PSoC™ Automotive Multitouch Generation 7XL Hybrid In-cell

Datasheet Summary

Note that this is s 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

- In-cell touchscreen controller

- Multi-touch capacitive touchscreen controller
  - 32-bit Arm® Cortex® CPU
  - Register-configurable
  - Noise-suppression technologies for display and EMI
    - AutoArmor improves both electromagnetic emissions and immunity
    - Effective 20-V drive for higher signal-to-noise ratio (SNR)
  - Water rejection
  - Multitouch glove with automatic mode switching
    - Ten fingers with thin glove (≤1-mm thick)
  - Fingernail tracking
  - Large object rejection
  - Automatic baseline tracking to environmental changes
  - Field upgrades via bootloader
  - Manufacturing test kit (MTK)
  - Touchscreen sensor self-test
  - Android driver support

- System performance (configuration dependent)
  - Screen sizes up to 20-inch diagonal
    - 5.3-mm electrode pitch; 16:10 aspect ratio
  - Up to 64 RX channels, 2176 intersections; 16:10 aspect ratio
  - Reports up to ten fingers
  - Small finger support down to 5 mm
  - Refresh rate up to 250 Hz; other rates configurable
  - Integrated DSP to process and filter data for faster scanning and lower noise
  - 64 RX 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
  - 30-mW average power

- Sensor and system design (configuration-dependent)
  - Supports In-cell sensors
    - TX/VCOM share the same layer
    - RX ITO layer on/above the color filter

- Primary host communication interface
  - I^{2}C slave at 100 and 400 kbps

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page 1
002-35955 Rev. **
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Features

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

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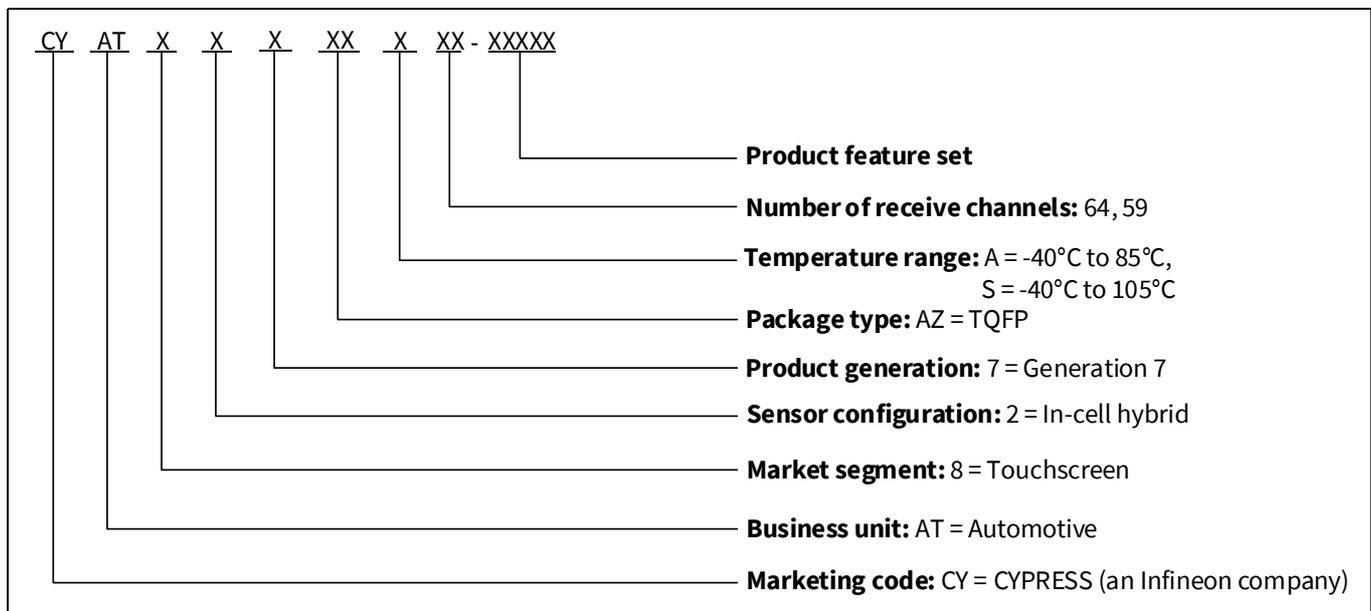 - Automotive-S: -40°C to 105°C

1 Ordering information

Table 1 Ordering information[1]

MPN	Number of receive channels	100 -TQFP	Rotary knob	Multi-touch	Gesture touch-screen	H2O	Package
CYAT827AZA59-22002	59	✓		✓		✓	100-TQFP
CYAT827AZS59-22002	59	✓		✓		✓	100-TQFP
CYAT827AZA59-2200A	59	✓		✓	✓	✓	100-TQFP
CYAT827AZS59-2200A	59	✓		✓	✓	✓	100-TQFP
CYAT827AZA64-22002	64	✓		✓		✓	100-TQFP
CYAT827AZS64-22002	64	✓		✓		✓	100-TQFP
CYAT827AZA64-2200A	64	✓		✓	✓	✓	100-TQFP
CYAT827AZS64-2200A	64	✓		✓	✓	✓	100-TQFP
CYAT827AZA59-3200A	59	✓	✓	✓	✓	✓	100-TQFP
CYAT827AZS59-3200A	59	✓	✓	✓	✓	✓	100-TQFP
CYAT827AZA64-3200A	64	✓	✓	✓	✓	✓	100-TQFP
CYAT827AZS64-3200A	64	✓	✓	✓	✓	✓	100-TQFP

1.1 Ordering code definitions

```
CY  AT  X  X  X  XX  X  XX - XXXXX
```

- **Product feature set**
- **Number of receive channels:** 64, 59
- **Temperature range:** A = -40°C to 85°C, S = -40°C to 105°C
- **Package type:** AZ = TQFP
- **Product generation:** 7 = Generation 7
- **Sensor configuration:** 2 = In-cell hybrid
- **Market segment:** 8 = Touchscreen
- **Business unit:** AT = Automotive
- **Marketing code:** CY = CYPRESS (an Infineon company)

Notes
1. All devices have the following base features: Water rejection, DisplayArmor, AutoArmor, DualSense, CAPSENSE™ buttons, large object detection and rejection, grip suppression, and thin/thick glove support.

Revision history

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

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