

Automotive TrueTouch® Multi-Touch All-Points Touchscreen Controller

General Description

CY8CTMA884/CY8CTMA616 is a single-chip solution for touchscreen applications. It delivers up to 884-node, high-performance, mutual-capacitive sensing for screen sizes of 5.5-inch to 11.6-inch designs. It employs TrueTouch® Multi-Touch All-Points sensing to track up to 10 fingers simultaneously with no ghosting, and delivers up to 100-Hz refresh rate with 0.5-mm accuracy.

Features

- Automotive Electronics Council (AEC) Q100 qualified
- TrueTouch capacitive touchscreen controller
 - High-performance single-chip mutual-capacitance sensing
 - Up to 100-Hz single-finger refresh rate
 - Scan rate versus signal-to-noise ratio (SNR) trade-off for optimum system performance design
 - TrueTouch Multi-Touch All-Points sensing with up to 884 sense nodes
 - Screen sizes up to 11.6 inches
 - 10-finger simultaneous multi-touch tracking
 - 0.5-mm accuracy
 - 12-mm finger separation with 9-mm fingers
 - Supports up to 26 capacitive buttons
- Number of channels
 - Supports up to 60/50 sensor-driving I/Os: flexible configuration of column sensors, row sensors, and capacitive buttons
 - Supports typical sensor grid configuration
 - Up to 36 columns and up to 26 rows (max of 884 sense nodes with 34 columns and 26 rows) for TMA884
 - Up to 34 columns and up to 22 rows (max of 616 sense nodes with 28 columns and 22 rows) for TMA616
- Advanced capabilities
 - In-system configuration updates through I²C
 - Programmable power modes: Active (91 mW), Low Power (52 mW), and Deep Sleep (58 µW)
 - On-chip gesture support
 - Water rejection
- Signal processing
 - Advanced analog and digital filtering
 - Self-calibration
 - Large object rejection and suppression
 - EMI immunity
- Communication interface
 - I²C
 - Dedicated bidirectional interrupt line
- 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 E: -40 °C to 125 °C

Document History Page

Document Title: CY8CTMA884/CY8CTMA616, Automotive TrueTouch® Multi-Touch All-Points Touchscreen Controller Document Number: 001-94114				
Revision	ECN	Orig. of Change	Submission Date	Description of Change
**	4495966	KAUL	09/09/2014	New summary datasheet.
*A	5892454	ANEE	09/22/2017	Updated to new template. Completing Sunset Review.

Sales, Solutions, and Legal Information

Worldwide Sales and Design Support

Cypress maintains a worldwide network of offices, solution centers, manufacturer's representatives, and distributors. To find the office closest to you, visit us at [Cypress Locations](#).

Products

ARM® Cortex® Microcontrollers	cypress.com/arm
Automotive	cypress.com/automotive
Clocks & Buffers	cypress.com/clocks
Interface	cypress.com/interface
Internet of Things	cypress.com/iot
Memory	cypress.com/memory
Microcontrollers	cypress.com/mcu
PSoC	cypress.com/psoc
Power Management ICs	cypress.com/pmic
Touch Sensing	cypress.com/touch
USB Controllers	cypress.com/usb
Wireless Connectivity	cypress.com/wireless

PSoC® Solutions

[PSoC 1](#) | [PSoC 3](#) | [PSoC 4](#) | [PSoC 5LP](#)

Cypress Developer Community

[Forums](#) | [WICED IOT Forums](#) | [Projects](#) | [Video](#) | [Blogs](#) | [Training](#) | [Components](#)

Technical Support

cypress.com/support

© Cypress Semiconductor Corporation, 2014–2017. This document is the property of Cypress Semiconductor Corporation and its subsidiaries, including Spansion LLC ("Cypress"). This document, including any software or firmware included or referenced in this document ("Software"), is owned by Cypress under the intellectual property laws and treaties of the United States and other countries worldwide. Cypress reserves all rights under such laws and treaties and does not, except as specifically stated in this paragraph, grant any license under its patents, copyrights, trademarks, or other intellectual property rights. If the Software is not accompanied by a license agreement and you do not otherwise have a written agreement with Cypress governing the use of the Software, then Cypress hereby grants you a personal, non-exclusive, nontransferable license (without the right to sublicense) (1) under its copyright rights in the Software (a) for Software provided in source code form, to modify and reproduce the Software solely for use with Cypress hardware products, only internally within your organization, and (b) to distribute the Software in binary code form externally to end users (either directly or indirectly through resellers and distributors), solely for use on Cypress hardware product units, and (2) under those claims of Cypress's patents that are infringed by the Software (as provided by Cypress, unmodified) to make, use, distribute, and import the Software solely for use with Cypress hardware products. Any other use, reproduction, modification, translation, or compilation of the Software is prohibited.

TO THE EXTENT PERMITTED BY APPLICABLE LAW, CYPRESS MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS DOCUMENT OR ANY SOFTWARE OR ACCOMPANYING HARDWARE, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. To the extent permitted by applicable law, Cypress reserves the right to make changes to this document without further notice. Cypress does not assume any liability arising out of the application or use of any product or circuit described in this document. Any information provided in this document, including any sample design information or programming code, is provided only for reference purposes. It is the responsibility of the user of this document to properly design, program, and test the functionality and safety of any application made of this information and any resulting product. Cypress products are not designed, intended, or authorized for use as critical components in systems designed or intended for the operation of weapons, weapons systems, nuclear installations, life-support devices or systems, other medical devices or systems (including resuscitation equipment and surgical implants), pollution control or hazardous substances management, or other uses where the failure of the device or system could cause personal injury, death, or property damage ("Unintended Uses"). A critical component is any component of a device or system whose failure to perform can be reasonably expected to cause the failure of the device or system, or to affect its safety or effectiveness. Cypress is not liable, in whole or in part, and you shall and hereby do release Cypress from any claim, damage, or other liability arising from or related to all Unintended Uses of Cypress products. You shall indemnify and hold Cypress harmless from and against all claims, costs, damages, and other liabilities, including claims for personal injury or death, arising from or related to any Unintended Uses of Cypress products.

Cypress, the Cypress logo, Spansion, the Spansion logo, and combinations thereof, WICED, PSoC, CapSense, EZ-USB, F-RAM, and Traveo are trademarks or registered trademarks of Cypress in the United States and other countries. For a more complete list of Cypress trademarks, visit cypress.com. Other names and brands may be claimed as property of their respective owners.

Document Number: 001-94114 Rev. *A

Revised September 22, 2017

Page 3 of 3

PSoC Designer™ is a trademark and PSoC®, TrueTouch®, and CapSense® are registered trademarks of Cypress Semiconductor Corporation.

Purchase of I²C components from Cypress or one of its sublicensed Associated Companies conveys a license under the Philips I²C Patent Rights to use these components in an I²C system, provided that the system conforms to the I²C Standard Specification as defined by Philips. As from October 1st, 2006 Philips Semiconductors has a new trade name - NXP Semiconductors.