PSoC™ Automotive Multitouch Generation 7XL Multichip

Datasheet Summary

Note that this is a Summary Datasheet. To access the full version of this datasheet, register in My Infineon Collaboration Platform (MyICP).

Features

- Automotive Electronics Council (AEC) AEC-Q100 qualified
- Multi-chip 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
  - Water rejection and wet-finger tracking using DualSense
  - Multitouch glove with automatic mode switching
    - Ten fingers with thin glove (≤1-mm thick)
    - Two fingers with thick glove (≤5-mm thick)
  - Fingernail tracking
  - Large object rejection
  - Automatic baseline tracking to environmental changes
  - Field upgrades via bootloader
  - Manufacturing test kit (MTK)
  - Android driver support
  - Touchscreen sensor self-test
- System performance (configuration dependent)
  - Screen sizes up to 35-inch diagonal
    - 6-mm electrode pitch; 16:10 aspect ratio
  - Up to 296 sense pins, 10320 intersections
  - Reports up to ten fingers
  - Small finger support down to 5 mm
  - Refresh rate up to 120 Hz; other rates configurable
  - TX frequency up to 150 kHz
  - 5-V TX with high-order multi-phase TX capability for higher signal-to-noise (SNR) ratio
  - Integrated DSP to process and filter data for faster scanning and lower noise
  - 192 channels, each with its own ADC, to enable single-pass long-side scanning for faster processing of touch data and better noise filtering
- 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
  - 260 mW for 3-chip solution
  - 174 mW for 2-chip solution

Notes

1. Effective voltage when using 17 multi-phase TX and 5-V VCCTX supply.

Features

- 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
- Primary host communication interface
  - I^2C slave rates at 100 kbps, 400 kbps, and 1 Mbps
- Packages
  - 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

1 Ordering information

The following table lists the CYAT837X/847X (multi-chip) touchscreen controllers[2].

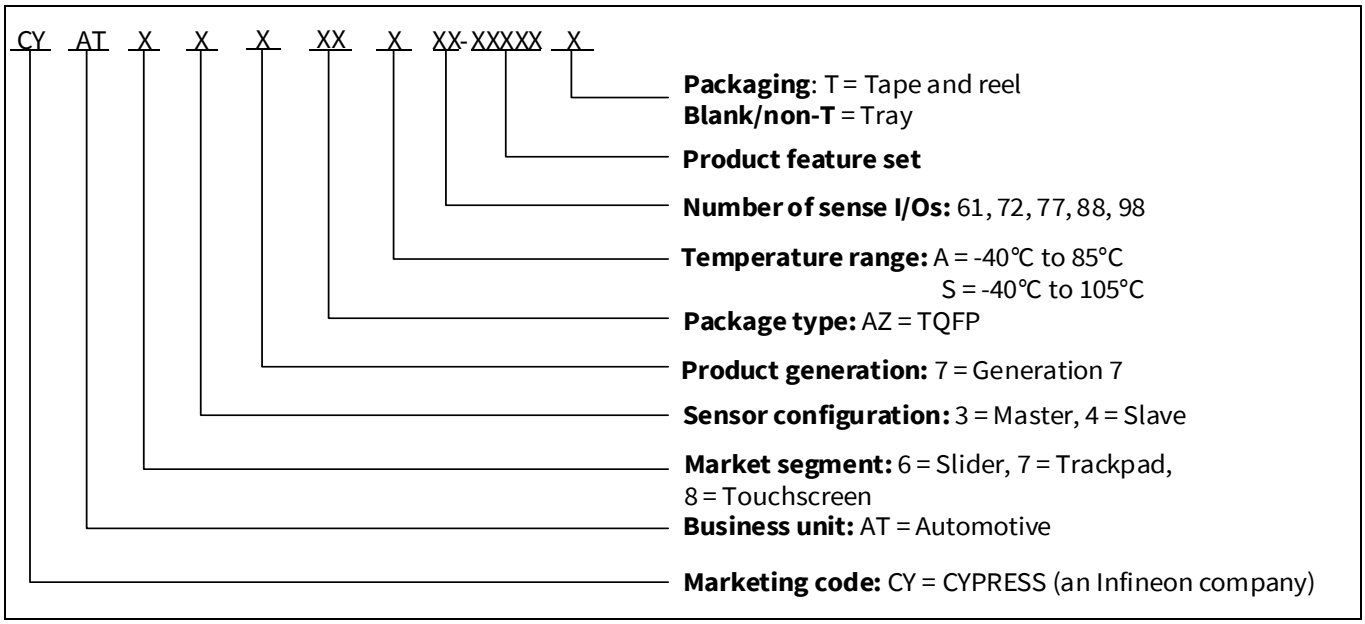
Table 1 Ordering information

MPN	Number of pins	128-pin TQFP	100 -pin TQFP	Multi-touch	Glove	H2O	Package
CYAT837AZA98-42002	98	✓	–	✓	✓	✓	128-pin TQFP
CYAT837AZS98-42002	98	✓	–	✓	✓	✓	128-pin TQFP
CYAT847AZA98-42002	98	✓	–	✓	✓	✓	128-pin TQFP
CYAT847AZS98-42002	98	✓	–	✓	✓	✓	128-pin TQFP
CYAT837AZA88-42002	88	✓	–	✓	✓	✓	128-pin TQFP
CYAT837AZS88-42002	88	✓	–	✓	✓	✓	128-pin TQFP
CYAT847AZA88-42002	88	✓	–	✓	✓	✓	128-pin TQFP
CYAT847AZS88-42002	88	✓	–	✓	✓	✓	128-pin TQFP
CYAT837AZA77-42002	77	✓	–	✓	✓	✓	128-pin TQFP
CYAT837AZS77-42002	77	✓	–	✓	✓	✓	128-pin TQFP
CYAT847AZA77-42002	77	✓	–	✓	✓	✓	128-pin TQFP
CYAT847AZS77-42002	77	✓	–	✓	✓	✓	128-pin TQFP
CYAT847AZA72-22002	72	–	✓	✓	✓	✓	100-pin TQFP
CYAT847AZS72-22002	72	–	✓	✓	✓	✓	100-pin TQFP
CYAT847AZA61-22002	61	–	✓	✓	✓	✓	100-pin TQFP
CYAT847AZS61-22002	61	–	✓	✓	✓	✓	100-pin TQFP

Notes

2. All devices have the following base features: Water rejection, DisplayArmor, AutoArmor, DualSense, glove support, and large object detection and rejection.

1.1 Ordering code definitions



Revision history

Document revision	Date	Description of changes
**	2022-07-26	Initial release.

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