

PSoC™ Automotive Multitouch Generation 7L

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) Q100 qualified
- Single-chip system solution that integrates touch controller with MCU functions
- Target Application
 - Entry and mid-level central information display (CID) systems
- 32-bit MCU subsystem
 - 48-MHz Arm® Cortex®-M0+ CPU
 - 12-bit SAR ADC for system monitoring (voltage, temperature) and other features (such as day/night sensor)
 - Four timer counter pulse width modulators (TCPWMs)
 - Three serial communication blocks (SCBs) that can be individually configured as SPI/I²C/UART
 - Up to 48 KB flash for user-specific system MCU functionality
 - Up to 4 KB SRAM for user-specific system MCU functionality
 - Up to 29 programmable GPIO pins with interrupt functionality
- Multi-touch capacitive touchscreen controller
 - 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
 - Touchscreen sensor self-test
 - Low power CAPSENSE™ wake-up button with power consumption of 50 µA
 - Low power wake-on-touchscreen with power consumption of 120 µA

Note

1. Effective voltage when using 17 multi-phase TX and 5-V V_{CCTX} supply.

Features

- System performance (configuration dependent)
 - Screen sizes up to 11-inch diagonal
 - 5-mm electrode pitch; 8:3 aspect ratio
 - Screen sizes up to 12.3-inch diagonal
 - 5.7-mm electrode pitch; 8:3 aspect ratio
 - Up to 72 sense pins supporting different aspect ratios, up to 1200 intersections (46 × 26)
 - Reports up to ten fingers
 - Small finger support down to 4 mm
 - Refresh rate up to 250 Hz; other rates configurable
 - TX frequency up to 350 kHz
- 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
 - 20-mW average power
 - 20-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)
 - On-cell
 - Plastic (PET) and glass-sensor substrates
 - LCD, AMOLED, and IPS displays
 - Metal mesh
- Communication interface
 - I²C slave at 100 kbps, 400 kbps, 1 Mbps, and 3.4 Mbps
 - SPI slave bit rates up to 8 Mbps
- Development and debug environment
 - Arm® MDK for system MCU
 - Touch tuning host emulator (TTHE) to configure touch
 - MTK for debugging
 - PSoC™ programmer for programming
- 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

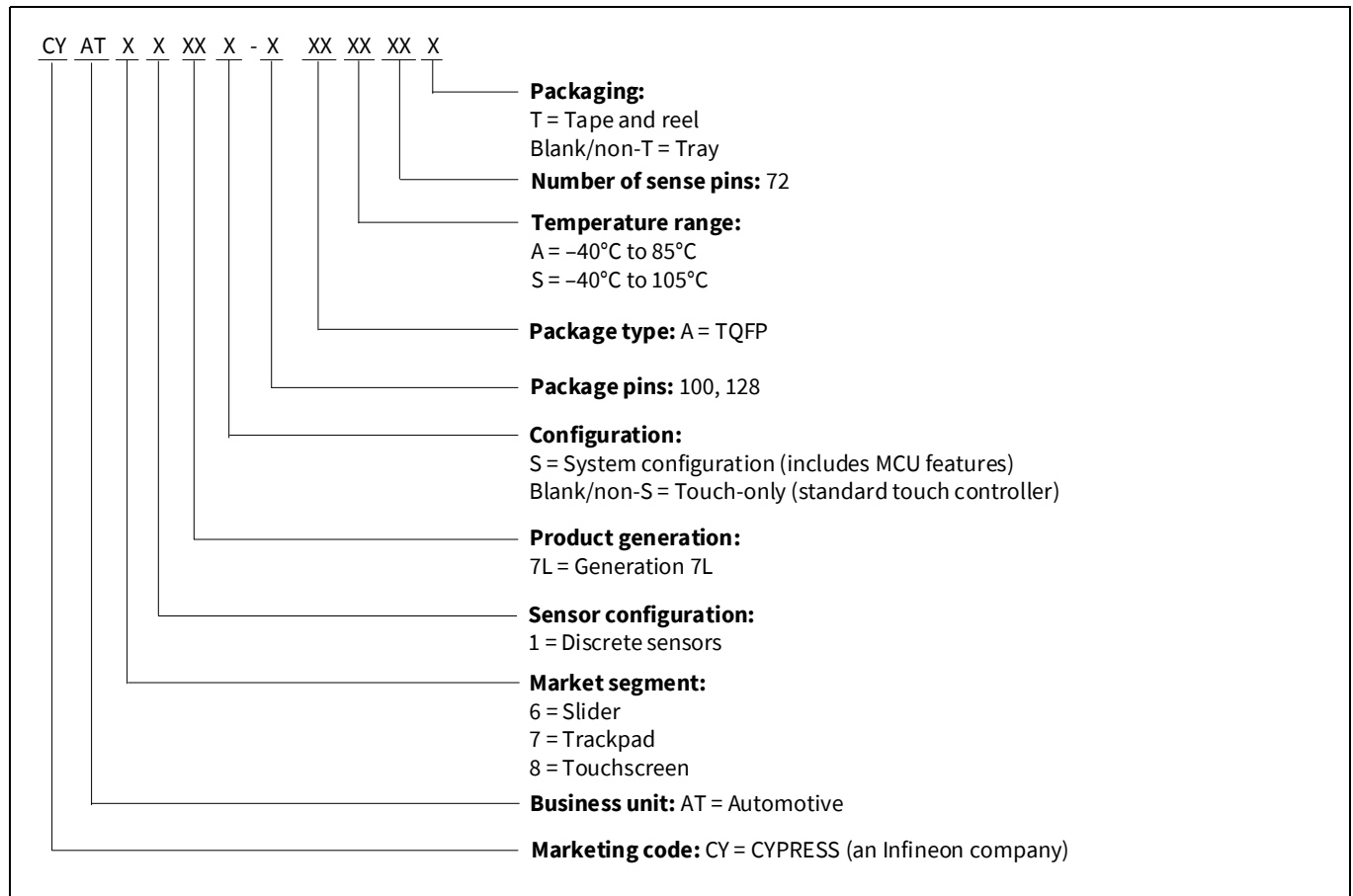
1 Ordering information

Table 1 lists the CYAT817L touchscreen controllers.

Table 1 **Ordering information**

MPN	Number of sense pins	No. of fingers	Touch only	Touch+ MCU functions	No. of GPIOs	Package	Temperature
CYAT817L-100AA72	72	10	✓	-	13	100-pin TQFP	-40°C to +85°C
CYAT817L-100AS72	72	10	✓	-	13	100-pin TQFP	-40°C to +105°C
CYAT817LS-100AA72	72	10	-	✓	13	100-pin TQFP	-40°C to +85°C
CYAT817LS-100AS72	72	10	-	✓	13	100-pin TQFP	-40°C to +105°C
CYAT817L-128AA72	72	10	✓	-	29	128-pin TQFP	-40°C to +85°C
CYAT817L-128AS72	72	10	✓	-	29	128-pin TQFP	-40°C to +105°C
CYAT817LS-128AA72	72	10	-	✓	29	128-pin TQFP	-40°C to +85°C
CYAT817LS-128AS72	72	10	-	✓	29	128-pin TQFP	-40°C to +105°C

1.1 Ordering code definitions



Revision history

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

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