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## 8-Pin, 8-Bit Flash Microcontroller Product Brief

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### High-Performance RISC CPU:

- Only 33 single-word instructions
- All single-cycle instructions except for program branches which are two-cycle
- Two-level deep hardware stack
- Direct, Indirect and Relative Addressing modes for data and instructions
- Operating speed:
  - DC – 8 MHz, internal clock
  - DC – 500 ns instruction cycle
- On-chip Flash program memory
  - 1024 x 12
- General Purpose Registers (SRAM)
  - 41 x 8
- Flash Data Memory
  - 64 x 8

### Special Microcontroller Features:

- 8 MHz precision internal oscillator
  - Factory calibrated to  $\pm 1\%$
- In-Circuit Serial Programming™ (ICSP™)
- In-Circuit Debugging (ICD) support
- Power-on Reset (POR)
- Device Reset Timer (DRT)
- Watchdog Timer (WDT) with dedicated on-chip RC oscillator for reliable operation
- Programmable code protection
- Multiplexed MCLR input pin
- Internal weak pull-ups on I/O pins
- Power-Saving Sleep mode
- Wake-up from Sleep on pin change
- Selectable oscillator options:
  - INTRC: 4 MHz or 8 MHz precision Internal RC oscillator
  - EXTRC: External low-cost RC oscillator
  - XT: Standard crystal/resonator
  - LP: Power-saving, low-frequency crystal

### Low-Power Features/CMOS Technology:

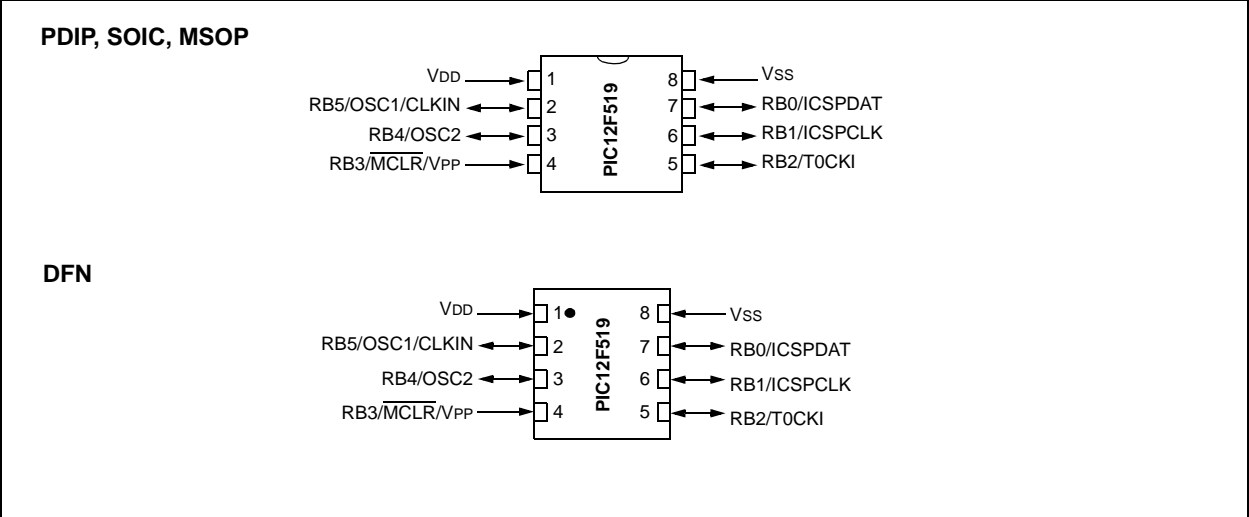
- Standby current:
  - 100 nA @ 2.0V, typical
- Operating current:
  - 15  $\mu$ A @ 32 kHz, 2.0V, typical
  - 170  $\mu$ A @ 4 MHz, 2.0V, typical
- Watchdog Timer current:
  - 1  $\mu$ A @ 2.0V, typical
  - 7  $\mu$ A @ 5.0V, typical
- High Endurance Program and Flash Data Memory cells
  - 100,000 write Flash Program Memory endurance
  - 1,000,000 write Flash Data Memory endurance
  - Program and Flash Data retention: >40 years
- Fully static design
- Wide operating voltage range: 2.0V to 5.5V
  - Wide temperature range
  - Industrial: -40°C to +85°C
  - Extended: -40°C to +125°C

### Peripheral Features:

- 6 I/O pins
  - 5 I/O pins with individual direction control
  - 1 input-only pin
  - High current sink/source for direct LED drive
- 8-bit real-time clock/counter (TMRO) with 8-bit programmable prescaler.

# PIC12F519

FIGURE 1: PIC12F519 8-PIN PDIP, SOIC, MSOP, 2X3 DFN DIAGRAM



Device	Program Memory	Data Memory		I/O	Comparators	Timers 8-bit	8-bit A/D Channels
	Flash (words)	SRAM (bytes)	Flash (bytes)				
PIC12F519	1024	41	64	6	0	1	0

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