



PIC18F87K22 Family Data Sheet

64/80-Pin, High-Performance,
1-Mbit Enhanced Flash Microcontrollers
with 12-Bit A/D and
nanoWatt XLP Technology

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QUALITY MANAGEMENT SYSTEM
CERTIFIED BY DNV
== ISO/TS 16949:2009 ==



PIC18F87K22 FAMILY

64/80-Pin, High-Performance, 1-Mbit Enhanced Flash MCUs with 12-Bit A/D and nanoWatt XLP Technology

Low-Power Features:

- Power-Managed modes:
 - Run: CPU on, peripherals on
 - Idle: CPU off, peripherals on
 - Sleep: CPU off, peripherals off
- Two-Speed Oscillator Start-up
- Fail-Safe Clock Monitor
- Power-Saving Peripheral Module Disable (PMD)
- Ultra Low-Power Wake-up
- Fast Wake-up, 1 μ s Typical
- Low-Power WDT, 300 nA Typical
- Ultra Low 50 nA Input Leakage
- Run mode Currents Down to 5.5 μ A, Typical
- Idle mode Currents Down to 1.7 μ A Typical
- Sleep mode Currents Down to Very Low 20 nA, Typical
- RTCC Current Downs to Very Low 700 nA, Typical

Special Microcontroller Features:

- Operating Voltage Range: 1.8V to 5.5V
- On-Chip 3.3V Regulator
- Operating Speed up to 64 MHz
- Up to 128 Kbytes On-Chip Flash Program Memory
- Data EEPROM of 1,024 Bytes
- 4K x 8 General Purpose Registers (SRAM)
- 10,000 Erase/Write Cycle Flash Program Memory, Minimum
- 1,000,000 Erase/write Cycle Data EEPROM Memory, Typical
- Flash Retention: 40 Years, Minimum
- Three Internal Oscillators: LF-INTRC (31 kHz), MF-INTOSC (500 kHz) and HF-INTOSC (16 MHz)
- Self-Programmable under Software Control
- Priority Levels for Interrupts
- 8 x 8 Single-Cycle Hardware Multiplier
- Extended Watchdog Timer (WDT):
 - Programmable period from 4 ms to 4,194s (about 70 minutes)
- In-Circuit Serial Programming™ (ICSP™) via Two Pins
- In-Circuit Debug via Two Pins
- Programmable:
 - BOR
 - LVD

Device	Program Memory		Data Memory		I/O	12-Bit A/D (ch)	CCP/ ECCP (PWM)	MSSP			EUSART	Comparators	Timers 8/16-Bit	External Bus	CTMU	RTCC
	Flash (bytes)	# Single-Word Instructions	SRAM (bytes)	EEPROM (bytes)				SPI	Master I ² C™							
PIC18F65K22	32K	16,383	2K	1K	53	16	5/3	2	Y	Y	2	3	4/4	N	Y	Y
PIC18F66K22	64K	32,768	4K	1K	53	16	7/3	2	Y	Y	2	3	6/5	N	Y	Y
PIC18F67K22	128K	65,536	4K	1K	53	16	7/3	2	Y	Y	2	3	6/5	N	Y	Y
PIC18F85K22	32K	16,383	2K	1K	69	24	5/3	2	Y	Y	2	3	4/4	Y	Y	Y
PIC18F86K22	64K	32,768	4K	1K	69	24	7/3	2	Y	Y	2	3	6/5	Y	Y	Y
PIC18F87K22	128K	65,536	4K	1K	69	24	7/3	2	Y	Y	2	3	6/5	Y	Y	

