PIC24F “KL” Microcontroller Family

Lowest Cost, eXtreme Low Power, Low Pin Count 16-bit MCUs

The PIC24F “KL” family is Microchip’s lowest cost 16-bit PIC® microcontroller (MCU) family. It combines the advantages of low cost, eXtreme low power and low pin count for the most cost sensitive applications. These devices feature the 16-bit performance of Microchip’s PIC24 core architecture and a cost effective peripheral set and memory mix.

These devices are designed to execute code with as little current consumption as possible. They are ideal for applications on a strict power budget, including battery powered applications. Microchip’s nanoWatt XLP technology allows the PIC24F “KL” family to achieve typical sleep currents of 30 nA at 25°C, and typical run mode current consumption of 150 µA/MHz at 1.8V.

The combination of eXtreme low power with low cost and low pin count (14-, 20- and 28-pins) allows the PIC24F “KL” family to be used in a wide variety of applications including consumer (portable media players, portable GPS, cell phone accessories, electronic toys/games, portable sports gear), medical (disposable low cost medical testers, dispensers, and inhalers) and safety/security (smoke detectors, alarm systems, asset tracking) markets, among others.

Key Features

- 10-bit, up to 12-ch Analog-to-Digital (A/D) converter
- Dual rail-to-rail analog comparators with programmable input/output configuration
- Up to two Master Synchronous Serial Port (MSSP) modules (each can be configured as either a SPI or I²C™)
- Up to two UART modules
- Two Capture/Compare/PWM (CCP) modules and up to one Enhanced CCP module
- Two 16-bit timer/counters with selectable clock sources
- Low Power Modes utilizing nanoWatt XLP technology
  - Ultra low power wake-up
  - Low power BOR
  - Watchdog timer
- PIC24 architecture
  - 16 MIPS performance
  - 24-bit instruction bus for more single cycle instructions
  - Single cycle instruction execution and bit manipulation
- Memory
  - 4 to 16 KB Flash
  - 512B to 1 KB RAM
  - Up to 512B EEPROM
- Package size down to 5x5 mm

PIC24F “KL” Flash Microcontrollers

Device	Pins	I/O	Program Memory (Kbytes)	Data RAM (Bytes)	Data EEPROM (Bytes)	ADC	Comparators	CCP/ ECCP	UART	MSSP (I²C™/ SPI)	Timers 8-bit/ 16-bit	Packages
PIC24F04KL100	14	12	4	512	–	–	1	2/0	1	1	1/2	PDIP, TSSOP
PIC24F08KL200	14	12	8	512	–	7	1	2/0	1	1	1/2	PDIP, TSSOP
PIC24F04KL101	20	17	4	512	–	–	1	2/0	1	1	1/2	PDIP, SSOP, SOIC, 5x5 QFN
PIC24F08KL201	20	17	8	512	–	12	1	2/0	1	1	1/2	PDIP, SSOP, SOIC, 5x5 QFN
PIC24F08KL301	20	18	8	1024	256	–	2	2/1	2	2	2/2	PDIP, SSOP, SOIC, 5x5 QFN
PIC24F08KL401	20	18	8	1024	512	12	2	2/1	2	2	2/2	PDIP, SSOP, SOIC, 5x5 QFN
PIC24F16KL401	20	18	16	1024	512	12	2	2/1	2	2	2/2	PDIP, SSOP, SOIC, 5x5 QFN
PIC24F08KL302	28	24	8	1024	256	–	2	2/1	2	2	2/2	SPDIP, SSOP, SOIC, 5x5 QFN, 6x6 QFN
PIC24F08KL402	28	24	8	1024	512	12	2	2/1	2	2	2/2	SPDIP, SSOP, SOIC, 5x5 QFN, 6x6 QFN
PIC24F16KL402	28	24	16	1024	512	12	2	2/1	2	2	2/2	SPDIP, SSOP, SOIC, 5x5 QFN, 6x6 QFN

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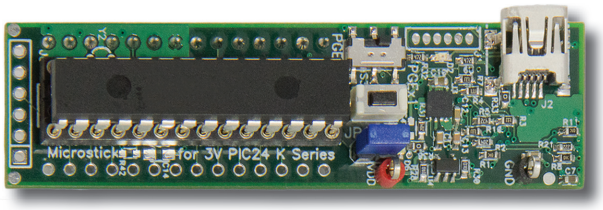
Low Cost Development Tool

Microstick for 3V PIC24F K-series (DM240013-1) is a flexible, USB powered development platform. It's the perfect solution for those looking to get started with Microchip's lowest cost 16-bit solutions – the PIC24F K-series MCUs – for extremely cost sensitive consumer, medical and safety/ security applications.



Features

- USB powered – no external power supply required
- Supports 3V PIC24 K-series MCUs (28-pin SPDIP)
- Integrated USB programmer/debugger – no external debugger required
- On-board user and power LEDs
- Socket for flexible, easy device replacement
- Easy access to all device signals for probing
- Works stand-alone or plugged into a bread board for easy connection to additional circuitry
- Compatible with 16-bit XLP development board for flexible prototyping of low power applications
- Small footprint (20 x 69 mm) – easily portable
- MPLAB® IDE support – free, integrated tool set
- Free demo code

Kit Contents

- Microstick for 3V PIC24F K-series Board
- USB cable
- 2 – 1x14 header pins (for inserting into protoboard)
- 1 – PIC24F16KL402
- 1 – PIC24F16KA102

Additional Information

- *PIC24F16KL402 Data Sheet*, DS31037
- *Microstick for 3V PIC24F K-series Info Sheet*, DS52012
- *16-bit Embedded Control Solutions*, DS01032
- *Focus Product Selector Guide*, DS01308

Sample Information

On-line Sampling: sample.microchip.com

Development Tools from Microchip

Part Number	Development Tool	Description
DM240013-1	Microstick for 3V PIC24F K-series	Low-cost development board to evaluate 3V PIC24F K-series MCU families. Ships with PIC24F16KL402 and PIC24F16KA102 MCUs and can be used with any other 3V PIC24FXXKXX (K-series) MCU.
DM240311	XLP 16-bit Development Board	The XLP 16-bit development board is a highly configurable development system for Microchip's eXtreme low power 16-bit PIC24F microcontrollers. Using the Microstick 3V PIC24F K-series with the 16-bit XLP development board enables designers to explore and evaluate 3V PIC24F K-series microcontrollers' low-power features and techniques in a flexible and expandable way.

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www.microchip.com/KL402
www.microchip.com/microstick3V

Visit our web site for additional product information and to locate your local sales office.

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