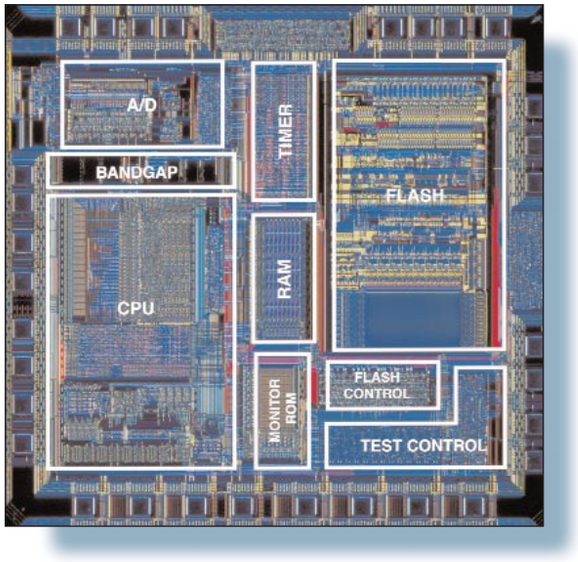
# 68HC908JL/JK FAMILY

The Motorola 68HC908JL and 68HC908JK families provide designers with highly integrated cost-effective 8-bit FLASH microcontroller (MCU) solutions. The 68HC908JL and the 68HC908JK builds on the success of the 68HC05 family by offering a code compatible migration path to higher performance FLASH MCUs.




## Features

- In-system programmable FLASH memory
  - 68HC908JK1: 1536 bytes
  - 68HC908JL3/JK3: 4096 bytes
- FLASHwire technology – a single wire interface for in-circuit programming which does not require high voltage for mode entry
- Selectable FLASH security feature
- 128 bytes of user RAM
- 5 V nominal operating voltage
- 3 V low-power operating voltage
- High-performance 68HC08 CPU core
  - Code compatible with 68HC05
  - 8.0 MHz internal operating frequency at 5.0 V
- Peripheral modules
  - Computer Operating Properly (COP) watchdog
  - JK Family: 10-channel 8-bit analog-to-digital converter
  - JL Family: 12-channel 8-bit analog-to-digital converter
  - Dual-channel, 16-bit timer with input capture, output compare, and PWM modes
- Memory-mapped I/O registers
- Up to 23 bi-directional input/output (I/O) lines (JL family has 23 I/O; JK family has 15 I/O), including:
  - 10 mA sink/source capability on all I/O pins
  - 25 mA sink capability on two I/O pins
  - Software programmable pullups on nine I/O pins
  - Keyboard scan with selectable interrupts on seven I/O pins
  - Direct LED drives on ten I/O pins
- Internal pullups to $V_{DD}$ on RESET and IRQ pins for reduced system cost
- Vectored interrupts
  - Selectable sensitivity on external interrupt (edge- and level-sensitive or edge-sensitive only)
  - External interrupt mask bit and acknowledge bit
- Illegal address reset
- Illegal opcode reset
- Low Voltage Inhibit with selectable trip points
- Multiple clock options
  - Crystal oscillator
  - Ceramic resonator
  - External clock
  - RC oscillator (68HRC908JL/JK)
- Bi-directional RESET pin
- Power-saving Stop and Wait modes
- Hyper-text linked databooks: MC68HC08JL3/H (ROM) and MC68HC908JL3/H (FLASH)
- Cost effective, full-featured development tools that support programming, in-circuit debug, simulation, and in-circuit emulation
- Package options
  - 68HC908JK: 20-pin DIP and 20-pin SOIC packages
  - 68HC908JL: 20-pin DIP and 28-pin SOIC packages

