

# Automotive TrueTouch® Multi-Touch All-Points Touchscreen Controller

## Features

### ■ Automotive Electronics Council (AEC) Q100 qualified

### ■ Multi-touch capacitive touchscreen and touchpad controller

- 32-bit ARM Cortex CPU
- Register configurable
- Noise suppression technologies for display and EMI
  - On-chip 10-V TX supply for higher signal-to-noise ratio (SNR)
  - External display synchronization
- Water rejection and wet finger 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 ID reporting

### ■ System performance

- Screen sizes up to 10.1-inch diagonal
  - 5.5-mm sensor pitch, 4:3 aspect ratio
- Up to 65 sense pins
  - 1036 intersections, 4:3 aspect ratio (37 × 28)
- Reports up to 10 fingers
- Small finger support down to 5 mm
- Large finger support up to 22 mm
- Refresh rate up to 80 Hz; other rates configurable
- Fast first-touch response ( $\leq 37.5$  ms for a 10.1-inch panel)

### ■ Power (configuration dependent)

- 1.71-V to 5.5-V digital and I/O supply
- 2.60-V to 5.5-V analog supply
- 71-mW average power while sensing
- 45-μW typical deep-sleep power

### ■ Sensor and system design (configuration dependent)

- Supports a variety of touchscreen sensors and stackups
  - Manhattan and diamond patterns
  - Sensor-on-lens (SOL)
  - Plastic (PET) and glass sensor substrates
  - LCD and AMOLED displays
- Single on cell flexible printed circuit (FPC) routing enabled by flexible TX/RX configurations

### ■ I<sup>2</sup>C and SPI interface options

- I<sup>2</sup>C 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

- 100-pin TQFP, 14 × 14 × 1.4 mm, 0.5-mm pin-pitch

### ■ Temperature ranges

- Automotive-A: -40 °C to 85 °C
- Automotive-S: -40 °C to 105 °C

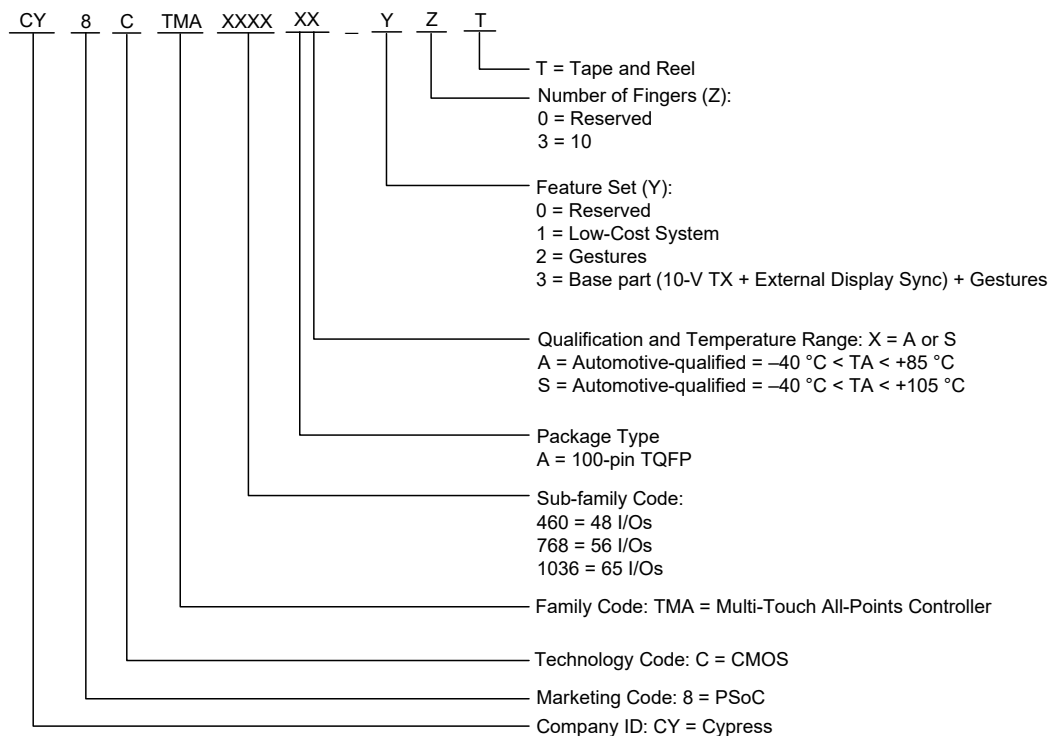
## Ordering Information

Table 1 lists the CY8CTMA1036/768/460 TrueTouch touchscreen controllers. For information on other TrueTouch families, visit <http://www.cypress.com/truetouch>.

