



Z8 GP™ OTP Microcontrollers

ZGP323H OTP MCU Family

Product Brief

PB015005-1105

Product Block Diagram

Watch-Dog Timer		Up to 32KB OTP	Power-On Reset
T8 Timer Capture & Transmit		Z8® Core	2 Comparators
T16 Timer Capture & Transmit			Low Battery Voltage Detection
237 Bytes RAM		High Battery Voltage Detection	
Port 0 8 I/O	Port 1 8 I/O	Port 2 8 I/O	Port 3 8 I/O

Features

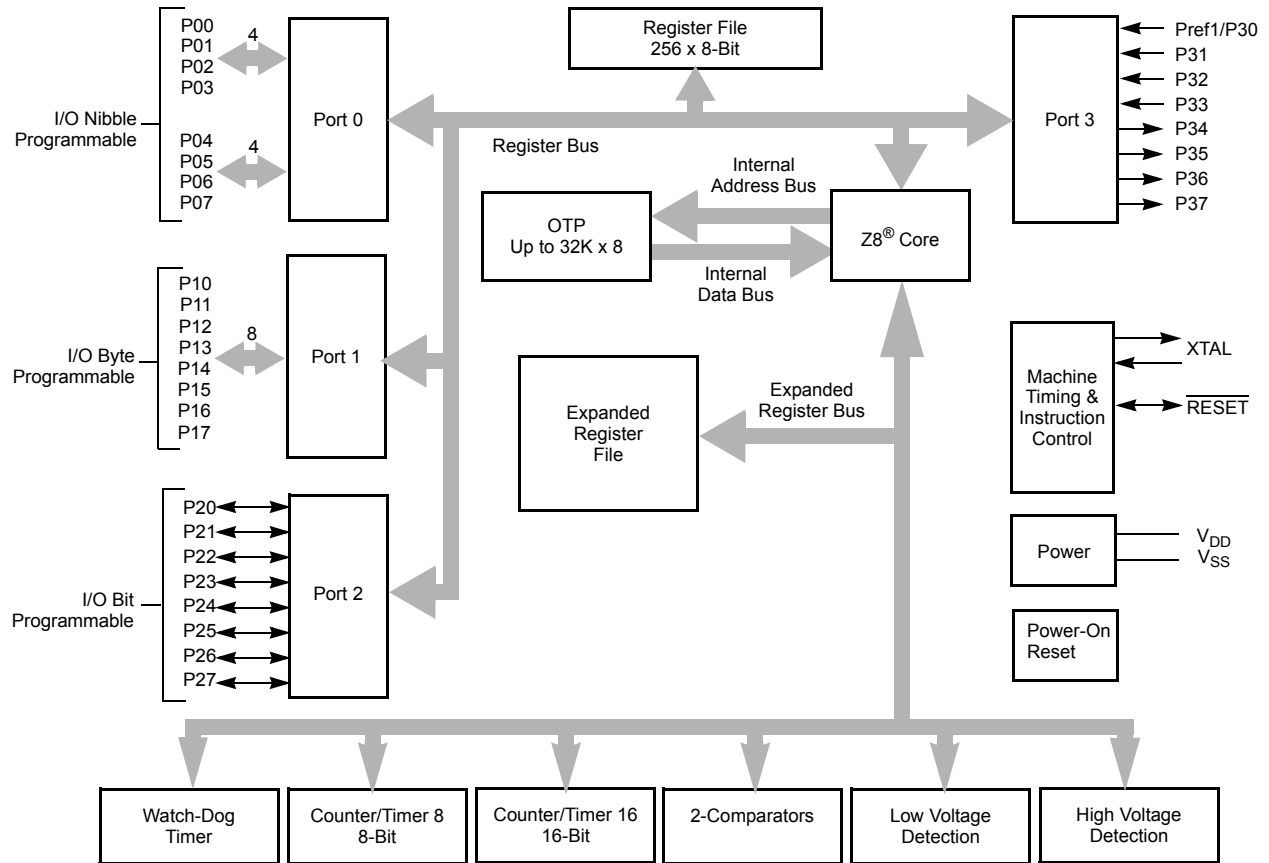
- 2.0 to 5.5V operation
- Low power consumption—6mW (typical)
- Three standby modes:
 - STOP—2µA (typical)
 - HALT—0.8mA (typical)
 - Low voltage reset
- Special architecture to automate both generation and reception of complex pulses or signals:
 - One programmable 8-bit counter/timer with two capture registers and two load registers
 - One programmable 16-bit counter/timer with one capture register and two reload registers

