

TrueTouch[®] Multi-Touch All-Points Touchscreen Controller Datasheet

Features

- Multi-touch capacitive touchscreen controller
 - 32-bit ARM[®] Cortex[™] CPU
 - Register-configurable
 - Noise-suppression technologies for battery charger and display
 - Effective 14-V drive for higher signal-to-noise ratio (SNR)
 - ChargerArmor[™] for charger noise immunity
 - External display synchronization
 - Water rejection and wet-finger tracking using DualSense[™]
 - 2.5-mm passive stylus with automatic mode switching and palm rejection
 - Multi-touch glove with automatic mode switching
 - Ten fingers with thin glove (≤1-mm thick)
 - Two fingers with thick glove (≤5-mm thick)
 - Fingernail tracking
 - Large object rejection
 - Automatic baseline tracking to environmental changes
 - Low-power look-for-touch mode
 - Field upgrades via bootloader
 - Android[™] driver support
 - Cypress Manufacturing Test Kit (MTK)
 - Touchscreen sensor self-test and Panel ID reporting
- System performance (configuration dependent)
 - Screen sizes up to 7.0-inch diagonal
 - 5.0-mm electrode pitch; 16:9 aspect ratio
 - Screen sizes up to 5.5-inch diagonal
 - 4.0-mm electrode pitch; 16:9 aspect ratio
 - Up to 48 sense pins
 - 527 intersections (31 × 17)
- Reports up to ten fingers
- Small finger support down to 4 mm
- Large finger support up to 30 mm
- Refresh rate up to 300 Hz; other rates configurable
- TX frequency up to 500 kHz
- Best-in-class charger noise immunity
 - Immunity up to 35-V peak-to-peak (V_{PP})
 - Immunity to AT&T[®] Zero charger
- Power (configuration-dependent)
 - 1.71- to 1.95-V or 2.0- to 5.5-V digital and I/O supply
 - 2.65- to 4.7-V analog supply
 - 9-mW average power
 - 10.7- μ W typical deep-sleep power
- Sensor and system design (configuration-dependent)
 - Supports a variety of touchscreen sensors and stackups
 - Manhattan, diamond, Single-Layer Independent Multi-touch (SLIM[®]), and Totem-pole patterns
 - Sensor-on-Lens (SOL)
 - On-cell touch-integrated display modules
 - Plastic (PET) and glass-sensor substrates
 - LCD, AMOLED, and IPS displays
 - Metal mesh
 - Single-layer flexible printed circuit (FPC) routing enabled by flexible TX/RX configurations
- Communication interface
 - I²C slave at 100 and 400 kbps
 - SPI slave bit rates up to 8 Mbps
- Package
 - 56-pin 6 × 6 × 0.6-mm QFN (0.35-mm lead pitch)

