A product Line of
Diodes Incorporated

PRODUCT BRIEF

PI3DBS12212A

3.3V, 1-12Gbps 1-Lane 2:1 Mux/De-Mux Switch

Features

- 2 Differential Channel, 2:1 Mux/DeMux
- Up to 12 Gbps for applications including USB3.0, USB3.1, 10GE, Thunderbolt, and SAS3.0
- Bi-directional operation
- 3dB bandwith: 10.6GHz
- Low Bit-to-Bit Skew, 1ps typ
- Low channel-to-channel skew, 7ps typ
- Low insertion loss: -1.5dB@5 GHz, -1.7dB@6 GHz
- Return loss: -19.6dB@5 GHz, -17.2dB@6 GHz
- Low Crosstalk: -30.5dB@6 GHz
- Low Off Isolation: -17.1dB@6 GHz
- Low power consumption - 200µA typ
- Supply Voltage 3.3V
- Industrial Temperature Range: -40oC to 85oC
- ESD – 2KV Human Body Model (HBM)
- Packaging (Pb-free & Green):
  - 20-contact, TQFN(ZB20), 2.5x4.5mm
  - 18 contact, X2QFN (XUA18), 2x2mm

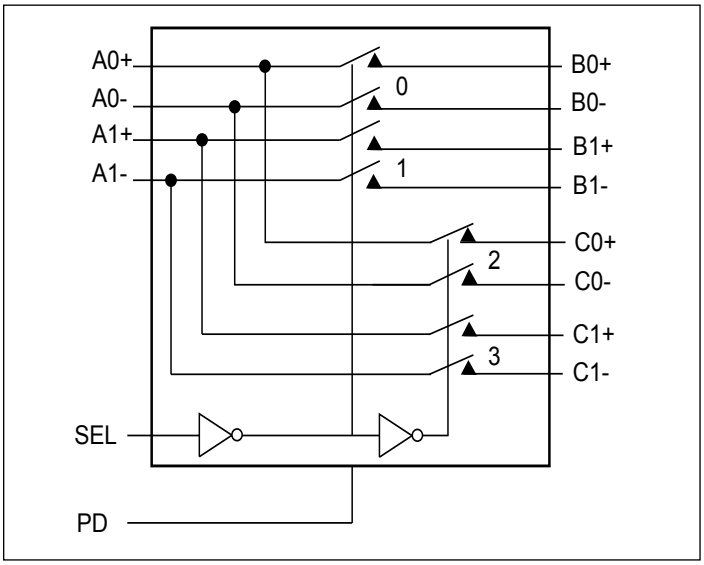
Description

The PI3DBS12212A is an 4 to 2 differential channel multiplexer/demultiplexer switch. This solution can switch multiple signal types up to data rate of 12Gbps. Using a unique design technique, Diodes has been able to minimize the impedance of the switch such that the attenuation observed through the switch is minimal. The unique design technique also offers a layout targeted for USB3.0, USB3.1, 10GE, Thunderbolt, and SAS3.0 signals, which minimizes the channel to channel skew as well as channel to channel crosstalk as required by high speed signals.

Applications

Routing high speed differential signals such as USB3.0, USB3.1, 10GE, Thunderbolt, and SAS3.0.

Block Diagram



Ordering Information

Part Number	Package	Description
PI3DBS12212AZBEX	ZB	20-Contact, Very Thin Quad Flat No-Lead (TQFN)
PI3DBS12212AXUAEX	XUA	18-Contact, 2x2mm (X2QFN)

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. E = Pb-free and Green
5. X suffix = Tape/Reel