SUMMARY

CYTT21XXX (28, 33, 35, 36 I/Os)

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 24-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™
  - 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
  - Grip suppression
  - 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 5.0-inch diagonal
    - 4.8-mm sensor pitch; 16:9 aspect ratio
  - Up to 36 sense pins
    - 308 intersections (22 × 14)
  - 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
  - 4-mW average power
  - 5.7-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)
    - 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[1]
- Package options
  - 44-pin 5 × 5 × 0.6-mm QFN (0.35-mm lead pitch)
  - 48-pin 6 × 6 × 0.6-mm QFN (0.4-mm lead pitch)

Note
1. SPI support is only available in 48-pin QFN package.

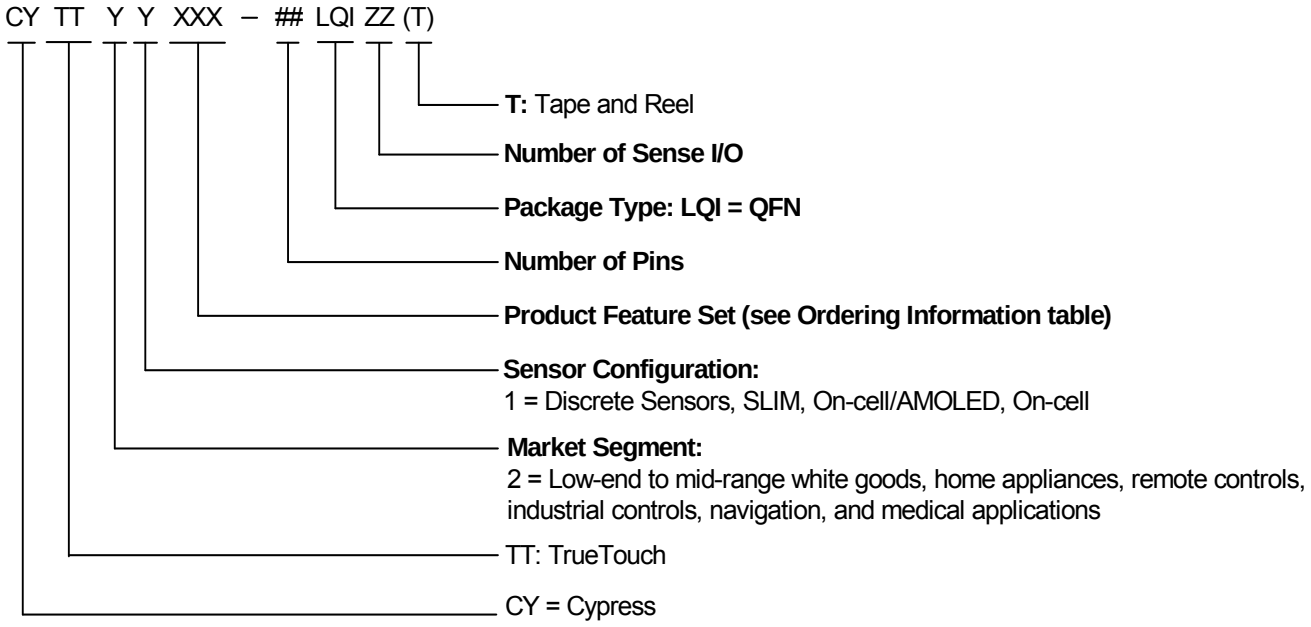
Ordering Information

Table 1 lists the CYTT21XXX TrueTouch touchscreen controllers. For information on other TrueTouch families, visit http://www.cypress.com/truetouch.

Table 1. Device Ordering Information

Part Number	Top Marking	TrueTouch					Package
		Sense I/O	Base Features[2]	Advanced Wet-finger Tracking	Glove	Easy Wake	Type
CYTT21100-44LQI28(T)	CYTT21000-44LQI	28	✔	–	–	–	44-Pin QFN
CYTT21401-44LQI28(T)	CYTT21000-44LQI	28	✔	✔	✔	–	44-Pin QFN
CYTT21402-44LQI28(T)	CYTT21000-44LQI	28	✔	✔	✔	✔	44-Pin QFN
CYTT21100-44LQI33(T)	CYTT21000-44LQI	33	✔	–	–	–	44-Pin QFN
CYTT21401-44LQI33(T)	CYTT21000-44LQI	33	✔	✔	✔	–	44-Pin QFN
CYTT21402-44LQI33(T)	CYTT21000-44LQI	33	✔	✔	✔	✔	44-Pin QFN
CYTT21100-44LQI35(T)	CYTT21000-44LQI	35	✔	–	–	–	44-Pin QFN
CYTT21401-44LQI35(T)	CYTT21000-44LQI	35	✔	✔	✔	–	44-Pin QFN
CYTT21403-44LQI35(T)	CYTT21000-44LQI	35	✔	✔	✔	✔	44-Pin QFN
CYTT21100-48LQI36(T)	CYTT21000-48LQI	36	✔	–	–	–	48-Pin QFN
CYTT21401-48LQI36(T)	CYTT21000-48LQI	36	✔	✔	✔	–	48-Pin QFN
CYTT21403-48LQI36(T)	CYTT21000-48LQI	36	✔	✔	✔	✔	48-Pin QFN

Ordering Code Definitions



Note
2. All devices have the following base features: Water Rejection, ChargerArmor, CapSense buttons, Large Object Detection and Rejection, and Grip Suppression.

Document History Page

Document Title: CYTT21XXX (28, 33, 35, 36 I/Os) TrueTouch® Multi-Touch All-Points Touchscreen Controller Datasheet Document Number: 001-96564				
Revision	**ECN**	**Orig. of Change**	**Submission Date**	**Description of Change**
**	4670224	SWU	02/25/2015	New datasheet.
*A	5141053	ELG	02/17/2016	Updated Ordering Information and Ordering Code Definitions.

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