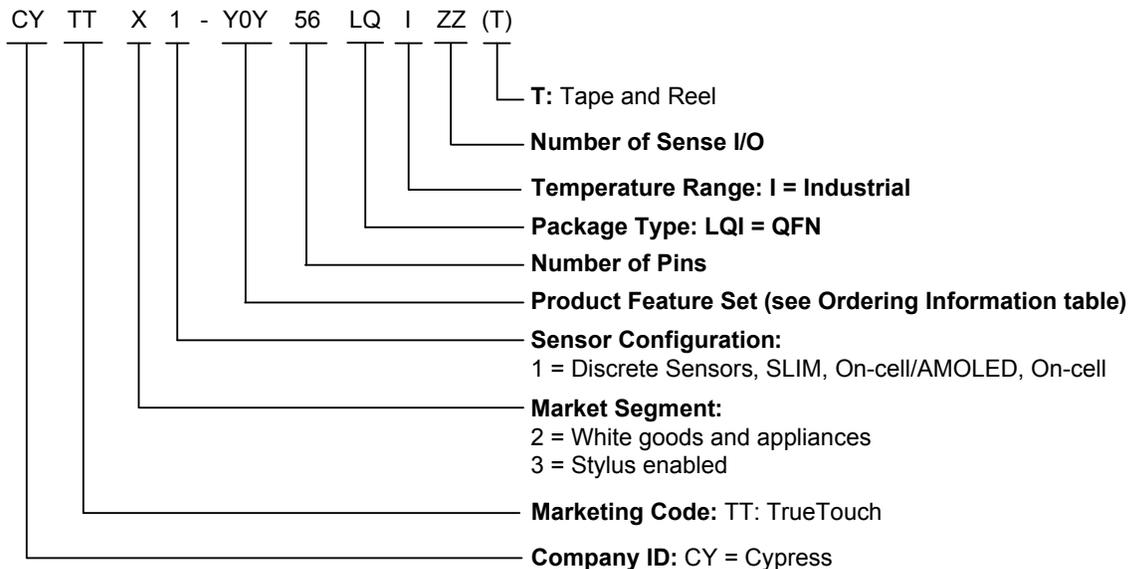
Ordering Information

Table 1 lists the CYTT21X/31X TrueTouch touchscreen controllers. For information on other TrueTouch families, visit <http://www.cypress.com/truetouch>.

Table 1. Ordering Information ^[1]

MPN	Top Marking	Features						Package
		Sense I/O	Max Touches	Charger Armor	Glove	Easy Wake ^[2]	Passive Stylus	
CYTT21100-56LQI48(T)	CYTT21000-56LQ	48	10	✓	–	–	–	56 QFN
CYTT21401-56LQI48(T)	CYTT21000-56LQ	48	10	✓	✓	–	–	56 QFN
CYTT21403-56LQI48(T)	CYTT21000-56LQ	48	10	✓	✓	✓	–	56 QFN
CYTT21100-56LQI44(T)	CYTT21001-56LQ	44	10	✓	–	–	–	56 QFN
CYTT21401-56LQI44(T)	CYTT21001-56LQ	44	10	✓	✓	–	–	56 QFN
CYTT21403-56LQI44(T)	CYTT21001-56LQ	44	10	✓	✓	✓	–	56 QFN
CYTT21100-56LQI40(T)	CYTT21001-56LQ	40	10	✓	–	–	–	56 QFN
CYTT21401-56LQI40(T)	CYTT21001-56LQ	40	10	✓	✓	–	–	56 QFN
CYTT21403-56LQI40(T)	CYTT21001-56LQ	40	10	✓	✓	✓	–	56 QFN
CYTT31702-56LQI48(T)	CYTT31000-56LQ	48	10	✓	✓	✓	✓	56 QFN

Ordering Code Definitions



Notes

1. All devices have the following base features: ChargerArmor, DualSense, CapSense buttons, Large Object Detection and Rejection, and Grip Suppression.
2. Easy-wake is a gesture made while the LCD is completely powered off to provide a quick and easy method to wake up a device and open a specific application. These gestures include finger swiping and tracing alphanumeric symbols.

Document History Page

Document Title: CYTT21X/31X (40, 44, 48 IOs) TrueTouch® Multi-Touch All-Points Touchscreen Controller Datasheet Document Number: 001-93968				
Revision	ECN	Orig. of Change	Submission Date	Description of Change
**	4621131	SWU	01/14/2015	New datasheet.
*A	4670224	SWU	02/25/2015	Updated Document Title.
*B	4688471	SWU	03/25/2015	Updated Document Title. Updated Features: Replaced "Immunity up to 15-V peak-to-peak (V _{PP})" with "Immunity up to 35-V peak-to-peak (V _{PP})". Updated Ordering Information: Updated Table 1: Updated part numbers. Added a column "Top Marking".
*C	5073152	ELG	01/05/2016	Updated Features: Removed "Face detection up to 20 mm". Removed "Windows® Phone 8.1 driver". Updated Ordering Information: Updated Table 1: Updated part numbers. Removed "Face Detection" column. Updated Ordering Code Definitions. Updated to new template. Completing Sunset Review.

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