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1.0 SCOPE

This specification covers the 0.75 mm centerline ZCD 16X Connector for applying and removing the connector to the pc board. The connector is a single one port connector with two card slot openings. Thirty-two differential pairs are assigned per port. The connector has 120 contacts per port of which 80 can be assigned to signals and 40 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. The connector provides electromagnetic interference (EMI) inner suppression ground fingers that contact the mating plug and an outer elastomeric EMI gasket that contacts the panel. The connector assembly is designed to be inserted thru a standard bezel after being seated onto 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.

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**Figure 1**
2.0 PRODUCT DESCRIPTION

The connector consists of a housing with double 60-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.

2.1 PRODUCT NAME AND PART NUMBER

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Part Series</th>
</tr>
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<tbody>
<tr>
<td>Receptacle connector</td>
<td>(120 ckt) 173359</td>
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</table>

3.0 REFERENCE DOCUMENTS

Refer to the appropriate customer sales drawing for product part numbers. (SD-173359-0001)
Refer to PS-173359-0001 for the connector product spec.
Refer to AS-173359-0001 for SI Guidelines.

4.0 PROCEDURE

4.1 GENERAL REQUIREMENTS

4.1.1 Limitations  The connectors are designed to operate in a temperature range of –40°C to 80°C [-40°F 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 at the leads and plated with gold at the interface area. The casting is made of a zinc 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.

<table>
<thead>
<tr>
<th>Alkalies</th>
<th>Ammonia</th>
<th>Carbonates</th>
<th>Citrates</th>
<th>Nitrites</th>
<th>Phosphates</th>
<th>Citrates</th>
<th>Sulfur Nitrites</th>
<th>Tartrates</th>
</tr>
</thead>
</table>

5.0 PC BOARD REQUIREMENTS
5.1 MATERIAL THICKNESS
The pc board material shall be glass epoxy appropriate for data rate. 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 HOLES DIMENSIONS
The holes for the connector assembly must be drilled and plated through to dimensions specified in AS-173359-0001 and appropriate Sales drawing.

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 see appropriate Sales drawing.

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 casting to avoid deformation, contamination, or damage to the terminal pin contacts, and the panel ground springs.

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 casting assembly (not including the front half of the casting assembly that overhangs the pc board, is given in Figure 2.
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).

![Connector Assembly](image)

After assembly to the main box, the connector assembly outer gasket must be compressed by the inner surface of the mating box bezel.
6.3 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 manufacturer. 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.

6.4 Connector Retaining Screw Torque

Three 2mm socket head screws are required for securing the connector the pc board after the connector is seated onto the board. The recommended torque requirement for each screw is 0.32 Nm [2.83 lb-in].

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 3a and 3b.
CONNECTOR ASSEMBLY MUST NOT BE DAMAGED IN ANY WAY

ALL TERMINAL TAILS MUST BE COMPRESSED AND THE ALIGNMENT PEGS MUST BE FULLY INSERTED INTO THE PC BOARD HOLES.

Figure 3a
APPLICATION SPECIFICATION

Figure 3b

CONNECTOR ASSEMBLY EMI GASKET MUST BE COMPRESSED WHEN FULL CONTACT IS MADE TO THE INSIDE OF THE I/O BRACKET