

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
 - I²C 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

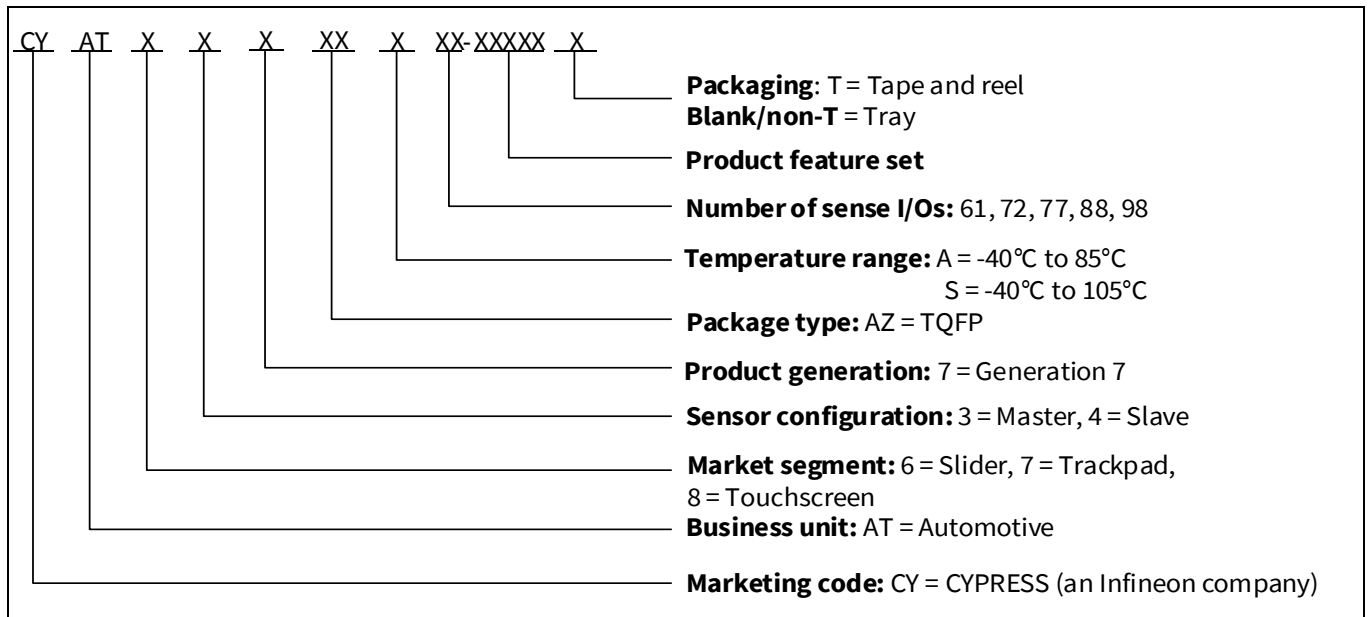
| MPN | Number of pins | 128-pin TQFP | 100-pin TQFP | Multi-touch | Glove | H2O | Package |
|--------------------|----------------|--------------|--------------|-------------|-------|-----|--------------|
| CYAT837AZA98-42002 | 98 | ✓ | – | ✓ | ✓ | ✓ | 128-pin TQFP |
| CYAT837AZS98-42002 | 98 | ✓ | – | ✓ | ✓ | ✓ | 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

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

Ordering information

1.1 Ordering code definitions



Revision history

Revision history

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