



**Z i L O G**

**High-Performance 8-Bit Microcontrollers**

## **Z8 Encore!<sup>®</sup> 4K Series**

### **Product Brief**

PB014206-0106

**Z8 Encore!**

### **Product Block Diagram**

|                                    |                      |                               |
|------------------------------------|----------------------|-------------------------------|
| 1–4 KB Flash                       | 256 B–1 KB RAM       | Up to 8 10-Bit ADC Channels   |
| Watch-Dog Timer with RC Oscillator | <b>5 MHz eZ8 CPU</b> | Two 16-Bit Timers/PWM         |
| Analog Comparator                  |                      | POR/VBO & Reset Control       |
| UART with IrDA                     | On-Chip Debugger     | Internal Precision Oscillator |
| Up to 24 General-Purpose I/O Pins  |                      |                               |

### **Overview**

The Z8 Encore!<sup>®</sup> 4K Series Flash microcontrollers are based on the ZiLOG<sup>®</sup> eZ8 CPU. The Z8 Encore!<sup>®</sup> 4K Series MCU family of devices sets a new standard of performance and on-chip peripherals.

The Z8 Encore!<sup>®</sup> 4K Series feature support up to 4 KB of Flash program memory and 1KB register RAM.

The Z8 Encore!<sup>®</sup> 4K Series devices feature up to eight single-ended/differential channels of 10-bit A/D conversion.

These devices include two enhanced 16-bit reloadable timers featuring Capture, Compare, and PWM capabilities.

Up to 18 vectored interrupts with programmable priorities provide increased application flexibility.

The Z8 Encore!<sup>®</sup> 4K Series features an on-chip Internal Precision Oscillator (5 MHz/32 KHz) as a trimmable clock source that requires no external components.

The new single-pin debugger and programming interface simplifies code development and allows for easy in-circuit programming.

The full-duplex UART provides serial communications and IrDA encoding and decoding capability. The UART baud rate generator (BRG) can be configured and used as a basic 16-bit timer.

### **Z8 Encore!<sup>®</sup> 4K Series Features**

Key features of Z8 Encore!<sup>®</sup> 4K Series MCU include:

- 5 MHz eZ8 CPU core
- Up to 4 KB Flash memory with in-circuit programming capability
- Up to 1 KB register RAM
- Up to 8 channels 10-bit analog-to-digital converter (ADC)
- On-chip analog comparator
- Full-duplex 9-bit UART with bus transceiver Driver Enable Control
- The UART baud rate generator (BRG) can be configured and used as a basic 16-bit timer
- Infrared Data Association (IrDA)-compliant infrared encoder/decoders, integrated with UART
- Two 16-bit timers with capture, compare, and PWM capabilities
- Watch-Dog Timer (WDT) with internal RC oscillator



- 16 to 24 I/O pins depending upon package
- Direct LED Drive with programmable drive strengths
- Up to 18 interrupts with configurable priority
- On-chip debugger
- Voltage Brown-Out Protection (VBO)
- Power-On Reset (POR)
- Internal Precision Oscillator (5 MHz/32 KHz)
- 2.7 to 3.6 V operating voltage with 5 V-tolerant inputs
- 8-pin, 20-pin, and 28-pin packages
- 0°C to +70°C standard temperature and –40°C to +105°C extended temperature operating ranges

## eZ8 CPU Features

The eZ8 CPU, ZiLOGs latest 8-bit central processing unit, meets the continuing demand for faster and more code-efficient microcontrollers. The eZ8 CPU features include:

- New instructions for improved performance including BIT, BSWAP, BTJ, CPC, LDC, LDCI, LEA, MULT, and SRL
- New instructions support 12-bit linear addressing of the Register File
- Compatible with existing Z8<sup>®</sup> code
- Up to 10 MIPS operation
- C-Compiler friendly
- 2 to 9 clock cycles per instruction

## Z8 Encore!<sup>®</sup> 4K Series Development Kit

The Z8 Encore!<sup>®</sup> 4K Series Development System includes the following:

### Hardware

- Z8 Encore!<sup>®</sup> 4K Series Development Board
- Smart Cable for PC to Z8 Encore!<sup>®</sup> 4K Series Development Board (DB9 to 6-pin male)
- 5 V DC power supply

