



PIC18F6410/8410

64/80-Pin High-Performance, Flash Microcontrollers with 10-bit A/D and nanoWatt Technology Product Brief

Low-Power Features:

- Power Managed modes:
 - Run: CPU on, peripherals on
 - Idle: CPU off, peripherals on
 - Sleep: CPU off, peripherals off
- Power Consumption modes:
 - PRI_RUN: 150 μ A @ 1 MHz, 2V
 - PRI_IDLE: 35 μ A @ 1 MHz, 2V
 - SEC_RUN: 9.6 μ A @ 32 kHz, 2V
 - SEC_IDLE: 5.8 μ A @ 32 kHz, 2V
 - RC_RUN: 145 μ A @ 1 MHz, 2V
 - RC_IDLE: 85 μ A @ 1 MHz, 2V
 - Sleep: 0.1 μ A
- Timer1 Oscillator: 1.8 μ A typical @ 32 kHz, 2V
- Watchdog Timer: 2.2 μ A @ 2V
- Two-Speed Oscillator Start-up

Flexible Oscillator Structure:

- Four Crystal modes:
 - LP: up to 200 kHz
 - XT: up to 4 MHz
 - HS: up to 40 MHz
 - HSPLL: 4-10 MHz (16-40 MHz internal)
- Two External Clock modes, up to 40 MHz
- Two External RC modes, up to 4 MHz
- Internal Oscillator block:
 - 8 user selectable frequencies: 31.25 kHz, 125 kHz, 250 kHz, 500 kHz, 1 MHz, 2 MHz, 4 MHz or 8 MHz
 - 4x PLL option generates 16 MHz or 32 MHz
 - Two modes select one or two I/O pins
 - OSCTUNE – Allows user to shift frequency
- Secondary Oscillator using Timer1 @ 32 kHz
- Fail-Safe Clock Monitor:
 - Allows for safe shutdown of device if primary or secondary oscillator/clock fails

External Memory Interface (PIC18F8410 Devices only):

- Address capability of up to 2 Mbytes
- 16-bit/8-bit interface

Peripheral Highlights:

- High current sink/source 25 mA/25 mA
- Up to four external interrupts
- Four 8-bit/16-bit Timer/Counter modules
- Three Capture/Compare/PWM (CCP) modules:
 - Capture is 16-bit, max. resolution 6.25 ns (T_{CY})
 - Compare is 16-bit, max. resolution 100 ns (T_{CY})
 - PWM output: PWM resolution is up to 10-bit
- Master Synchronous Serial Port (MSSP) module with two modes of operation:
 - 3-wire SPI™ (supports all 4 SPI modes)
 - I²C™ Master and Slave mode
- One Addressable USART module
- One Enhanced Addressable USART module:
 - Supports LIN 1.2
 - Auto-wake-up on Start bit
 - Auto-baud detect
- 10-bit, up to 12-channel A/D Converter:
 - Auto-acquisition
 - Conversion available during Sleep
- Two analog comparators
- Programmable reference voltage for comparators

Special Microcontroller Features:

