MICROCHIP

HA2089

14-Pin, Low-Power Flash Microcontroller Product Brief

High-Performance RISC CPU:

- Only 35 instructions to learn:
  - All single-cycle instructions except branches
- Operating speed:
  - DC – 20 MHz oscillator/clock input
  - DC – 200 ns instruction cycle
- Interrupt capability
- 8-level deep hardware stack
- Direct, Indirect, and Relative Addressing modes

Special Microcontroller Features:

- Precision Internal Oscillator:
  - Factory calibrated to ±1%
  - Software selectable frequency ranging from 32 kHz up to 8 MHz
  - Two-Speed Start-Up mode
  - Crystal fail detect for critical applications
  - Clock mode switching during operation for low-power operation
- Power-Saving Sleep mode
- Operating voltage range of 2.7V-5.5V
- Temperature range of -40°C to 85°C
- Power-on Reset (POR)
- Power-up Timer (PWRT) and Oscillator Start-up Timer (OST)
- Brown-out Reset (BOR) with software control option
- Low-Current Watchdog Timer (WDT) with on-chip oscillator
- Multiplexed Master Clear/Input pin
- Programmable code protection
- High Endurance Memory:
  - 10,000 write Flash endurance
  - 1,000,000 write EEPROM endurance
  - Flash/Data EEPROM Retention: > 40 years

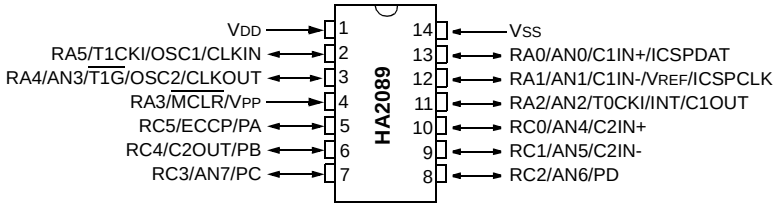
Peripheral Features:

- 11 I/O pins and 1 input-only pin:
  - High current source/sink for direct LED drive
  - Interrupt-on-pin change
  - Individually programmable weak pull-ups
  - Low-power wake-up on pin change option
- Two analog comparators
- A/D Converter:
  - 10-bit resolution and 8 channels
- Timer0: 8-bit timer/counter with 8-bit programmable prescaler
- Enhanced Timer1:
  - 16-bit timer/counter with prescaler
  - External Gate Input mode
  - Option to use OSC1 and OSC2 in LP mode as Timer1 oscillator, if INTOSC mode selected
- Timer2: 8-bit timer/counter with 8-bit period register, prescaler and postscaler
- Capture/Compare/PWM (CCP) module
- In-Circuit Serial Programming™ (ICSP™) via two pins

Device	Program Memory	Data Memory		I/O	10-bit A/D (ch)	Comparators	Timers 8/16-bit
	FLASH (words)	SRAM (bytes)	EEPROM (bytes)				
HA2089	2048	128	256	12	8	2	2/1

Pin Diagram

14-pin PDIP, SOIC, TSSOP



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