

Highly Integrated Full Featured Hi-Speed USB 2.0 ULPI Transceiver

Features

- Integrated ESD protection circuits
 - Up to $\pm 15\text{kV}$ IEC Air Discharge without external devices
- Over-Voltage Protection circuit (OVP) protects the VBUS pin from continuous DC voltages up to 30V
- Integrated USB Switch
 - No degradation of Hi-Speed electrical characteristics
 - Allows single USB port of connection by providing switching function for:
 - Battery charging
 - Stereo and mono/mic audio
 - USB Full-Speed/Low-Speed data
- flexPWR[®] Technology
 - Low current design ideal for battery powered applications
 - "Sleep" mode tri-states all ULPI pins and places the part in a low current state
 - 1.8V to 3.3V IO Voltage ($\pm 10\%$)
- Integrated battery to 3.3V regulator
 - 2.2 μF bypass capacitor
 - 100mV dropout voltage
- "Wrapper-less" design for optimal timing performance and design ease
 - Low Latency Hi-Speed Receiver (43 Hi-Speed clocks Max) allows use of legacy UTMI Links with a ULPI bridge
- Selectable Reference Clock Frequency
 - Frequencies: 12, 13, 19.2, 24, 26, 27, 38.4, 52 or 60MHz - pin selectable
- External Reference Clock operation available
 - ULPI Input Clock Mode (60MHz sourced by Link)
 - 0 to 3.6V input drive tolerant
 - Able to accept "noisy" clock sources as reference to internal, low-jitter PLL
- Internal Oscillator operation available
- This mode requires external Quartz Crystal or Ceramic Resonator
- Smart detection circuits allow identification of USB charger, headset, or data cable insertion

- Includes full support for the optional On-The-Go (OTG) protocol detailed in the On-The-Go Supplement Revision 2.0 specification
- Supports Headset Audio Mode
- Supports the OTG Host Negotiation Protocol (HNP) and Session Request Protocol (SRP)
- UART mode for non-USB serial data transfers
- Internal 5V cable short-circuit protection of ID, DP and DM lines to VBUS or ground
- Industrial Operating Temperature -40°C to $+85^{\circ}\text{C}$
- 32-pin, QFN RoHS Compliant Package (5 x 5 x 0.90 mm height)

Applications

The USB3320 is targeted for any application where a Hi-Speed USB connection is desired and when board space, power, and interface pins must be minimized.

The USB3320 is well suited for:

- Networking
- Audio Video
- Medical
- Industrial Computers
- Printers
- Repeaters
- Communication

勝特力材料 886-3-5753170
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[Http://www.100y.com.tw](http://www.100y.com.tw)

