



STULPI01A STULPI01B

HS USB ULPI transceiver

Data Brief

Features

- Fully compliant with:
Universal Serial Bus Specification Revision 2.0, On-The-Go Supplement to the USB 2.0 Spec. Rev. 1.0a, UTMI+ Low Pin Interface transceiver specification 1.1
- Fully compliant with ULPI 1.1 register set
- Supports high-speed (480 Mbit/s), full-speed (12 Mbit/s) and low-speed (1.5 Mbit/s) modes of operation
- Integrated HS termination and FS/LS/OTG pull-up/ pull-down resistors
- Supports both single (SDR) and Dual-edge data rate (DDR) on ULPI interface
- Supports Session Request Protocol (SRP) and Host Negotiation Protocol (HNP) for dual-role-device features
- Ability to control ext. charge pump for higher V_{BUS} currents
- External square wave clock with 1V8VIO amplitude must be applied to oscillator input XI
- On request 19.2 MHz or 26 MHz oscillator frequency, external crystal version, can be provided
- Supports 2.7 V UART mode
- Single supply, +3 V to +4.5 V voltage range
- Integrated dual voltage regulator to supply internal circuits with stable 3.3 V and 1.2 V
- Integrated over current detector
- Integrated USB2.0 §7.1.1 "Short Circuit Withstand" protection
- Power down mode with very low power consumption for battery-powered devices
- -40°C to 85°C operating temperature range
- Available in μ TFBGA36 RoHS package



Applications

- Mobile phones
- PDAs
- MP3 players
- Digital still cameras
- Video camera
- Printer
- Navigation system
- Set top box

Description

The STULPI01 is a high-speed ULPI (UTMI+ Low Pin Interface), USB OTG transceiver which provides complete physical layer solution for any high speed USB host, device or OTG dual role core. It allows USB ASICs to interface with the physical layer of the USB through 12-pin or 8-pin interface. It contains V_{BUS} comparators, ID line detector, complete ULPI register map and interrupt generator, and the USB differential driver and receivers. The STULPI01 transceiver is suitable for mobile applications and battery powered devices thanks to its low power consumption and power down operating mode.

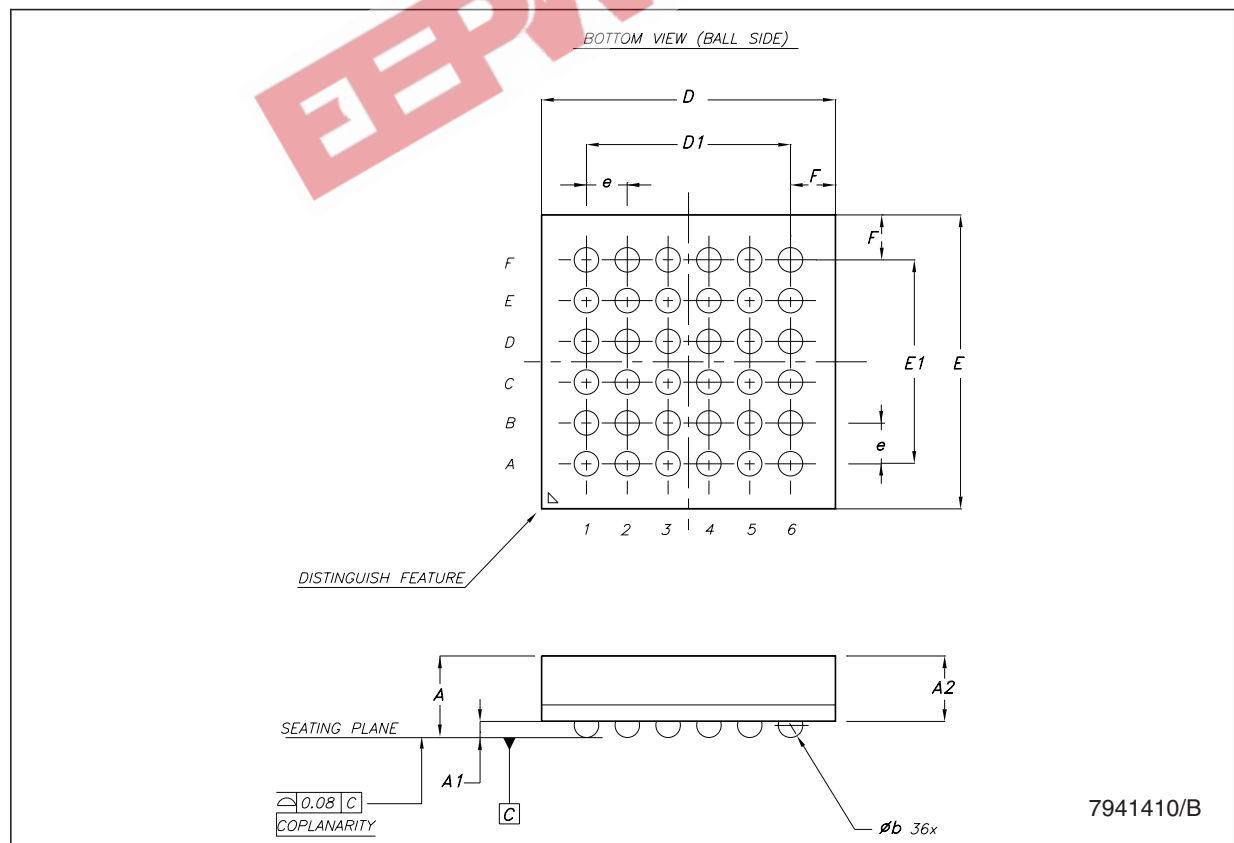
1 Package mechanical data

In order to meet environmental requirements, ST offers these devices in ECOPACK[®] packages. These packages have a Lead-free second level interconnect. The category of second Level Interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com.

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TFBGA36 mechanical data

Dim.	mm.			mils.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.0	1.1	1.16	39.4	43.3	45.7
A1			0.25			9.8
A2	0.78		0.86	30.7		33.9
b	0.25	0.30	0.35	9.8	11.8	13.8
D	3.5	3.6	3.7	137.8	141.7	145.7
D1		2.5			98.4	
E	3.5	3.6	3.7	137.8	141.7	145.7
E1		2.5			98.4	
e		0.5			19.7	
F		0.55			21.7	



2 Order code

Table 1. Order code

Part numbers	Key differences	Package	Packaging
STULPI01ATBR	$f_{OSC}=19.2\text{MHz}$, CSn/PWRDN=0 "ON"	$\mu\text{TFBGA36}$ (3.6x3.6mm Typ)	3000 parts per reel
STULPI01BTBR	$f_{OSC}=26\text{MHz}$, CSn/PWRDN=0 "ON"	$\mu\text{TFBGA36}$ (3.6x3.6mm Typ)	3000 parts per reel

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3 Revision history

Table 2. Document revision history

Date	Revision	Changes
31-Aug-2007	1	First Issue

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