

## 18/20-Pin Enhanced FLASH Microcontrollers with nanoWatt Technology

### Low Power Features:

- Power Managed modes:
  - Primary RUN XT, RC oscillator, 87  $\mu$ A, 1 MHz, 2V
  - INTRC 7  $\mu$ A, 31.25 kHz, 2V
  - SLEEP 0.2  $\mu$ A, 2V
- Timer1 oscillator 1.3  $\mu$ A, 32 kHz, 2V
- Watchdog Timer 0.7  $\mu$ A, 2V
- Wide operating voltage range:
  - Industrial: 2.0V to 5.5V

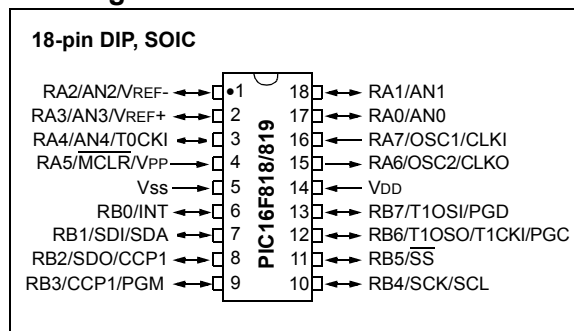
### Oscillators:

- Three Crystal modes:
  - LP, XT, HS up to 20 MHz
- Two External RC modes
- One External Clock mode:
  - ECIO up to 20 MHz
- Internal oscillator block:
  - 8 user selectable frequencies: 31 kHz, 125 kHz, 250 kHz, 500 kHz, 1 MHz, 2 MHz, 4 MHz, 8 MHz

### Peripheral Features:

- 16 I/O pins with individual direction control
- High sink/source current: 25 mA
- Timer0: 8-bit timer/counter with 8-bit prescaler
- Timer1: 16-bit timer/counter with prescaler, can be incremented during SLEEP via external crystal/clock
- Timer2: 8-bit timer/counter with 8-bit period register, prescaler and postscaler
- Capture, Compare, PWM (CCP) module:
  - Capture is 16-bit, max. resolution is 12.5 ns
  - Compare is 16-bit, max. resolution is 200 ns
  - PWM max. resolution is 10-bit
- 10-bit, 5-channel Analog-to-Digital converter
- Synchronous Serial Port (SSP) with SPI™ (Master/Slave) and I<sup>2</sup>C™ (Slave)

### Pin Diagram



### Special Microcontroller Features:

- 100,000 erase/write cycles Enhanced FLASH program memory typical
- 1,000,000 typical erase/write cycles EEPROM data memory typical
- EEPROM Data Retention: > 40 years
- In-Circuit Serial Programming™ (ICSP™) - via two pins
- Processor read/write access to program memory
- Low Voltage Programming
- In-Circuit Debugging via two pins

Device	Program Memory		Data Memory		I/O Pins	10-bit A/D (ch)	CCP (PWM)	SSP		Timers 8/16-bit
	FLASH (bytes)	# Single Word Instructions	SRAM (bytes)	EEPROM (bytes)				SPI	Slave I <sup>2</sup> C	
PIC16F818	1792	1024	128	128	16	5	1	Y	Y	2/1
PIC16F819	3584	2048	256	256	16	5	1	Y	Y	2/1

# PIC16F818/819

## Pin Diagrams

