



APPLICATION SPECIFICATION

iPass Plus HD – Internal Connector

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1.0 SCOPE

This specification covers the 0.75mm centerline iPass+ HD (High Density) Single Port Connector for applying and removing the connector to the PCB. The connector is a single one port connector with two card slot openings and is available in a 1X2 and 1X4. Twenty-four differential pairs are assigned per port. The connector has 36 contacts per port of which 24 can be assigned to signals and 12 are for ground terminals. The connector is a right angle press-fit compliant mount connector with 0.37mm finished vias for the compliant signal pins.

The connector has compliant pin contacts for mechanical retention to the pc board. See Figure 1 below.

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

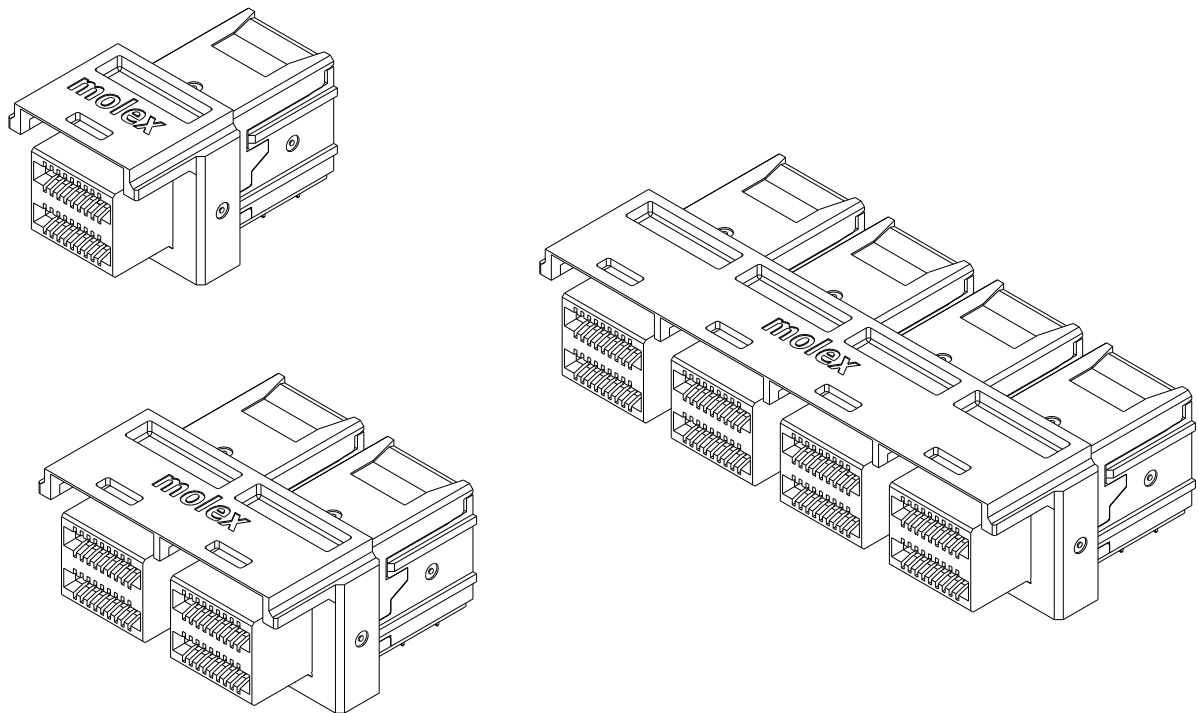


Figure 1

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2.0 PRODUCT DESCRIPTION

The connector consists of housing with double 18-position receptacle ports and with compliant pin contacts on 0.75 centerline spacing. Each port has a card entry slot that accepts a 1.0±0.1mm thick integrated circuit card housed in the mating plug.

3.0 REFERENCE DOCUMENTS

Refer to the appropriate customer sales drawing for product part numbers.
Refer to PS-76867-001 for the connector product spec.
Refer to AS-76867-002 for SI Routing Guidelines
Refer to EE-76866-002 for Electrical Model

4.0 PROCEDURE

4.1 GENERAL REQUIREMENTS

- 4.1.1 Limitations** The connectors are designed to operate in a temperature range of -40° to 80°C [-40° to 176°F].
- 4.1.2 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 tin/lead or tin at the leads and plated with gold at the interface area. The cage assembly is made of a nickel silver alloy.
- 4.1.3 Storage** Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the connector material.
- 4.1.4 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.
- 4.1.5 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
Amines	Carbonates	Nitrites	Sulfur Nitrites		Tartrates

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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.

