



**THE DATASHEET OF
TMA463-48LQI**



CYPRESS

RISE ABOVE THE NOISE WITH TRUETOUCH® GEN4

SILENCE THE COMPETITION WITH HIGH PERFORMANCE

TrueTouch®
Gen4

PRODUCT OVERVIEW

GEN4 AND GEN4X: HIGH-PERFORMANCE TOUCHSCREEN CONTROLLERS

TrueTouch® is known for outstanding noise performance. Gen4 raised the bar for touchscreen performance and Gen4X furthers Cypress's leadership in noise suppression.

EXPANDING DESIGN POSSIBILITIES

- 10 V Tx drives high signal-to-noise ratio (SNR) for reliable signal detection in noisy environments
- Low power consumption of 4.5 uW deep sleep
- Excellent accuracy and linearity, typical at 0.5 mm
- Glove, face detection, and passive stylus features to differentiate your device
- Large screen support up to 8.3" with Gen4X

BREAKTHROUGH NOISE-ELIMINATING SOLUTIONS

Touchscreens are plagued by two major noise sources: charger noise and display noise. The Gen4 family eliminates these challenges with innovative charger and display noise-suppression technology.



Charger Armor™ is an adaptive technology that listens for charger noise and activates advanced non-linear filtering, adaptive frequency hopping, and other techniques to eliminate both periodic and broadband noise for unmatched charger noise immunity.

Display Noise Elimination: The Gen4 family's display sync feature enables it to scan in the blanking times of the display, allowing for in-cell and direct lamination designs without a shield layer.

GEN4 FAMILY: A COMPLETE SOLUTION FOR ADVANCED APPLICATIONS

Gen4 and Gen4X do more than simply raise the standard for touchscreen performance. The complete ecosystem delivers total support for advanced applications:

- **Broadest IP Portfolio**
Cypress leads all other touchscreen controller manufacturers in capacitive touch IP
- **Display Integration Ready**
Designed to support on-cell and in-cell stackups, even with noisy displays
- **Complete Solution Support**
OS and manufacturing ready to reduce system cost
- **Accelerated Time to Market**
Easy design platform and in-house experts to get you to market faster



FLEXIBILITY IN DESIGN

The Gen4 family provides the ultimate design flexibility and system cost reduction with its ability to support both traditional on-stack or display integrated stackups, including single-layer sensors like SLIM®. This platform of single-chip solutions supports everything from mobile handsets to tablets. Gen4 provides 31, 35, 45, 56, and 65 Sense I/O offerings and can support screen sizes from 1.5" to 10.1". Gen4X is available in 28, 33, 36, and 58 Sense I/O options and supports screen sizes up to 8.3".



DUALSENSE™: PATENTED SELF + MUTUAL CAPACITANCE SENSING

TrueTouch is the only line of touchscreen controllers that can provide both self and mutual capacitance sensing on the same chip, and switch dynamically between the two in application. This unique ability gives you the best of both technologies by combining robust signal acquisition and the ability to sense the position of simultaneous touches. This enables Cypress to deliver our market-leading, built-in waterproofing capability that requires no additional films or coatings.

DESIGN FOR THE REAL WORLD

In addition to outstanding performance in noise and water, the Gen4 family delivers a better mobile device user experience with support for glove touch, passive stylus, and face detection. A 32-bit ARM Cortex processor delivers 150 Hz refresh rates to enable accurate sensing of small signals like those of a passive stylus or gloved finger. Whether you need to use your phone in freezing temperatures, jot down a few quick notes, or simply want to prevent accidental touch input while you're on a call, Cypress can enable the right features for the right task at the right time.

GET STARTED NOW

Start designing with TrueTouch today! Cypress offers evaluation kits for Gen4 and Gen4X, with the necessary design files, documentation, and software to get you running quickly. For more information or to request a kit, please contact your Cypress Sales Representative or visit us online at touch.cypress.com.



| Family | Solution | Max Sensors | Max Screen Size (in.) | Waterproof | Charger Armor | Package | Glove | Stylus | Face Detect | Hover |
|--------|----------|-------------|-----------------------|------------|---------------|--------------------------------|-------|--------|-------------|-------|
| Gen4 | TMA463 | 45 | 6 | Y | 10V | 44, 48, 56 QFN, 49 CSP, 60 BGA | Y | Y | Y | Y |
| | TMA768 | 56 | 8 | Y | 5V | 84 BGA | N | N | N | N |
| | TMA1036 | 65 | 10.1 | Y | 5V | 84 BGA | N | N | N | N |
| Gen4X | TMA445 | 36 | 5 | Y | 15V | 44, 48 QFN | Y | N | N | N |
| | TMA445A | 36 | 5 | Y | 15V | 44, 48 QFN | Y | N | Y | N |
| | TMA448 | 58 | 8.3 | Y | 15V | 56 QFN, 70 BGA | Y | N | N | N |

Cypress Semiconductor Corporation

198 Champion Court, San Jose CA 95134
 phone +1 408.943.2600 fax +1 408.943.6848
 toll free +1 800.858.1810 (U.S. only) Press "1" to reach your local sales representative

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 Doc#001-72903 Rev*E 10/2014/STVC/EVWR/ALGE



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