



USB331x Family



Highly Integrated, Hi-Speed USB 2.0 ULPI Transceiver Family for Portable Consumer Electronics Applications

The USB331x family of Hi-Speed USB 2.0 transceivers provides a highly integrated, small footprint solution designed for portable consumer electronics devices including cell phones, PDAs, portable media players and GPS/personal navigation devices. The USB331x family eliminates the need for external USB switches and electrostatic discharge (ESD) protection devices, which minimizes eBOM part count and printed circuit board (PCB) area. The USB331x provides an extremely flexible solution which allows the USB connector to act as a single port of connection for high speed data transfer, battery charging and stereo/mono audio accessories.

Highlights

- Highly integrated, Hi-Speed USB 2.0 transceivers
 - Integrated USB switch
 - Internal ESD protection circuits
 - Integrated 3.3V LDO regulator
 - External passive components minimized
- Industry's best current ESD performance in a Hi-Speed USB transceiver
 - ±8kV HBM
 - ±8kV/±15kV IEC (contact/air)
 - No external ESD protection circuits required
- Ability to use the USB connector as a single port of connection
 - Switch Hi-Speed data, battery charging and stereo/mono audio accessories
- SMSC flexPWR™ technology
 - Variable I/O voltage capability (fixed 1.8V or a range of 1.8V to 3.3V)
 - Low power and standby modes of operation to minimize power consumption
- Flexible reference clock to support major system clock frequencies - 13MHz, 19.2MHz, 24MHz and 26MHz
- Robust design tolerates “noisy” clock and power supplies
- Small package size and very low eBOM part count
- Hi-Speed USB On-The-Go (OTG) - host and device capable
- Supports commercial (0° to 70°C) and industrial (-40° to 85°C) temperature ranges

Target Applications

- Cell Phones
- Smart Phones
- PDAs
- GPS Personal Navigation Devices
- Personal Media Players (PMPs)
- Digital Still and Video Cameras
- External Hard Disk Drives
- Printers
- Set-top Boxes
- Digital TVs
- Gaming Consoles
- Industrial Systems

Features and Benefits

FEATURES	BENEFITS
Integrated USB switch and ESD protection	Provides lower eBOM part count and smaller PCB footprint area
USB utilized as a single port of connection	Reduction of end product size and cost
SMSC flexPWR technology	Longer battery life
Flexible and easy-to-use solution	Faster time-to-market and lower product development cost
Multiple clock input frequencies supported	Eliminates cost and size of external crystal oscillator for typical systems
Ability to tolerate “noisy” clocks and power supplies	Does not require costly filtering or clock generator circuits to preserve Hi-Speed eye diagram integrity
Small package footprint	Efficient PCB board space utilization

What is SMSC flexPWR™ Technology?



SMSC flexPWR provides:

- Low current design well-suited for battery powered applications
- Integrated battery to 3.3V linear regulator
- Variable I/O voltage to support a wide variety of processors
- Low current sleep mode tri-states all ULPI pins
- Allows OTG host to turn VBUS off to conserve battery

USB331x Integrates Four Functions into One Solution!

FUNCTION	CURRENT IMPLEMENTATION	SMSC SOLUTION
HI-SPEED USB TRANSCEIVER	Discrete	INTEGRATED SOLUTION! 2uF
USB SWITCH	Discrete	
REGULATOR	Discrete	
ESD PROTECTION	External	
CAPACITORS	4.7uF	

Which USB331x Family Member is Right for Your Design?

PART NUMBER	REFERENCE CLOCK FREQUENCY	I/O VOLTAGE	INTEGRATED USB SWITCH
USB3311	26MHz	1.8V	YES
USB3315	24MHz	1.8 - 3.3V	NO
USB3316	19.2MHz	1.8V	YES
USB3317	26MHz	1.8 - 3.3V	NO
USB3318	13MHz	1.8 - 3.3V	NO
USB3319	13MHz	1.8V	YES

Copyright ©2007 SMSC or its subsidiaries. All rights reserved. Although the information in this document has been checked and is believed to be accurate, no responsibility is assumed for inaccuracies. SMSC reserves the right to make changes to product descriptions and specifications at any time without notice. Contact your local SMSC sales office to obtain the latest specifications before placing your product order. The provision of this information does not convey any licenses under any patent rights or other intellectual property rights of SMSC or others. All sales are expressly conditional on your agreement to the terms and conditions of the most recently dated version of SMSC's standard Terms of Sale Agreement dated before the date of your order. Products may contain design defects or errors known as anomalies which may cause a product's functions to deviate from published specifications. Anomaly sheets are available upon request. SMSC products are not designed, intended, authorized or warranted for use in any life support or other application where product failure could cause or contribute to personal injury or severe property damage. Any and all such uses without prior written approval of an Officer of SMSC and further testing and/or modification will be fully at the risk of the customer. Copies of this document or other SMSC literature, as well as the Terms of Sale Agreement, may be obtained by visiting SMSC's website at <http://www.smsc.com>. SMSC and the SMSC logo are registered trademarks and SMSC flexPWR is a trademark of Standard Microsystems Corporation ("SMSC"). Other names mentioned may be trademarks of their respective holders. All claims made herein speak as of the date of this material. The company does not undertake to update such statements. (6/07)

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Microchip:](#)

[USB3313D-CP-TR](#)