

18/20 Pin, 8-Bit CMOS FLASH Microcontroller with Comparators and A/D Product Brief

High Performance RISC CPU:

- Only 35 single word instructions to learn
- All single-cycle instructions, except for program branches which are two-cycle
- Operating speed:
 - DC - 20 MHz clock input
 - DC - 200 ns instruction cycle
- Up to 2K x 14 FLASH program memory
- 128 x 8 general purpose registers (SRAM)
- 64 x 8 on-chip EEPROM data memory
- Eight levels deep hardware stack
- Interrupt capability
- Direct, Indirect and Relative Addressing modes

Peripheral Features:

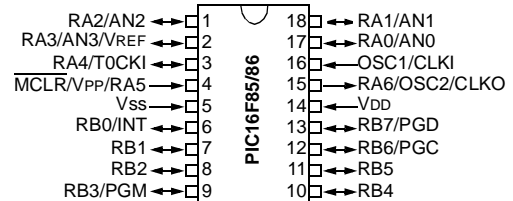
- High current sink/source (25 mA/25 mA)
- Timer0 module: 8-bit timer/counter with 8-bit prescaler
- Four channel, 8-bit Analog-to-Digital Converter (ADC) module
- Two analog comparators with:
 - Programmable on-chip voltage reference
 - Programmable input multiplexing from device inputs and internal voltage reference
 - Comparator outputs are externally accessible

Special Microcontroller Features:

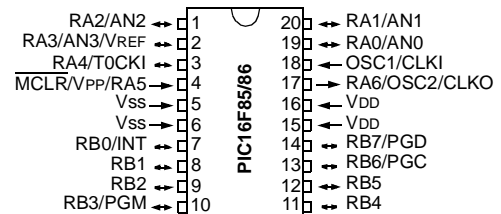
- Power-on Reset (POR), Power-up Timer (PWRT) and Oscillator Start-up Timer (OST)
- Watchdog Timer (WDT) with its own on-chip RC oscillator for reliable operation
- Power saving SLEEP mode
- Selectable oscillator options
- Serial In-Circuit Programming (ICSP™) via two pins
- Only single 5V supply required for programming
- Processor read/write access to program memory
- Brown-out Reset circuitry
- In-Circuit Debug (ICD) via two pins

Pin Diagrams:

18-Pin DIP, SOIC



20-Pin SSOP



- 100,000 erase/write cycle Enhanced FLASH program memory typical
- 1,000,000 erase/write cycle Data EEPROM memory typical
- Data EEPROM retention greater than 40 years

CMOS Technology:

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

Packages:

- 18-pin plastic DIP (300 mil)
- 18-pin plastic SOIC
- 20-pin plastic SSOP

Device	Program Memory		Data SRAM (Bytes)	Data EEPROM	I/O	Timers	Anl Comp	A/D	BOR
	Bytes	# of Single Word Instructions							
PIC16F85	1792	1024	128 x 8	64 x 8	15	1; 8-bit	2	4 ch; 8-bit	Yes
PIC16F86	3584	2048	128 x 8	64 x 8	15	1; 8-bit	2	4 ch; 8-bit	Yes

PIC16F85/86

NOTES:

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.
- Microchip is willing to work with the customer who is concerned about the integrity of their code.
- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of their code. Code protection does not mean that we are guaranteeing the product as “unbreakable”.
- Code protection is constantly evolving. We at Microchip are committed to continuously improving the code protection features of our product.

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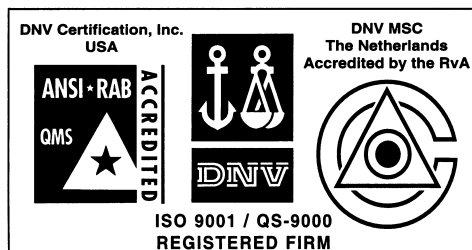
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Microchip received QS-9000 quality system certification for its worldwide headquarters, design and wafer fabrication facilities in Chandler and Tempe, Arizona in July 1999. The Company's quality system processes and procedures are QS-9000 compliant for its PICmicro® 8-bit MCUs, KEELoQ® code hopping devices, Serial EEPROMs and microperipheral products. In addition, Microchip's quality system for the design and manufacture of development systems is ISO 9001 certified.



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