### Software on CD-ROM

- ZDS II–Z8 Encore!<sup>®</sup> IDE with ANSI C-Compiler
- Sample code
- Document browser
- Acrobat Reader<sup>®</sup>

### Documentation

- Quick Start Guide
- Registration card
- Z8 Encore!<sup>®</sup> 4K Series technical documentation (on CD-ROM)
  - Development Kit User Manual
  - ZDSII IDE User Manual
  - eZ8 CPU User Manual
  - Product Specification
  - Product Brief
  - Application Notes

## Architecture

Figure 1 illustrates the Z8 Encore!® 4K Series block diagram.

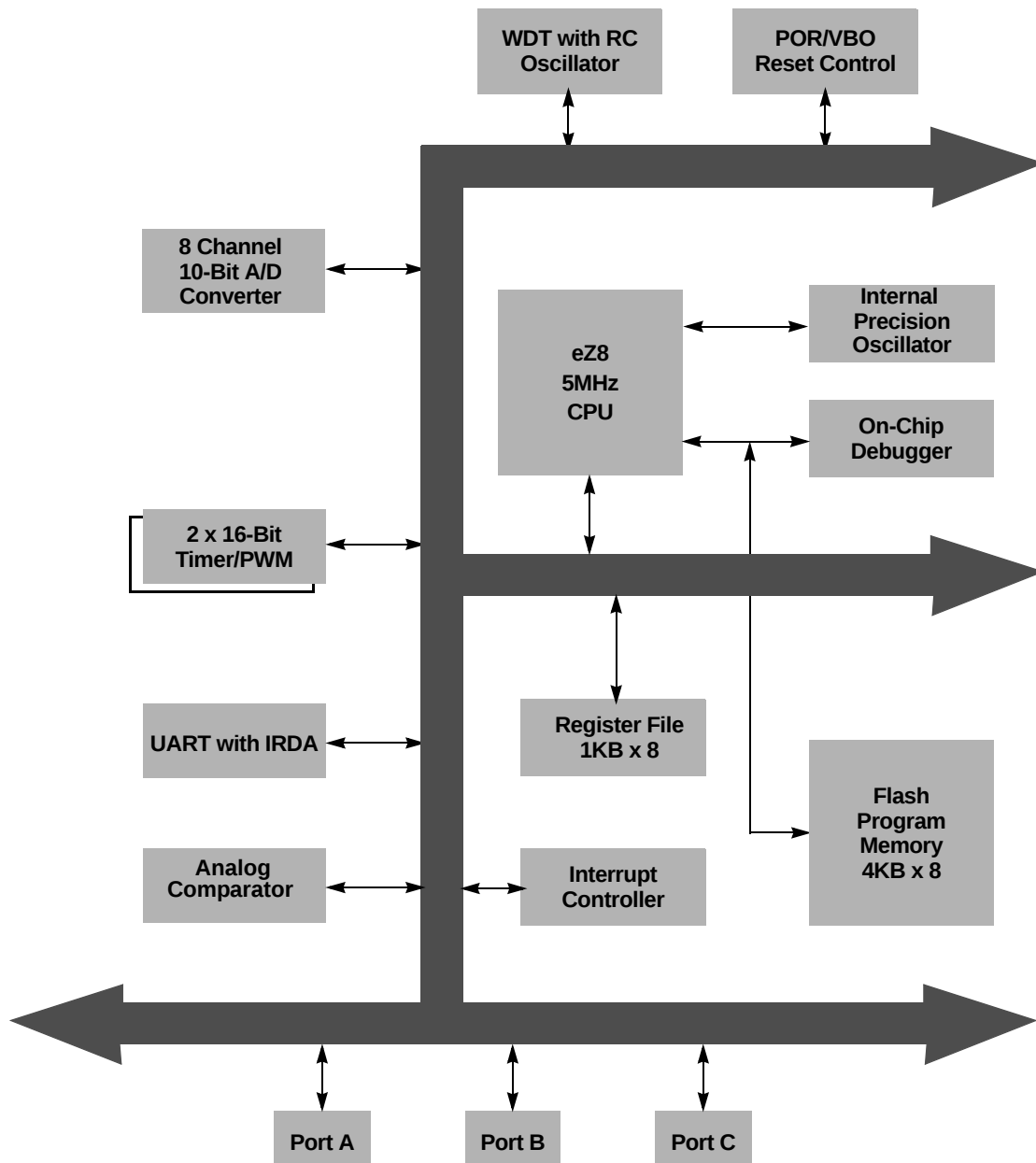


Figure 1. Z8 Encore!® 4K Series Block Diagram



## Ordering Information

You can order the Z8 Encore!® 4K Series from ZiLOG®, referencing the following part numbers. For more information regarding ordering, please consult your local ZiLOG® sales office. The ZiLOG® website [www.zilog.com](http://www.zilog.com) lists all regional offices and provides additional Z8 Encore!® product information.

| Part Number                                                           | Flash | RAM  | I/O Lines | Interrupts | 16-Bit Timers w/PWM | 10-Bit A/D Channels | UART with IrDA | Comparator | Description         |
|-----------------------------------------------------------------------|-------|------|-----------|------------|---------------------|---------------------|----------------|------------|---------------------|
| <b>Z8 Encore!® with 4KB Flash, 10-Bit Analog-to-Digital Converter</b> |       |      |           |            |                     |                     |                |            |                     |
| <b>Standard Temperature: 0° to +70°C</b>                              |       |      |           |            |                     |                     |                |            |                     |
| Z8F0423PB005SC                                                        | 4 KB  | 1 KB | 6         | 12         | 2                   | 4                   | 1              | 1          | PDIP 8-pin package  |
| Z8F0423QB005SC                                                        | 4 KB  | 1 KB | 6         | 12         | 2                   | 4                   | 1              | 1          | QFN 8-pin package   |
| Z8F0423SB005SC                                                        | 4 KB  | 1 KB | 6         | 12         | 2                   | 4                   | 1              | 1          | SOIC 8-pin package  |
| Z8F0423SH005SC                                                        | 4 KB  | 1 KB | 16        | 18         | 2                   | 7                   | 1              | 1          | SOIC 20-pin package |
| Z8F0423HH005SC                                                        | 4 KB  | 1 KB | 16        | 18         | 2                   | 7                   | 1              | 1          | SSOP 20-pin package |
| Z8F0423PH005SC                                                        | 4 KB  | 1 KB | 16        | 18         | 2                   | 7                   | 1              | 1          | PDIP 20-pin package |