- Programmable input glitch filter for pulse reception
- Six priority interrupts
 - Three external
 - Two assigned to counter/timers
 - One low-voltage detection interrupt
- Low voltage detection and high voltage detection flags
- Programmable Watch-Dog Timer (WDT)
- Power-On Reset (POR) circuits
- Two independent comparators with programmable interrupt polarity
- Programmable EPROM options
 - Port 0: 0–3 pull-up transistors
 - Port 0: 4–7 pull-up transistors
 - Port 1: 0–3 pull-up transistors
 - Port 1: 4–7 pull-up transistors
 - Port 2: 0–7 pull-up transistors
 - EPROM Protection
 - WDT enabled at POR
- Standard (0° to +70°C), Extended (-40° to +105°C) and Automotive (-40° to +125°C) temperature ranges

General Description

The ZGP323H is an OTP-based member of the ZiLOG® MCU family of general purpose microcontrollers. With 237 bytes of general-purpose RAM and up to 32KB of OTP, ZiLOG's CMOS microcontrollers offer fast-executing use of memory, sophisticated interrupts, input/output bit manipulation, automated pulse generation/reception, and internal key-scan pull-up transistors. Compatible with ZGR163L/ZGR323L families.

Block Diagram



Note: Refer to the specific package for available pins.

Figure 1. Functional Block Diagram



Pin-Outs

Figure 2 depicts the pins for the 20-pin ZGP323H. Figure 3 depicts the pins for the 28-pin ZGP323H. Figures 4 and 5 depict the pins for the 40-pin and 48-pin versions of the ZGP323H.