PIC18F87K22 FAMILY

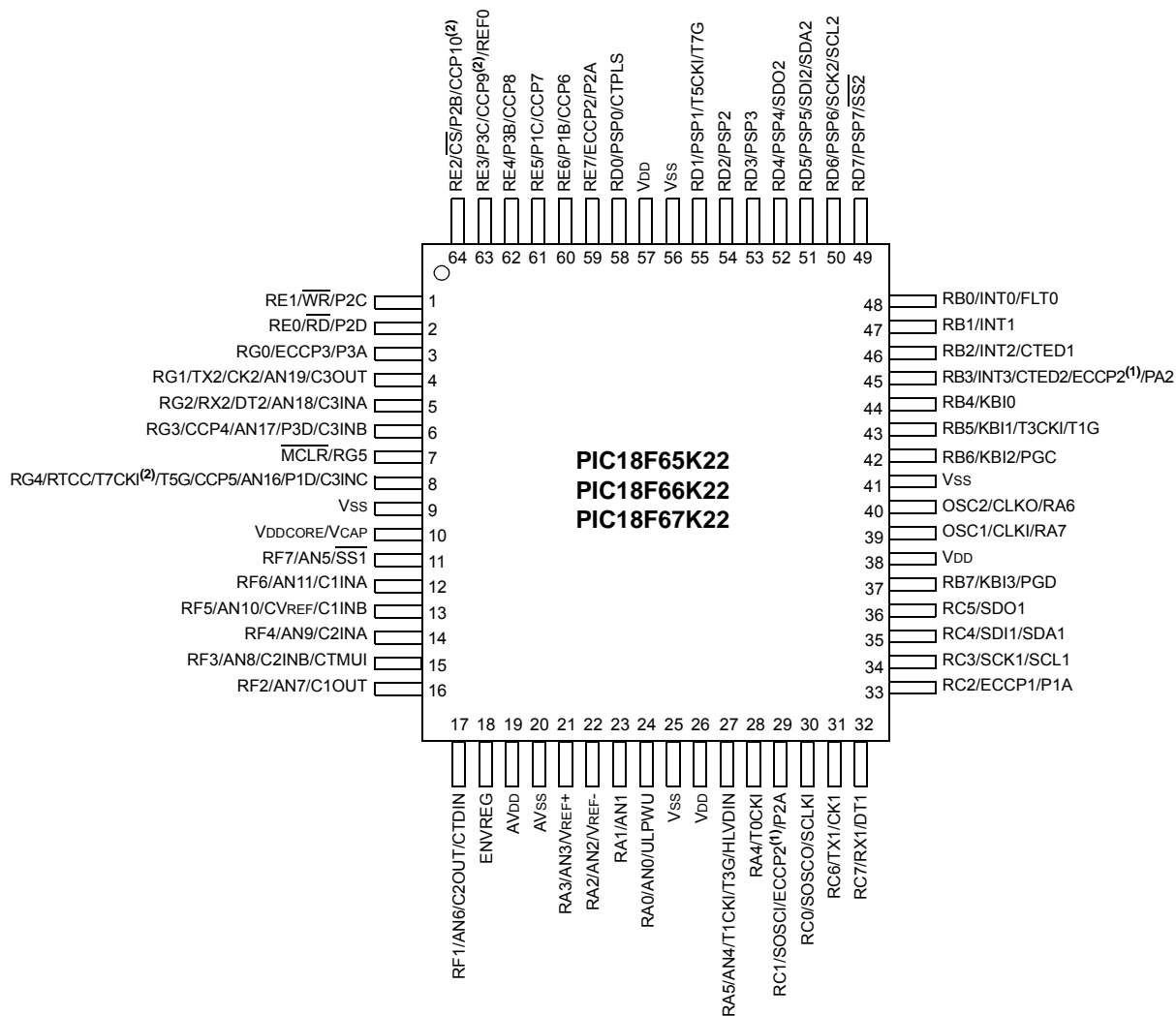
Peripheral Highlights:

- Up to Ten CCP/ECCP modules:
 - Up to seven Capture/Compare/PWM (CCP) modules
 - Three Enhanced Capture/Compare/PWM (ECCP) modules
- Up to Eleven 8/16-Bit Timer/Counter modules:
 - Timer0 – 8/16-bit timer/counter with 8-bit programmable prescaler
 - Timer1,3 – 16-bit timer/counter
 - Timer2,4,6,8 – 8-bit timer/counter
 - Timer5,7 – 16-bit timer/counter for 64k and 128k parts
 - Timer10,12 – 8-bit timer/counter for 64k and 128k parts
- Three Analog Comparators
- Configurable Reference Clock Output
- Hardware Real-Time Clock and Calendar (RTCC) module with Clock, Calendar and Alarm Functions
- Charge Time Measurement Unit (CTMU):
 - Capacitance measurement for mTouch™ sensing solution
 - Time measurement with 1 ns typical resolution
 - Integrated temperature sensor
- High-Current Sink/Source 25 mA/25 mA (PORTB and PORTC)
- Up to Four External Interrupts
- Two Master Synchronous Serial Port (MSSP) modules:
 - 3/4-wire SPI (supports all four SPI modes)
 - I²C™ Master and Slave modes
- Two Enhanced Addressable USART modules:
 - LIN/J2602 support
 - Auto-Baud Detect (ABD)
- 12-Bit A/D Converter with up to 24 Channels:
 - Auto-acquisition and Sleep operation
 - Differential input mode of operation
- Integrated Voltage Reference

