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 µA
- 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-µW 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
  - I^2C 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

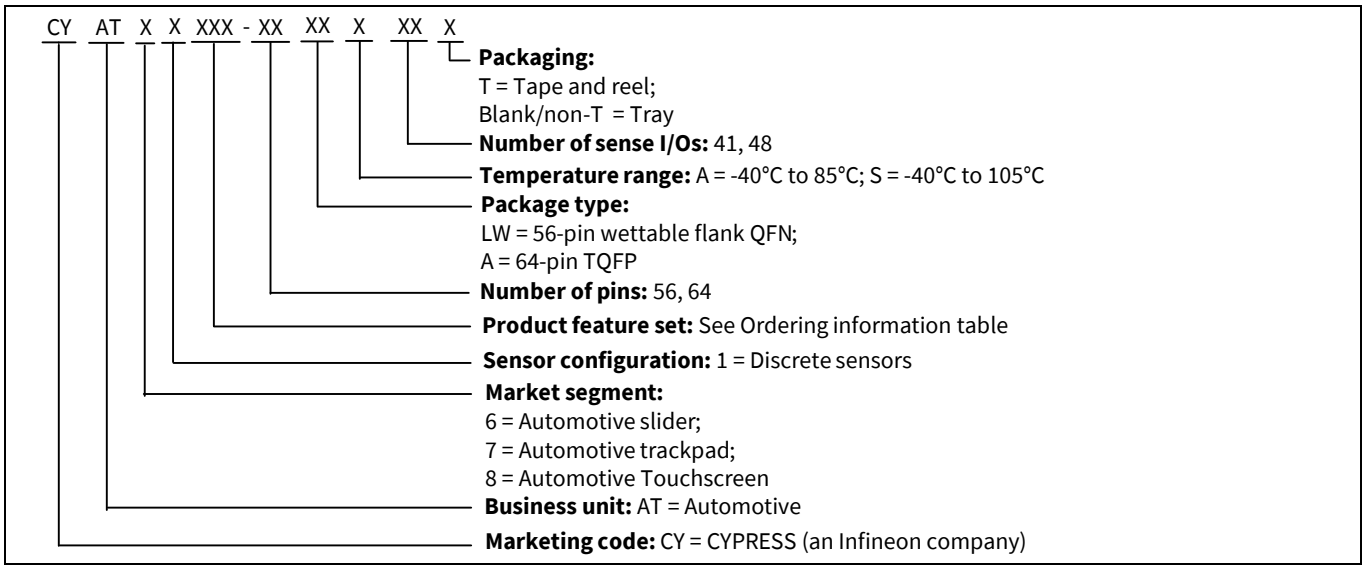
1 Ordering information

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

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

Revision history

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