

# TrueTouch<sup>®</sup> Multi-Touch All-Points Touchscreen Controller Datasheet

## Features

- Multi-touch capacitive touchscreen controller
  - 32-bit ARM<sup>®</sup> Cortex<sup>™</sup> CPU
  - Register-configurable
  - Noise-suppression technologies for battery charger and display
    - Effective 24-V drive for higher signal-to-noise ratio (SNR)
    - ChargerArmor<sup>™</sup> for charger noise immunity
    - External display synchronization
  - Water rejection and wet-finger tracking using DualSense<sup>™</sup>
  - Multi-touch glove with automatic mode switching
  - Fingernail tracking
  - Large object rejection
  - Automatic baseline tracking to environmental changes
  - Low-power look-for-touch mode
  - Field upgrades via bootloader
  - Android<sup>™</sup> and Windows<sup>®</sup> Phone 8 driver support
  - Cypress Manufacturing Test Kit (MTK)
  - Touchscreen sensor self-test and Panel ID reporting
- System performance (configuration-dependent)
  - Screen sizes up to 3.0-inch diagonal
  - Up to 24 sense pins
    - 140 intersections (14 × 10)
  - Reports up to four 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<sub>PP</sub>)
    - Immunity to AT&T<sup>®</sup> Zero charger
- Power (configuration-dependent)
  - 1.71-V to 1.95-V or 2.0-V to 5.5-V digital and I/O supply
  - 2.65-V 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<sup>®</sup>), and Totem-pole patterns
    - Sensor-on-Lens (SOL)
    - On-cell/hybrid in-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 transmit/receive (TX/RX) configurations
- Communication interface
  - I<sup>2</sup>C slave at 100 kbps and 400 kbps
- Package options
  - 34-ball 2.495-mm × 2.44-mm × 0.55-mm WLCSP (0.4-mm ball pitch)
  - 28-pin 4-mm × 4-mm × 0.4-mm QFN (0.4-mm lead pitch)

## Ordering Information

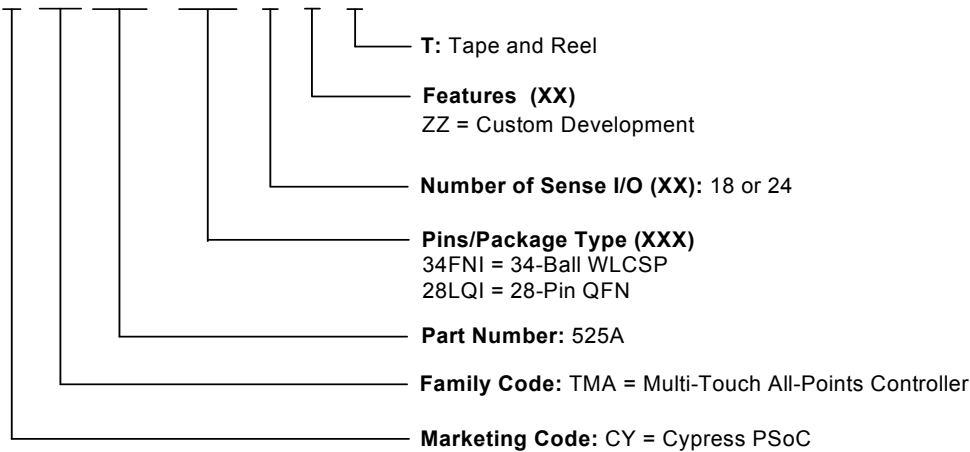
Table 1 lists the CYTMA525A TrueTouch touchscreen controllers. For information on other TrueTouch families, visit <http://www.cypress.com/truetouch>.

**Table 1. Device Ordering Information<sup>[1]</sup>**

Device Part Number		TrueTouch				Package
Segmentation	Part Number	Sense I/O	35-V <sub>pp</sub> Charger Armor	DualSense	Glove	Type
Custom	CYTMA525A-34FNI24ZZ(T)	24	✓	✓	✓	34-Ball WLCSP
	CYTMA525A-28LQI18ZZ(T)	18	✓	✓	✓	28-Pin QFN

## Ordering Code Definitions

CY TMA 525A - ##XXX ## XX (T)



**Note**

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

**Document History Page**

<b>Document Title: CYTMA525A TrueTouch® Multi-Touch All-Points Touchscreen Controller Datasheet</b>				
<b>Document Number: 001-96565</b>				
Revision	ECN	Orig. of Change	Submission Date	Description of Change
**	4670224	SWU	02/25/2015	New datasheet.

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