**Table 1. Device Ordering Information**

Family	Marketing Part Number	Number of Sense Pins	Number of fingers	Capsense Buttons	Water Rejection	Object Detect and Reject	Glove Support	Gestures	10-V TX	External Display Sync	Package	Package Size	Silicon ID
Low cost	CY8CTMA460AA-13	48	10	✓	✓	✓	✓	–	–	–	100 TQFP	14 × 14 × 1.4 mm	0x01832390
	CY8CTMA460AS-13	48	10	✓	✓	✓	✓	–	–	–	100 TQFP	14 × 14 × 1.4 mm	0x01842390
	CY8CTMA768AA-13	56	10	✓	✓	✓	✓	–	–	–	100 TQFP	14 × 14 × 1.4 mm	0x01752390
	CY8CTMA768AS-13	56	10	✓	✓	✓	✓	–	–	–	100 TQFP	14 × 14 × 1.4 mm	0x01762390
	CY8CTMA1036AA-13	65	10	✓	✓	✓	✓	–	–	–	100 TQFP	14 × 14 × 1.4 mm	0x01772390
	CY8CTMA1036AS-13	65	10	✓	✓	✓	✓	–	–	–	100 TQFP	14 × 14 × 1.4 mm	0x01782390
Gestures	CY8CTMA460AA-23	48	10	✓	✓	✓	✓	✓	–	–	100 TQFP	14 × 14 × 1.4 mm	0x01852390
	CY8CTMA460AS-23	48	10	✓	✓	✓	✓	✓	–	–	100 TQFP	14 × 14 × 1.4 mm	0x01862390
	CY8CTMA768AA-23	56	10	✓	✓	✓	✓	✓	–	–	100 TQFP	14 × 14 × 1.4 mm	0x01792390
	CY8CTMA768AS-23	56	10	✓	✓	✓	✓	✓	–	–	100 TQFP	14 × 14 × 1.4 mm	0x017A2390
	CY8CTMA1036AA-23	65	10	✓	✓	✓	✓	✓	–	–	100 TQFP	14 × 14 × 1.4 mm	0x017B2390
	CY8CTMA1036AS-23	65	10	✓	✓	✓	✓	✓	–	–	100 TQFP	14 × 14 × 1.4 mm	0x017C2390
Base	CY8CTMA460AA-33	48	10	✓	✓	✓	✓	✓	✓	✓	100 TQFP	14 × 14 × 1.4 mm	0x01872390
	CY8CTMA460AS-33	48	10	✓	✓	✓	✓	✓	✓	✓	100 TQFP	14 × 14 × 1.4 mm	0x01882390
	CY8CTMA768AA-33	56	10	✓	✓	✓	✓	✓	✓	✓	100 TQFP	14 × 14 × 1.4 mm	0x017D2390
	CY8CTMA768AS-33	56	10	✓	✓	✓	✓	✓	✓	✓	100 TQFP	14 × 14 × 1.4 mm	0x017E2390
	CY8CTMA1036AA-33	65	10	✓	✓	✓	✓	✓	✓	✓	100 TQFP	14 × 14 × 1.4 mm	0x017F2390
	CY8CTMA1036AS-33	65	10	✓	✓	✓	✓	✓	✓	✓	100 TQFP	14 × 14 × 1.4 mm	0x01802390
Custom	CY8CTMA1036AA-00	65	10	✓	✓	✓	✓	✓	✓	✓	100 TQFP	14 × 14 × 1.4 mm	0x01812390
	CY8CTMA1036AS-00	65	10	✓	✓	✓	✓	✓	✓	✓	100 TQFP	14 × 14 × 1.4 mm	0x01822390

### Ordering Code Definitions



**Document History Page**

Document Title: CY8CTMA1036/768/460 Automotive TrueTouch® Multi-Touch All-Points Touchscreen Controller Document Number: 001-94115				
Revision	ECN	Orig. of Change	Submission Date	Description of Change
**	4495966	KAUL	09/09/2014	New summary datasheet.
*A	5718187	AESATMP7	04/28/2017	Updated Cypress Logo and Copyright.
*B	5861817	ANEE	08/30/2017	Updated <a href="#">Ordering Code Definitions</a> . Updated Sales page and Copyright information.

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