USB3320

2.0 USB3320 PIN LOCATIONS AND DEFINITIONS

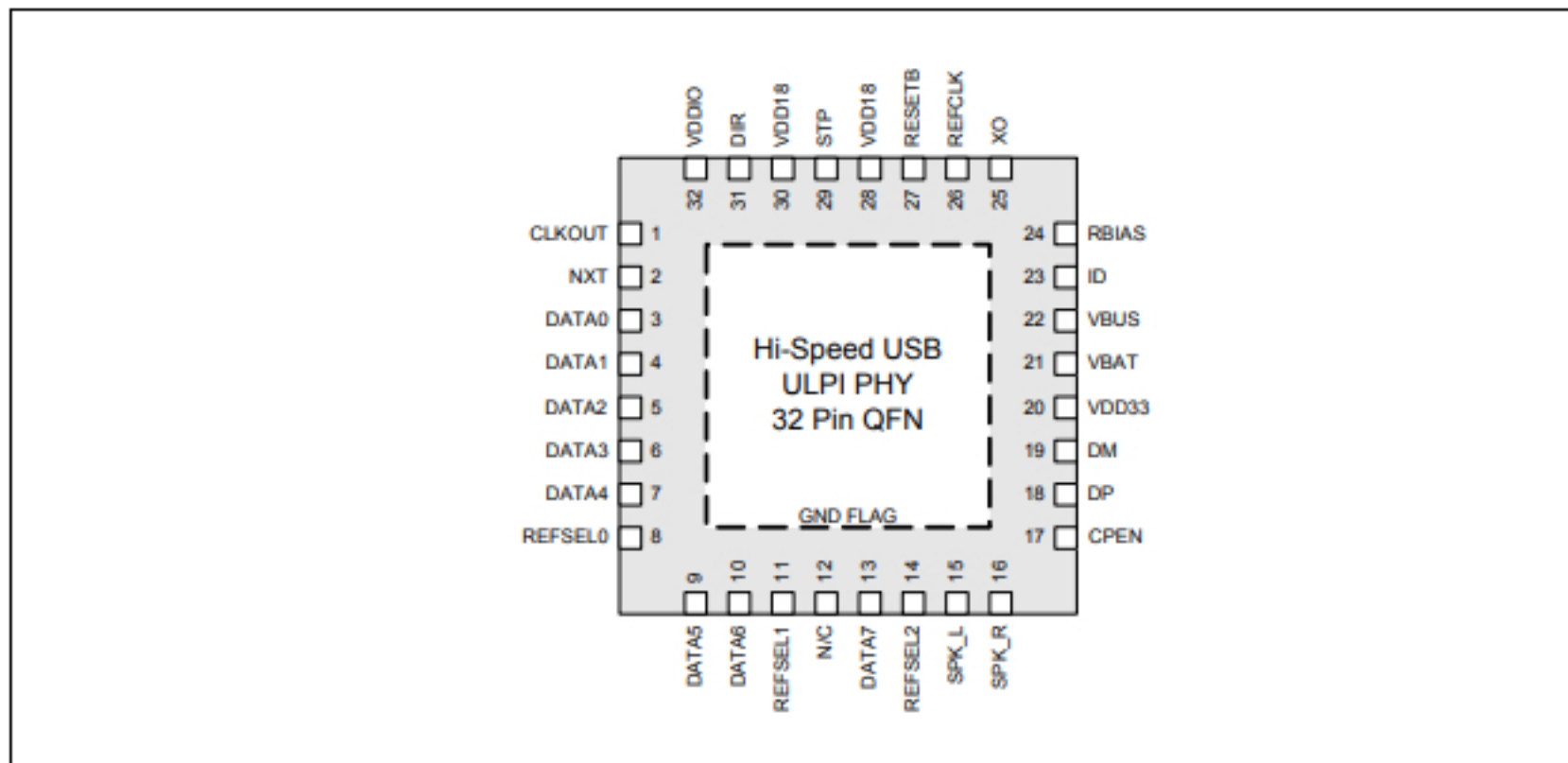
2.1 USB3320 Pin Locations and Descriptions

2.1.1 PACKAGE DIAGRAM WITH PIN LOCATIONS

The illustration below is viewed from the top of the package.

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FIGURE 2-1: USB3320 PIN LOCATIONS - TOP VIEW



2.1.2 PIN DEFINITIONS

The following table details the pin definitions for the figure above.

TABLE 2-1: USB3320 PIN DESCRIPTION

Pin	Name	Direction/Type	Active Level	Description
1	CLKOUT	Output, CMOS	N/A	ULPI Output Clock Mode: 60MHz ULPI clock output. All ULPI signals are driven synchronous to the rising edge of this clock. ULPI Input Clock Mode: This pin is connected to VDDIO to configure 60MHz ULPI Input Clock mode as described in Section 5.4.1. Following POR or hardware reset, the voltage at CLKOUT must not exceed V_{IH_ED} as provided in Table 4-4.
2	NXT	Output, CMOS	High	The transceiver asserts NXT to throttle the data. When the Link is sending data to the transceiver, NXT indicates when the current byte has been accepted by the transceiver. The Link places the next byte on the data bus in the following clock cycle.
3	DATA[0]	I/O, CMOS	N/A	ULPI bi-directional data bus.

PRODUCT IDENTIFICATION SYSTEM

To order or obtain information, e.g., on pricing or delivery, refer to the factory or the listed sales office.

<u>PART NO.</u>	-	<u>XXX</u>	-	[X] ⁽¹⁾
Device		Package		Tape and Reel Option
Device:		USB3320C		
Temperature Range:		-40°C to+85°C		
Package:		EZK = 32-pin QFN RoHS Compliant package		
Tape and Reel Option:		Blank = Standard packaging (tray) TR = Tape and Reel ⁽¹⁾		

Examples:

- a) USB3320C-EZK
- b) USB3320C-EZK-TR

Note 1: Tape and Reel identifier only appears in the catalog part number description. This identifier is used for ordering purposes and is not printed on the device package. Check with your Microchip Sales Office for package availability with the Tape and Reel option.

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