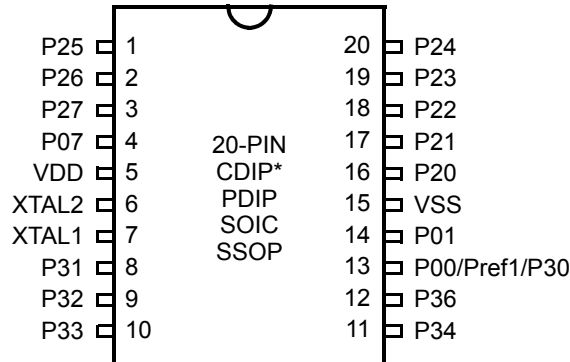


Figure 2. 20-Pin CDIP/DIP/SOIC/SSOP Pin Assignment

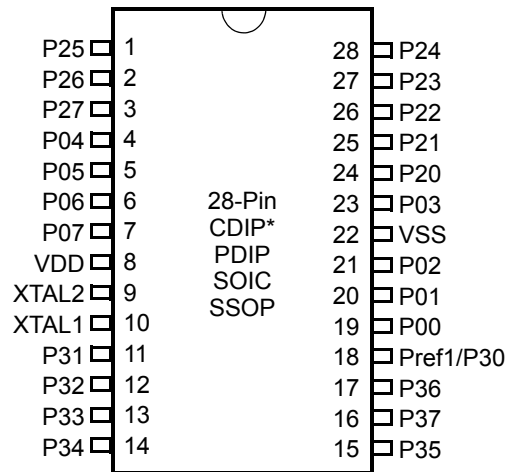


Figure 3. 28-Pin CDIP/DIP/SOIC/SSOP Pin Assignment

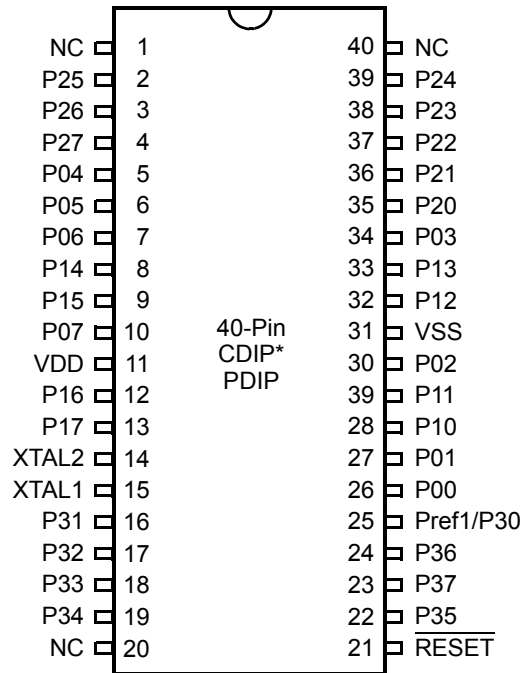


Figure 4. 40-Pin CDIP/PDIP Pin Assignment

- **Note:** * Windowed Cerdip. These units are intended to be used for engineering code development only. ZiLOG does not recommend /guarantee this package for production use.

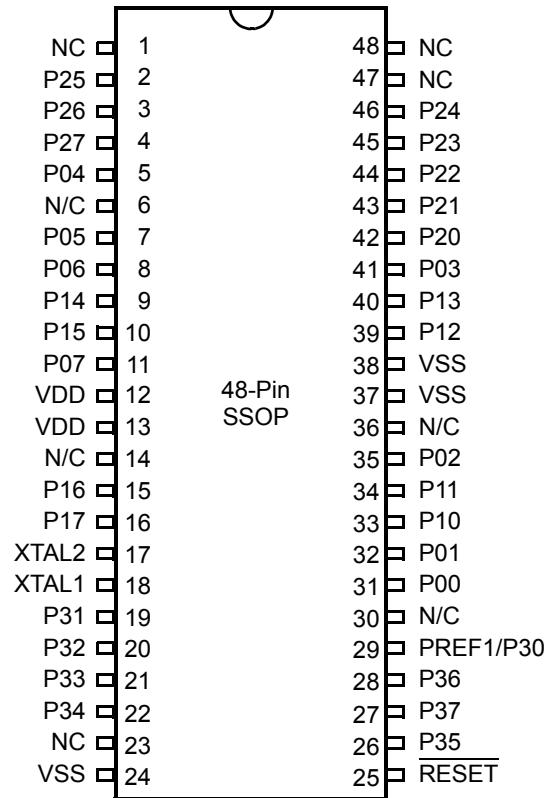


Figure 5. 48-Pin SSOP Assignment

Development Tools

The following development tools are available for the programming and debugging of this device:

- Z8 GP™ ZGP323 In-Circuit Emulator provides chip emulation with a trace and event system
- Z8 GP™ ZGP323 Programming System (Ethernet or USB) provides a complete yet inexpensive solution for development
- ZLP323ICE01ZAC 40/48 Pins Accessory Kit
- ZiLOG Developer Studio II Integrated Development Environment, ZDS II—Z8 GP™



Ordering Information

32 KB Standard Temperature: 0° to +70°C

Part Number	Description	Part Number	Description
ZGP323HSH4832G	48-pin SSOP 32K OTP	ZGP323HSS2832G	28-pin SOIC 32K OTP
ZGP323HSP4032G	40-pin PDIP 32K OTP	ZGP323HSH2032G	20-pin SSOP 32K OTP
ZGP323HSK2832E	28-pin CDIP* 32K OTP	ZGP323HSK2032E	20-pin CDIP* 32K OTP
ZGP323HSK4032E	40-pin CDIP* 32K OTP	ZGP323HSP2032G	20-pin PDIP 32K OTP
ZGP323HSH2832G	28-pin SSOP 32K OTP	ZGP323HSS2032G	20-pin SOIC 32K OTP
ZGP323HSP2832G	28-pin PDIP 32K OTP		

32 KB Extended Temperature: -40° to +105°C

Part Number	Description	Part Number	Description
ZGP323HEH4832G	48-pin SSOP 32K OTP	ZGP323HES2832G	28-pin SOIC 32K OTP
ZGP323HEP4032G	40-pin PDIP 32K OTP	ZGP323HEH2032G	20-pin SSOP 32K OTP
ZGP323HEH2832G	28-pin SSOP 32K OTP	ZGP323HEP2032G	20-pin PDIP 32K OTP
ZGP323HEP2832G	28-pin PDIP 32K OTP	ZGP323HES2032G	20-pin SOIC 32K OTP