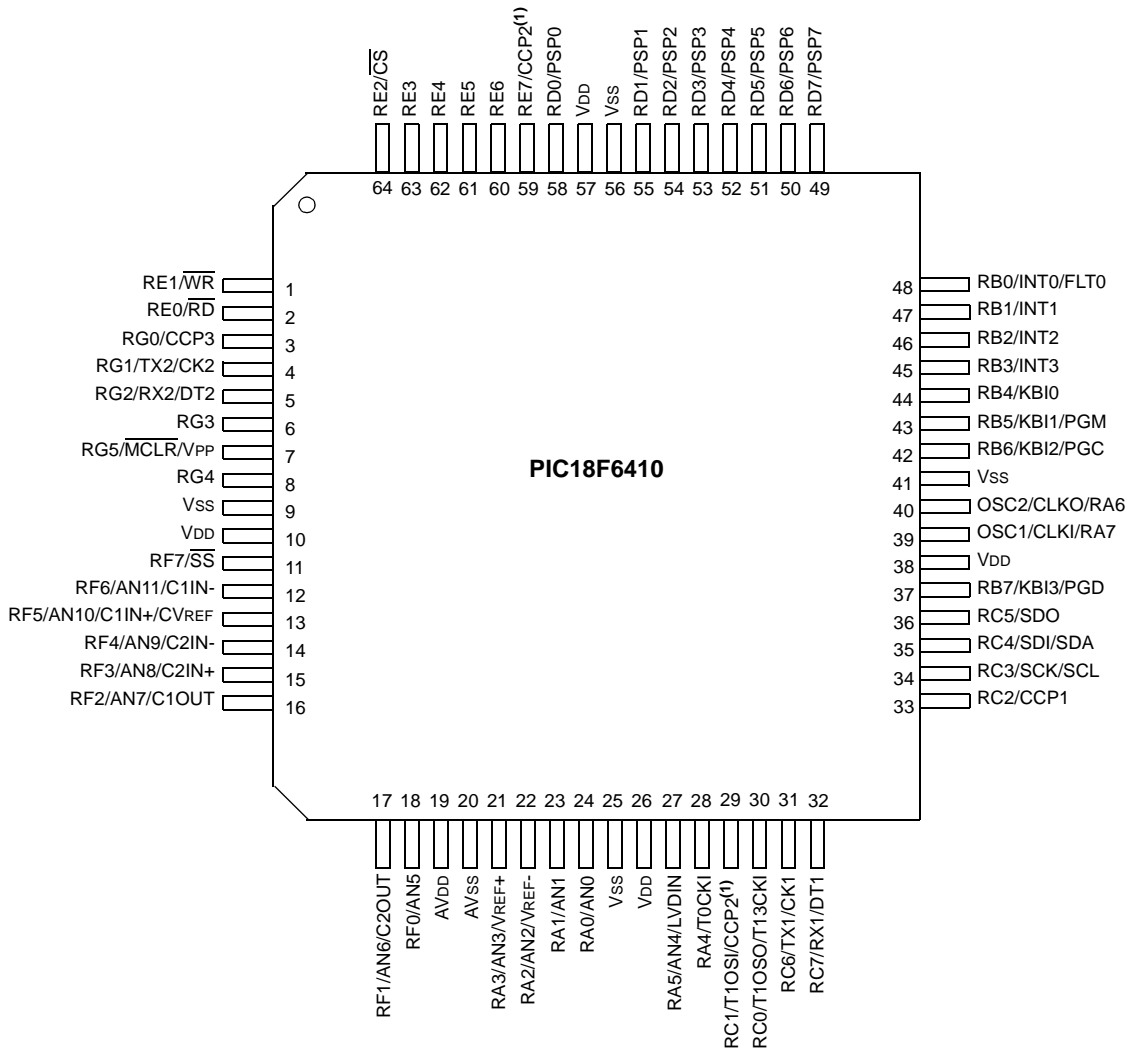
- 1000 erase/write cycle Flash program memory typical
- Flash retention 100 years typical
- Priority levels for interrupts
- 8 x 8 Single Cycle Hardware Multiplier
- Power-on Reset (POR), Power-up Timer (PWRT) and Oscillator Start-up Timer (OST)
- Programmable Brown-out Reset (BOR)
- Programmable 16-level Low-Voltage Detection (LVD) module
- Extended Watchdog Timer (WDT):
 - Programmable period from 4 ms to 131s
- In-Circuit Serial Programming™ (ICSP™) via two pins
- In-Circuit Debug via two pins
- Wide operating voltage range: 2.0V to 5.5V

Device	Program Memory (On-board/External)		Data Memory (bytes)	I/O	10-bit A/D (channels)	Comparators	CCP	MSSP (SPI/ Master I ² C)	EUSART/ AUSART	Timers 8-bit/16-bit
	Bytes	# Single Word Instructions								
PIC18F6410	16K/0	8192/0	768	54	12	2	3	Y	1/1	1/3
PIC18F8410	16K/2M	8192/1M	768	70	12	2	3	Y	1/1	1/3

