



High speed and
high bandwidth, low
power consumption

CBTU02044 High-Speed Differential 1-to-2 Switch

OVERVIEW

The CBTU02044 high-speed differential 1-to-2 switching IC is optimized to interface with PCIe® 4.0 for server and client applications. This high-performance switch could be used for high-speed interfaces such as PCIe-Gen 3.0/2.0/1.0, MIPI, DP1.4/DP2.0 and DDR. The CBTU02044 also functions as a 2-to-1 multiplexer by selecting 1 (Port A) as output out of one of the two differential ports (either Port B or C). Pin out is optimized for the minimum number of PCB layers and for achievement of very low crosstalk to meet stringent crosstalk requirements at a higher data rate. The CBTU02044 comes in a small package with a footprint optimized for smaller real estate occupancy. This device is available in a 1.6 mm x 2.4 mm x 0.5 mm HUQFN16 package with 0.4 mm pitch.

KEY FEATURES AND BENEFITS

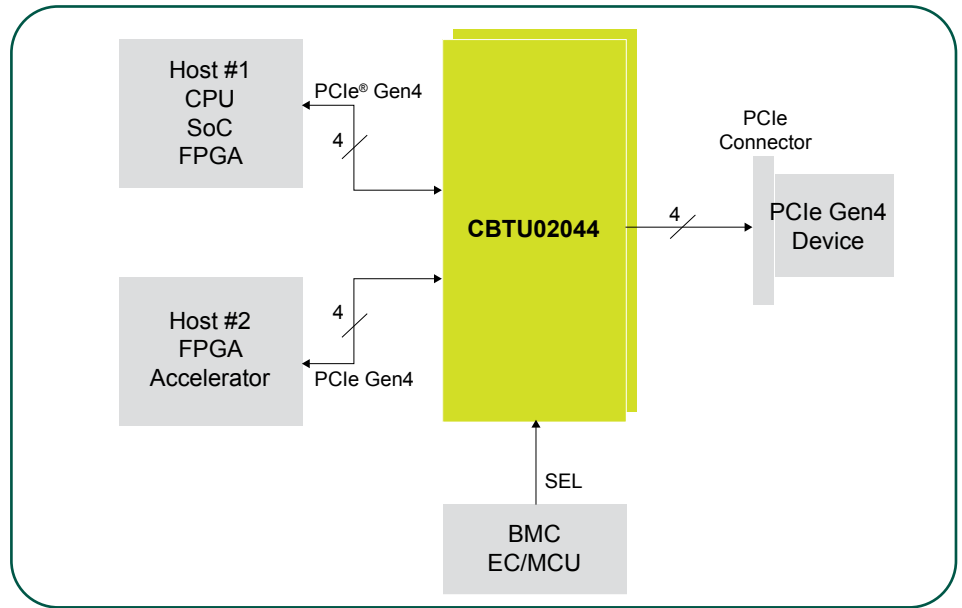
- ▶ Optimized high-speed signal integrity
- ▶ Minimized crosstalk to meet stringent PCIe 4.0 requirement
- ▶ Two-differential channels 1-to-2 switch/2-to-1 mux
 - Low insertion loss (typ): 0.56 dB at 100 MHz; 1.1 dB at 5 GHz; 1.5 dB at 8 GHz
 - Low off-state isolation: -70 dB at 100 MHz, -23 dB at 5 GHz, -18 dB at 8 GHz
 - Low return loss (typ): 21 dB at 2.5 GHz; 18 dB at 5 GHz; 15 dB at 8 GHz
 - Low ON-state resistance: 10 Ω (typ)
 - 3 dB bandwidth (typ): 17 GHz (typ)
 - DDNEXT < -50 dB @ 8 GHz
- DDFEXT < -48 dB @ 8 GHz
- V_{IC} common mode input voltage VIC: 0 V to 2 V
- Differential input voltage VID < 1.6 V
- Intra-pair skew < 4 ps
- ▶ V_{DD} power supply voltage range: 1.62 V to 3.63 V
- ▶ Low current consumption:
 - For active mode = 200 μ A (typ)
 - For power saving = 3 μ A (typ)
- ▶ CMOS SEL and XSD pins
- ▶ Back current protection on all I/O pins of these switches
- ▶ Patent pending high-performance analog pass-gate technology
- ▶ All channels support rail-to-rail input voltage (up to 2.4 V)
- ▶ HUQFN16 1.6 mm x 2.4 mm x 0.5 mm package with 0.4 mm pitch
- ▶ ESD: 2000 V HBM; 1000 V CDM
- ▶ Operating temperature range: -10 °C to +85 °C



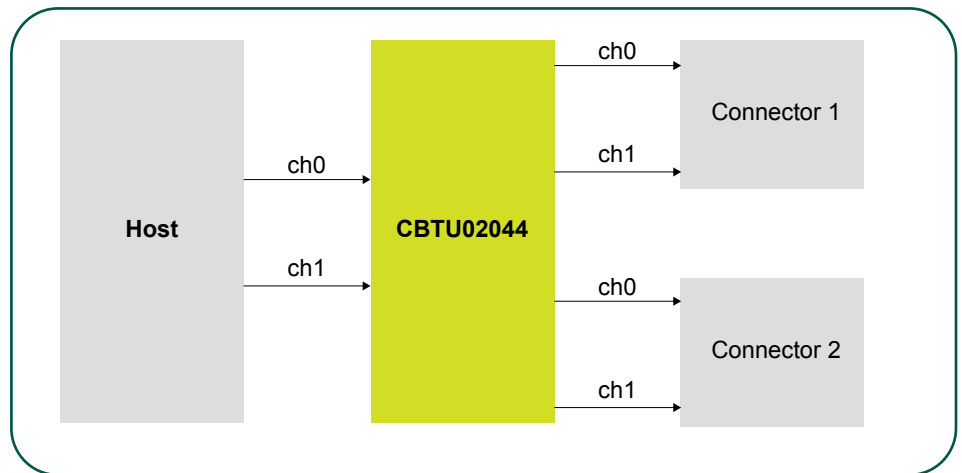
APPLICATIONS

- ▶ Enterprise server
- ▶ Datacenter
- ▶ PCIe Gen 4 storage
- ▶ Base station

2 HOSTS AND 1 DEVICE



1 HOST AND 2 DEVICES



ORDERING INFORMATION

Type Number	Orderable Part Number	Package	Packing Method	Minimum Order Quantity	Temperature
CBTU02044 ⁽¹⁾	CBTU02044HEJ	HUQFN16	REEL 13" Q1/T1 *STANDARD MARK SMD	10000	T _{amb} = -10 °C to +85 °C