



# PIC18FX32

## High-Performance, Low Power FLASH Microcontrollers Product Brief

### High Performance RISC CPU:

- C-compiler optimized architecture/instruction set
  - Source code compatible with the PIC16CXX instruction set
- Data EEPROM of 256 bytes
- Linear program memory addressing to 8 Kbytes
- Linear data memory addressing to 512 bytes
- Up to 10 MIPS operation:
  - DC - 40 MHz osc./clock input
  - 4 MHz - 10 MHz osc./clock input with PLL active
- 16-bit wide instructions, 8-bit wide data path
- Priority levels for interrupts
- 31-level, software accessible hardware stack
- 8 x 8 Single Cycle Hardware Multiplier

### Compatibility:

- Pinout compatible with:
  - PIC16CXXX and PIC16FXXX families
  - PIC18CXXX and PIC18FXXX families

### Peripheral Features:

- High current sink/source 25 mA/25 mA
- Three external interrupt pins
- Timer0 module: 8-bit/16-bit timer/counter
- Timer1 module: 16-bit timer/counter
- Timer2 module: 8-bit timer/counter
- Timer3 module: 16-bit timer/counter
- Secondary low power oscillator clock option - Timer1/Timer3
- Two Capture/Compare/PWM (CCP) modules:
  - Capture is 16-bit, max. resolution 6.25 ns (TCY/16)
  - Compare is 16-bit, max. resolution 100 ns (TCY)
  - PWM output: PWM resolution is 1- to 10-bit
- Master Synchronous Serial Port (MSSP) module  
Two modes of operation:
  - 3-wire SPI™ (supports all 4 SPI modes)
  - I<sup>2</sup>C™ Master and Slave mode
- Addressable USART module:
  - Supports interrupt on Address bit
- Parallel Slave Port (PSP) module

### Analog Features:

- Compatible 10-bit Analog-to-Digital Converter module (A/D)
  - Conversion available during SLEEP
- Programmable 16-level Low Voltage Detection (LVD) module
  - Supports Interrupt-on-Low Voltage Detection
- Programmable Brown-out Reset (BOR)

### Special Microcontroller Features:

- 1000 erase/write cycle Enhanced FLASH program memory
- 100K erase/write cycle Data EEPROM memory
- Data EEPROM Retention: > 40 years
- Self-reprogrammable under software control
- Multiple Low Power Modes:
  - CPU in various operational states
  - 500 na to 15 µa typical
- Clock Failure Recovery mechanism ensures robust operation
- 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
- Programmable code-protection
- Multiple power saving SLEEP modes
- Selectable oscillator options including:
  - 4X Phase Lock Loop (of primary oscillator)
  - Secondary Oscillator (32 kHz) clock input
  - Internal RC Oscillator
- In-Circuit Serial Programming (ICSP™) via two pins
- In-Circuit Debug via two pins