| Z8F0423SJ005SC                                                        | 4 KB  | 1 KB | 22        | 18         | 2                   | 8                   | 1              | 1          | SOIC 28-pin package |
| Z8F0423HJ005SC                                                        | 4 KB  | 1 KB | 22        | 18         | 2                   | 8                   | 1              | 1          | SSOP 28-pin package |
| Z8F0423PJ005SC                                                        | 4 KB  | 1 KB | 22        | 18         | 2                   | 8                   | 1              | 1          | PDIP 28-pin package |
| <b>Extended Temperature: -40° to +105°C</b>                           |       |      |           |            |                     |                     |                |            |                     |
| Z8F0423PB005EC                                                        | 4 KB  | 1 KB | 6         | 12         | 2                   | 4                   | 1              | 1          | PDIP 8-pin package  |
| Z8F0423QB005EC                                                        | 4 KB  | 1 KB | 6         | 12         | 2                   | 4                   | 1              | 1          | QFN 8-pin package   |
| Z8F0423SB005EC                                                        | 4 KB  | 1 KB | 6         | 12         | 2                   | 4                   | 1              | 1          | SOIC 8-pin package  |
| Z8F0423SH005EC                                                        | 4 KB  | 1 KB | 16        | 18         | 2                   | 7                   | 1              | 1          | SOIC 20-pin package |
| Z8F0423HH005EC                                                        | 4 KB  | 1 KB | 16        | 18         | 2                   | 7                   | 1              | 1          | SSOP 20-pin package |
| Z8F0423PH005EC                                                        | 4 KB  | 1 KB | 16        | 18         | 2                   | 7                   | 1              | 1          | PDIP 20-pin package |
| Z8F0423SJ005EC                                                        | 4 KB  | 1 KB | 22        | 18         | 2                   | 8                   | 1              | 1          | SOIC 28-pin package |
| Z8F0423HJ005EC                                                        | 4 KB  | 1 KB | 22        | 18         | 2                   | 8                   | 1              | 1          | SSOP 28-pin package |
| Z8F0423PJ005EC                                                        | 4 KB  | 1 KB | 22        | 18         | 2                   | 8                   | 1              | 1          | PDIP 28-pin package |
| Replace C with G for Lead-Free Packaging                              |       |      |           |            |                     |                     |                |            |                     |



