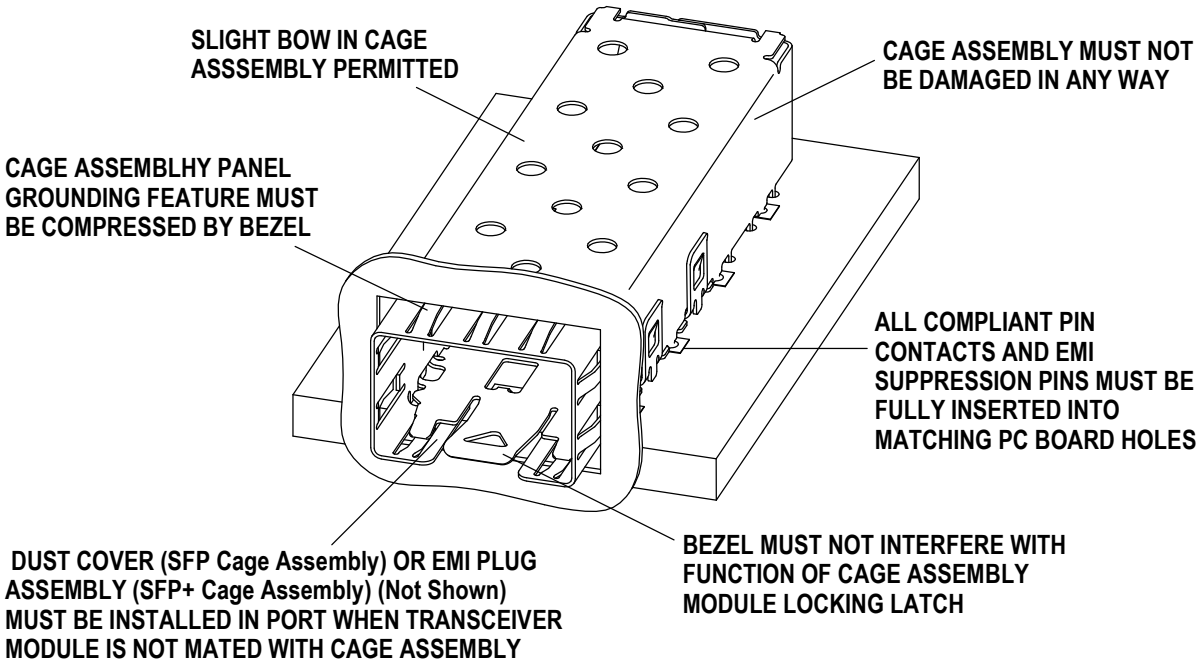


FIGURE 14 (cont'd). VISUAL AID

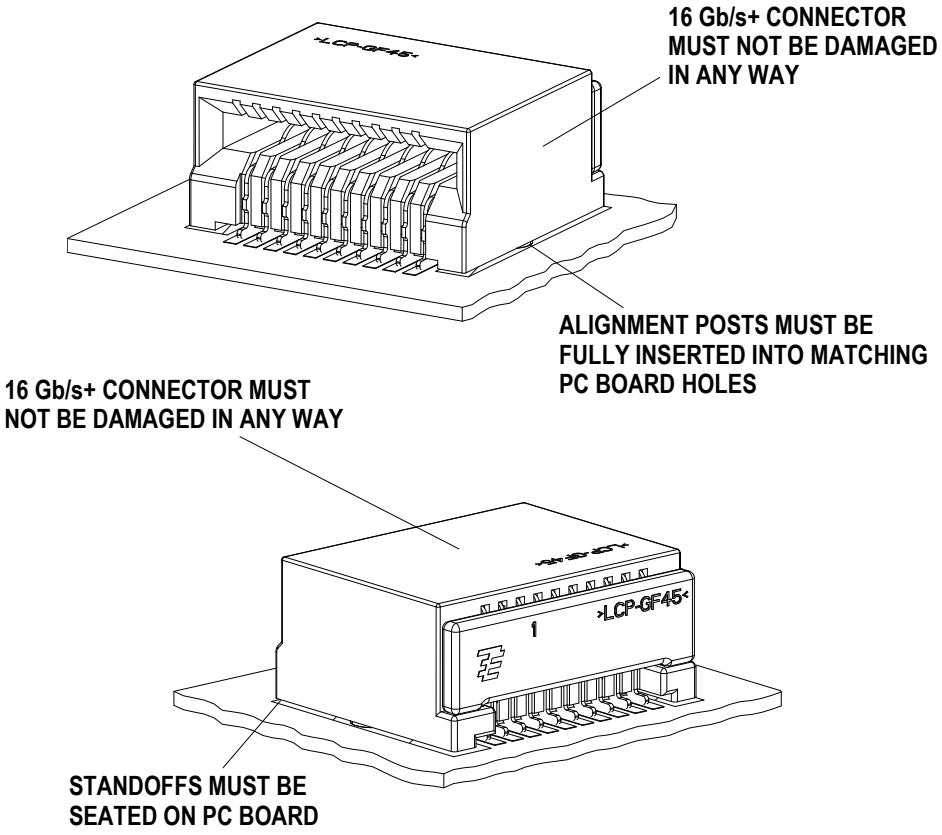


FIGURE 14 (end) VISUAL AID