

PSoC™ Automotive Multitouch Generation 6L Slider

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
- Multitouch capacitive slider controller
 - 32-bit Arm® Cortex® CPU
 - Register-configurable
 - Noise-suppression technologies for 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)
 - Up to 3 TX configuration supported
 - Large object rejection
 - Supports 1 TX single layer configuration
 - Automatic baseline tracking to environmental changes
 - Low-power look-for-touch mode
 - Field upgrades via bootloader
 - Infineon Manufacturing Test Kit (MTK)
 - Slider sensor self-test
 - Low power CAPSENSE™ wake-up button with power consumption of 50 μ A
- System performance (configuration dependent)
 - Up to 48 sense pins, 135 intersections (45 RX and 3TX)
 - Swipe speed of up to 1000 mm/sec
 - Reports up to ten fingers
 - Small finger support down to 4 mm
 - Support up to 10 capacitive sensing buttons
 - Refresh rate up to 250 Hz; other rates configurable
 - TX frequency up to 350 kHz

Note

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

Features

- 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
 - 9-mW average power
 - 11- μ W typical deep-sleep power
- Sensor and system design (configuration-dependent)
 - Supports a variety of slider sensors and stackups
 - Manhattan, diamond
 - Plastic (PET) and glass-sensor substrates
 - Metal mesh
- Communication interface
 - I²C slave at 100 and 400 kbps
 - SPI slave bit rates up to 8 Mbps
- Package
 - 56-pin QFN wettable flank, 8 × 8 × 1 mm, 0.5-mm pin-pitch
 - 64-pin TQFP 10 × 10 × 1.4 mm, 0.5-mm pin-pitch
- Ambient temperature range
 - Automotive-A: -40°C to 85°C
 - Automotive-S: -40°C to 105°C

Ordering information

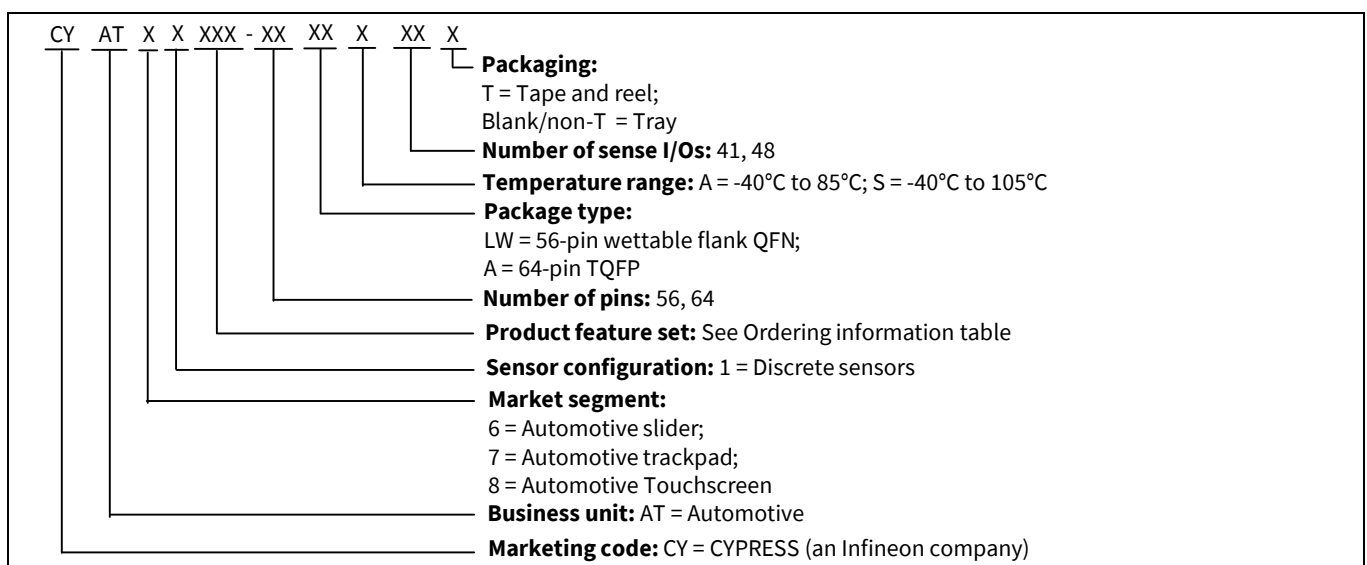
1 Ordering information

Table 1 lists the CYAT6165X slider controllers.

Table 1 Ordering information^[2]

Marketing part number	Number of sense pins	Number of fingers	Slider	Wake up button support ^[3]	CAPSENSE™ buttons	Water rejection	Thin glove support	Gestures	Thick overlay/ thick glove support	Package
CYAT61652-56LWA41	41	10	✓	-	✓	✓	✓	-	-	56-pin QFN
CYAT61652-56LWS41	41	10	✓	-	✓	✓	✓	-	-	56-pin QFN
CYAT61658-56LWA41	41	10	✓	-	✓	✓	✓	-	✓	56-pin QFN
CYAT61658-56LWS41	41	10	✓	-	✓	✓	✓	-	✓	56-pin QFN
CYAT61659-56LWA41	41	10	✓	✓	✓	✓	✓	-	✓	56-pin QFN
CYAT61659-56LWS41	41	10	✓	✓	✓	✓	✓	-	✓	56-pin QFN
CYAT61652-64AA48	48	10	✓	-	✓	✓	✓	-	-	64-pin TQFP
CYAT61652-64AS48	48	10	✓	-	✓	✓	✓	-	-	64-pin TQFP
CYAT61658-64AA48	48	10	✓	-	✓	✓	✓	-	✓	64-pin TQFP
CYAT61658-64AS48	48	10	✓	-	✓	✓	✓	-	✓	64-pin TQFP
CYAT61659-64AA48	48	10	✓	✓	✓	✓	✓	-	✓	64-pin TQFP
CYAT61659-64AS48	48	10	✓	✓	✓	✓	✓	-	✓	64-pin TQFP

1.1 Ordering code definitions



Notes

- All devices have the following base features: Water Rejection, DisplayArmor, AutoArmor, DualSense, CAPSENSE™ buttons, and large object detection and rejection.
- Not compatible with SPI due to pin limitations.

Revision history

Revision history

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