| Part Number                                | Flash | RAM  | I/O Lines | Interrupts | 16-Bit Timers w/PWM | 10-Bit A/D Channels | UART with IrDA | Comparator | Description         |
|--------------------------------------------|-------|------|-----------|------------|---------------------|---------------------|----------------|------------|---------------------|
| <b>Z8 Encore!® with 4KB Flash</b>          |       |      |           |            |                     |                     |                |            |                     |
| <b>Standard Temperature: 0° to 70°C</b>    |       |      |           |            |                     |                     |                |            |                     |
| Z8F0413PB005SC                             | 4 KB  | 1 KB | 6         | 12         | 2                   | 0                   | 1              | 1          | PDIP 8-pin package  |
| Z8F0413QB005SC                             | 4 KB  | 1 KB | 6         | 12         | 2                   | 0                   | 1              | 1          | QFN 8-pin package   |
| Z8F0413SB005SC                             | 4 KB  | 1 KB | 6         | 12         | 2                   | 0                   | 1              | 1          | SOIC 8-pin package  |
| Z8F0413SH005SC                             | 4 KB  | 1 KB | 16        | 18         | 2                   | 0                   | 1              | 1          | SOIC 20-pin package |
| Z8F0413HH005SC                             | 4 KB  | 1 KB | 16        | 18         | 2                   | 0                   | 1              | 1          | SSOP 20-pin package |
| Z8F0413PH005SC                             | 4 KB  | 1 KB | 16        | 18         | 2                   | 0                   | 1              | 1          | PDIP 20-pin package |
| Z8F0413SJ005SC                             | 4 KB  | 1 KB | 24        | 18         | 2                   | 0                   | 1              | 1          | SOIC 28-pin package |
| Z8F0413HJ005SC                             | 4 KB  | 1 KB | 24        | 18         | 2                   | 0                   | 1              | 1          | SSOP 28-pin package |
| Z8F0413PJ005SC                             | 4 KB  | 1 KB | 24        | 18         | 2                   | 0                   | 1              | 1          | PDIP 28-pin package |
| <b>Extended Temperature: -40° to 105°C</b> |       |      |           |            |                     |                     |                |            |                     |
| Z8F0413PB005EC                             | 4 KB  | 1 KB | 6         | 12         | 2                   | 0                   | 1              | 1          | PDIP 8-pin package  |
| Z8F0413QB005EC                             | 4 KB  | 1 KB | 6         | 12         | 2                   | 0                   | 1              | 1          | QFN 8-pin package   |
| Z8F0413SB005EC                             | 4 KB  | 1 KB | 6         | 12         | 2                   | 0                   | 1              | 1          | SOIC 8-pin package  |
| Z8F0413SH005EC                             | 4 KB  | 1 KB | 16        | 18         | 2                   | 0                   | 1              | 1          | SOIC 20-pin package |
| Z8F0413HH005EC                             | 4 KB  | 1 KB | 16        | 18         | 2                   | 0                   | 1              | 1          | SSOP 20-pin package |
| Z8F0413PH005EC                             | 4 KB  | 1 KB | 16        | 18         | 2                   | 0                   | 1              | 1          | PDIP 20-pin package |
| Z8F0413SJ005EC                             | 4 KB  | 1 KB | 24        | 18         | 2                   | 0                   | 1              | 1          | SOIC 28-pin package |
| Z8F0413HJ005EC                             | 4 KB  | 1 KB | 24        | 18         | 2                   | 0                   | 1              | 1          | SSOP 28-pin package |
| Z8F0413PJ005EC                             | 4 KB  | 1 KB | 24        | 18         | 2                   | 0                   | 1              | 1          | PDIP 28-pin package |
| Replace C with G for Lead-Free Packaging   |       |      |           |            |                     |                     |                |            |                     |



