

# CY8CTMA1036/768/460

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

# Features

■ Automotive Electronics Council (AEC) Q100 qualified

SUMMARY

- 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<sup>™</sup> 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
- $\Box$  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	
	CY8CTMA768AA-13	56	10	~	~	~	~	-	-	-	100 TQFP	14 × 14 ×1.4 mm	
	CY8CTMA768AS-13	56	10	~	~	~	~	-	-	-	100 TQFP	14 × 14 ×1.4 mm	
	CY8CTMA1036AA-13	65	10	~	~	~	~	-	-	-	100 TQFP	14 × 14 ×1.4 mm	0x01772390
	CY8CTMA1036AS-13	65	10	~	~	~	~	-	-	-	100 TQFP	14 × 14 ×1.4 mm	0x01782390
	CY8CTMA460AA-23	48	10	~	~	~	~	~	-	-	100 TQFP	14 × 14 ×1.4 mm	0x01852390
	CY8CTMA460AS-23	48	10	~	~	~	~	~	-	-	100 TQFP	14 × 14 ×1.4 mm	0x01862390
Gestures	CY8CTMA768AA-23	56	10	~	~	~	~	~	-	-	100 TQFP	14 × 14 ×1.4 mm	0x01792390
	CY8CTMA768AS-23	56	10	~	~	5	5	~	-	-	100 TQFP	14 × 14 ×1.4 mm	0x017A2390
	CY8CTMA1036AA-23	65	10	>	~	>	>	~	-	-	100 TQFP	14 × 14 ×1.4 mm	0x017B2390
	CY8CTMA1036AS-23	65	10	~	~	5	5	~	-	-	100 TQFP	14 × 14 ×1.4 mm	0x017C2390
Base	CY8CTMA460AA-33	48	10	2	~	2	2	~	2	2	100 TQFP	14 × 14 ×1.4 mm	0x01872390
	CY8CTMA460AS-33	48	10	2	~	2	2	~	2	2	100 TQFP	14 × 14 ×1.4 mm	0x01882390
	CY8CTMA768AA-33	56	10	~	~	~	~	~	2	~	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**

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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.				
*В	5861817	ANEE	08/30/2017	Updated Ordering Code Definitions. Updated Sales page and Copyright information.				



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