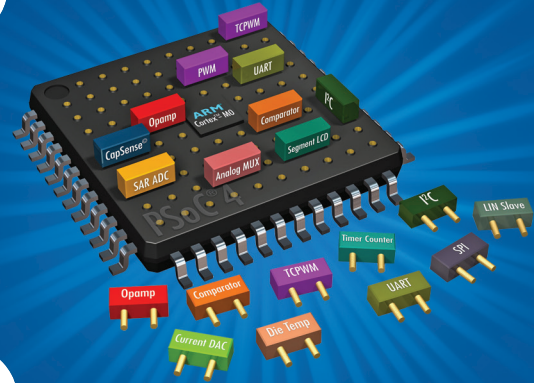


CYPRESS

# AUTOMOTIVE PSoC<sup>®</sup> 4

INDUSTRY'S BEST CAPSENSE<sup>®</sup> FOR  
AUTOMOTIVE HMI SYSTEMS WITH  
REDUCED SYSTEM COSTS



## PRODUCT OVERVIEW

### INTRODUCTION

Automotive PSoC 4 provides the most reliable capacitive touch-sensing and proximity-sensing solutions for automotive HMI systems with reduced system costs, even in harsh automotive environments. PSoC 4 reduces total system cost by integrating programmable Analog Front Ends (AFE) and programmable digital blocks.

#### CapSense<sup>®</sup>: Industry's Best Capacitive Sensing Solution

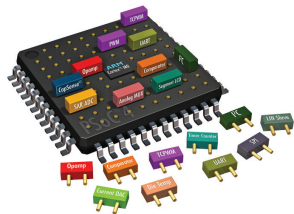
- Enables a touch user interface with up to 24 I/Os
- SmartSense Auto-tuning speeds time-to-market and eliminates the need for manual system tuning
- Prevents false touches caused by liquids
- Implements advanced proximity sensing: wake-on-approach, liquid level detection, and IR sensor replacement



#### Reduced system costs

Automotive PSoC 4 reduces system cost with Programmable Digital Blocks, Programmable Analog Blocks, CapSense and LIN Slave to:

- Create custom AFEs for sensors and add sophisticated user interfaces
- Communicate to car network with integrated LIN Slave controllers
- PSoC Creator enables easy integration of multiple ICs and system interfaces into one PSoC



#### Reliable Operation in Harsh Automotive EM Environment

- Zero false touches reported by the touch sensors in harsh automotive environment
- Reduces Radiated Emissions (RE) by easily modifying CapSense Component parameters in PSoC Creator<sup>™</sup> IDE
- Complies with standard emission and immunity specifications like CISPR 25, ISO 11452, IEC 61967 and IEC 62132



### FEATURES

#### 32-BIT MCU SUBSYSTEM

- 48-MHz ARM<sup>®</sup> Cortex<sup>™</sup>-M0 CPU
- Up to 32KB flash and 4KB SRAM

#### CAPSENSE<sup>®</sup> WITH SMARTSENSE<sup>™</sup> AUTO-TUNING

- One Cypress Capacitive Sigma-Delta<sup>™</sup> (CSD) controller
- Capacitive sensing supported on up to 24 pins

#### PROGRAMMABLE ANALOG BLOCKS

- Two opamps, configurable as PGAs, CMPs, filters, etc.
- One 12-bit, 1-Msps SAR ADC
- Two comparators (CMP)

#### PROGRAMMABLE DIGITAL BLOCKS

- Four universal digital blocks (UDBs): custom digital peripherals
- Four configurable TCPWM blocks: 16-bit timer, counter or PWM
- Two configurable serial communication blocks (SCBs): I<sup>2</sup>C master or slave, SPI master or slave, UART or LIN slave

