SUMMARY

CYTMA448

TrueTouch® Multi-Touch All-Points Touchscreen Controller

Features

- Multi-touch capacitive touchscreen controller
  - 32-bit ARM Cortex™ CPU
  - Register configurable
  - Noise suppression technologies for battery charger and display
    - Effective 28-V TX 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
    - 10 fingers with thin glove (≤1-mm thickness)
    - 2 fingers with thick glove (≤5-mm thickness)
  - 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 8.3-inch diagonal
    - 5-mm sensor pitch, 16:9 aspect ratio
  - Screen sizes up to 5.3-inch diagonal
    - 3.2-mm sensor pitch, 16:9 aspect ratio
  - Up to 58 sense pins
    - 777 intersections (21 × 37)
  - Reports up to 10 fingers
  - Small finger support down to 4 mm
  - Large finger support up to 30 mm
  - Refresh rate up to 230 Hz
  - TX frequency up to 500 kHz
  - Fast first-touch response (≤13 ms)
  - Best-in-class charger noise immunity
    - Immunity up to 20 volts peak-to-peak (V_{PP})
    - Immunity to AT&T Zero charger noise
- Power (configuration dependent)
  - 1.71-V to 5.5-V digital and I/O supply
  - 2.65-V to 5.5-V analog supply
  - 8.5-mW average power
  - 15-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)
    - Touch-integrated display modules (on-cell, in-cell)
    - 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 all standard bit rates
    - 100 kbps, 400 kbps, 1 Mbps, and 3.4 Mbps
  - SPI slave bit rates up to 8 Mbps
- Package options
  - 56-pin 6 × 6 × 0.6-mm QFN (0.35-mm lead pitch)
  - 70-ball 5.5 × 5.5 × 0.6-mm BGA (0.5-mm ball pitch)

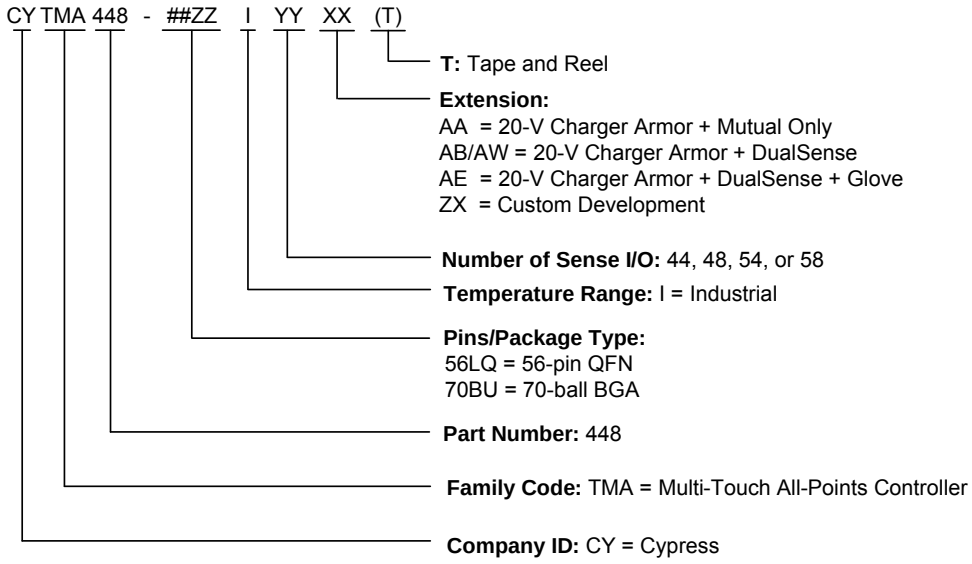
Ordering Information

Table 1 lists the CYTMA448 TrueTouch touchscreen controllers. For information on other TrueTouch families, visit http://www.cypress.com/truetouch.

Table 1. Device Ordering Information[1]

Segmentation	Part Number	Ext	Sense I/O	Typ Screen Size (inches)	Charger Armor	Configurable TX Slew rate
Base Part (Mutual Capacitance Only)	CYTMA448-56LQI	44AA(T)	44	6.0	✔	✔
	CYTMA448-70BUI	58AA(T)	58	7.9	✔	✔
Water Rejection (DualSense)	CYTMA448-56LQI	44AB(T)	44	6.0	✔	–
	CYTMA448-70BUI	48AB(T)	48	6.5	✔	–
	CYTMA448-70BUI	54AB(T)	54	7.2	✔	–
	CYTMA448-70BUI	58AB(T)	58	7.9	✔	–
	CYTMA448-56LQI	44AW(T)	44	6.0	✔	✔
	CYTMA448-70BUI	48AW(T)	48	6.5	✔	✔
	CYTMA448-70BUI	54AW(T)	54	7.2	✔	✔
	CYTMA448-70BUI	58AW(T)	58	7.9	✔	✔
Glove and Water Rejection (DualSense)	CYTMA448-56LQI	44AE(T)	44	6.0	✔	✔
	CYTMA448-70BUI	54AE(T)	54	7.2	✔	✔
	CYTMA448-70BUI	58AE(T)	58	7.9	✔	✔
Custom / Kits	CYTMA448-56LQI	44ZX(T)	44	6.0	✔	✔
	CYTMA448-70BUI	58ZX(T)	58	7.9	✔	✔

Ordering Code Definitions



Notes
1. All devices have the following base features: 10-V TX, CapSense Buttons, Large Object Detection and Rejection, and Grip Suppression.

Document History Page

Document Title: CYTMA448, TrueTouch® Multi-Touch All-Points Touchscreen Controller Document Number: 001-90890				
Rev.	**ECN**	**Orig. of Change**	**Submission Date**	**Description of Change**
**	4256331	KXK	01/30/2014	New datasheet.
*A	4392605	SWU	05/28/2014	Updated average power from 12 mW to 8.5 mW to match validated active power.
*B	4399204	SWU	06/04/2014	Added AB MPN.
*C	5284373	ELG	05/26/2016	Removed Windows Phone Support. Revised grammar for charger noise. Aligned charger noise support in order information table with features list. Updated template.

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