32 KB Automotive Temperature: -40° to +125°C

Part Number	Description	Part Number	Description
ZGP323HAH4832G	48-pin SSOP 32K OTP	ZGP323HAS2832G	28-pin SOIC 32K OTP
ZGP323HAP4032G	40-pin PDIP 32K OTP	ZGP323HAH2032G	20-pin SSOP 32K OTP
ZGP323HAH2832G	28-pin SSOP 32K OTP	ZGP323HAP2032G	20-pin PDIP 32K OTP
ZGP323HAP2832G	28-pin PDIP 32K OTP	ZGP323HAS2032G	20-pin SOIC 32K OTP

- **Note:** * Windowed Cerdip. These units are intended to be used for engineering code development only. ZiLOG does not recommend/guarantee this package for production use.



16 KB Standard Temperature: 0° to +70°C

Part Number	Description	Part Number	Description
ZGP323HSH4816G	48-pin SSOP 16K OTP	ZGP323HSS2816G	28-pin SOIC 16K OTP
ZGP323HSP4016G	40-pin PDIP 16K OTP	ZGP323HSH2016G	20-pin SSOP 16K OTP
ZGP323HSH2816G	28-pin SSOP 16K OTP	ZGP323HSP2016G	20-pin PDIP 16K OTP
ZGP323HSP2816G	28-pin PDIP 16K OTP	ZGP323HSS2016G	20-pin SOIC 16K OTP

16 KB Extended Temperature: -40° to +105°C

Part Number	Description	Part Number	Description
ZGP323HEH4816G	48-pin SSOP 16K OTP	ZGP323HES2816G	28-pin SOIC 16K OTP
ZGP323HEP4016G	40-pin PDIP 16K OTP	ZGP323HEH2016G	20-pin SOIC 16K OTP
ZGP323HEH2816G	28-pin SSOP 16K OTP	ZGP323HES2016G	20-pin SSOP 16K OTP
ZGP323HEP2816G	28-pin PDIP 16K OTP	ZGP323HEP2016G	20-pin PDIP 16K OTP

16 KB Automotive Temperature: -40° to +125°C

Part Number	Description	Part Number	Description
ZGP323HAH4816G	48-pin SSOP 16K OTP	ZGP323HAS2816G	28-pin SOIC 16K OTP
ZGP323HAP4016G	40-pin PDIP 16K OTP	ZGP323HAH2016G	20-pin SSOP 16K OTP
ZGP323HAH2816G	28-pin SSOP 16K OTP	ZGP323HAP2016G	20-pin PDIP 16K OTP
ZGP323HAP2816G	28-pin PDIP 16K OTP	ZGP323HAS2016G	20-pin SOIC 16K OTP



8 KB Standard Temperature: 0° to +70°C

Part Number	Description	Part Number	Description
ZGP323HSH4808G	48-pin SSOP 8K OTP	ZGP323HSS2808G	28-pin SOIC 8K OTP
ZGP323HSP4008G	40-pin PDIP 8K OTP	ZGP323HSH2008G	20-pin SSOP 8K OTP
ZGP323HSH2808G	28-pin SSOP 8K OTP	ZGP323HSP2008G	20-pin PDIP 8K OTP
ZGP323HSP2808G	28-pin PDIP 8K OTP	ZGP323HSS2008G	20-pin SOIC 8K OTP

8 KB Extended Temperature: -40° to +105°C

Part Number	Description	Part Number	Description
ZGP323HEH4808G	48-pin SSOP 8K OTP	ZGP323HES2808G	28-pin SOIC 8K OTP
ZGP323HEP4008G	40-pin PDIP 8K OTP	ZGP323HEH2008G	20-pin SSOP 8K OTP
ZGP323HEH2808G	28-pin SSOP 8K OTP	ZGP323HEP2008G	20-pin PDIP 8K OTP
ZGP323HEP2808G	28-pin PDIP 8K OTP	ZGP323HES2008G	20-pin SOIC 8K OTP