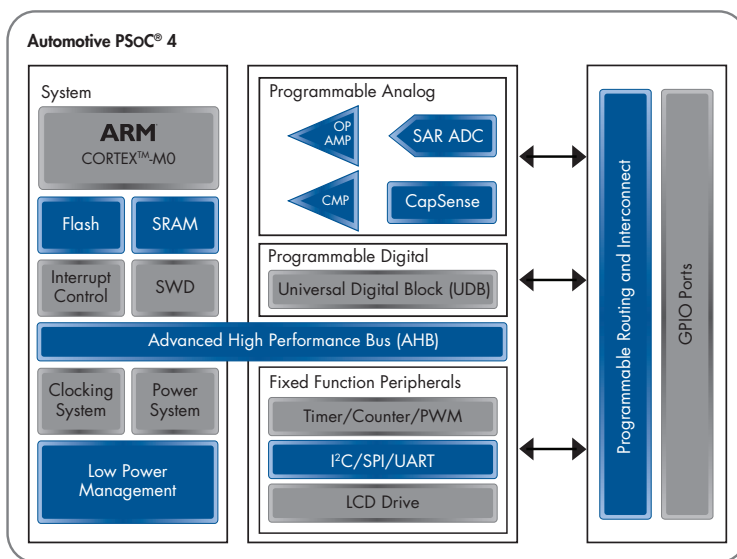
#### PACKAGE

28-PIN SSOP

**AEC-Q100 QUALIFIED**

APPLICATIONS

- Infotainment: audio panels and navigation systems
- HVAC systems
- Interior lighting
- Sunroof control
- Keyless entry

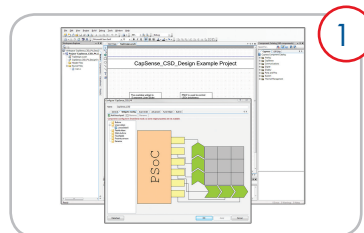


PSoC 4 Block Diagram

AUTOMOTIVE PSoC 4 DEVICE PORTFOLIO

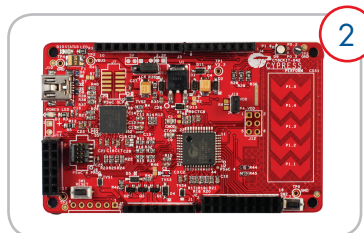
Part Number	CPU Speed	Flash (KB)	UDB	SAR ADC	CapSense	Opamps	CMP	TCPWM	SCB	GPIOs	Temperature
CY8C4124PVA-442	24 MHz	16KB	-	806 Ksps	Y	1	2	4	2	24	-40°C to +85°C
CY8C4125PVA-482	24 MHz	32KB	-	806 Ksps	Y	1	2	4	2	24	-40°C to +85°C
CY8C4244PVA-442	48 MHz	16KB	2	1 Msps	Y	1	2	4	2	24	-40°C to +85°C
CY8C4245PVA-482	48 MHz	32KB	4	1 Msps	Y	1	2	4	2	24	-40°C to +85°C
CY8C4124PVS-442	24 MHz	16KB	-	806 Ksps	Y	1	2	4	2	24	-40°C to +105°C
CY8C4125PVS-482	24 MHz	32KB	-	806 Ksps	Y	1	2	4	2	24	-40°C to +105°C
CY8C4244PVS-442	48 MHz	16KB	2	1 Msps	Y	1	2	4	2	24	-40°C to +105°C
CY8C4245PVS-482	48 MHz	32KB	4	1 Msps	Y	1	2	4	2	24	-40°C to +105°C

GET STARTED NOW



1

Download the PSoC Creator Integrated Design Environment  
[www.cypress.com/Creator](http://www.cypress.com/Creator)



2

Buy the \$25 Evaluation Kit (CY8CKIT-042)  
[www.cypress.com/go/CY8CKIT-042](http://www.cypress.com/go/CY8CKIT-042)



3

Download the Getting Started App Note  
[www.cypress.com/go/ANT9953](http://www.cypress.com/go/ANT9953)



4

Register for a free PSoC 4 workshop in your area  
[www.cypress.com/workshops](http://www.cypress.com/workshops)

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