

PIC18F “K40” Family of Microcontrollers

High-Performance 8-bit MCUs with Core Independent Peripherals

Summary

The PIC18F “K40” family continues our long-standing tradition of innovation in 8-bit MCUs by bringing the popular Core Independent Peripherals (CIPs) to the PIC18 product line. These cost optimized MCUs consist of ten devices—ranging from 16–128 KB of Flash memory with package options covering 28–64 pins. They are well suited for a broad range of applications and market segments, including touch sensing, industrial control, automotive, white goods and Internet of Things (IoT). These devices include a full complement of Core Independent Peripherals for safety critical applications (CRC/memory scan, windowed watchdog timer, and hardware limit timer), up to seven hardware PWMs and multiple communications interfaces. Additionally, the PIC18F “K40” family offers intelligent analog peripherals including Zero Cross Detect (ZCD), on-chip comparator and Analog-to-Digital Converter with Computation (ADC²).

Design in Weeks, Not Months

Core Independent Peripherals abstract commonly required system functions into flexible on-chip hardware modules. This not only increases the PIC18F “K40” family’s throughput and CPU bandwidth, it also enables a significant reduction in software design effort necessary to architect those functions. For example, the ADC² is an intelligent Analog-to-Digital Converter which accelerates the data acquisition and signal analysis functions required in sensor interface applications, such as capacitive touch sensing. The ADC² handles the signal analysis functions of averaging, filtering, oversampling and automatic threshold comparison independent of the CPU.



To further reduce your time to market, we have designed the PIC18F “K40” family to seamlessly integrate with MPLAB® Code Configurator (MCC) for a modern embedded development experience. MCC is a free software plug-in that bridges our MCUs, development hardware, and award winning IDEs. It allows you to generate easily modifiable, production-ready application code for many 8-bit PIC® microcontrollers in just a few mouse clicks. Find out more at www.microchip.com/MCC.



Key Features

- 64 MHz internal oscillator
- Up to 128 KB Flash program memory
- Up to 3.6K of SRAM and 1K of EEPROM
- Windowed Watch Dog Timer (WWDT)
- Peripheral Pin Select (PPS)
- 10-bit ADC² (ADC with Computation), up to 47 channels
- Two Comparators
- Zero Cross Detect (ZCD)
- On-chip temperature indicator
- Data Signal Modulator (DSM)
- 5-bit Digital-to-Analog Converter (DAC)
- 10-bit PWMs with complement generation
- EUSART, SPI, and I²C

Develop with Curiosity



Curiosity Development Boards are cost-effective, fully integrated MCU development platforms targeted at first-time users, Makers, and those seeking a feature-rich rapid prototyping board. Designed from the ground-up to take full advantage of Microchip’s MPLAB® X and MPLAB Xpress development environments, Curiosity includes an integrated programmer/debugger, and requires no additional hardware to get started.

Curiosity High Pin Count (HPC) Development Board (DM164136) supports the PIC18F “K40” family, as well as a number of other Low-Voltage Programming (LVP)-enabled 8-bit PIC MCUs in 28-40 pin count.



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Products

Part Number	Pin Count	Program Flash (KB)	Data EEPROM (B)	RAM (B)	10-bit ADC ²	I/O Pins	Timers (8-bit with HLT/16-bit)	Comparators	CCP/10-bit PWM	ZCD/CWG	CRC with Memory Scan and WWDT	EUSART/I ² C/SPI	PPS/PMD/Temp. Indicator	Packages
PIC18(L)F24K40	28	16	256	1024	24 ch.	25	3/4	2	2/2	1/1	✓	1/1	✓/✓/✓	SPDIP, SOIC, SSOP, UQFN, QFN
PIC18(L)F25K40	28	32	256	2048	24 ch.	25	3/4	2	2/2	1/1	✓	1/1	✓/✓/✓	SPDIP, SOIC, SSOP, UQFN, QFN
PIC18(L)F26L40	28	64	1024	3728	24 ch.	25	3/4	2	2/2	1/1	✓	2/2	✓/✓/✓	SPDIP, SOIC, SSOP, UQFN, QFN
PIC18(L)F27K40	28	128	1024	3728	24 ch.	25	3/4	2	2/2	1/1	✓	2/2	✓/✓/✓	SPDIP, SOIC, SSOP, UQFN, QFN
PIC18(L)F45K40	40/44	32	256	2048	35 ch.	36	3/4	2	2/2	1/1	✓	2/2	✓/✓/✓	PDIP, UQFN, QFN, TQFP
PIC18(L)F46K40	40/44	64	1024	3728	35 ch.	36	3/4	2	2/2	1/1	✓	2/2	✓/✓/✓	PDIP, UQFN, QFN, TQFP
PIC18(L)F47K40	40/44	128	1024	3728	35 ch.	36	3/4	2	2/2	1/1	✓	2/2	✓/✓/✓	PDIP, UQFN, QFN, TQFP
PIC18(L)F65K40	64	32	1024	2048	47 ch.	60	4/5	3	5/2	1/1	✓	5/2	✓/✓/✓	QFN, TQFP
PIC18(L)F66K40	64	64	1024	3562	47 ch.	60	4/5	3	5/2	1/1	✓	5/2	✓/✓/✓	QFN, TQFP
PIC18(L)F67K40	64	128	1024	3562	47 ch.	60	4/5	3	5/2	1/1	✓	5/2	✓/✓/✓	QFN, TQFP



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