

# PIC16F727/PIC16F726/ PIC16F724/PIC16F723/PIC16F722

## The Perfect Balance of Cost and Functionality

### Summary

Building upon Microchip's leadership in 8-bit microcontrollers, the PIC16F72X Family (PIC16F/726/724/723/722) is a versatile, general-purpose product line that enhances the useability and features of any end-product while keeping costs low. The PIC16F72X Family provides a general purpose approach to bringing a higher level of intelligence and reliability into cost sensitive applications including; interactive toys or consumer products such as electric tooth brushes and blenders. With flexible product options and low cost, PIC16F72X allows for increased application functionality while minimizing BOM costs.

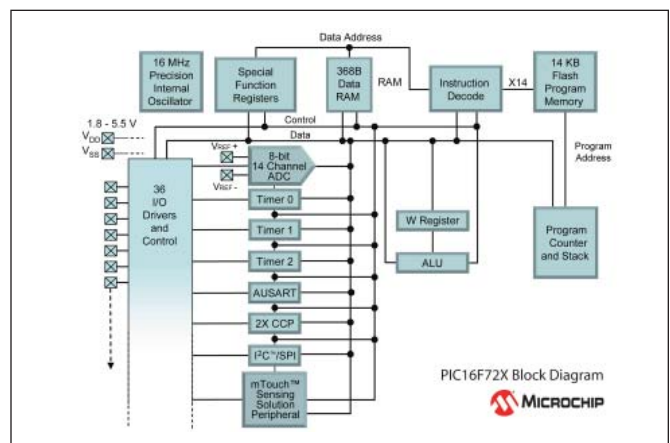
The addition of the integrated (yet selectable) mTouch™ Capacitive Sensing Module allows customers to further distinguish their products. The mTouch Sensing Solution peripheral makes it easy to add proximity sensing or capacitive touch-sensing user interfaces in place of mechanical buttons or switches. Additionally, the mTouch peripheral can operate while the device is in "sleep mode" with a total power consumption of <math><10 \mu\text{A}</math>, bringing further power savings to the user. When designing cell phones, home appliances or thermostats – mTouch technology provides an inexpensive, reliable and aesthetically pleasing interface.

The 28- and 40-pin PIC16F72X Family have an operating voltage range of 1.8-5.5V, with the low-power PIC16LF72X variants offering lower standby and other power consumption specifications from 1.8-3.6V. All feature a 16 MHz internal oscillator; up to 14 Analog-to-Digital Converter (ADC) channels; communication interfaces (SPI, I<sup>2</sup>C™, USART) and two Capture/Compare/PWM (CCP) modules; plus the mTouch Capacitive Sensing Module peripheral. These highly integrated devices are well-suited for a wide range of general-purpose applications in the appliance, industrial, consumer electronic and many other markets. All variations feature a Timer1 Gate that runs from the internal 16 MHz oscillator, providing ease in conditional event counting and measurements. With up to 14 ADC channels, two CCP modules and communication peripherals, these PIC® microcontrollers increase design flexibility with the ability to interface with external devices such as environmental sensors, as well as provide additional system control and monitoring.



### Features

- Price points that bring intelligence and control to cost-sensitive applications
- Low power 1.8V operation up to 5.5V
- Full analog operation throughout entire supply voltage range
- 16 MHz internal oscillator
- Integrated mTouch Capacitive Sensing Module
- Up to (14) 8-bit ADC channels
- I<sup>2</sup>C, SPI, USART
- (2) Capture Compare PWM channels
- Two 8-bit Timer (TMR0/TMR2)
- One 16-bit Timer (TMR1)
- Watchdog Timer (WDT)
- Enhanced Power-On/Off-Reset
- Brown-Out Reset (BOR)
- In Circuit Serial Programming™ (ICSP™)



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## Additional Information

- PIC16F/LF727/726/724/723/722 Data Sheet, DS41341
- AN1101 Introduction to Capacitive Sensing
- AN1102 Layout & Physical Design Guidelines for Capacitive Sensing
- AN1171 Using the Capacitive Sensing Module of the PIC16F72X
- TB3014 Low Power Capacitive Sensing with the Capacitive Sensing Module
- mTouch Sensing Solution User's Guide, DS41328
- 8-bit PIC Microcontroller Solutions Brochure, DS39630
- Low Cost Development Tools Guide, DS51560

## Links/Sample/Purchasing Information

- Web Link: [www.microchip.com/8bit](http://www.microchip.com/8bit)
- On-line Sampling: [www.sample.microchip.com](http://www.sample.microchip.com)
- On-line Purchasing: [www.microchipdirect.com](http://www.microchipdirect.com)

### 8-bit PIC® Microcontrollers

Device	Flash (Words/Bytes)	RAM (Bytes)	Pins	8-bit ADC	Timers 8-bit/16-bit	CCP	Communication	Operating Voltage	Package Options
PIC16F722 PIC16LF722	2K/3.5K	128	28	11	2/1	2	UART, I2C, SPI	1.8V-5.5V 1.8V-3.6V	SPDIP, SOIC, SSOP, QFN
PIC16F723 PIC16LF723	4K/7K	192	28	11	2/1	2	UART, I2C, SPI	1.8V-5.5V 1.8V-3.6V	SPDIP, SOIC, SSOP, QFN
PIC16F724 PIC16LF724	4K/7K	192	40/44	14	2/1	2	UART, I2C, SPI	1.8V-5.5V 1.8V-3.6V	PDIP, TQFP, QFN
PIC16F726 PIC16LF726	8K/14K	368	28	11	2/1	2	UART, I2C, SPI	1.8V-5.5V 1.8V-3.6V	SPDIP, SOIC, SSOP, QFN
PIC16F727 PIC16LF727	8K/14K	368	40/44	14	2/1	2	UART, I2C, SPI	1.8V-5.5V 1.8V-3.6V	PDIP, TQFP, QFN

### Development Tools from Microchip

Part Number	Development Tool	Description
SW007002	MPLAB® IDE – includes: MPASM™ Assembler, MPLINK™ Linker/MPLIB™ Librarian and MPLAB Simulator Software	Integrated Development Environment (download free of charge at <a href="http://www.microchip.com">www.microchip.com</a> )
DV164120	PICkit™ 2 Starter Kit	Low-cost development tool with an easy to use interface for programming and debugging Flash families of microcontrollers
DV164131	PICkit™ 3 Debug Express	In-Circuit Debugger/Programmer uses in-circuit debugging logic incorporated into each chip with Flash memory to provide a low-cost hardware debugger and programmer
DV007004	MPLAB® PM3 Universal Device Programmer	Full-featured modular device programmer
DV244005	MPLAB® REAL ICE™ In-Circuit Emulator	High speed emulator for Microchip Flash DSC® and MCU devices
DV164005	MPLAB® ICD 2 In-Circuit Debugger	Low cost, real-time debugger and programmer for selected PIC® MCUs and dsPIC® DSCs
AC164112	MPLAB® ICD 2 V <sub>PP</sub> Voltage Limiter	in-line voltage clamp for programming and debugging the latest PIC12/PIC16/PIC18 products
DV164035	MPLAB® ICD 3 In-Circuit Debugger	Cost effective high-speed hardware debugger/programmer for Flash Digital Signal Controller (DSC) and microcontroller (MCU) devices



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