CYPRESS
CY8C20xx7/S

ULTRA-LOW POWER CAPSENSE® CONTROLLER - BEST IN CLASS SNR AND NOISE IMMUNITY FOR PROXIMITY AND WATER TOLERANT DESIGNS

INTRODUCTION

The latest addition to the Cypress CapSense® controller portfolio – the ultra-low power CY8C20xx7/S family supports up to 31 capacitive touch sensing channels to enable buttons, sliders, wheels and proximity sensors. Featuring the industry's lowest average power consumption, 28 µA per sensor at a 125 ms scan rate makes it ideal for portable applications. The wide operating voltage range of 1.71 to 5.5 V adds flexibility to applications using regulated and unregulated battery and off-line power supplies.

Cypress's QuietZone™ technology based on years of R&D efforts and user-interface design experience enhances immunity against radiated and conducted noise. A key component of this technology is the Capacitive Sigma Delta (CSD PLUS™) sensing algorithm delivering superior SNR for optimal sensor performance even in extreme noisy environments. The CY8C20xx7S devices feature the patented SmartSense™ Auto-tuning which monitors and maintains optimal sensor performance in run time.

The CY8C20xx7/S family enables proximity sensing up to 30 cm at 1.8 V. These devices feature driven shield to enable water tolerance delivering accurate touch responses in moist conditions like mist and water droplets and eliminates false triggers in the presence of streaming water.

UI Design Challenges	Device Feature	Benefits
Power Consumption	Operating Voltage: 1.71 V – 5.5 V Deep Sleep: 100 nA, Power saving modes	Ideal for regulated and unregulated battery applications, 28 µA per sensor in run time
Noise Immunity	QuietZone™, CSD PLUS™ sensing algorithm	Enhances immunity against radiated and conducted noise, High SNR delivers a robust touch performance
Tuning	SmartSense™ Auto-tuning	Speeds time to market with no hassles of further manual tuning in production
Wet Conditions	Driven shield on 5 GPIO	Enables applications to handle mist, water droplets, or streaming water without triggering a false touch

FEATURES

UP TO 31 CAPSENSE INPUTS TO ENABLE A COMBINATION OF BUTTONS, WHEELS SLIDERS AND PROXIMITY DETECTION SENSORS

ULTRA-LOW POWER CAPSENSE® CONTROLLER

- Operating Range: 1.71 V – 5.5 V
- Deep Sleep: 100 nA
- Power savings modes for optimized performance
- 28 µA per sensor at 125 ms scan rate

QUIETZONE™

- Enhanced immunity against radiated and conducted noise
- CSD PLUS sensing algorithm offers robust noise performance
- High Sensitivity: 0.1 pF of finger capacitance

SMARTSENSE™ AUTO-TUNING

- Eliminate the hassles of manual tuning
- Sets and maintains the system SNR for optimal touch performance during run time

WATER TOLERANCE

- Driven shield on 5 output pins
  - Provides touch accuracy in wet conditions
  - Simplifies routing
- Guard Sensor rejects spilt or flowing water

PROXIMITY

- Supports PCB trace and single wire antenna sensing
- Up to 30 cm

SMALL FORM FACTOR PACKAGING

CYPRESS
PERFORM

APPLICATIONS

The CY8C20xx7/S is ideal for:

- White goods and small home appliances
- PC peripherals
- Printers
- Building automation
- Industrial
- Fitness equipment
- Mobile phones and tablets
- Consumer products like TV, monitor, STB, DVD players etc.

SIMPLIFIED TOUCH SENSING DEVELOPMENT

PSoC Designer™ combines drag and drop convenience with the ability to add sophisticated C or Assembly language code on the fly. The software also has hundreds of time-saving pre-characterized and configured analog and digital user modules to shorten touch-sensing development time.

PSoC Programmer is a flexible, integrated application for programming PSoC devices. It is used with PSoC Designer and PSoC Creator™ to program any design onto a PSoC device. PSoC Programmer offers the user a simple GUI that connects to programming hardware to program and configure the user modules.

PSoC Programmer
Software Development Suite
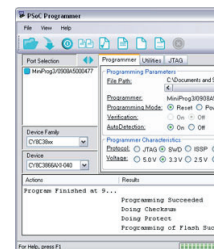
PSoC Designer™
Software Development Suite
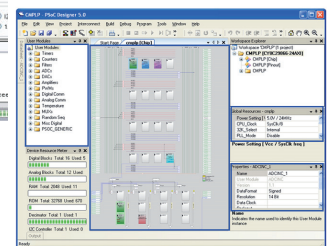
Supports PSoC: **1** 3 5

PRODUCT INFORMATION

Part number	Package	CapSense Channels	Flash (KB)	SRAM (KB)
CY820xx7	16 SOIC, 16 QFN, 24 QFN,32 QFN,48 QFN, 30-ball WLCSP	12,18,26,27,31	8, 16, 32	1, 2
CY820xx7S	16 SOIC, 16 QFN, 24 QFN,32 QFN,48 QFN	12,18,27,31	16, 32	2

GET STARTED NOW

Go to http://www.cypress.com/go/capsense for more information.

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