68HC(9)08EYxx

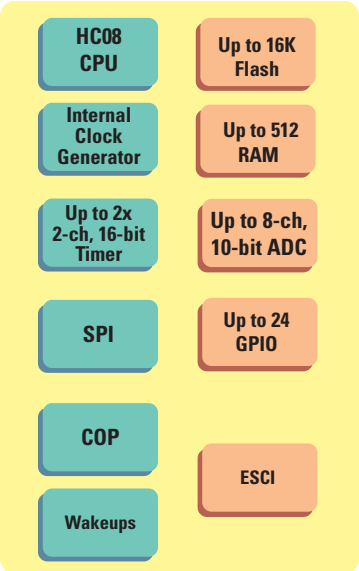
8-bit Microcontroller Family

TARGET APPLICATIONS

- Various automotive applications including:
  - Mirrors
  - Window Lift
  - HVAC
  - Seat control
  - Wiper control
  - Lighting
  - Sunroof

68HC08EYxx Family Introduction

Specifically designed for LIN applications that require an internal clock generator without the cost of additional external components, EY devices are also suited for applications in which the flexibility of automotive Flash or low-cost ROM is required in memory sizes from 4K–16K. This family is offered in the small 7mm x 7mm 32QFP package, ideal when available board space for the MCU is minimal.



MID-RANGE COST-EFFECTIVE LIN FAMILY

FEATURES	BENEFITS

SECOND-GENERATION FLASH OR LOW-COST ROM MEMORY OPTIONS

- Embedded fully automotive specified Flash
- Low-cost ROM versions available
- Range of memory sizes from 4K–16K
- Ultra-fast programming, 64 bytes in 2 msec
- Flash programming across the 68HC08's full operating supply voltage with no extra programming voltage
- 10K write/erase cycles at -40°C to +125°C
- Qualified for high temperatures, shock, vibrations and humidity as required by the automotive industry
- Cost-reduction path for high-volume stable programs
- Reduced production programming costs through ultra-fast programming at operating voltage
- Helps protect code from unauthorized reading and to guard against unintentional erasing/writing of user-programmable segments of code

ENHANCED SCI—LIN SCI CONTROLLER

- Programmable 8-bit or 9-bit character length
- Programmable baud rates
- Separately enabled transmitter and receiver
- Interrupt-driven operation with eight interrupt flags
- Capable of communication rates up to 115,000 bps, encompassing all LIN baud rates
- Full-duplex operation allows simultaneous transmission and reception of data
- ESCI arbiter allows measurement of LIN synchronization data without separate timer hardware
- Finely adjustable baud rate prescalers allow extremely precise control of baud rate
- Enhanced detection of LIN break symbols to prevent false interrupts

INTERNAL CLOCK GENERATOR

- < 0.4% oscillator accuracy within a LIN frame
- Fully trimmable oscillator from -40°C to 125°C
- Software-selectable bus frequencies up to 8 MHz
- Clock monitor
- Eliminates the cost of external clock components (crystal or resonator)
- Reduces board space
- Minimizes or reduces EMI generated from external clocks

HIGH-PERFORMANCE 68HC08 CPU CORE

- 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, easy-to-use architecture
- C-optimized architecture provides compact code

PACKAGE OPTIONS

32-Lead QFP

.8 mm Pitch
7 mm x 7 mm Body

For More Information On This Product,
Go to: www.freescale.com

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DATA SHEETS

MC68HC908EY16/D	68HC908EY16

APPLICATION NOTES

AN2103/D	Local Interconnect Network (LIN) Demonstration
AN2205/D	Car Door Keypad Using LIN
AN2264/D	LIN Node Temperature Display
AN2432/D	LIN Sample Application for the MC68HC908EY16
AN2470/D	MC68HC908EY16 Controlled Robot Using the LIN Bus

Visit out Web site at:
www.motorola.com/sps – select "Automotive" for information on products and services

FEATURES	BENEFITS
DEVELOPMENT TOOLS	
Free Starter Development Kit • Industry-leading CodeWarrior™ IDE from Metrowerks • Full-chip simulation and Flash programming • Automatic C code generation with Processor Expert™ software • Assembler, linker and debugger supports all HC08 devices • 4K code limited C compiler—32K and 64K compiler upgrade available	• Start software development immediately using simulator without waiting for target hardware or requiring an evaluation board • Generate highly efficient ANSI-compliant C code with more than 60 unique optimization strategies to optimize performance or code density • Helps to dramatically reduce development time and improve code quality with highly optimized automatic C code generation for on-chip peripherals
MON08 Multilink (M68MULTILINK08) • Fast in-circuit programming and debug • Utilizes HC08 monitor mode and on-chip breakpoint	• Universal low-cost tool for all MON08 68HC08s—buy only once with free software upgrades • Auto bauds to target frequency or provides clock overdrive • Automatically cycles power for security checks
MON08 Cyclone (M68CYCLONE08) • All the capabilities of the MON08 Multilink plus the ability to function as a standalone programmer with pushbuttons and LEDs to control operation	• Universal tool for all MON08 68HC08s—buy only once with free software upgrades • Production in-system programming without a host PC • Scripting capability with host PC allows automated programming of test routines, test, erasure and final programming of product
KITMMEVS08xx • Real-time, traditional in-circuit emulation and debug • Includes MON08 Multilink	• Modular emulation system is upgradeable for all 68HC08s with addition of personality emulation module and target cable • Comprehensive easy-to-order kit with all cables, adapters, software and hardware needed for real-time emulation of EYxx MCUs
KITMMDS08xx • High-performance in-circuit emulation and debug • Advanced bus state analysis with multiple trigger options • Dual-port memory • Includes MON08 Multilink	• Modular emulation system is upgradeable for all 68HC08s with addition of personality emulation module and target cable
Upgrades to CodeWarrior Development Studio Standard or Professional Edition • Additional Processor Expert capabilities • Advanced add-on tools such as code coverage, profiling, data visualization, etc.	• Advanced bus analysis helps speed complex debugging tasks • Ability to monitor or change program variables while your program is running at full speed with dual-port RAM • Comprehensive easy-to-order kit with all cables, adapters, software and hardware needed for high-performance emulation of EYxx MCUs

68HC(9)08EYxx FAMILY PERIPHERAL OPTIONS

	FLASH	ROM	RAM	CAN	ESCI	SCI	SLIC	SPI	TIMER	ADC	OPERATING VOLTAGE	TEMP	PACKAGE
908EY16	16K	-	512b	-	1	-	-	1	2x2 ch, 16-bit	8 ch, 10-bit	5V	-40°C to +125°C	32 QFP
908EY8	8K	-	384b	-	1	-	-	1	2x2 ch, 16-bit	8 ch, 10-bit	5V	-40°C to +125°C	32 QFP
908EY4	4K	-	256b	-	1	-	-	1	2x2 ch, 16-bit	8 ch, 10-bit	5V	-40°C to +125°C	32 QFP
08EY16	-	16K	512b	-	1	-	-	1	2x2 ch, 16-bit	8 ch, 10-bit	5V	-40°C to +125°C	32 QFP
08EY8	-	8K	384b	-	1	-	-	1	2x2 ch, 16-bit	8 ch, 10-bit	5V	-40°C to +125°C	32 QFP
08EY4	-	4K	256b	-	1	-	-	1	2x2 ch, 16-bit	8 ch, 10-bit	5V	-40°C to +125°C	32 QFP

68HC908EYXXFS/D
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MOTOROLA