| Part Number                                                           | Flash | RAM   | I/O Lines | Interrupts | 16-Bit Timers w/PWM | 10-Bit A/D Channels | UART with IrDA | Comparator | Description         |
|-----------------------------------------------------------------------|-------|-------|-----------|------------|---------------------|---------------------|----------------|------------|---------------------|
| <b>Z8 Encore!® with 2KB Flash, 10-Bit analog-to-Digital Converter</b> |       |       |           |            |                     |                     |                |            |                     |
| <b>Standard Temperature: 0° to 70°C</b>                               |       |       |           |            |                     |                     |                |            |                     |
| Z8F0223PB005SC                                                        | 2 KB  | 512 B | 6         | 12         | 2                   | 4                   | 1              | 1          | PDIP 8-pin package  |
| Z8F0223QB005SC                                                        | 2 KB  | 512 B | 6         | 12         | 2                   | 4                   | 1              | 1          | QFN 8-pin package   |
| Z8F0223SB005SC                                                        | 2 KB  | 512 B | 6         | 12         | 2                   | 4                   | 1              | 1          | SOIC 8-pin package  |
| Z8F0223SH005SC                                                        | 2 KB  | 512 B | 16        | 18         | 2                   | 7                   | 1              | 1          | SOIC 20-pin package |
| Z8F0223HH005SC                                                        | 2 KB  | 512 B | 16        | 18         | 2                   | 7                   | 1              | 1          | SSOP 20-pin package |
| Z8F0223PH005SC                                                        | 2 KB  | 512 B | 16        | 18         | 2                   | 7                   | 1              | 1          | PDIP 20-pin package |
| Z8F0223SJ005SC                                                        | 2 KB  | 512 B | 22        | 18         | 2                   | 8                   | 1              | 1          | SOIC 28-pin package |
| Z8F0223HJ005SC                                                        | 2 KB  | 512 B | 22        | 18         | 2                   | 8                   | 1              | 1          | SSOP 28-pin package |
| Z8F0223PJ005SC                                                        | 2 KB  | 512 B | 22        | 18         | 2                   | 8                   | 1              | 1          | PDIP 28-pin package |
| <b>Extended Temperature: -40° to 105°C</b>                            |       |       |           |            |                     |                     |                |            |                     |
| Z8F0223PB005EC                                                        | 2 KB  | 512 B | 6         | 12         | 2                   | 4                   | 1              | 1          | PDIP 8-pin package  |
| Z8F0223QB005EC                                                        | 2 KB  | 512 B | 6         | 12         | 2                   | 4                   | 1              | 1          | QFN 8-pin package   |
| Z8F0223SB005EC                                                        | 2 KB  | 512 B | 6         | 12         | 2                   | 4                   | 1              | 1          | SOIC 8-pin package  |
| Z8F0223SH005EC                                                        | 2 KB  | 512 B | 16        | 18         | 2                   | 7                   | 1              | 1          | SOIC 20-pin package |
| Z8F0223HH005EC                                                        | 2 KB  | 512 B | 16        | 18         | 2                   | 7                   | 1              | 1          | SSOP 20-pin package |
| Z8F0223PH005EC                                                        | 2 KB  | 512 B | 16        | 18         | 2                   | 7                   | 1              | 1          | PDIP 20-pin package |
| Z8F0223SJ005EC                                                        | 2 KB  | 512 B | 22        | 18         | 2                   | 8                   | 1              | 1          | SOIC 28-pin package |
| Z8F0223HJ005EC                                                        | 2 KB  | 512 B | 22        | 18         | 2                   | 8                   | 1              | 1          | SSOP 28-pin package |
| Z8F0223PJ005EC                                                        | 2 KB  | 512 B | 22        | 18         | 2                   | 8                   | 1              | 1          | PDIP 28-pin package |
| Replace C with G for Lead-Free Packaging                              |       |       |           |            |                     |                     |                |            |                     |