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## DEVICE ORDERING INFORMATION

| Production Order Part Number | Sample Order Part Number | Package Type | Oscillator Option | FLASH Size | Temperature Range |
|---|---|---|---|---|---|
| MC68HC908JL3CP | KMC908JL3CP | 28 DIP | XTAL | 4K | -40 to +85C |
| MC68HC908JL3CDW | KMC908JL3CDW | 28 SOIC | XTAL | 4K | -40 to +85C |
| MC68HC908JL3MP | NA | 28 DIP | XTAL | 4K | -40 to +125C |
| MC68HC908JL3MDW | NA | 28 SOIC | XTAL | 4K | -40 to +125C |
| MC68HRC908JL3CP | KMCR908JL3CP | 28 DIP | RC | 4K | -40 to +85C |
| MC68HRC908JL3CDW | KMCR908JL3CDW | 28 SOIC | RC | 4K | -40 to +85C |
| MC68HRC908JL3MP | NA | 28 DIP | RC | 4K | -40 to +125C |
| MC68HRC908JL3MDW | NA | 28 SOIC | RC | 4K | -40 to +125C |
| MC68HC908JK3CP | KMC908JK3CP | 20 DIP | XTAL | 4K | -40 to +85C |
| MC68HC908JK3CDW | KMC908JK3CDW | 20 SOIC | XTAL | 4K | -40 to +85C |
| MC68HC908JK3MP | NA | 20 DIP | XTAL | 4K | -40 to +125C |
| MC68HC908JK3MDW | NA | 20 SOIC | XTAL | 4K | -40 to +125C |
| MC68HRC908JK3CP | KMCR908JK3CP | 20 DIP | RC | 4K | -40 to +85C |
| MC68HRC908JK3CDW | KMCR908JK3CDW | 20 SOIC | RC | 4K | -40 to +85C |
| MC68HRC908JK3MP | NA | 20 DIP | RC | 4K | -40 to +125C |
| MC68HRC908JK3MDW | NA | 20 SOIC | RC | 4K | -40 to +125C |
| MC68HC908JK1CP* | KMC908JK1CP* | 20 DIP | XTAL | 1.5K | -40 to +85C |
| MC68HC908JK1CDW* | KMC908JK1CDW* | 20 SOIC | XTAL | 1.5K | -40 to +85C |
| MC68HRC908JK1CP* | KMCR908JK1CP* | 20 DIP | RC | 1.5K | -40 to +85C |
| MC68HRC908JK1CDW* | KMCR908JK1CDW* | 20 SOIC | RC | 1.5K | -40 to +85C |

* Available Q1 '00

## Application Notes

- AN1222/D Arithmetic Waveform Synthesis with 68HC05/68HC08 MCUs
- AN1221/D Hamming Error Control Coding Techniques with the 68HC08 MCU
- AN1219/D M68HC08 Integer Math Routines
- AN1218/D 68HC05 to 68HC08 Optimization
- AN-HK-33/H In-circuit programming of FLASH memory in the 68HC908JL3

## Comprehensive Development Support

Broad third party software and hardware support – see our web site at **http://www.mcu.motsps.com**

| EASY TO ORDER KITS | | RESALE* |
|---|---|---|
| M68ICS08JL | JL and JK Programmer/in-circuit debug kit | $295 |
| KITMMEVS08JL | Cost-effective real-time in-circuit emulator kit | $1450 |
| KITMMDS08JL | High performance real-time in-circuit emulator kit | $3950 |

| INDIVIDUAL DEVELOPMENT TOOL COMPONENTS | | RESALE* |
|---|---|---|
| M68MMDS0508 | High performance emulator | $2950 |
| M68MMPFB0508 | MMEVS platform board | $395 |
| M68EML08GP32 | Emulation module daughter board | $495 |
| M68CBL05C | Low noise flex-cable | $120 |
| M68TC08JK3P20 | 20-pin DIP target head adapter | $50 |
| M68TC08JL3P28 | 28-pin DIP target head adapter | $50 |
| M68DIP20SOIC | 20-pin SOIC-DW target head adapter | $35 |
| M68DIP28SOIC | 28-pin SOIC-DW target head adapter | $35 |

*All prices are manufacturer's suggested US resale.



*This product incorporates SuperFlash® technology licensed from SST.*

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