USB 3.1 GEN 2/GEN 1 ReDrivers & USB 3.1 GEN 1/Active Mux

Diodes USB 3.1 GEN 2 Redriver/Active Mux are a key technology for addressing the rising design complexity that the higher data rates of today’s high speed interconnects introduce across every industry and across USB and Type-C ports.

To enable better signal integrity throughout the signal chain, Diodes Incorporated provides redrivers based on its industry-leading signal conditioning technology.

Our USB 3.1 GEN 2 Redriver/Active Mux offer better performance than protocol based signal retimers which act as an end-point that must terminate and then retransmit the signal, thus introducing delay and added system cost.

In addition, redrivers minimize jitter by conditioning and passing signals through at the physical layer.

FOR MORE INFORMATION: diodes.com

PRODUCTS
- PI3EQX1002B
  10Gbps, 1-Port USB 3.1 GEN 2 Redriver, 3.3V
- PI2EQX632E
  5Gbps, USB 3.1 GEN 1 Active Mux Redriver, 1.8V
- PI3EQX7841
  5Gbps, USB 3.1 GEN 1 Active Mux Redriver, 3.3V with I²C Control
- PI3EQX7741AIQ
  5Gbps, 1-Port, USB 3.1 GEN 1 Redriver, Automotive Compliant
- PI3EQX501BQ
  5Gbps, Single-Channel USB 3.1 GEN 1 Redriver, Automotive Compliant

KEY FEATURES
- USB 3.1 GEN 2 and GEN 1 Compatible
- 5 & 10Gbps Serial Link with Linear Equalizer
- Pin or I²C Adjustable receiver equalization
- Pin or I²C Adjustable flat gain control
- Pin or I²C Adjustable linear swing control
- Adjustable power-down mode
- Automotive - AEC-Q Compliant
- Better performance than protocol based signal Retimers

BENEFITS
- Compensates USB 3.1 GEN 2/GEN 1 Channel Insertion Loss
- Automatic receiver detect configuration
- Channel based Auto “Slumber” mode
- Maintains signal integrity over long line lengths
# USB 3.1 GEN 1/GEN 2 REDRIVERS/ACTIVE MUX

## USB 3.1 ReDriver/Active Mux Solutions Selector Guide

<table>
<thead>
<tr>
<th>Part Numbers</th>
<th>PI1EQX512A</th>
<th>PI2EQX511E</th>
<th>PI2EQX632E</th>
<th>PI3EQX501B/PI3EQX501BQ</th>
<th>PI3EQX1002B</th>
<th>PI3EQX7502AI/PI3EQX7502B</th>
<th>PI3EQX7741AI/PI3EQX7741AIQ</th>
<th>PI3EQX7742AI</th>
<th>PI3EQX7841</th>
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<tbody>
<tr>
<td><strong>USB3.0/3.1 GEN2/GEN1</strong></td>
<td>GEN 1</td>
<td>GEN 1</td>
<td>GEN 1</td>
<td>GEN 1</td>
<td>GEN 2</td>
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<tr>
<td><strong>Ports/Channels</strong></td>
<td>1-Port/2-Channels</td>
<td>1-Channel</td>
<td>2-Port Mux</td>
<td>1-Channel</td>
<td>1-Port/2-Channels</td>
<td>1-Port/2-Channels</td>
<td>1-Port/2-Channels</td>
<td>2-Port/4-Channels</td>
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<td><strong>Pkg Size (mm2)</strong></td>
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<td>16-X2QFN</td>
<td>8-TDFN</td>
<td>50-TQFN</td>
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<td>20-TQFN</td>
<td>42-TQFN</td>
<td>20-TQFN</td>
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<tr>
<td><strong>Vdd</strong></td>
<td>1.0V (Industry's lowest power)</td>
<td>1.2V-1.8V</td>
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<td>3.3V</td>
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<td>3-12 dB</td>
<td>3-12 dB</td>
<td>3-12 dB</td>
<td>3-12 dB (Contact Diodes')</td>
<td>3-9 dB</td>
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<td>0-15 dB</td>
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<tr>
<td><strong>DE Settings</strong></td>
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<td>0-6 dB</td>
<td>0-6 dB (Contact Diodes')</td>
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<td><strong>Design Kit, User and Layout Guide</strong></td>
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<td>YES</td>
<td>YES</td>
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<td><strong>Suggested Application</strong></td>
<td>Smartphone Tablet, Ultrabook, Digital camera PC peripheral</td>
<td>Smartphone Tablet, Ultrabook, Digital camera PC peripheral</td>
<td>Tablet Ultrabook Tablet Ultrabook Cables, Smartphone</td>
<td>Tablet Ultrabook Tablet Ultrabook Digital camera PC peripheral</td>
<td>Notebook Ultrabook Server</td>
<td>Notebook Ultrabook Server</td>
<td>Notebook Ultrabook Server Blade Workstation Industrial PC</td>
<td>Notebook Ultrabook Cabling Server Embedded Workstation Server Blade Embedded Automotive (Infotainment) Industrial PC</td>
<td>Server Storage Embedded Workstation Server Blade Embedded</td>
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</tbody>
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**FOR MORE INFORMATION:** diodes.com