| Part Number                                | Flash | RAM   | I/O Lines | Interrupts | 16-Bit Timers w/PWM | 10-Bit A/D Channels | UART with IrDA | Comparator | Description         |
|--------------------------------------------|-------|-------|-----------|------------|---------------------|---------------------|----------------|------------|---------------------|
| <b>Z8 Encore!® with 2KB Flash</b>          |       |       |           |            |                     |                     |                |            |                     |
| <b>Standard Temperature: 0° to 70°C</b>    |       |       |           |            |                     |                     |                |            |                     |
| Z8F0213PB005SC                             | 2 KB  | 512 B | 6         | 12         | 2                   | 0                   | 1              | 1          | PDIP 8-pin package  |
| Z8F0213QB005SC                             | 2 KB  | 512 B | 6         | 12         | 2                   | 0                   | 1              | 1          | QFN 8-pin package   |
| Z8F0213SB005SC                             | 2 KB  | 512 B | 6         | 12         | 2                   | 0                   | 1              | 1          | SOIC 8-pin package  |
| Z8F0213SH005SC                             | 2 KB  | 512 B | 16        | 18         | 2                   | 0                   | 1              | 1          | SOIC 20-pin package |
| Z8F0213HH005SC                             | 2 KB  | 512 B | 16        | 18         | 2                   | 0                   | 1              | 1          | SSOP 20-pin package |
| Z8F0213PH005SC                             | 2 KB  | 512 B | 16        | 18         | 2                   | 0                   | 1              | 1          | PDIP 20-pin package |
| Z8F0213SJ005SC                             | 2 KB  | 512 B | 24        | 18         | 2                   | 0                   | 1              | 1          | SOIC 28-pin package |
| Z8F0213HJ005SC                             | 2 KB  | 512 B | 24        | 18         | 2                   | 0                   | 1              | 1          | SSOP 28-pin package |
| Z8F0213PJ005SC                             | 2 KB  | 512 B | 24        | 18         | 2                   | 0                   | 1              | 1          | PDIP 28-pin package |
| <b>Extended Temperature: -40° to 105°C</b> |       |       |           |            |                     |                     |                |            |                     |
| Z8F0213PB005EC                             | 2 KB  | 512 B | 6         | 12         | 2                   | 0                   | 1              | 1          | PDIP 8-pin package  |
| Z8F0213QB005EC                             | 2 KB  | 512 B | 6         | 12         | 2                   | 0                   | 1              | 1          | QFN 8-pin package   |
| Z8F0213SB005EC                             | 2 KB  | 512 B | 6         | 12         | 2                   | 0                   | 1              | 1          | SOIC 8-pin package  |
| Z8F0213SH005EC                             | 2 KB  | 512 B | 16        | 18         | 2                   | 0                   | 1              | 1          | SOIC 20-pin package |
| Z8F0213HH005EC                             | 2 KB  | 512 B | 16        | 18         | 2                   | 0                   | 1              | 1          | SSOP 20-pin package |
| Z8F0213PH005EC                             | 2 KB  | 512 B | 16        | 18         | 2                   | 0                   | 1              | 1          | PDIP 20-pin package |
| Z8F0213SJ005EC                             | 2 KB  | 512 B | 24        | 18         | 2                   | 0                   | 1              | 1          | SOIC 28-pin package |
| Z8F0213HJ005EC                             | 2 KB  | 512 B | 24        | 18         | 2                   | 0                   | 1              | 1          | SSOP 28-pin package |
| Z8F0213PJ005EC                             | 2 KB  | 512 B | 24        | 18         | 2                   | 0                   | 1              | 1          | PDIP 28-pin package |
| Replace C with G for Lead-Free Packaging   |       |       |           |            |                     |                     |                |            |                     |