8 KB Automotive Temperature: -40° to +125°C

Part Number	Description	Part Number	Description
ZGP323HAH4808G	48-pin SSOP 8K OTP	ZGP323HAS2808G	28-pin SOIC 8K OTP
ZGP323HAP4008G	40-pin PDIP 8K OTP	ZGP323HAH2008G	20-pin SSOP 8K OTP
ZGP323HAH2808G	28-pin SSOP 8K OTP	ZGP323HAP2008G	20-pin PDIP 8K OTP
ZGP323HAP2808G	28-pin PDIP 8K OTP	ZGP323HAS2008G	20-pin SOIC 8K OTP



4 KB Standard Temperature: 0° to +70°C

Part Number	Description	Part Number	Description
ZGP323HSH4804G	48-pin SSOP 4K OTP	ZGP323HSS2804G	28-pin SOIC 4K OTP
ZGP323HSP4004G	40-pin PDIP 4K OTP	ZGP323HSH2004G	20-pin SSOP 4K OTP
ZGP323HSH2804G	28-pin SSOP 4K OTP	ZGP323HSP2004G	20-pin PDIP 4K OTP
ZGP323HSP2804G	28-pin PDIP 4K OTP	ZGP323HSS2004G	20-pin SOIC 4K OTP

4 KB Extended Temperature: -40° to +105°C

Part Number	Description	Part Number	Description
ZGP323HEH4804G	48-pin SSOP 4K OTP	ZGP323HES2804G	28-pin SOIC 4K OTP
ZGP323HEP4004G	40-pin PDIP 4K OTP	ZGP323HEH2004G	20-pin SSOP 4K OTP
ZGP323HEH2804G	28-pin SSOP 4K OTP	ZGP323HEP2004G	20-pin PDIP 4K OTP
ZGP323HEP2804G	28-pin PDIP 4K OTP	ZGP323HES2004G	20-pin SOIC 4K OTP

4 KB Automotive Temperature: -40° to +125°C

Part Number	Description	Part Number	Description
ZGP323HAH4804G	48-pin SSOP 4K OTP	ZGP323HAS2804G	28-pin SOIC 4K OTP
ZGP323HAP4004G	40-pin PDIP 4K OTP	ZGP323HAH2004G	20-pin SSOP 4K OTP
ZGP323HAH2804G	28-pin SSOP 4K OTP	ZGP323HAP2004G	20-pin PDIP 4K OTP
ZGP323HAP2804G	28-pin PDIP 4K OTP	ZGP323HAS2004G	20-pin SOIC 4K OTP

Development Tools

Part Number	Description	Part Number	Description
ZGP323ICE02ZEM	ZGP323 In-Circuit Emulator		
ZLP323ICE01ZAC	40/48 Pins Accessory Kit	ZGP32300200ZPR	Programming system (USB)



This publication is subject to replacement by a later edition. To determine whether a later edition exists, or to request copies of publications, contact:

ZiLOG Worldwide Headquarters

532 Race Street
San Jose, CA 95126
Telephone: 408.558.8500
Fax: 408.558.8300
www.ZiLOG.com

Document Disclaimer

ZiLOG is a registered trademark of ZiLOG Inc. in the United States and in other countries. All other products and/or service names mentioned herein may be trademarks of the companies with which they are associated.

©2005 by ZiLOG, Inc. All rights reserved. Information in this publication concerning the devices, applications, or technology described is intended to suggest possible uses and may be superseded. ZiLOG, INC. DOES NOT ASSUME LIABILITY FOR OR PROVIDE A REPRESENTATION OF ACCURACY OF THE INFORMATION, DEVICES, OR TECHNOLOGY DESCRIBED IN THIS DOCUMENT. ZiLOG ALSO DOES NOT ASSUME LIABILITY FOR INTELLECTUAL PROPERTY INFRINGEMENT RELATED IN ANY MANNER TO USE OF INFORMATION, DEVICES, OR TECHNOLOGY DESCRIBED HEREIN OR OTHERWISE. Except with the express written approval ZiLOG, use of information, devices, or technology as critical components of life support systems is not authorized. No licenses or other rights are conveyed, implicitly or otherwise, by this document under any intellectual property rights.