

18-Pin Enhanced FLASH Microcontrollers with Three-Phase PWM and 10-bit A/D Product Brief

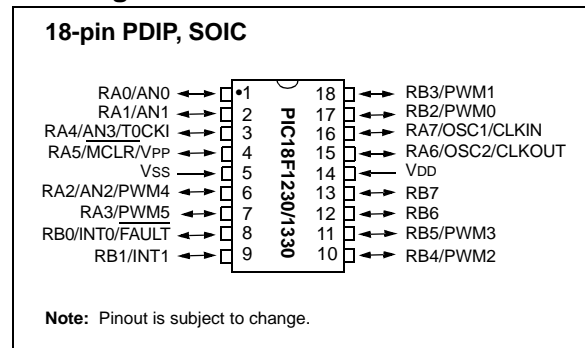
High Performance RISC CPU:

- C compiler optimized instruction set
- Linear program memory addressing to 8 Kbytes
- Linear data memory addressing to 256 bytes
- Up to 128 x 8 Data EEPROM
- Operating speed:
 - DC - 40 MHz clock input
 - DC - 100 ns instruction cycle
 - Internal oscillator (INTOSC) with 5 programmable selectable speeds (30 kHz, 500 kHz, 1 MHz, 4 MHz, 8 MHz)
 - 4X PLL
- 2.0V operation (4 MHz)
- 16-bit wide instructions
- 8-bit wide data path
- 31 levels of hardware stack
- Software stack capability
- Multi-vector interrupt capability

Peripheral Features:

- High current sink/source 25 mA/25 mA
- Timer0: 8-bit/16-bit timer/counter with 8-bit programmable prescaler
- Timer1: 16-bit timer/counter
- 3-Phase PWM module:
 - 3 Pairs of complementary, or 3 individual outputs
 - Selectable center/edge align
 - Programmable deadband delay
 - FAULT input programmable as a shut-down, or current limit cycle-by-cycle input
 - 10-bit resolution
 - PWM frequencies selectable from 3.9 kHz to 31.2 kHz (edge align), and 1.95 kHz to 15.6 kHz (center align) for an internal 8 MHz clock with PLL enabled

Pin Diagram



Analog Peripheral Feature:

- 10-bit/4-channel Analog-to-Digital Converter (ADC) module

Special Microcontroller Features:

- 100,000 erase/write cycle Enhanced FLASH program memory typical
- 1,000,000 erase/write cycle Data EEPROM memory typical
- Power-on Reset (POR), Power-up Timer (PWRT) and Oscillator Start-up Timer (OST)
- Programmable Brown-out Reset (PBOR)
- Watchdog Timer (WDT) with its own On-Chip Oscillator for reliable operation
- Programmable code protection
- Selectable oscillator options:
 - INTOSC, RC, EC, HS, XT and LP modes
- Power saving SLEEP mode
- In-Circuit Serial Programming™ (ICSP™) via two pins
- Enhanced MPLAB® In-Circuit Debugger (ICD)

CMOS Technology:

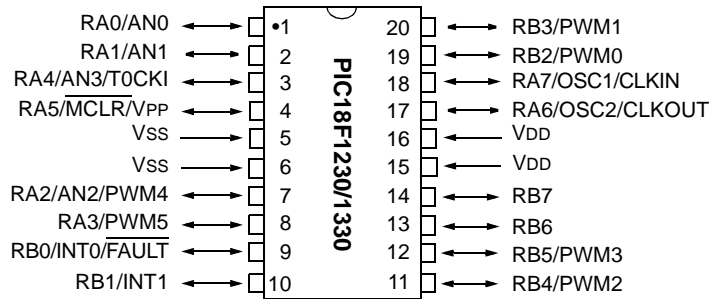
- Low power, high speed FLASH technology
- Fully static design
- Wide operating voltage range (2.0V to 5.5V)
- Industrial and Extended temperature ranges
- Low power consumption

Device	Program Memory		Data SRAM (Bytes)	Data EEPROM	I/O	10-bit A/D (ch)	PWM	Timers 8-bit/16-bit
	Bytes	# Single Word Instructions						
PIC18F1230	4K	2048	256	128	16	4	3φ	1/2
PIC18F1330	8K	4096	256	128	16	4	3φ	1/2

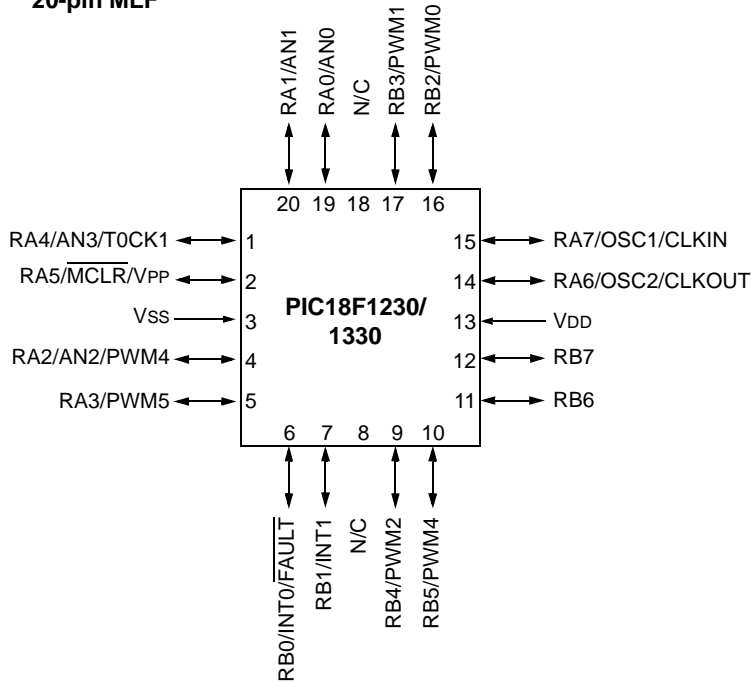
PIC18F1230/1330

Pin Diagrams

20-pin SSOP



20-pin MLF



Note: Pinouts are subject to change.

Note the following details of the code protection feature on PICmicro® MCUs.

- The PICmicro family meets the specifications contained in the Microchip Data Sheet.
- Microchip believes that its family of PICmicro microcontrollers is one of the most secure products of its kind on the market today, when used in the intended manner and under normal conditions.
- There are dishonest and possibly illegal methods used to breach the code protection feature. All of these methods, to our knowledge, require using the PICmicro microcontroller in a manner outside the operating specifications contained in the data sheet. The person doing so may be engaged in theft of intellectual property.
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- Code protection is constantly evolving. We at Microchip are committed to continuously improving the code protection features of our product.

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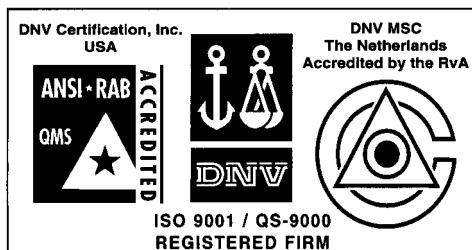
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