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to offer the product to new and existing customers as part of the Infineon product
portfolio.

Continuity of document content
The fact that Infineon offers the following product as part of the Infineon product
portfolio does not lead to any changes to this document. Future revisions will occur
when appropriate, and any changes will be set out on the document history page.

Continuity of ordering part numbers
Infineon continues to support existing part numbers. Please continue to use the
ordering part numbers listed in the datasheet for ordering.
Features

- Multi-touch capacitive touchscreen controller
  - 32-bit Arm® Cortex™ CPU
  - Register-configurable
  - Noise-suppression technologies for display and EMI
    - Effective 20-V drive for higher signal-to-noise ratio (SNR)\(^1\)
    - AutoArmor™ improves both electromagnetic emissions and immunity
  - External display synchronization
  - Water rejection and wet-finger tracking using DualSense™
  - Multi-touch glove with automatic mode switching
    - Ten fingers with thin glove (≤1-mm thick)
    - Two fingers with thick glove (≤5-mm thick)
  - Large object rejection
  - Automatic baseline tracking to environmental changes
  - Low-power look-for-touch mode
  - Field upgrades via bootloader
  - Cypress Manufacturing Test Kit (MTK)
  - Touchscreen sensor self-test

- System performance (configuration dependent)
  - Screen sizes up to 15-inch diagonal
    - 6.0-mm electrode pitch; 16:10 aspect ratio
  - Up to 88 sense pins, 1836 intersections; 16:10 aspect ratio (34 TX × 54 RX)
  - Reports up to ten fingers
  - Small finger support down to 4 mm

- Power (configuration-dependent)
  - 1.71- to 1.95-V and 3.0- to 5.5-V logic and digital I/Os supply
  - 3.0- to 5.5-V analog supply
  - 30-mW average power
  - 30-μW typical deep-sleep power

- Sensor and system design (configuration-dependent)
  - Supports a variety of touchscreen sensors and stackups
    - Manhattan, diamond
    - Sensor-on-Lens (SOL)
    - Plastic (PET) and glass-sensor substrates
    - LCD, AMOLED, and IPS displays
    - Metal mesh

- Communication interface
  - \(i^2C\) slave at 100 and 400 kbps
  - SPI slave bit rates up to 8 Mbps

- Package
  - 100-pin TQFP 14 × 14 × 1.4 mm (0.5-mm pitch)
  - 128-pin TQFP 14 × 20 × 1.4 mm (0.5-mm pitch)

- Ambient temperature range
  - Automotive-A: –40 °C to 85 °C
  - Automotive-S: –40 °C to 105 °C

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Note

1. Effective voltage when using 17 multi-phase TX and 5-V \(V_{CCTX}\) supply.
Ordering Information

Table 1 lists the CYAT81X TrueTouch touchscreen controllers.

Table 1. Ordering Information

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<tr>
<th>MPN</th>
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<th>Low-power wake-up Button</th>
<th>CapSense Buttons</th>
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Note
2. All devices have the following base features: Water Rejection, DisplayArmor™, AutoArmor™, DualSense™, CapSense buttons, Large Object Detection and Rejection, and Grip Suppression.
Table 1. Ordering Information[2] (continued)

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Ordering Code Definitions

- **T** = Tape and Reel
- **Fab Location Indicator**
  - Z = New Fab Location
  - Blank/Non-Z = Initial Fab Location
- **Number of Sense I/Os:** 61, 71, 77, or 88
- **Temperature Range:** A = –40 °C to +85 °C; S = –40 °C to +105 °C
- **Package Type:** A = TQFP
- **Number of Pins:** 100 or 128
- **Product Feature Set (see Ordering Information table)**
- **Sensor Configuration:** 1 = Discrete Sensors
- **Market Segment:** 8 = Automotive Touchscreen
- **Business Unit:** AT = Automotive
- **Marketing Code:** CY = Cypress
**SUMMARY**

**CYAT81X**

(61, 71, 77, 88 I/Os)

Document History Page

<table>
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<td>4988927</td>
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<td>New summary datasheet</td>
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