| Part Number                                                           | Flash | RAM   | I/O Lines | Interrupts | 16-Bit Timers w/PWM | 10-Bit A/D Channels | UART with IrDA | Comparator | Description         |
|-----------------------------------------------------------------------|-------|-------|-----------|------------|---------------------|---------------------|----------------|------------|---------------------|
| <b>Z8 Encore!® with 1KB Flash, 10-Bit Analog-to-Digital Converter</b> |       |       |           |            |                     |                     |                |            |                     |
| <b>Standard Temperature: 0° to 70°C</b>                               |       |       |           |            |                     |                     |                |            |                     |
| Z8F0123PB005SC                                                        | 1 KB  | 256 B | 6         | 12         | 2                   | 4                   | 1              | 1          | PDIP 8-pin package  |
| Z8F0123QB005SC                                                        | 1 KB  | 256 B | 6         | 12         | 2                   | 4                   | 1              | 1          | QFN 8-pin package   |
| Z8F0123SB005SC                                                        | 1 KB  | 256 B | 6         | 12         | 2                   | 4                   | 1              | 1          | SOIC 8-pin package  |
| Z8F0123SH005SC                                                        | 1 KB  | 256 B | 16        | 18         | 2                   | 7                   | 1              | 1          | SOIC 20-pin package |
| Z8F0123HH005SC                                                        | 1 KB  | 256 B | 16        | 18         | 2                   | 7                   | 1              | 1          | SSOP 20-pin package |
| Z8F0123PH005SC                                                        | 1 KB  | 256 B | 16        | 18         | 2                   | 7                   | 1              | 1          | PDIP 20-pin package |
| Z8F0123SJ005SC                                                        | 1 KB  | 256 B | 22        | 18         | 2                   | 8                   | 1              | 1          | SOIC 28-pin package |
| Z8F0123HJ005SC                                                        | 1 KB  | 256 B | 22        | 18         | 2                   | 8                   | 1              | 1          | SSOP 28-pin package |
| Z8F0123PJ005SC                                                        | 1 KB  | 256 B | 22        | 18         | 2                   | 8                   | 1              | 1          | PDIP 28-pin package |
| <b>Extended Temperature: -40° to 105°C</b>                            |       |       |           |            |                     |                     |                |            |                     |
| Z8F0123PB005EC                                                        | 1 KB  | 256 B | 6         | 12         | 2                   | 4                   | 1              | 1          | PDIP 8-pin package  |
| Z8F0123QB005EC                                                        | 1 KB  | 256 B | 6         | 12         | 2                   | 4                   | 1              | 1          | QFN 8-pin package   |
| Z8F0123SB005EC                                                        | 1 KB  | 256 B | 6         | 12         | 2                   | 4                   | 1              | 1          | SOIC 8-pin package  |
| Z8F0123SH005EC                                                        | 1 KB  | 256 B | 16        | 18         | 2                   | 7                   | 1              | 1          | SOIC 20-pin package |
| Z8F0123HH005EC                                                        | 1 KB  | 256 B | 16        | 18         | 2                   | 7                   | 1              | 1          | SSOP 20-pin package |
| Z8F0123PH005EC                                                        | 1 KB  | 256 B | 16        | 18         | 2                   | 7                   | 1              | 1          | PDIP 20-pin package |
| Z8F0123SJ005EC                                                        | 1 KB  | 256 B | 22        | 18         | 2                   | 8                   | 1              | 1          | SOIC 28-pin package |
| Z8F0123HJ005EC                                                        | 1 KB  | 256 B | 22        | 18         | 2                   | 8                   | 1              | 1          | SSOP 28-pin package |
| Z8F0123PJ005EC                                                        | 1 KB  | 256 B | 22        | 18         | 2                   | 8                   | 1              | 1          | PDIP 28-pin package |
| Replace C with G for Lead-Free Packaging                              |       |       |           |            |                     |                     |                |            |                     |



