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Spec No: 001-93968

Spec Title: CYTT21X/31X (40, 44, 48 IOS) TRUETOUCH(R) MULTI-TOUCH ALL-POINTS TOUCHSCREEN CONTROLLER DATASHEET (SUMMARY)

Replaced by: NONE

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SUMMARY

CYTT21X/31X (40, 44, 48 IOs)

TrueTouch® Multi-Touch All-Points Touchscreen Controller Datasheet

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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-µW 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
  - I^2C 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)

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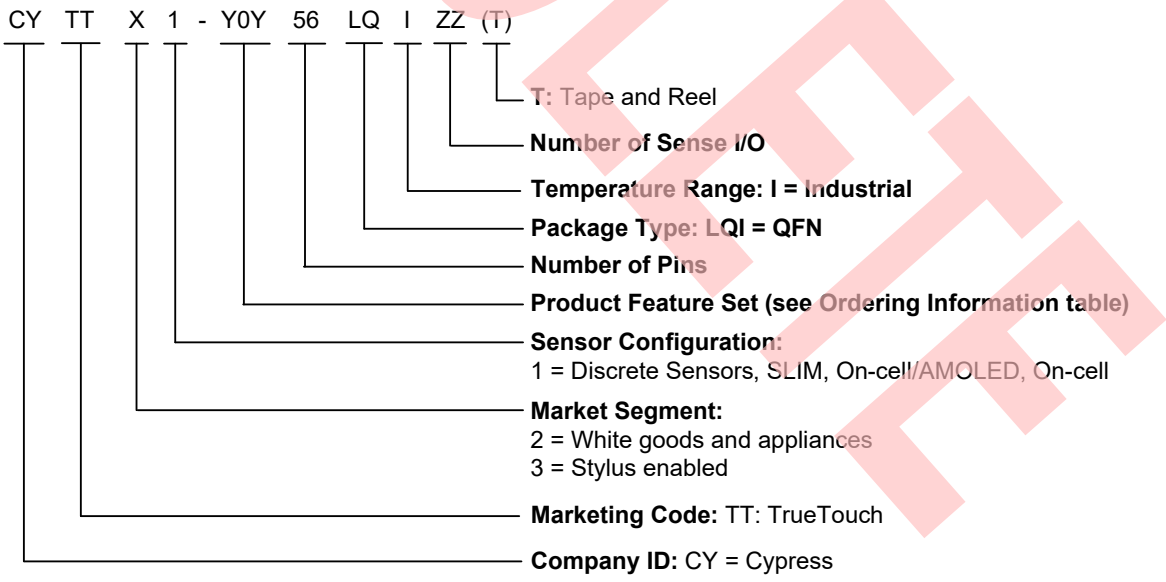
Ordering Information

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.

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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.
*D	6383043	ELG	11/14/2018	Obsoleting the spec.

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