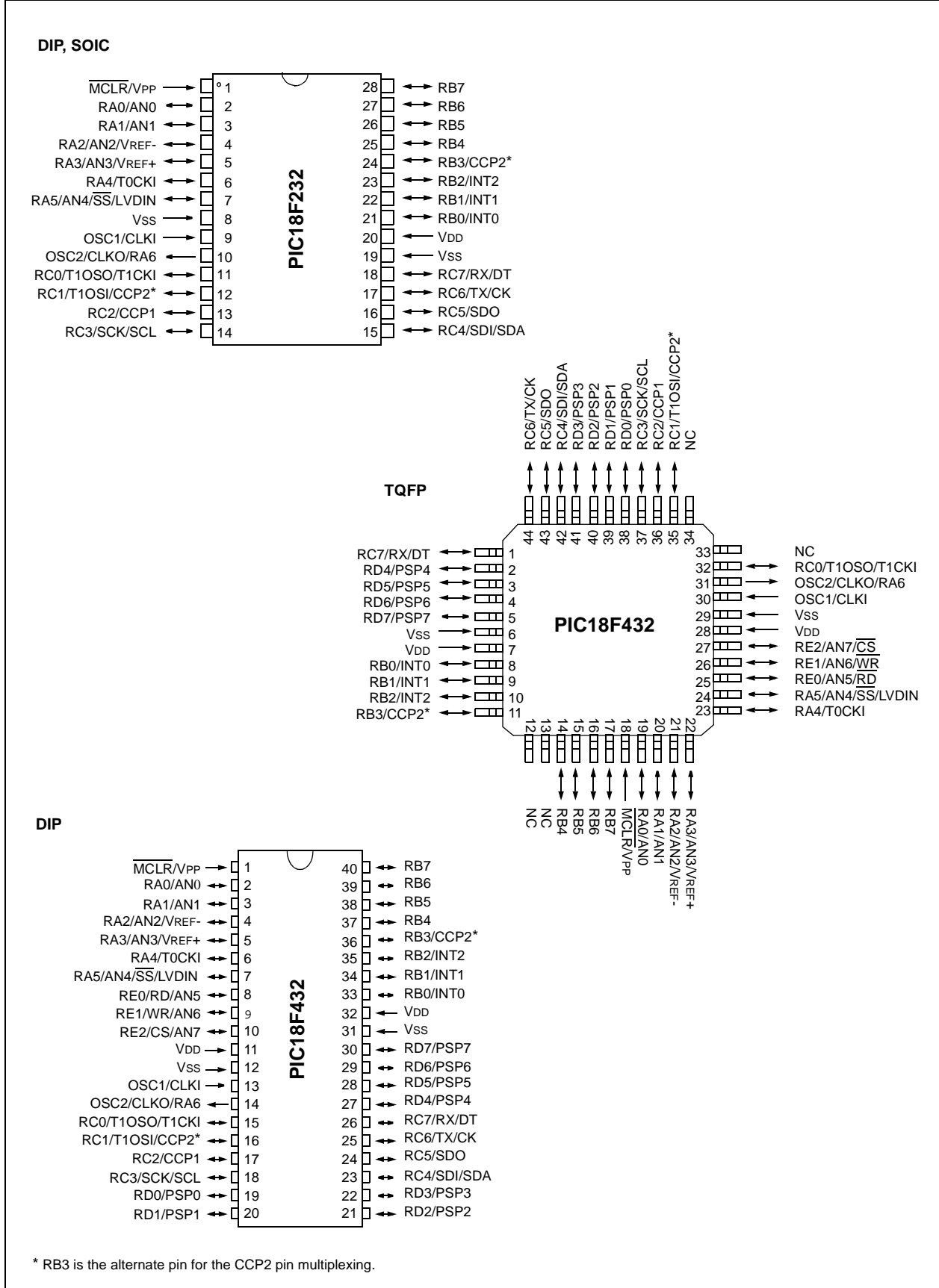
### CMOS Technology:

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

| Device    | Program Memory |                            | Data Memory  |                | I/O | 10-bit A/D (ch) | CCP (PWM) | MSSP |                         | USART | Timers 8-bit/16-bit |
|-----------|----------------|----------------------------|--------------|----------------|-----|-----------------|-----------|------|-------------------------|-------|---------------------|
|           | Bytes          | # Single Word Instructions | SRAM (bytes) | EEPROM (bytes) |     |                 |           | SPI  | Master I <sup>2</sup> C |       |                     |
| PIC18F232 | 8K             | 4096                       | 512          | 256            | 23  | 5               | 2         | Y    | Y                       | Y     | 1/3                 |
| PIC18F432 | 8K             | 4096                       | 512          | 256            | 34  | 8               | 2         | Y    | Y                       | Y     | 1/3                 |

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## Pin Diagrams



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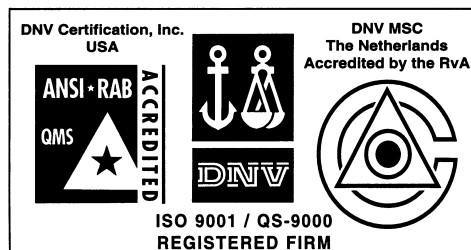
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