PIC18F87K22 FAMILY

Pin Diagrams – PIC18F6XK22

64-Pin TQFP, QFN

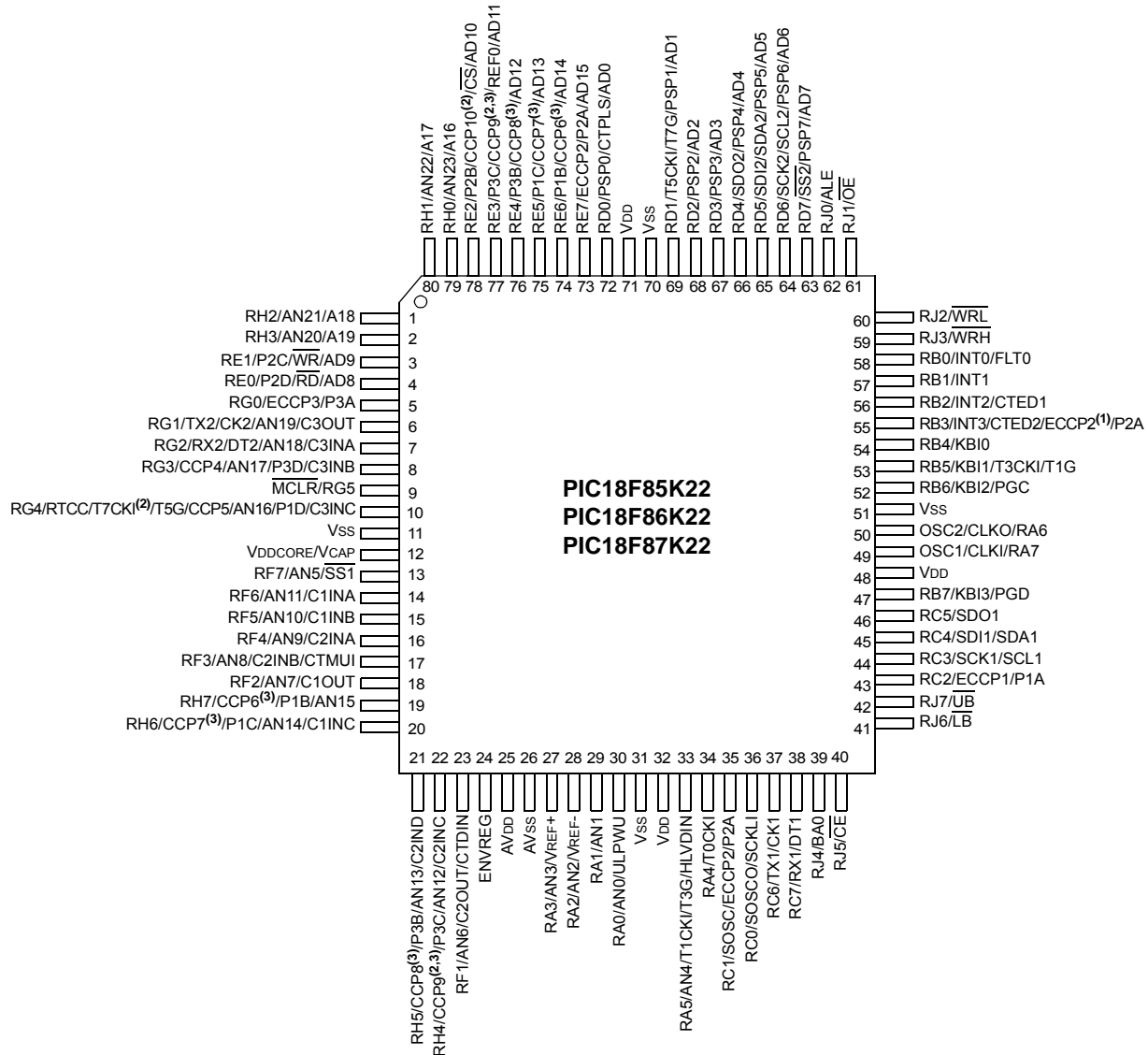


- Note 1:** The ECCP2 pin placement depends on the CCP2MX Configuration bit setting and whether the device is in Microcontroller or Extended Microcontroller mode.
- Note 2:** Not available on the PIC18F65K22 and PIC18F85K22 devices.

PIC18F87K22 FAMILY

Pin Diagrams – PIC18F8XK22

80-Pin TQFP



- Note 1:** The ECCP2 pin placement depends on the CCP2MX Configuration bit setting and whether the device is in Microcontroller or Extended Microcontroller mode.
- Note 2:** Not available on the PIC18F65K22 and PIC18F85K22 devices.
- Note 3:** The CC6, CCP7, CCP8 and CCP9 pin placement depends on the setting of the ECCPMX Configuration bit (CONFIG3H<1>).