

TrueTouch[®] Single-Touch Touchscreen Controller

Features

- TrueTouch[®] capacitive touchscreen controller
 - True single-layer ITO sensor support – no bridges
 - Lowers touchscreen system cost
 - Single finger position reported
 - X, Y positions and Z magnitude reported
 - Screen sizes up to 3.5" diagonal
 - Up to 32 sense pins
 - Fat finger detection and tracking
 - Large object detection
 - Self-calibrating to environmental changes
 - Resistant to LCD noise
 - Robust operation in a noisy RF environment
 - 1.71 V to 5.5 V input supply range
 - Single supply voltage
 - Compatible with 1.8-V I²C signaling
 - Integrated voltage regulators – no need for dedicated voltage regulators
- Performance
 - Noise-free resolution: 0.1 mm
 - Accuracy with 1 finger on the touchscreen: 0.8 mm
 - >110-Hz refresh rate with one finger on the touchscreen
 - Best-in-class active power of 3.6 mW
 - Best-in-class low-power state current: 0.7 mA
 - Best-in-class deep sleep state current: 100 nA
- Extended feature set
 - Water rejection - no false touches
 - Capacitive buttons supported
 - On-chip gesture detection
 - Single-click, double-click
 - One-finger pan gestures
 - 2 finger Pinch/Zoom gestures

Second finger co-ordinate reported to support operating system gesture decoding
- Sensor and system design
 - Supports chip-on-flex and chip-on-board
 - Supports plastic film and glass touch sensors
 - Supports a variety of touchscreen sensor stackups
- Communication interface
 - I²C slave up to 400 kHz
 - SPI slave with 2 Mbps sustained data throughput
 - Field upgrades through integrated bootloader
- Host development kit (HDK)
 - Android driver support
 - Supports custom driver development
 - TrueTouch host emulator – acts as host for early prototyping
- Package options
 - 32-pin 5 × 5 × 0.55 mm QFN
 - 48-pin 7 × 7 × 1.0 mm QFN
 - 30-ball 2.2 × 2.32 × 0.4 mm WLCSP

Ordering Information

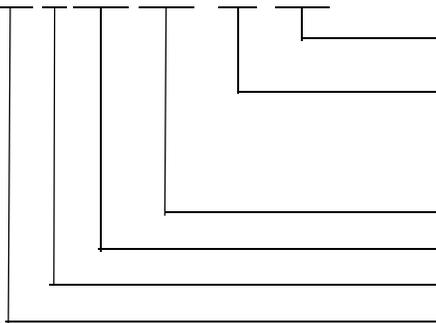
The following table lists the TrueTouch Standard Product Single Touch Touchscreen Controllers. For information on other TrueTouch families, visit <http://www.cypress.com/truetouch>.

Table 1. Device Ordering Information

Part Number	TrueTouch						Sensor		Minimum Interface Voltage	Supply Voltage Operating Range	Bootloader	I ² C	SPI	UART	Package
	Typical Screen Size (in.) (4:3 Aspect Ratio)	Maximum Nodes	Maximum Fingers	On-chip Gesture Decoding	True Single Layer Sensor	Large Object Detection	Glass	Film							
CY8CTST242-LQI-01(T)	3.5 ^[1]	24	2	✓	✓	✓	✓	✓	1.8	1.71-5.5	✓	✓	✓	✓	32-pin QFN
CY8CTST242-LTI-01(T)	3.5 ^[1]	32	2	✓	✓	✓	✓	✓	1.8	1.71-5.5	✓	✓	✓	✓	48-pin QFN
CP8CTST242-FNC-01T	3.5 ^[1]	24	2	✓	✓	✓	✓	✓	1.8	1.71-5.5	✓	✓	✓	✓	30-ball WLCSP

Ordering Code Definitions

Cx8 C TST 242 - xxx xx(T)



- Feature Set:** (T=Tape and Reel)
01 = Basic feature set
- Pins/Package Type:**
LQI = 36-Pin 0.6 mm Height QFN, Industrial grade
LTI = 48-Pin 1.0 mm Height QFN, Industrial grade
FNC = 30-Ball 0.4 mm Height WLCSP, Commercial grade
- Sub-family Identifier**
- Family Code:** TST = Single-Touch Controller
- Technology Code:** C = CMOS
- Marketing Code:** CY8 = Cypress PSoC
CP8 = Custom part Cypress PSoC

Note

1. A screen size of 3.5-inches is met using 6.1-mm pitch for 24-nodes devices and a 4.1-mm pitch for 32-node devices.

Document History Page

Document Title: CY8CTST242, TrueTouch® Single-Touch Touchscreen Controller				
Document Number: 001-91041				
Rev.	ECN No.	Orig. of Change	Submission Date	Description of Change
**	4278978	SWU	02/12/2014	New summary datasheet.

Sales, Solutions, and Legal Information

Worldwide Sales and Design Support

Cypress maintains a worldwide network of offices, solution centers, manufacturer’s representatives, and distributors. To find the office closest to you, visit us at [Cypress Locations](#).

Products

- Automotive cypress.com/go/automotive
- Clocks & Buffers cypress.com/go/clocks
- Interface cypress.com/go/interface
- Lighting & Power Control cypress.com/go/powerpsoc
cypress.com/go/plc
- Memory cypress.com/go/memory
- PSoC cypress.com/go/psoc
- Touch Sensing cypress.com/go/touch
- USB Controllers cypress.com/go/USB
- Wireless/RF cypress.com/go/wireless

PSoC® Solutions

- psoc.cypress.com/solutions
- [PSoC 1](#) | [PSoC 3](#) | [PSoC 4](#) | [PSoC 5LP](#)

Cypress Developer Community

- [Community](#) | [Forums](#) | [Blogs](#) | [Video](#) | [Training](#)

Technical Support

- cypress.com/go/support

© Cypress Semiconductor Corporation, 2014. The information contained herein is subject to change without notice. Cypress Semiconductor Corporation assumes no responsibility for the use of any circuitry other than circuitry embodied in a Cypress product. Nor does it convey or imply any license under patent or other rights. Cypress products are not warranted nor intended to be used for medical, life support, life saving, critical control or safety applications, unless pursuant to an express written agreement with Cypress. Furthermore, Cypress does not authorize its products for use as critical components in life-support systems where a malfunction or failure may reasonably be expected to result in significant injury to the user. The inclusion of Cypress products in life-support systems application implies that the manufacturer assumes all risk of such use and in doing so indemnifies Cypress against all charges.

Any Source Code (software and/or firmware) is owned by Cypress Semiconductor Corporation (Cypress) and is protected by and subject to worldwide patent protection (United States and foreign), United States copyright laws and international treaty provisions. Cypress hereby grants to licensee a personal, non-exclusive, non-transferable license to copy, use, modify, create derivative works of, and compile the Cypress Source Code and derivative works for the sole purpose of creating custom software and or firmware in support of licensee product to be used only in conjunction with a Cypress integrated circuit as specified in the applicable agreement. Any reproduction, modification, translation, compilation, or representation of this Source Code except as specified above is prohibited without the express written permission of Cypress.

Disclaimer: CYPRESS MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS MATERIAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Cypress reserves the right to make changes without further notice to the materials described herein. Cypress does not assume any liability arising out of the application or use of any product or circuit described herein. Cypress does not authorize its products for use as critical components in life-support systems where a malfunction or failure may reasonably be expected to result in significant injury to the user. The inclusion of Cypress’ product in a life-support systems application implies that the manufacturer assumes all risk of such use and in doing so indemnifies Cypress against all charges.

Use may be limited by and subject to the applicable Cypress software license agreement.