USB4640

In Production

Microchip's USB4640 is the world's first Hi-Speed Inter-Chip (HSIC) enabled USB 2.0 hub and Flash media card reader combo solution. The 480Mbps, 2-pin HSIC 1.O-compliant upstream port provides an ultra-fast interface between an HSIC-enabled host and today's most popular Flash media cards as well as a versatile, cost-effective and power-efficient USB 2.0 hub controller with two downstream ports for Hi-Speed/Full-Speed/Low-Speed USB port expansion. HSIC's digital interconnect bus bypasses the traditional USB analog PHY, reducing power consumption while maintaining transparency to the USB drivers and software.

The USB4640 serves as a fully-integrated, single-chip solution combining USB hub expansion with ultra high-performance Flash card media reader/writer capabilities. Average sustained Flash media transfer rates exceeding 35 MB/s* are possible if the media and host can support those rates. The Flash media controller allows read/write capability to Flash media formats from the following families: xD-Picture Card™ (xD); Memory Stick® (MS); Secure Digital (SD); MultiMediaCard™ (MMC).

*Results are based on actual measurements on evaluation platforms developed by Microchip, and are meant only as a general guideline, not a guarantee. Actual customer results may vary based on a number of factors, including board layout and measurement technique.

Microchip makes the following part-numbered device available for purchase only by customers who are xD-Picture Card licensees: USB4640. By purchasing or ordering any of such devices, Buyer represents, warrants, and agrees that Buyer is a duly licensed Licensee under an xD-Picture Card&rade; License Agreement with Fuji Photo Film Co., Ltd., Olympus Optical Co., Ltd., and Toshiba Corporation; and that Buyer will maintain in effect such xD-Picture Card license and will give Microchip reasonable advance notice of any termination or expiration of such xD-Picture Card license, but in no event less than five days advance notice. Microchip may discontinue making such devices available for purchase by Buyer and/or discontinue further deliveries of such devices if such xD-Picture Card license shall expire, terminate, or cease to be in force, or if Buyer is or becomes in default of such xD-Picture Card license.

*The USBCheck online design review service is subject to Microchip's Program Terms and Conditions and requires a myMicrochip account.

Features

Highlights

- HSIC upstream and USB 2.0 hub controller with two exposed USB downstream ports for external peripheral expansion
- Internally connected ultra-fast Flash media reader/writer
- Integrated hub and Flash media card reader combo solution minimizes footprint by approximately 40% compared to prior Microchip discrete devices
- Configures internal code using an external I^2C EEPROM and supports external code using an SPI Flash ROM
- Supports commercial (0° to 70°C) and industrial (-40° to 85°C) temperature ranges
- 48-pin QFN RoHS-compliant package

Target Applications

- Tablet PCs
- Digital TVs
- Netbooks/Mobile Internet Devices (MIDs)
- Desktop and Mobile PCs
- Set-top Boxes
- Gaming Consoles
- Printers
- Media Players/Viewers
- Digital Photo Frames
- Monitors
- Industrial Products

Parameter Name	Value
Description	USB 2.0 Flash Media Controller with Hi-Speed USB Hub
Upstream Port	USB 2.0 (HSIC)
USB Speed	Hi Speed
Downstream Ports	SD, MMC, SDIO, MS
MCU Interface	USB
Tx Buffer Size (bytes)	3K
Rx Buffer Size (bytes)	3K
GPIOs	4
Op Voltage (V)	3.3
ROM I/F	I2C
Secure Digital/ MM cards	1
SD/MMC/ SDIO Ports	1
Memory Stick	Yes
Logical Unit Num (LUN)	1
Temp Range Min (°C)	-40
Temp Range Max (°C)	85

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