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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.

SUMMARY

CYAT81X (61, 71, 77, 88 I/Os)

Automotive TrueTouch® Multi-Touch All-Points Touchscreen Controller Datasheet

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

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[2]

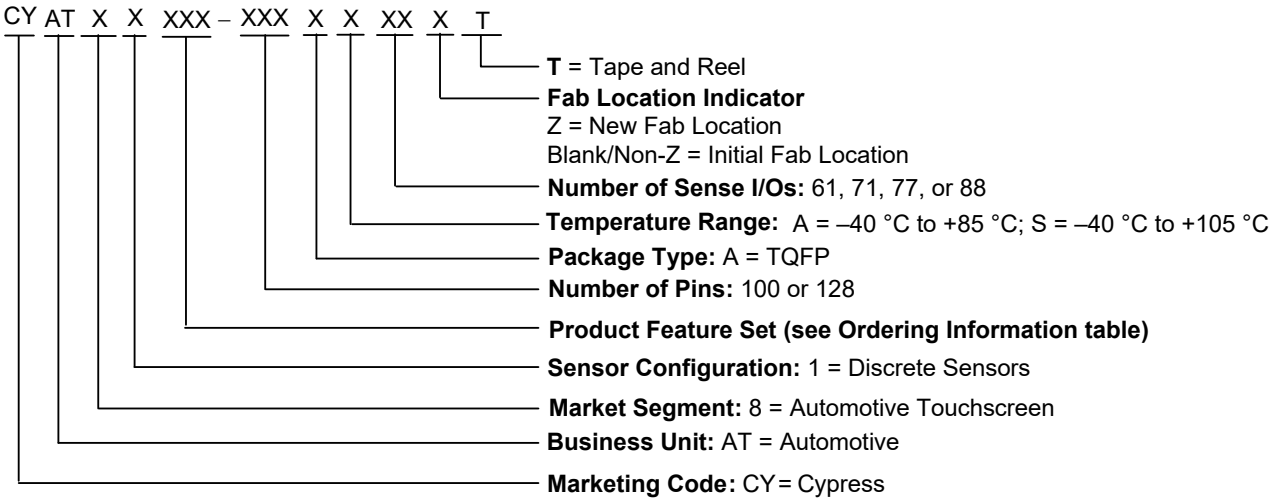
MPN	Number of Sense pins	Number of fingers	Low-power wake-up Button	Capsense Buttons	Water Rejection	Thin Glove support	Display Armor	Gestures	Thick Overlay/Thick Glove support	5-V Tx	Package
CYAT81682-100AA61Z	61	10	–	✔	✔	✔	✔	–	–	–	100 TQFP
CYAT81682-100AS61Z	61	10	–	✔	✔	✔	✔	–	–	–	100 TQFP
CYAT81682-100AA71Z	71	10	–	✔	✔	✔	✔	–	–	–	100 TQFP
CYAT81682-100AS71Z	71	10	–	✔	✔	✔	✔	–	–	–	100 TQFP
CYAT81682-100AA77Z	77	10	–	✔	✔	✔	✔	–	–	–	100 TQFP
CYAT81682-100AS77Z	77	10	–	✔	✔	✔	✔	–	–	–	100 TQFP
CYAT81682-128AA88Z	88	10	–	✔	✔	✔	✔	–	–	–	128 TQFP
CYAT81682-128AS88Z	88	10	–	✔	✔	✔	✔	–	–	–	128 TQFP
CYAT81685-100AA61Z	61	10	–	✔	✔	✔	✔	✔	–	–	100 TQFP
CYAT81685-100AS61Z	61	10	–	✔	✔	✔	✔	✔	–	–	100 TQFP
CYAT81685-100AA71Z	71	10	–	✔	✔	✔	✔	✔	–	–	100 TQFP
CYAT81685-100AS71Z	71	10	–	✔	✔	✔	✔	✔	–	–	100 TQFP
CYAT81685-100AA77Z	77	10	–	✔	✔	✔	✔	✔	–	–	100 TQFP
CYAT81685-100AS77Z	77	10	–	✔	✔	✔	✔	✔	–	–	100 TQFP
CYAT81685-128AA88Z	88	10	–	✔	✔	✔	✔	✔	–	–	128 TQFP
CYAT81685-128AS88Z	88	10	–	✔	✔	✔	✔	✔	–	–	128 TQFP
CYAT81688-100AA61Z	61	10	–	✔	✔	✔	✔	✔	✔	✔	100 TQFP
CYAT81688-100AS61Z	61	10	–	✔	✔	✔	✔	✔	✔	✔	100 TQFP
CYAT81688-100AA71Z	71	10	–	✔	✔	✔	✔	✔	✔	✔	100 TQFP
CYAT81688-100AS71Z	71	10	–	✔	✔	✔	✔	✔	✔	✔	100 TQFP
CYAT81688-100AA77Z	77	10	–	✔	✔	✔	✔	✔	✔	✔	100 TQFP
CYAT81688-100AS77Z	77	10	–	✔	✔	✔	✔	✔	✔	✔	100 TQFP
CYAT81688-128AA88Z	88	10	–	✔	✔	✔	✔	✔	✔	✔	128 TQFP
CYAT81688-128AS88Z	88	10	–	✔	✔	✔	✔	✔	✔	✔	128 TQFP
CYAT81689-100AA61Z	61	10	✔	✔	✔	✔	✔	✔	✔	✔	100 TQFP

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)

MPN	Number of Sense pins	Number of fingers	Low-power wake-up Button	Capsense Buttons	Water Rejection	Thin Glove support	Display Armor	Gestures	Thick Overlay/Thick Glove support	5-V Tx	Package
CYAT81689-100AS61Z	61	10	✔	✔	✔	✔	✔	✔	✔	✔	100 TQFP
CYAT81689-100AA71Z	71	10	✔	✔	✔	✔	✔	✔	✔	✔	100 TQFP
CYAT81689-100AS71Z	71	10	✔	✔	✔	✔	✔	✔	✔	✔	100 TQFP
CYAT81689-100AA77Z	77	10	✔	✔	✔	✔	✔	✔	✔	✔	100 TQFP
CYAT81689-100AS77Z	77	10	✔	✔	✔	✔	✔	✔	✔	✔	100 TQFP
CYAT81689-128AA88Z	88	10	✔	✔	✔	✔	✔	✔	✔	✔	128 TQFP
CYAT81689-128AS88Z	88	10	✔	✔	✔	✔	✔	✔	✔	✔	128 TQFP

Ordering Code Definitions



Document History Page

Document Title: CYAT81X (61, 71, 77, 88 I/Os) Automotive TrueTouch® Multi-Touch All-Points Touchscreen Controller Datasheet Document Number: 002-04310			
Revision	**ECN**	**Submission Date**	**Description of Change**
**	4988927	10/28/2015	New summary datasheet
*A	5705461	04/21/2017	Updated Cypress Logo and Copyright.
*B	5962384	11/13/2017	Updated Ordering Information and Ordering Code Definition
*C	6759712	12/23/2019	Updated Ordering Information. Updated Sales links and copyright information.

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