PI3USB102E

USB 2.0 High-Speed (480 Mbps) Switch with 5V Protection

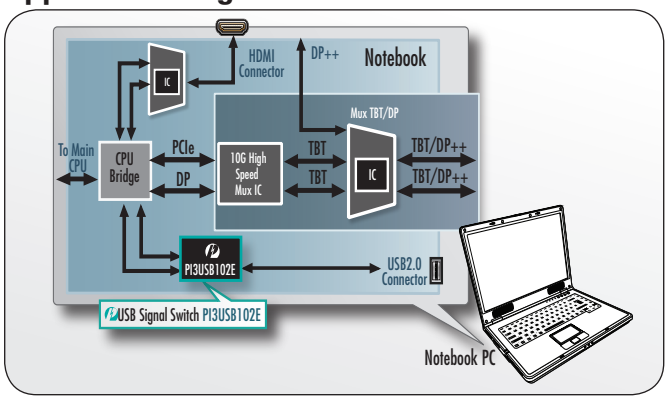
The PI3USB102E is a single differential channel 2:1 multiplexer/demultiplexer USB 2.0 Switch. Industry leading advantages include a propagation delay of 250ps, resulting from its low channel resistance and I/O capacitance. PI3USB102E is bidirectional and offers very little attenuation of high-speed signals. It is designed for low bit-to-bit skew, high channel-to-channel noise isolation and is compatible with various standards, such as High Speed USB 2.0 (480 Mb/s).

The PI3USB102E offers over voltage protection for the Y+/Y- pins as per the USB 2.0 specification. With the chip powered on or off if Y+/Y- pins are shorted to VBUS (5V +/- 5%), M+/M- and D+/D- outputs are clamped to provide voltage protection for downstream devices.

Applications

- Routes signals for USB 2.0
- PC, Notebooks and Hand-held devices

Application Diagram



Features

- USB 2.0 compliant (high speed, full speed, and low speed)
- R_{ON}: 4.0Ω typical @ V_{DD} = 3.0V
- Channel On Capacitance: 6.0pF
- Wide -3dB Bandwidth: 1,000MHz
- Low bit-to-bit skew
- Low Crosstalk: -29B @ 480 Mbps
- Off Isolation: -28dB @ 480 Mbps
- Near-Zero propagation delay: 250ps
- Support 1.8-V logic on control pins
- V_{DD} Operating Range: 3.0V to 5.5V
- ESD: 8kV HBM on Y+/Y- pins per JESD22 standard
- Y+/Y- pins have over-voltage protection and can tolerate a short to V_{BUS}
- Packaging (Pb-free & Green):
  - -10-contact TQFN (ZL10)
  - 1.3mm x 1.6mm x 0.75mm

Block Diagram