| Part Number                                | Flash | RAM   | I/O Lines | Interrupts | 16-Bit Timers w/PWM | 10-Bit A/D Channels | UART with IrDA | Comparator | Description                       |
|--------------------------------------------|-------|-------|-----------|------------|---------------------|---------------------|----------------|------------|-----------------------------------|
| <b>Z8 Encore!® with 1KB Flash</b>          |       |       |           |            |                     |                     |                |            |                                   |
| <b>Standard Temperature: 0° to 70°C</b>    |       |       |           |            |                     |                     |                |            |                                   |
| Z8F0113PB005SC                             | 1 KB  | 256 B | 6         | 12         | 2                   | 0                   | 1              | 1          | PDIP 8-pin package                |
| Z8F0113QB005SC                             | 1 KB  | 256 B | 6         | 12         | 2                   | 0                   | 1              | 1          | QFN 8-pin package                 |
| Z8F0113SB005SC                             | 1 KB  | 256 B | 6         | 12         | 2                   | 0                   | 1              | 1          | SOIC 8-pin package                |
| Z8F0113SH005SC                             | 1 KB  | 256 B | 16        | 18         | 2                   | 0                   | 1              | 1          | SOIC 20-pin package               |
| Z8F0113HH005SC                             | 1 KB  | 256 B | 16        | 18         | 2                   | 0                   | 1              | 1          | SSOP 20-pin package               |
| Z8F0113PH005SC                             | 1 KB  | 256 B | 16        | 18         | 2                   | 0                   | 1              | 1          | PDIP 20-pin package               |
| Z8F0113SJ005SC                             | 1 KB  | 256 B | 24        | 18         | 2                   | 0                   | 1              | 1          | SOIC 28-pin package               |
| Z8F0113HJ005SC                             | 1 KB  | 256 B | 24        | 18         | 2                   | 0                   | 1              | 1          | SSOP 28-pin package               |
| Z8F0113PJ005SC                             | 1 KB  | 256 B | 24        | 18         | 2                   | 0                   | 1              | 1          | PDIP 28-pin package               |
| <b>Extended Temperature: -40° to 105°C</b> |       |       |           |            |                     |                     |                |            |                                   |
| Z8F0113PB005EC                             | 1 KB  | 256 B | 6         | 12         | 2                   | 0                   | 1              | 1          | PDIP 8-pin package                |
| Z8F0113QB005EC                             | 1 KB  | 256 B | 6         | 12         | 2                   | 0                   | 1              | 1          | QFN 8-pin package                 |
| Z8F0113SB005EC                             | 1 KB  | 256 B | 6         | 12         | 2                   | 0                   | 1              | 1          | SOIC 8-pin package                |
| Z8F0113SH005EC                             | 1 KB  | 256 B | 16        | 18         | 2                   | 0                   | 1              | 1          | SOIC 20-pin package               |
| Z8F0113HH005EC                             | 1 KB  | 256 B | 16        | 18         | 2                   | 0                   | 1              | 1          | SSOP 20-pin package               |
| Z8F0113PH005EC                             | 1 KB  | 256 B | 16        | 18         | 2                   | 0                   | 1              | 1          | PDIP 20-pin package               |
| Z8F0113SJ005EC                             | 1 KB  | 256 B | 24        | 18         | 2                   | 0                   | 1              | 1          | SOIC 28-pin package               |
| Z8F0113HJ005EC                             | 1 KB  | 256 B | 24        | 18         | 2                   | 0                   | 1              | 1          | SSOP 28-pin package               |
| Z8F0113PJ005EC                             | 1 KB  | 256 B | 24        | 18         | 2                   | 0                   | 1              | 1          | PDIP 28-pin package               |
| Replace C with G for Lead-Free Packaging   |       |       |           |            |                     |                     |                |            |                                   |
| Z8F04A28100KIT                             |       |       |           |            |                     |                     |                |            | 20-Pin and 28-Pin Development Kit |
| Z8F04A08100KIT                             |       |       |           |            |                     |                     |                |            | 8-Pin Development Kit             |
| ZUSBSC0100ZAC                              |       |       |           |            |                     |                     |                |            | USB Smart Cable Accessory Kit     |



## Part Number Suffix Designations

Z8 F 04 23 S H 005 S C

### Environmental Flow:

C = Plastic Standard  
G = Lead Free

### Temperature Range (°C):

S = Standard, 0 to +70  
E = Extended, -40 to +105

### Speed:

005 = 5 MHz

### Pin Count:

B = 8  
H = 20  
J = 28

### Package:

Q = QFN  
H = SSOP  
P = PDIP  
S = SOIC

### Device Type

### Memory Size:

04 = 4 KB Flash, 1 KB RAM  
02 = 2 KB Flash, 512 B RAM  
01 = 1 KB Flash, 256 B RAM

### Memory Type:

F = Flash

### Device Family



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