

# USB333x/334x USB Transceiver Family

Hi-Speed USB 2.0 Transceiver Family Featuring RapidCharge Anywhere™  
for Smartphones and Other Portable Devices



SMSC's USB333x/334x family of Hi-Speed USB 2.0 transceivers delivers enhanced USB functionality for the portable market with support for the latest USB-IF Battery Charging 1.1 (BC 1.1) specification. This family of devices dramatically reduces the time required for battery charging and system bill-of-material (BOM) costs by up to 60% over competitive solutions. SMSC has positioned itself as a leader in providing innovative solutions in support of BC 1.1. The new USB333x/334x provides an excellent compliment to USB charging ports by enabling portable devices to negotiate up to three times the charging current compared to a standard USB port, resulting in faster battery charging. The USB333x/334x is designed in a small footprint package and reduces the number of external components through the integration of voltage regulators and other discretes. Additionally, SMSC's complimentary and confidential USBCheck™ online design review service is available for customers who select the USB333x/334x for their application design-in\*.

## Highlights

- Highly-integrated, Hi-Speed USB 2.0 transceivers
  - Integrated VBUS over-voltage protection (up to +30V)
  - Integrated USB switch enables connector as a single port for data, charging and audio
- Extremely high ESD performance in a Hi-Speed USB transceiver
  - ±8kV HBM with up to ±25kV IEC (contact/air)
- Supports a wide variety of common reference clock frequencies
- USB-IF Battery Charger revision 1.1 support
- Ultra-low standby current
- "Wrapper-less" architecture for optimized timing performance
- Hi-Speed USB On-The-Go (OTG) revision 2.0 compliant
- Link Power Management (LPM)
- Industrial (-40° to 85°C) temperature range options available
- WLCSP, RoHS-compliant package (USB333x)
- QFN, RoHS-compliant package (USB334x)

## Target Applications

- Digital Still/Video Cameras
- Smartphones/Cell Phones
- GPS Personal Navigation Devices
- MP3/Portable Media Players (PMPs)
- External Hard Disk Drives
- Gaming Consoles

## Features

Single supply operation	Eliminates need for external regulators
Integrated VBUS over-voltage protection (OVP)	Eliminates need for costly external OVP IC
Integrated USB switch and ESD protection	Enables lower BOM part count and smaller PCB footprint area
flexPWR® technology providing extremely low power consumption	Longer battery life and variable I/O voltage capability
Multiple clock input frequencies supported	Allows USB PHY to operate from the system clock, eliminating the need for an external crystal oscillator for the USB PHY
Extremely small package footprint	Efficient PCB board space utilization

## Benefits





## SMSC RapidCharge Anywhere Provides:

- 3X the charging current through a USB port over traditional solutions
- USB-IF Battery Charging 1.1 support to any portable device
- Charging current up to 1.5Amps via compatible USB host or dedicated charger
- Dedicated Charging Port (DCP), Charging (CDP) and Standard (SDP) Downstream Port support
- Complete USB charging ecosystem between device and host

## USB333X/334X FAMILY INTEGRATES EIGHT FUNCTIONS INTO ONE SOLUTION!

FUNCTION	COMPETITION	SMSC SOLUTION
<b>USB PHY</b>	Discrete	<div style="text-align: center; background-color: #f4a460; padding: 20px;"> <h1>SINGLE SOLUTION!</h1> <p>Only 1.0uF Required</p> </div>
<b>USB Switch**</b>	Discrete	
<b>1.8V Regulator</b>	Discrete	
<b>3.3V Regulator</b>	Discrete	
<b>Battery Charger 1.1 Detection</b>	Discrete	
<b>ESD Protection</b>	External	
<b>VBUS OVP</b>	External	
<b>Crystal Oscillator</b>	External	
<b>Capacitors</b>	4.7uF Required	

## USB333X FAMILY SELECTOR GUIDE

Part Number	Package	Reference Frequency***	I/O Voltage	Integrated Switch
USB3330	WLCSP	Multi	1.8V	No
USB3331		26MHz	1.8V	Yes
USB3333		19.2/26MHz	1.8 - 3.3V	No
USB3336		19.2MHz	1.8V	Yes
USB3338		38.4MHz	1.8V	No

## USB334X FAMILY SELECTOR GUIDE

Part Number	Package	Reference Frequency***	I/O Voltage	Integrated Switch
USB3340	QFN	Multi	1.8 - 3.3V	Yes
USB3341		26MHz	1.8V	Yes
USB3343		26MHz Crystal	1.8 - 3.3V	No
USB3346		19.2MHz	1.8V	Yes

\*USBCheck online design review service requires an SMSC e-Services account and is subject to the terms and conditions listed on SMSC's website

\*\* Integrated USB switch available on select part numbers

\*\*\* All parts support ULPI clock 60MHz in mode

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