

# USB3803 Portable USB 2.0 Hub Controller

## Industry's Smallest Hi-Speed Hub Controller Targeting Portable Applications

### Summary

As mobile devices continue to add more features and the complexity of connectivity increases, it has become necessary to have a flexible hub which can be used in multiple ways as USB port expansion in portable applications like tablets, or as a purely embedded device to seamlessly bridge complex mobile architectures. Microchip's extremely small size USB3803 USB 2.0 hub controller offers three downstream ports with highly integrated portable features specifically designed for mobile embedded applications where more than one USB port is required.

The USB3803 can easily attach to an upstream port as a Full-Speed or Full/Hi-Speed USB hub, while supporting Low, Full and Hi-Speed (if operating as a Hi-Speed hub) downstream devices on all enabled downstream ports. Additionally, extremely low current standby and bypass mode features make the device well-suited for mobile, battery-powered embedded systems where power consumption, small package size, minimal BOM and Battery Charger (BC) detection capabilities are critical design requirements.

### Target Applications

- Mobile phones
- Tablet computers
- Ultra-mobile PCs
- e-Readers
- Digital still cameras
- Digital video camcorders
- Gaming consoles
- PDAs
- Portable media players
- GPS personal navigation devices
- Media players/viewers



### Highlights

- Integrated USB 2.0-compatible 3-port hub
- Advanced power saving features including 1  $\mu$ A standby current
- Bypass Switch for low power, single port operation
- USB-IF BC 1.1 detection
- Supports Single or Multi-TT configurations for Full and Low-Speed connections
- Enhanced configuration options available through serial I<sup>2</sup>C™ slave port
- Internal default configuration option when serial I<sup>2</sup>C host is not available
- Incorporates proprietary Microchip technologies: MultiTRAK™ technology, PortMap, PortSwap, PHYBoost, VariSense™ technology and flexPWR® technology
- External 12, 19.2, 26 or 38.4 MHz clock inputs
- Internal 3.3V and 1.2V voltage regulators for single supply operation
- USB Port ESD Protection (DP/DM) up to  $\pm 15$  kV (IEC 61000-4-2)
- Commercial (0° to 70°C) and industrial (-40° to 85°C) temperature range options
- 25-ball WLCSP, 1.95 × 1.95 mm, RoHS-compliant package

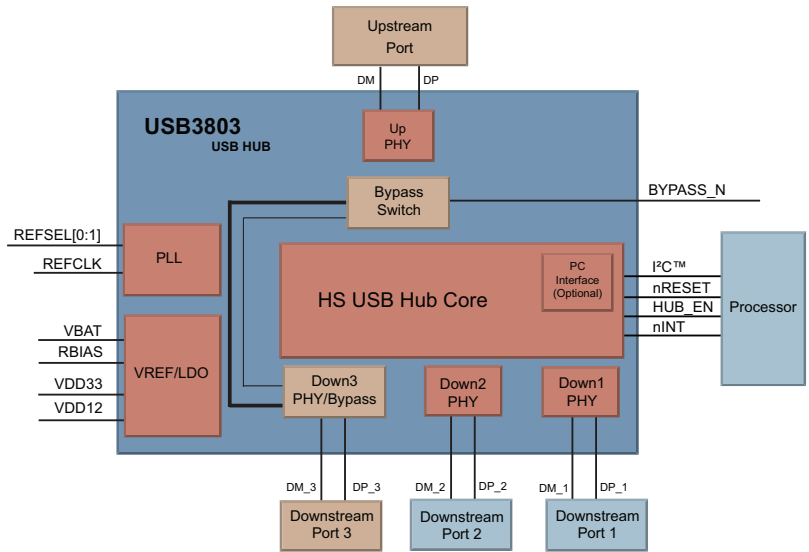


**MICROCHIP**

# USB3803 Block Diagram

## Bypass Switch in "Low Power Mode"

- Battery Charging detection using a PMIC
- Stereo and mono/mic audio
- USB 1.1 data
- USB 2.0 data capable (embedded applications)



## USB3803 Application Examples

External	Embedded	Internal
<p><b>Upstream port of the hub exposed to outside of mobile product</b></p> <ul style="list-style-type: none"> <li>■ Capability to bypass hub for OTG/host applications</li> <li>■ Applications can include mobile phones, tablets, datacards, etc.</li> <li>■ Capability to flash/program two processors simultaneously</li> </ul>	<p><b>Upstream port used to host different modems or chips in mobile product</b></p> <ul style="list-style-type: none"> <li>■ Examples include Wi-Fi®, LTE and BT modems</li> <li>■ Many processors only have single or dual USB lanes</li> </ul>	<p><b>Upstream port connected to processor and downstream ports are external or embedded</b></p> <ul style="list-style-type: none"> <li>■ Traditional hub case for a notebook/PC or tablet</li> <li>■ Enables embedded use of ports for modem, Wi-Fi, Bluetooth®, etc.</li> <li>■ Allows external user access to downstream port(s)</li> </ul>

## USB3803 Selector Guide

Order Number	Temperature Range	Package Type	Reel Size
USB3803C-1-GL-TR	0 to 70°C	25-ball WLCSP	3000 pieces
USB3803Ci-1-GL-TR	-40 to 85°C	25-ball WLCSP	3000 pieces



**MICROCHIP**

[www.microchip.com/usb](http://www.microchip.com/usb)

Visit our web site for additional product information and to locate your local sales office.

Microchip Technology Inc. • 2355 W. Chandler Blvd. • Chandler, AZ 85224-6199

**Microcontrollers • Digital Signal Controllers • Analog • Memory • Wireless**

Information subject to change. The Microchip name and logo, the Microchip logo, and flexPWR are registered trademarks and VariSense and MultiTRAK are trademarks of Microchip Technology Incorporated in the U.S.A. and other countries. All other trademarks mentioned herein are property of their respective companies. © 2013, Microchip Technology Incorporated. All Rights Reserved. Printed in the U.S.A. 12/13 DS00001612A