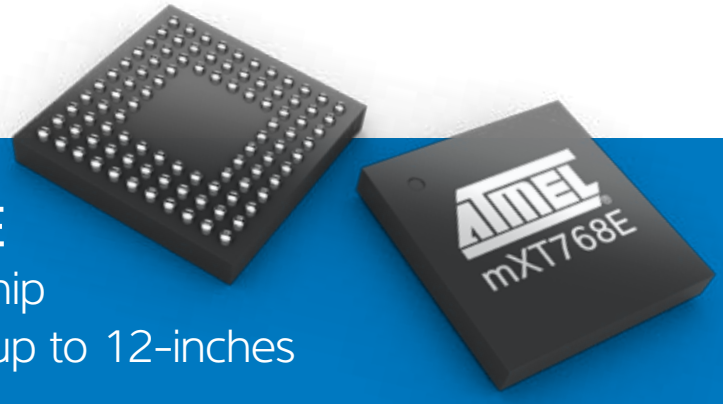

Atmel maXTouch mXT768E

The Industry's First 32-bit Single-Chip Touchscreen Controller for Tablets up to 12-inches

Small Chip, Extreme Performance.

The Atmel® maXTouch™ mXT768E mutual capacitance touchscreen controller represents a significant milestone in the tablet revolution. While the first generation of tablets utilized multiple chips to scan the touchscreen, the mXT768E offers a true single-chip 32-bit solution for tablets up to 12-inches in a 6mm x 6mm package. This remarkable innovation enables an 80% reduction in power consumption compared to competing solutions, as well as space savings that enable sleeker industrial design.

Despite its small size, the mXT768E packs a powerful punch. It features the new maXTouch E Series capacitive touch engine, which supports higher fidelity touch sensing, faster responsiveness, lower power consumption, and a broader choice of displays and touch sensor configurations. Advanced touch processing—enabled by its powerful 32-bit Atmel AVR® core—allows the mXT768E to ignore unintentional touches caused by a gripping hand or resting palm, while correctly interpreting up to sixteen concurrent touches. For high-precision operation, the device also includes algorithms to identify and track a narrow stylus input.

Key Features

- Seamless multi-touch performance for up to sixteen touches
- Electrode grid configurations of up to 24 X and 32 Y lines (768 channels)
- Suitable for touchscreens of up to 12″ in diagonal and a range of aspect ratios
- Support for mutual capacitance and self capacitance sensing
- 12-bit x 12-bit touch position reporting
- Highly responsive, with report rate of 150Hz
- Industry-leading current consumption utilizing Atmel picoPower®
- Narrow stylus identification and tracking
- Sophisticated touch processing, including grip and palm suppression
- Noise rejection to enable reliable operation in presence of charger noise
- Compatible with a wide range of displays
- Single-layer touchscreen constructions enabled, including on-cell designs
- Reliable operation over a wide range of temperatures
- Moisture tolerant

Package Options

- ATMXT768E-CU - 6mm x 6mm x 1.0mm 96-ball VFBGA, RoHS compliant

Applications Areas

- Tablets
- Mobile internet devices
- Netbooks
- Personal navigation devices

Atmel maXTouch E Series

Enhanced. Extended. Evolved.

Setting the bar even higher

The original Atmel® maXTouch™ family has become the world's highest performance, best-selling capacitive touchscreen controller. Now, the new and enhanced maXTouch E Series raises the bar with an updated capacitive touch engine (CTE) that has been supercharged with new noise avoidance and noise suppression capabilities. Every aspect of touchscreen performance is improved–including higher fidelity touch sensing, faster responsiveness, lower power consumption and thinner form factors. These enhancements also make capacitive touchscreens both easier to design-in and more cost-effective.

Noise avoidance and noise suppression

The new maXTouch E Series CTE features frequency agility that enables it to scan the touch sensor at a wider range of quiet frequencies, automatically switching between them to avoid noise. More sophisticated hardware filtering means that noise that cannot be avoided can be suppressed before it impacts measurement accuracy or response time. The results are reduced power consumption and a higher signal-to-noise ratio (SNR).

Thinner form factors

The improved noise performance in the maXTouch E series allows the use of shield-less sensor substrates. It also enables further optimized touch surfaces such as "touch-on-lens," a technique where the sense electrodes can be patterned directly on the protective cover lens, or "on-cell" designs, where the electrodes are patterned on the color filter of the display. By eliminating layers from the touchscreen stack, it can be made considerably thinner—enabling slimmer, more appealing end products.

A wider range of display panel options

Lower cost display panels tend to produce more noise. That the new maXTouch E Series CTE overcome this problem with intelligent hardware filtering, which ensures that even large noise spikes do not affect touch performance.

Improved operation in all environments

The maXTouch E series enhancements result in better resistance to moisture, allowing a touch to be detected through a thin moisture film or a wet finger to be tracked.

Multitouch and stylus operation

Higher SNR enables the maXTouch E Series controllers to accurately detect the lightest touch, including that of a passive conductive stylus. Together with updated algorithms, this enables a stylus of less than 2 mm diameter to be identified and tracked while any finger inputs are independently reported. As all inputs can be identified, unintended touches such as those caused by a resting palm or gripping fingers can be ignored, enabling unencumbered stylus operation.

Brighter displays and lower power consumption

Each layer of material in the touchscreen stack can reduce the light reaching the user's eyes from the display panel. This makes the display work harder (and use more power) to provide adequate brightness. The impact is significant as displays are the largest consumers of power in portable electronics. With maXTouch E Series controllers, fewer layers in the touchscreen stack mean the display appears brighter while using less power, enabling the use of smaller, thinner batteries.

Better operation with noisy chargers

Low-cost and aftermarket chargers can inject significant levels of noise into a system, which can affect device operation, including the touchscreen. With its sophisticated noise handling, the new maXTouch E series provides exceptional performance—even in the presence of severe charger noise.

Highest performance and lowest system cost

Fewer layers in the touchscreen stack, cheaper displays, smaller batteries and cheaper accessories all mean less total cost per system. New maXTouch E Series controllers deliver this winning formula for optimized designs, enabling desirable products and lower system costs.

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