DP3 Series
Input/Output Connector
Thunderbolt™ Technology Compatible

Connector Training Module
Application Examples

- Laptops, Desktops, Ultrabooks
- Audio/Video editing equipment
  - Display devices
  - Adapter/Expansion devices
  - Professional cameras
  - Etc.
DP3 Series Features

Compatible with Thunderbolt™ Technology

• 10 Gbps high-speed transmission between PCs and peripherals
• Certified connector for Thunderbolt™ Technology
• Available in standard, reverse, and mid-mount types
• Secure board mounting with through-hole hold-downs
• Friction lock enhances plug retention strength and creates a clear click feeling when mated
• Multiple mounting types for design flexibility
• Cables can be electrical or optical
• Embossed tape packaging
# General Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Contacts</td>
<td>20</td>
</tr>
<tr>
<td>Contact Resistance</td>
<td>100mΩ max (initial)</td>
</tr>
<tr>
<td>Dielectric Withstanding Voltage</td>
<td>AC500 Vr.m.s (for 1 minute)</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-20 to +85°C</td>
</tr>
<tr>
<td>Rated Current</td>
<td>0.5A per pin</td>
</tr>
<tr>
<td>Mating Durability</td>
<td>10,000 times</td>
</tr>
</tbody>
</table>

![Diagram of Standard Surface-Mount type](image1)

![Diagram of Reverse Mid-Mount type](image2)

JAE’s Series I/O Connector, DP3 Series

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DP3 Series: Standard Surface-Mount Type

- Mounts on top of PCB
- Interface orientation: Right side up
- Included in the Thunderbolt™ standard specification

![Diagram of a connector with dimensions and hold-downs highlighted.](image)

Unit: mm

- Height from PCB to center of connector:
  - Front view: 9.85mm
  - Rear view: 3.2mm

- Through-hole shell hold-downs:
  - Length: 11.82mm
DP3 Series: Reverse Mount type

- Mounts on the bottom of the PCB
- Interface orientation: Right side up

3.2mm (height from PCB to center of connector)
DP3 Series: Mid-mount type

- Mounts within PCB cut-out
- Adjusts the centerline of connector in relation to the PCB
- Flexibility to line up with other connectors on device
DP3 Series: Specially designed footprint

JAE’s DP3 footprint is specially designed to meet the high-speed requirements for Thunderbolt™ technology.

Balanced signal pairs
- Enhanced signal integrity
- Optimizes PCB layout
DP3 Receptacle Line-up

- Multiple variations available for design flexibility
- Certified Thunderbolt™ connector

<table>
<thead>
<tr>
<th>Receptacle Type</th>
<th>Mounting Orientation</th>
<th>Height of Mating Centerline (from mounting surface)</th>
<th>Thru-hole Pin Length</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard (top)</td>
<td>Standard</td>
<td>+ 3.2mm</td>
<td>2.1mm</td>
<td>DP3R020SU32JQ1</td>
</tr>
<tr>
<td>Standard (top)</td>
<td>Standard</td>
<td>+ 3.2mm</td>
<td>1.4mm</td>
<td>DP3R020SU32JQ</td>
</tr>
<tr>
<td>Reverse</td>
<td>Reverse</td>
<td>+ 3.2mm</td>
<td>2.1mm</td>
<td>DP3R020RU32JQ1</td>
</tr>
<tr>
<td>Reverse</td>
<td>Reverse</td>
<td>+ 3.2mm</td>
<td>1.4mm</td>
<td>DP3R020RU32JQ</td>
</tr>
<tr>
<td>Mid-mount</td>
<td>Reverse</td>
<td>- 3.0mm</td>
<td>1.5mm</td>
<td>DP3R020RL30JQ</td>
</tr>
<tr>
<td>Mid-mount</td>
<td>Reverse</td>
<td>+ 0.5mm</td>
<td>1.5mm</td>
<td>DP3RB20RU05JQ</td>
</tr>
</tbody>
</table>
## Material and Finishes

<table>
<thead>
<tr>
<th>Component</th>
<th>Material / Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Area</td>
<td>Copper alloy / 0.3µ Au over Ni plating</td>
</tr>
<tr>
<td>Terminal Area</td>
<td>Sn over Ni plating</td>
</tr>
<tr>
<td>Housing</td>
<td>Glass-filled LCP / None</td>
</tr>
<tr>
<td>Shell</td>
<td>Stainless Steel / Ni</td>
</tr>
</tbody>
</table>
Summary

• The DP3 I/O connector offers a 10 Gbps high-speed transmission between PCs and peripherals, and is a certified connector for Thunderbolt™ technology.

• JAE’s DP3 Series I/O connector has 20 contacts with an initial contact resistance of 100 mΩ max.

• Its operating temperature range is -20°C to 85°C with a rated current of 0.5A per pin.

• The DP3 standard surface mount type mounts on top of the PCB with thru-hole shell hold-downs.

• The mid-mount type mounts within the PCB cut-out, which adjusts the centerline of the connector in relation to the PCB.