The PI3EQX10312/612 are 10Gbps Mux and DeMux linear ReDriver™ devices compliant with USB 3.2 Gen 2, and backwards compatible with USB 3.0.

When used in USB Type-C ports, they provide 2:1 Mux from device TX to host RX, and 1:2 DeMux from Host TX to device RX.

Both extend PCB trace lengths while minimizing cost and power consumption as well as delivering lower latency.

PI3EQX10312/612 have adjustable linear equalization, output swing and flat gain by I2C or pin control. Performance is optimized over a variety of physical media by reducing intersymbol interference.

PI3EQX10312 has a plug-in detector for USB-C connector and supports Vconn to power active-cables and other accessories.

Operating from a supply voltage of 3.3V, the device operates over the -40°C to +70°C temperature range of.

ReDriver™ is a trademark of Diodes Incorporated.

USB Type-C® and USB-C® are registered trademarks of USB Implementers Forum.

**Applications**

- Desktop PC
- Laptop PC
- Tablet PC
- Gaming
- TV
- Workstation
- Industrial PC (IPC)
- Embedded systems

**The DIODES’ Advantage**

- **10Gbps, 2:1 Mux/1:2 DeMux Linear ReDriver over USB Type-C® port**
  Supports USB 3.2 Gen 2 and backward compatible to USB 3.2 Gen 1

- **Independent configuration of receiver equalization, output swing and flat gain**
  Extends PCB trace lengths while minimizing cost, power and reduces signal latency

- **Pin-strap and I2C selectable device programming**
  Provides easy design without the need for heavy firmware support.

- **Plug-in detector for USB-C connector (PI3EQX10312)**
  Auto-configure ports orientation through CC detection. 24V tolerance on CC1, CC2 and VBUSDET

- **Supports Vconn to power active cables and other accessories (PI3EQX10312)**
  Provides over-current protection and over-voltage protection for Vconn
Application Usage of PI3EQX10312/612

USB 3.1 Gen 2 Mux/DeMux ReDriver Portfolio

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Data Rate (Gbps)</th>
<th>Lanes/Ports</th>
<th>Output Swing Max (mV)</th>
<th>Programming Interfaces</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>PI3EQX10312</td>
<td>USB 3.2 Gen 2, Mux &amp; Demux ReDriver, with USB-C Detector, VCONNN</td>
<td>10</td>
<td>2/2</td>
<td>1200</td>
<td>I2C/Pin Strap</td>
<td>TQFN-42</td>
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<tr>
<td>PI3EQX10612</td>
<td>USB 3.2 Gen 2, Mux &amp; Demux ReDriver</td>
<td>10</td>
<td>2/2</td>
<td>1200</td>
<td>I2C/Pin Strap</td>
<td>TQFN-34</td>
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</table>

To find out more information:

Ordering Information

<table>
<thead>
<tr>
<th>Ordering Code</th>
<th>Packaging Code</th>
<th>Package Description</th>
<th>Quantity per reel</th>
<th>Reel Size</th>
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<tbody>
<tr>
<td>PI3EQX10312ZHEX</td>
<td>ZH</td>
<td>42-contact TQFN (3.5 x 9 x 0.75mm)</td>
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<td>13”</td>
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<tr>
<td>PI3EQX10612ZLCEX</td>
<td>ZLC</td>
<td>40-contact TQFN (3 x 6 x 0.75mm)</td>
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