



TMA525 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 TX 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
 - Fingernail tracking
 - Hover finger tracking
 - 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 3.0-in. diagonal
 - 4.3mm sensor pitch, 4:3 aspect ratio
 - Up to 25 sense I/O
 - 154 intersections (14 × 11)
 - Reports up to four 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, Single-Layer Independent Multi-touch (SLIM[®]), and Totem-pole patterns
 - Sensor-on-Lens (SOL)
 - On-cell touch-integrated display modules
 - Plastic (PET) and glass-sensor substrates
 - LCD and AMOLED displays
- Communication interface
 - I²C slave at all standard bit rates
 - 100kbps, 400kbps, 1Mbps, and 3.4Mbps
 - SPI slave bit rates up to 10Mbps
- Package options
 - 49-ball 3.085 × 3.25 × 0.55mm WLCSP (0.4mm ball pitch)
 - 48-ball 4.3 × 4.3 × 0.6mm UFBGA (0.5mm lead pitch)

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Ordering Information

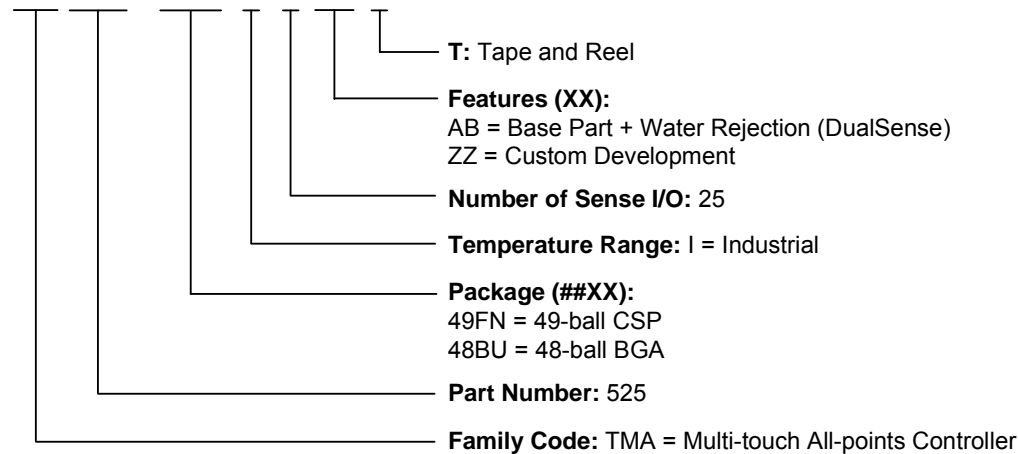
The following table lists the TMA525 TrueTouch Multi-touch all-points touchscreen controller ordering information. For information on other TrueTouch families, visit <http://www.paradetech.com/products/products-overview/>.

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	Hover	
Water Rejection (DualSense)	TMA525-49FNI25AB(T)	25	3.0	✓				49-Ball CSP
Custom Reserved for Kits	TMA525-49FNI25ZZ(T)	25	3.0	✓	✓	✓	✓	49-Ball CSP
	TMA525-48BUI25ZZ(T)	25	3.0	✓	✓	✓	✓	48-Ball UFBGA

Ordering Code Definitions

TMA 525 - ##XX | 25 XX (T)



Notes

- All devices 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.
- 4.3mm pitch for screen sizes up to 3.0-in. diagonal 4:3 aspect ratio. Larger screen sizes can be supported with a larger pitch.