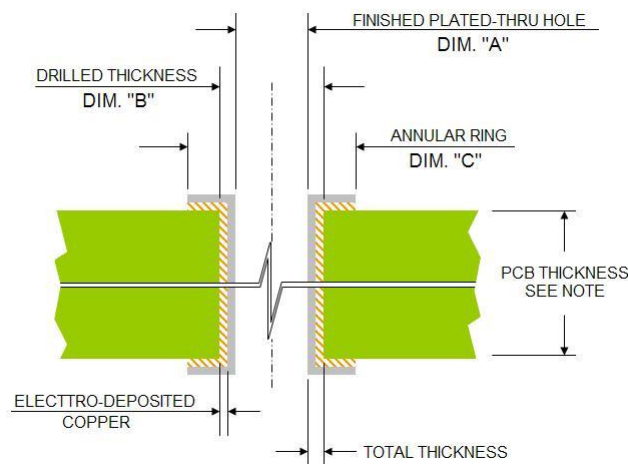
5.2 TOLERANCE

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 plated through to dimensions specified in Figure 2.

Recommended Hole Dimensions



DIM. "A" MM / (INCH)	DIM. "B" MM / (INCH) - # DRILL	DIM. "C" MM / (INCH)
1.05+/-0.05 (.0413+/-0.002)	1.181 (.0465) - # 56	1.40 (.055)
0.81+/-0.05 (.032+/-0.002)	0.711 (.028) - # 70	1.16 (.046)
0.56+/-0.05 (.022+/-0.002)	0.66 (0.260) - # 71	0.91 (.036)
0.46+/-0.05 (.0181+/-0.002)	0.572 (.022) - # 74	0.81 (.032)
0.37+/-0.05 (.0146+/-0.002)	0.457 (.018) - # 77	0.72 (.028)

Note: Refer to appropriate sales drawing for recommended PCB holes and PCB thickness

PLATING DETAIL FOR COMPLIANT PIN HOLES

Figure 2

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5.4 LAYOUT

The holes for the connector assembly must be precisely located to ensure proper placement and optimum performance of the connector assembly. Refer to the applicable Sales Drawing for the recommended hole pattern, dimensions, and tolerances.

6.0 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.

6.1 Registration

The compliant pin contacts must be aligned with matching holes in the pc board simultaneously to prevent any twisting or bending of the pin contacts.

6.2 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 compliant pin contacts x 18.0 N [4.05 lbs] (Force per Compliant Pin Contact = 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 4.

The connector assembly must be seated on the pc board not exceeding the dimensions shown in Figure 4.

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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6.3 Mechanical Attachment

Mounting Hardware – Metric screw sizes M1.8 and M2 are both acceptable options for mechanically attaching the connector assembly to the PCB. The screws are to be torqued to 0.17 N-m (1.5 lb-in) maximum. Do not over torque.

Mounting screw length - PCB thickness will affect the appropriate screw length selection. The following formula should be used to calculate the proper screw length:

$$PCB \text{ Thickness} + 4.00mm \text{ max (1.75mm min)}$$

Metric screw lengths are supplied in 0.5 mm increments. Calculated screw lengths can be rounded to the nearest 0.5 mm increment providing it does not exceed the connector mounting hole depth of 5.00 mm.