PIC18F6410/8410

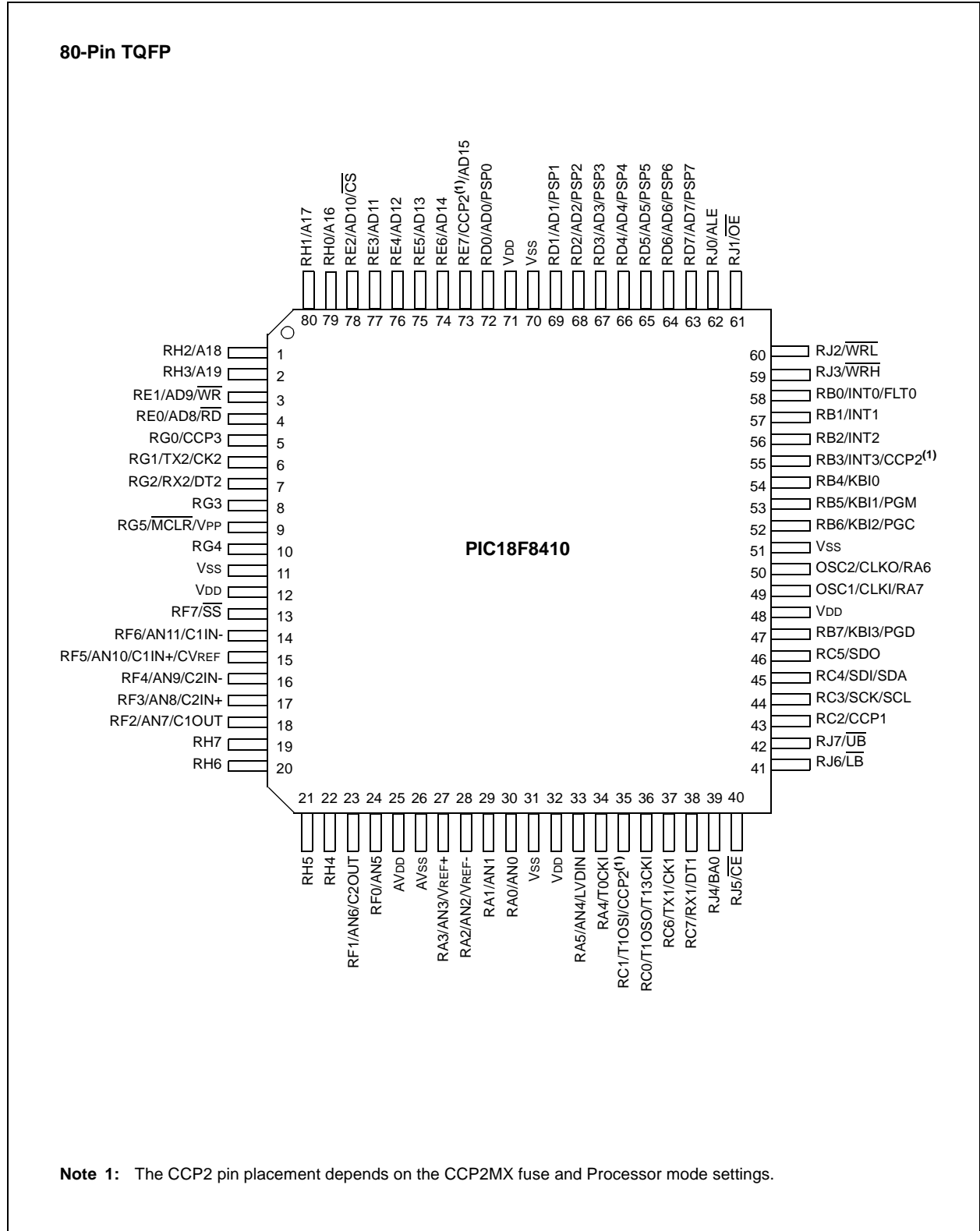
Pin Diagrams

64-Pin TQFP



Note 1: The CCP2 pin placement depends on the CCP2MX fuse setting.

Pin Diagrams (Cont.'d)



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NOTES:

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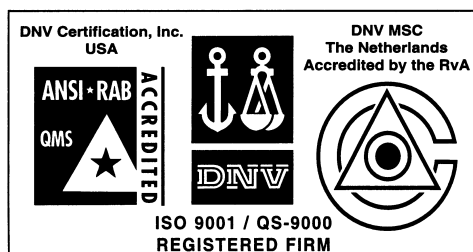
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