A product Line of
Diodes Incorporated

PERICOM®

PI3DBS12412A

3.3V, 10-12Gbps 2-Lane 2:1 Mux/De-Mux Switch

Features

➔ 4 Differential Channel, 2:1 Mux/DeMux

➔ Up to 12Gbps data rate for SAS 3.0 Application

➔ Compatible with Thunderbolt signaling, 10.3125Gbps

➔ 10Gbps Ethernet, USB 3.1

➔ Bi-directional operation

➔ 3dB Bandwidth: 11.3 GHz

➔ Low Bit-to-Bit Skew, 1ps typ

➔ Low channel-to-channel skew, 7ps typ

➔ Low insertion loss:
   -1.4dB@5 GHz, -1.5dB@6 GHz

➔ Return loss:
   -19.3dB@5 GHz, -17.3dB@6 GHz

➔ Low Crosstalk: -30.5dB@6 GHz

➔ Low Off Isolation: -17.1dB@6 GHz

➔ Low power consumption -400µA typ

➔ Supply Voltage 3.3V

➔ Industrial Temperature Range: -40oC to 85oC

➔ ESD – 2KV Human Body Model (HBM)

➔ Packaging (Pb-free & Green):
   – 42-contact, TQFN (ZH42), 3.5x9mm
   – 40-contact, TQFN (ZL40), 3x6mm

Ordering Information

Part Number	Package	Description
PI3DBS12412AZHEX	ZH	42-Contact, Very Thin Quad Flat No-Lead (TQFN)
PI3DBS12412AZLEX	ZL	40-Contact, 3x6mm (TQFN)

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

Description

The PI3DBS12412A is an 8 to 4 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 Thunderbolt & SAS 3.0 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 Thunderbolt, 10 Gigabit Ethernet, PCI-Express 3.0, SAS 3.0, and USB 3.1.

Block Diagram