CBTL02042A; CBTL02042B

3.3 V, 2 differential channel, 2 : 1 multiplexer/demultiplexer switch for PCI Express Gen2

Rev. 1 — 12 November 2010 **Product brief**

1. General description

CBTL02042A/B is a 4-to-2 bidirectional differential channel multiplexer/demultiplexer switch. The CBTL02042A/B can switch four differential signals to one of two locations. Using a unique design technique, NXP has minimized the impedance of the switch such that the attenuation observed through the switch is negligible, and also minimized the channel-to-channel skew as well as channel-to-channel crosstalk, as required by the high-speed serial interface. CBTL02042A/B allows expansion of existing high speed ports for extremely low power.

2. Features and benefits

- 2 differential channel, 2 : 1 multiplexer/demultiplexer
- High-speed signal switching for PCIe Gen2 5 Gbit/s
- V_{DD} operating range: 3.3 V ± 10 %
- Shutdown pin (XSD) for power-saving mode
- ESD tolerance: 6 kV HBM; 1 kV CDM
- DHVQFN20 package

3. Applications

- Routing of high-speed differential signals with low signal attenuation
  - ◆ PCIe Gen2
  - ◆ DisplayPort 1.2
  - ◆ USB 3.0
  - ◆ SATA 6 Gbit/s

4. Ordering information

Table 1.   Ordering information

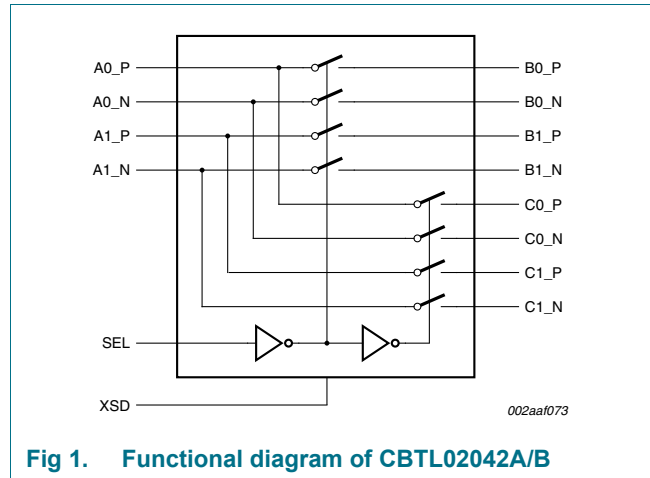| Type number	Package		
	Name	**Description**	**Version**
CBTL02042ABQ	DHVQFN20	plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads; 20 terminals; body 2.5 × 4.5 × 0.85 mm	SOT764-1
CBTL02042BBQ	DHVQFN20	plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads; 20 terminals; body 2.5 × 4.5 × 0.85 mm	SOT764-1

Function selection and shutdown function

The CBTL02042A/B provides a shutdown function to minimize power consumption when the application is not active, but power to the CBTL02042A/B is provided. The XSD pin (active HIGH) places all channels in high-impedance state (non-conducting) while reducing current consumption to near-zero. When XSD pin is LOW, the device operates normally.
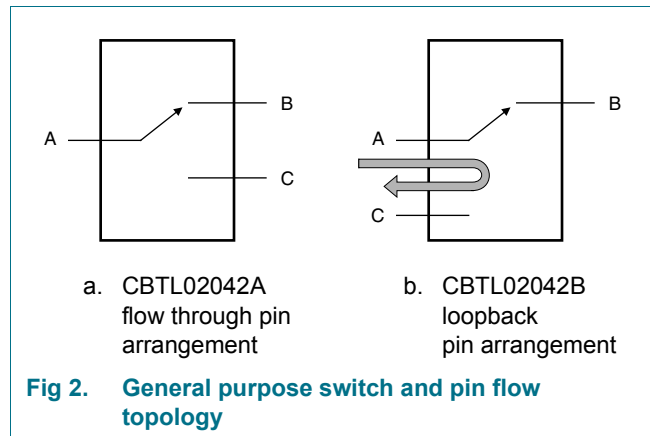
Table 2.   Function selection

X = Don't care.

XSD	SEL	Function
HIGH	X	An, Bn and Cn pins are high-Z
LOW	LOW	An to Bn and vice versa
LOW	HIGH	An to Cn and vice versa

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Fig 1.   Functional diagram of CBTL02042A/B

a. CBTL02042A
flow through pin
arrangement

b. CBTL02042B
loopback
pin arrangement

Fig 2.   General purpose switch and pin flow topology

For more information, please visit: http://www.nxp.com
For sales office addresses, please send an email to: salesaddresses@nxp.com

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