

## A FLASH MCU SOLUTION

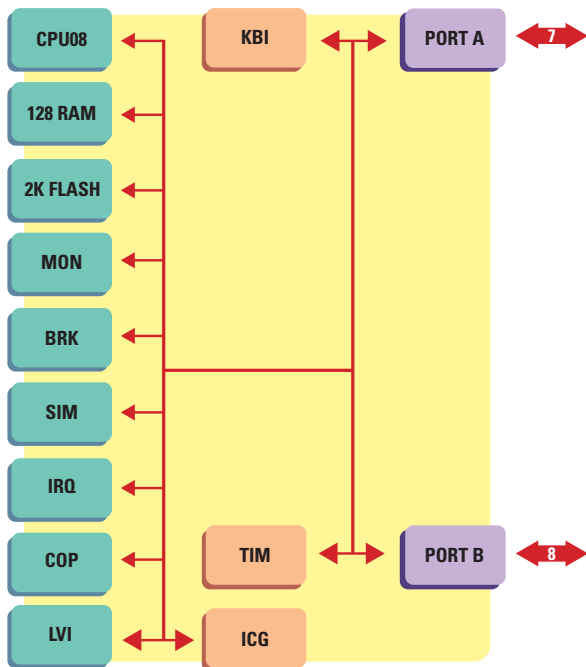
# 68HC908RK2

## 8-bit Microcontroller

### TARGET APPLICATIONS

- Remote keyless entry
- Hand held battery operated devices

The 68HC908RK2 is optimized for low-power operation down to 1.8V. The 68HC908RK2 is a flexible, functional solution that reduces operating costs with on-chip features like an internal oscillator that requires no external components. The 68HC908RK2 also includes multiple system protection features and timers.



### FEATURES

### BENEFITS

#### HIGH-PERFORMANCE 68HC08 CPU CORE

- 4 MHz bus operation at 3V operation for 250 nsec minimum instruction cycle time
- 2 MHz bus operation at 1.8V for 500 nsec minimum instruction cycle time
- Efficient instruction set including multiply and divide
- 16 flexible addressing modes including stack relative with 16-bit stack pointer
- Fully static low-voltage, low-power design with wait and stop modes
- Object code compatible with the 68HC05
- Easy to learn and use architecture
- C optimized architecture provides compact code

#### INTEGRATED FIRST GENERATION FLASH MEMORY

- In-application re-programmable
- FLASH programming across the 68HC08's full operating supply voltage with no extra programming voltage
- Flexible block protection and security
- Cost-effective programming changes and field software upgrades via in-application programmability and re-programmability
- Allows re-programmable battery powered applications
- Protects code from unauthorized reading and to guard against unintentional erasing/writing of user-programmable segments of code

#### INTERNAL CLOCK GENERATOR

- Software selectable bus frequencies
- 2% accuracy with trim capability
- Clock monitor
- Option to use external clock source or external crystal/ceramic oscillator
- Programmable internal clock eliminates the need and cost of an external clock source
- Accurate across temperature and voltage

#### TWO PROGRAMMABLE 16-BIT TIMER CHANNELS

- 250 nsec resolution at 4 MHz bus
- Free-running counter or modulo up-counter
- Each channel independently programmable for input capture, output compare or unbuffered PWM
- Pairing timer channels provides a buffered PWM function

## 68HC908RK2

PART NUMBER	DESCRIPTION	RESALE*
<b>EASY-TO-ORDER DEVELOPMENT TOOL KITS</b>		
M68ICS08RK2	68HC908RK2 programmer/ in-circuit debug kit	\$295
KITMMEVS08RK2	Cost-effective real-time in-circuit emulator kit	\$1450
KITMMDS08RK2	High-performance real-time in-circuit emulator kit	\$3950
<b>INDIVIDUAL DEVELOPMENT TOOL COMPONENTS</b>		
M68MMDS0508	High-performance emulator	\$2950
M68MMPFB0508	MMEVS platform board	\$395
M68EML08RK2	Emulation module daughter board	\$495
M68CBL05A	Low-noise flex cable	\$120
M68TA08RK2P20	20-pin DIP target head adapter	\$100
M68DIP20SSOP	20-pin SSOP surface mount adapter	\$35

FEATURES	BENEFITS
<b>COMPUTER OPERATING PROPERLY WATCHDOG TIMER</b>	
	<ul style="list-style-type: none"> <li>Provides system protection in the event of runaway code by resetting the MCU to a known state</li> </ul>
<b>LOW-VOLTAGE INHIBIT</b>	
<ul style="list-style-type: none"> <li>Detects two levels of low-voltage operation—low-voltage detection and low-voltage reset</li> </ul>	<ul style="list-style-type: none"> <li>Improves reliability by resetting the MCU when voltage drops below trip point</li> <li>Integration reduces system cost</li> <li>Low voltage detection allows battery-powered applications to monitor for low battery</li> </ul>
<b>FOURTEEN BIDIRECTIONAL INPUT/OUTPUT (I/O) LINES</b>	
<ul style="list-style-type: none"> <li>High-current sink/source capability on all I/O</li> <li>Keyboard scan with selectable interrupts on six pins</li> <li>Software programmable pullups on six pins</li> </ul>	<ul style="list-style-type: none"> <li>High-current I/O allows direct drive of LED and other circuits to eliminate external drivers and reduce systems costs</li> <li>Keyboard scan with programmable pullups eliminates external glue logic when interfacing to simple keypads</li> </ul>

## APPLICATION NOTES

- AN2093/D Creating Efficient C Code for the MC68HC08
- AN1219/D M68HC08 Integer Math Routines
- AN1218/D HC05 to HC08 Optimization
- AN1837/D Non-Volatile Memory Technology Review
- AN1752/D Data Structures for 8-bit MCUs
- AN1705/D Noise Reduction Techniques for MCU-Based Systems
- AN1259/D System Design and Layout Techniques for Noise Reduction in MCU-Based Systems

- AN1263/D Designing for Electromagnetic Compatibility with Single-Chip Microcontrollers
- AN1050/D Designing for Electromagnetic Compatibility (EMC) with HCMOS Microcontrollers
- AN1705/D Noise Reduction Techniques for Microcontroller-Based Systems

And many more—see our Web site at  
<http://www.motorola.com/mcu>

## PACKAGE OPTIONS

PART NUMBER	PACKAGE	TEMPERATURE RANGE
MC68HC908RK2CSD	20 SSOP	-40 to 85°C
<b>SAMPLE PACKS</b>		
KMC908RK2CSD	20 SSOP	-40 to 85°C

## 20-Lead SSOP



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\* All prices are manufacturer's suggested resale for North America.