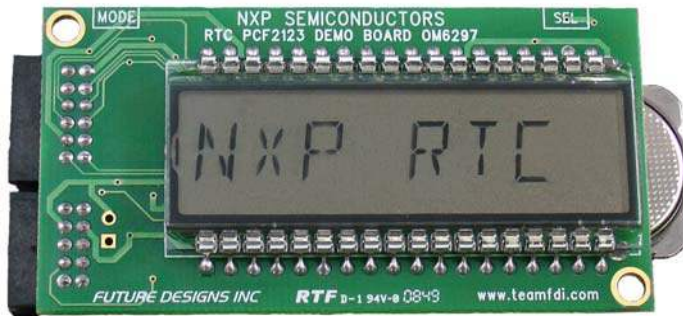


# RTC Demo PCF2123



## Highlights

- Low power, SPI based Real Time Clock driven by a 32.768 KHz quartz crystal
- Supports Two Different RTC Options in a TSSOP-14 Package
  - PCF2123
  - PCA2125
- Available Low Power LM75B I2C Temperature Sensor
- Powered by a single 3V coin cell battery
- 8-character alphanumeric LCD
- I2C based LCD driver with 128 segment support
- Two miniature push-buttons for user control; additional User Interface via header
- User reprogrammable via 10-pin ICP header

The NXP RTC Demo PCF2123 is a reference design for a low power Real Time Clock and LCD solution with an available I2C temperature sensor. The Demo Board is controlled by a simple two-button user interface (MODE and SELECT). Example code for several sample applications: a programmable time and date display, a programmable countdown timer, and a repeating pattern of text lines, can all be found on the website at [www.teamFDI.com/RTCDemoPCF2123](http://www.teamFDI.com/RTCDemoPCF2123). The user can edit this code and download to the reprogrammable Flash microcontroller via a 10-pin header included on the board using any external ICP style programmer.

A small USB based ICP programmer that allows ICP programming of the P89LPC932A1 and many other NXP microcontrollers from any PC is available from Future Designs, Inc. Details can be found at [www.teamfdi.com/USB-ICP](http://www.teamfdi.com/USB-ICP).

## Features

### PCF2123 / PCA2125 Low Power SPI based RTC

- Resolution - sec, minutes, hours, weekday, day, month, year
- Operating voltage 1.2 to 5.5V
- Low standby current for SuperCap
  - typ 100nA at 2.0V for PCF2123
  - typ 0.55uA at 3.0V for PCA2125
- Three-line SPI with separate data I/O
- Programmable timer / alarm functions with interrupt capability
- Internal power-on reset
- 32.768 KHz quartz crystal

### LM75B Low Power Temp Sensor

- Temperature resolution of 0.125 °C
- Pin-for-Pin Replacement for LM75 and LM75A standards
- Temperatures range from -55 °C to +125 °C

### P89LPC932A1 8-bit, 2-clock, 80C51 MCU

- 8 KB Flash, 256 bytes RAM
- 28-pin PLCC package with Internal RC Oscillator
- UART, ADC, DAC, two 16-bit timers & RTC, KBI
- WDT with on chip 400kHz oscillator

## Ordering Information

Part Number: RTC-DEMO-PCF2123

Order Online Now at  
[www.digikey.com](http://www.digikey.com)

NXP SEMI: OM6297

Warranty: 30-day money back guarantee  
Availability: Stock

(256) 883-1240 Phone  
(256) 883-1241 FAX

[www.teamfdi.com](http://www.teamfdi.com)

### Contents

RTC Demo PCF2123 Board:

- PCF2123 or PCA2125 RTC
- LM75B Temp Sensor
- P89LPC932A1 8KB Flash microcontroller
- PCF8562TT 128-segment LCD Driver
- 8-character alphanumeric LCD
- 3V Coin Cell Battery

Visit [www.teamfdi.com/RTCDemoPCF2123](http://www.teamfdi.com/RTCDemoPCF2123) for:

- Demo application code
- Schematic
- In Circuit Programming (ICP) Documentation

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