Mounting hardware is not supplied by Molex

The following chart is intended to identify engineering approved fastener selections:

Nominal Size	Thread Pitch	Description	Recommended Source
M2	1.35	Plastite® 45 Thread-Forming Fastener	STANLEY® Engineered Fastening
M1.8	0.709	Delta PT® Thread-Forming Fastener	
M2	0.78	Delta PT® Thread-Forming Fastener	

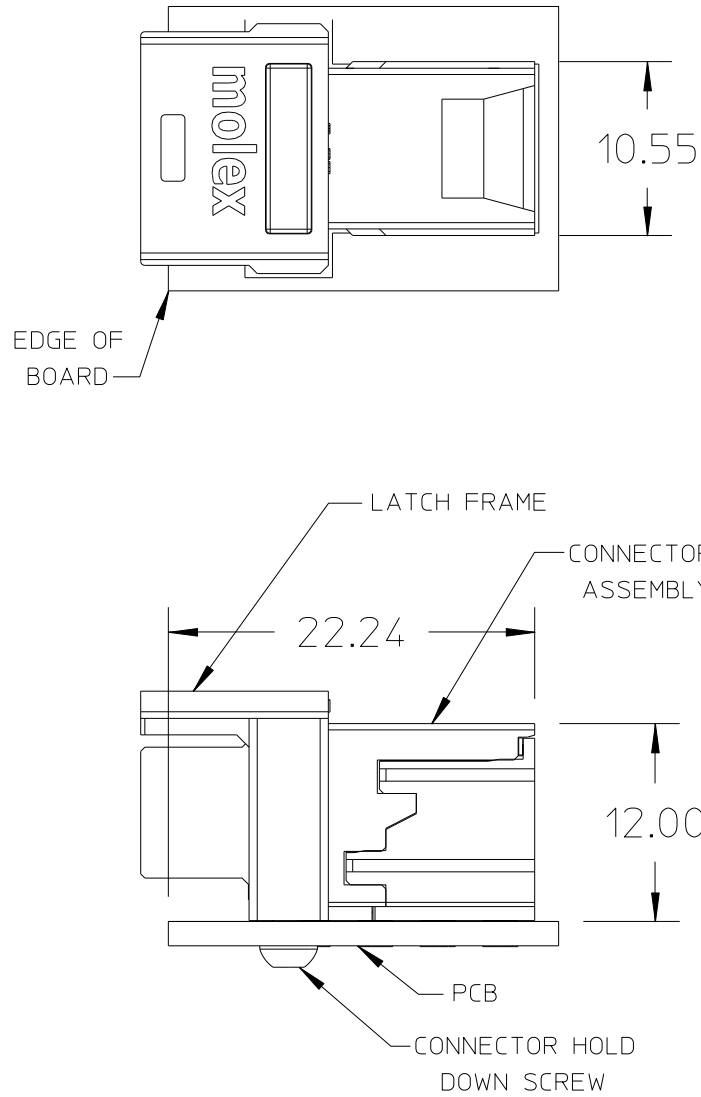
NOTE The use of Thread Forming screws designed for thermoplastics is recommended. Performance issues may occur if alternate screw types are selected.

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**Connector Assembly
Figure 4**

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6.4 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. 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.

7.0 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 5.

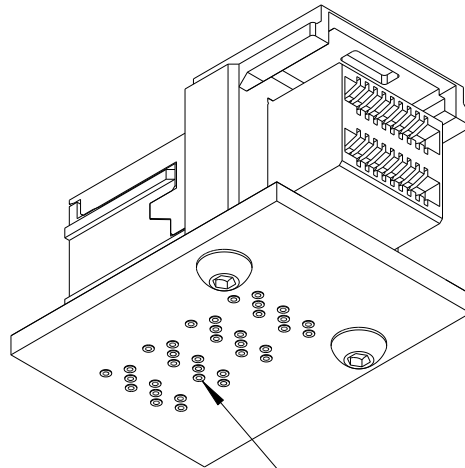
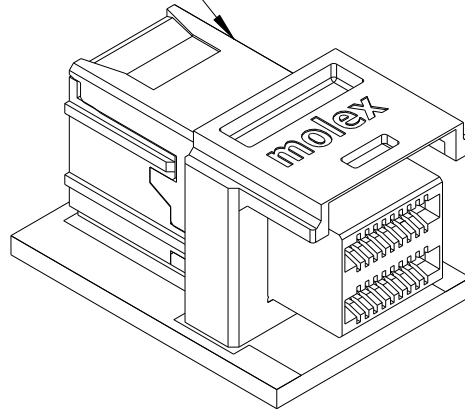
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CONNECTOR ASSEMBLY
MUST NOT BE DAMAGED
IN ANY WAY



ALL TAILS MUST
BE COMPRESSED.

Figure 5

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