



TMA545 TrueTouch[®] Multi-touch All-points Touchscreen Controller

Features

- Multi-touch capacitive touchscreen controller
 - 32-bit ARM[®] Cortex[®] CPU
 - Register configurable
 - Noise-suppression technologies for battery charger and display
 - Effective 28V drive for higher signal-to-noise ratio (SNR)
 - ChargerArmor[™] for charger noise immunity
 - External display synchronization
 - Water rejection and wet-finger tracking using DualSense[™]
 - Multi-touch glove with automatic mode switching
 - 10 fingers with thin glove (≤1mm thickness)
 - 2 fingers with thick glove (≤5mm thickness)
 - Face detection with grip suppression
 - Fingernail tracking
 - Passive stylus with palm rejection
 - Hover finger sensing
 - Large-object rejection
 - Automatic baseline tracking to environmental changes
 - Low-power look-for-touch mode
 - Field upgrades via bootloader
 - Android[™] and Windows[®] 8 driver support
 - Parade Technologies[™] TrueTouch[®] Manufacturing Test Kit (MTK)
 - Touchscreen sensor self-test and Panel ID reporting
- System performance (configuration dependent)
 - Screen sizes up to 5.0-in. diagonal
 - 4.8mm sensor pitch, 16:9 aspect ratio
 - Up to 36 sense I/O
 - 299 intersections (23 × 13)
 - Reports up to 10 fingers
 - Small finger support down to 4mm
- Large finger support up to 30mm
- Refresh rate up to 300Hz; other rates configurable
- TX frequency up to 500kHz
- Fast first-touch response (≤13ms)
- Best-in-class charger noise immunity
 - Immunity up to 60V peak-to-peak (V_{PP})
 - Immunity to AT&T[®] Zero and Duracell[®] chargers
- Power (configuration dependent)
 - 1.71 to 5.5V digital and I/O supply
 - 2.65 to 5.5V analog supply
 - 5.6mW average power
 - 4.5μW typical deep-sleep power
- Sensor and system design (configuration dependent)
 - Supports a variety of touchscreen sensors and stackups
 - Manhattan, Diamond, and Single-Layer Independent Multi-touch (SLIM[®]) patterns
 - Sensor-on-Lens (SOL)
 - On-cell touch integrated display modules
 - Plastic (PET) and glass-sensor substrates
 - LCD and AMOLED displays
 - Single-layer flexible printed circuit (FPC) routing enabled by flexible TX/RX configurations
- Communication interface
 - I²C slave at all standard bit rates
 - 100kbps, 400kbps, 1Mbps, and 3.4Mbps
 - SPI slave bit rates up to 10Mbps
- Package options
 - 44-pin 5 × 5 × 0.6mm QFN (0.35mm lead pitch)
 - 48-pin 6 × 6 × 0.6mm QFN (0.4mm lead pitch)

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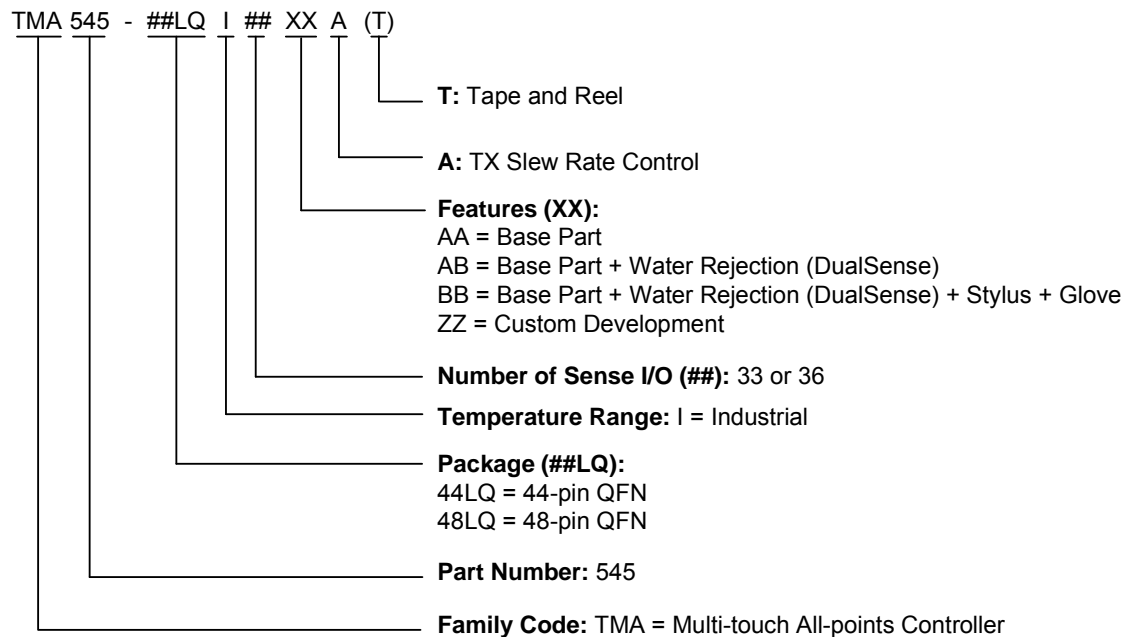
Ordering Information

The following table lists the TMA545 TrueTouch Multi-touch all-points touchscreen controller ordering information. For information on other TrueTouch families, visit <http://www.paradetech.com/products/products-overview/>.

Device Ordering Information^[1]

Device Family and Part Number		Features								Package
Family	Part Number	# of Sense I/O	Typ Screen Size (in.) ^[2]	# of Finger Touches Recognized	TX Slew Rate Control	Glove	Stylus	Hover	Face Detection	
Base	TMA545-44LQI33AA(T)	33	4.5	10						44-Pin QFN
	TMA545-48LQI36AA(T)	36	5.0	10						48-Pin QFN
Water Rejection (DualSense)	TMA545-44LQI33AB(T)	33	4.5	10						44-Pin QFN
	TMA545-48LQI36AB(T)	36	5.0	10						48-Pin QFN
	TMA545-48LQI36BB(T)	36	5.0	10		✓	✓			48-Pin QFN
Custom Reserved for Kits	TMA545-48LQI36ZZ(T)	36	5.0	10		✓	✓	✓	✓	48-Pin QFN
Base	TMA545-44LQI33AAA(T)	33	4.5	10	✓					44-Pin QFN
	TMA545-48LQI36AAA(T)	36	5.0	10	✓					48-Pin QFN
Water Rejection (DualSense)	TMA545-44LQI33ABA(T)	33	4.5	10	✓					44-Pin QFN
	TMA545-48LQI36ABA(T)	36	5.0	10	✓					48-Pin QFN
	TMA545-48LQI36BBA(T)	36	5.0	10	✓	✓	✓			48-Pin QFN
Custom Reserved for Kits	TMA545-48LQI36ZZA(T)	36	5.0	10	✓	✓	✓	✓	✓	48-Pin QFN

Ordering Code Definitions



Notes

- All devices listed have the following base features: 10V TX, ChargerArmor, CapSense Buttons, Large-Object Detection and Rejection, Grip Suppression, Water Rejection, Self-capacitance, and High-Noise Immunity.
- 4.7mm pitch for screen sizes up to 4.9-in. diagonal, 4.8mm pitch for 5.0-in. diagonal screen size, 16:9 aspect ratio. Larger screen sizes can be supported with a larger pitch.