

CYPRESS

# SILENCE THE COMPETITION WITH TMA5X

HIGHEST PERFORMANCE IN THE TOUGHEST ENVIRONMENTS



## PRODUCT OVERVIEW

### INTRODUCTION

With the industry's highest signal-to-noise ratio (SNR), best waterproofing capability, and largest portfolio of proprietary noise immunity solutions, TrueTouch-powered devices enable a new era of touch interaction and creativity. The TMA5X family delivers unmatched noise immunity performance and advanced feature support for various touch input modes. TMA5X supports passive stylus with built-in palm rejection, thin and thick gloves, and hover detection for screen sizes up to 8.3", making it a premier choice for superphones, tablets, and even wearables.

### SURPASSING EXPECTATIONS WITH SUPERIOR FEATURES

- **All-New Analog Front End** combines narrow-band response with high-frequency sampling and advanced hardware DSP filtering for improved noise immunity and SNR
- **Eliminate Charger Noise** at 40 Vpp from 1-500 kHz, 22 mm finger, 0.5 mm cover lens
- **Glove, Passive Stylus, and Hover** for the ultimate input versatility
- **Best Waterproofing in the World** thanks to patented DualSense™ self plus mutual capacitance architecture
- **Large Screen Support** with 58 sense IO - premium smartphones (5.3" at a 3.2 mm pitch) and tablets (8.3" at a 5 mm pitch) with TMA568

### SILENCING NOISE WITH INNOVATIVE SOLUTIONS

Today's touchscreen devices face tough environments. With form factors becoming thinner, chargers and displays becoming noisier, and consumers using their devices in harsher conditions, providing high touch performance demands a tougher touchscreen controller. The TMA5X family is built on a revolutionary new touch architecture that improves key performance metrics such as refresh rate, accuracy, linearity, and jitter, all in the presence of extremely high noise.

### A COMPLETE SUPPORT ECOSYSTEM FOR TMA5X DESIGNS

Cypress offers an array of tools to assist manufacturers with touchscreen system designs. The complete TMA5X ecosystem delivers total support for advanced applications:

- **Configurable Tools**  
Custom TrueTouch Host Emulator software delivers simplified, intuitive register configurable interface
- **Complete Solution Support**  
OS drivers and production sensor test tools reduce system cost
- **Accelerated Time to Market**  
Register configurable tools speed delivery
- **Display Integration Ready**  
Designed to support on-cell and in-cell stackups, even with noisy displays
- **Broadest IP Portfolio**  
Cypress is the world leader in capacitive touch IP



This architecture delivers the highest SNR in the presence of noise thanks to many new advancements. These include high frequency scanning, to avoid charger noise; on-board DSP, for noise filtering and faster refresh rates; and single-slot scanning of all Rx lines to remove time-based noise effects. TMA5X chips operate seamlessly with the noisiest OEM and third party chargers and wireless chargers, and can do all this with a 0.5 mm cover lens, direct lamination to noisy displays, and a full range of finger sizes.

### WORLD'S BEST WATERPROOFING. PERIOD.

TrueTouch uses Cypress's patented DualSense™ self plus mutual sensing capability (US Patent Nos. 8,358,142; 8,319,505; 8,067,948) to provide the world's best operation in the presence of water. With this technology, TrueTouch can reject false touches that can be caused by water on the screen, as well as track fingers on a wet touchscreen. Without this proprietary feature, a touchscreen device can be rendered inoperable when used in the presence of rain, humidity, or wet fingers. This capability is built right in to the chip – no additional films or special materials required.



### UNMATCHED TOUCH LEADERSHIP

With over a billion touch solutions shipped, our continued leadership in the capacitive touchscreen space means that we respond to new challenges and market trends with cutting-edge solutions. We lead all other touchscreen controller manufacturers in IP, with hundreds of touch-related patents granted or pending.

### APPLICATIONS

- High-end smartphones / superphones • Tablets • E-Readers • Feature phones • Digital still cameras • GPS navigation devices
- Handheld gaming devices • Portable media players • Wearables • Printers • White goods

| Family | Solution | Max Sensors | Max Screen Size (in.) | Waterproof | Charger Armor | Package        | Glove | Stylus | Hover |
|--------|----------|-------------|-----------------------|------------|---------------|----------------|-------|--------|-------|
| TMA5X  | TMA525   | 25          | 3                     | Y          | 40V           | 49 CSP, 48 BGA | Y     | Y      | Y     |
|        | TMA545   | 36          | 5                     | Y          | 40V           | 44, 48 QFN     | Y     | Y      | Y     |
|        | TMA568   | 58          | 8.3                   | Y          | 40V           | 56 QFN, 70 BGA | Y     | Y      | Y     |

### GET STARTED NOW

Start designing with TrueTouch today! Cypress offers evaluation kits for both TMA545 (4.3") and TMA568 (5.3" & 8.3"), with the necessary design files, documentation, and software to get you running quickly. For more information or to request a kit, please email us at [truetouch@cypress.com](mailto:truetouch@cypress.com) or visit us online at [touch.cypress.com](http://touch.cypress.com).

### 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

© 2013-2015 Cypress Semiconductor Corporation. All rights reserved. All other trademarks are the property of their respective owners.  
 001-85874 Rev\*B

