

PIC10F32X Microcontrollers

The original 6-pin microcontroller just got better

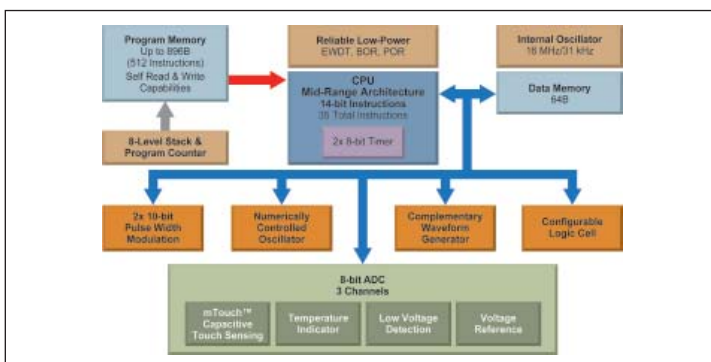
Summary

The first 6 pin MCU in the world – the original baseline architecture PIC10F2XX family debuted in 2004 and included six members (PIC10F200, PIC10F202, PIC10F204, PIC10F206, PIC10F220 and PIC10F222) and is now one of the most highly accepted MCUs in the industry. One of the keys critical to success of the PIC10F family has been the ability to enable unique and non-traditional uses such as: ASIC/PCB fixes, intelligent analog control, and pricing that make disposable intelligent applications possible (i.e., pregnancy testers, packing sensors, etc.). Even with the incredible worldwide acceptance of the baseline PIC10F2XX family, customers have frequently requested the addition of features such as; PWM, non-volatile data storage and interrupts.

Based upon the Mid-Range architecture, the PIC10F320/322 is the next generation of the PIC10F family and provides an increased feature set with improved performance. The new PIC10F members provide H/W interrupts, 8 level hardware stack, two PWMs, emulated data EE, a low power 16 MHz internal oscillator, an 8-bit ADC, as well as a few new unique features never before seen.

- **Configurable Logic Cell (CLC)** – Provides four inputs for combinational and sequential logic that is under software control. This can be used for conditional signaling, signal combining or just general purpose logic such as boolean functions and flip flops.
- **Complementary Waveform Generator (CWG)** – Provides a compliment waveform to various inputs sources including the PWM, the CLC or NCO. It has independent rising and falling dead band control, with auto-shutdown capability that provides improved switching efficiencies for applications such as synchronous power supplies and motor control.
- **Numerically Controlled Oscillator (NCO)** – Provides oscillator capabilities with up to 20-bit frequency resolution and true linear frequency control targeted towards applications within lighting and power supplies.
- **Integrated Temperature Indicator** – For low cost temperature measurements.

PIC10F32X Block Diagram



All PIC10F members are ideal for a wide variety of applications that can benefit from the additional intelligence that an 8-bit PIC microcontroller provides.

Key Features

- **Mid-Range Architecture** – Paired with the low power 16 MHz internal oscillator, performance is increased while minimizing power usage.
- **Non-Volatile Data Storage** – Self-write Flash program memory for emulated Data EEPROM.
- **Industry Leading Low Power** – Utilize the 'LF' variants for the lowest possible power consumption and achieve world-leading battery life.
- **Smallest Form Factors** – Multiple package options available including; 2x3 DFN and SOT-23.
- **Migration** – Simple migration to and from products such as the PIC10F2XX family.
- **Special Capabilities**
 - **Low Voltage Detect (LVD)** – Provides real time battery voltage measurements and early warning low voltage detection.
 - **Operation Down to 0.35V** – Utilize the MCP1624 to power any application from a single battery cell.

Target Applications

Multipurpose – Bring intelligence to almost any application.

- **Disposable Applications:** pregnancy testers, glucose meters, dialysis monitors, drug testers and fireworks
- **Logic Control:** passive discrete logic functions such as delays, smart gates, signal conditioning, simple state machines, encoders/decoders
- **Mechatronics:** smart switches, mode selectors, remote I/Os, timers, LED flashers
- **Electronic Glue:** bug fixes for ASICs or PCB's, signal inversion, timing delays, feature upgrades, late changes



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Additional Information

- PIC10F32X Data Sheet, DS41585
- I²C™ Bootloader for the PIC16F1XXX, AN1302
- mTouch™ Sensing Solution User's Guide, DS41328
- 8-bit PIC® Microcontroller Solutions Brochure, DS39630
- Using the Integrated Temperature Indicator, AN1333

- Low Voltage Boost Regulator – MCP1624/3 Data Sheet, DS41420
- Focus Product Selector Guide, DS01308
- Quick Guide to Microchip Development Tools Brochure, DS51894

Sample Information

On-line Sampling: sample.microchip.com

PIC10F32X Microcontrollers

Device	Flash (Bytes)	Data RAM (Bytes)	Data EE	8-bit ADC	PWM	Temperature Indicator	Complementary Waveform Generator	Numerically Controlled Oscillator	Configurable Logic Cell	Operating Voltage	Pins	Packages
PIC10F320	448	64	emulated	3	2	integrated	Yes	Yes	Yes	2.3V-5.5V	6	PDIP 2x3 DFN, SOT-23
PIC10F322	896	64	emulated	3	2	integrated	Yes	Yes	Yes	2.3V-5.5V	6	PDIP 2x3 DFN, SOT-23
PIC10LF320	448	64	emulated	3	2	integrated	Yes	Yes	Yes	1.8V-3.6V	6	PDIP 2x3 DFN, SOT-23
PIC10LF322	896	64	emulated	3	2	integrated	Yes	Yes	Yes	1.8V-3.6V	6	PDIP 2x3 DFN, SOT-23

Development Tools from Microchip

Part Number	Development Tool	Description
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.
DV164035	MPLAB® ICD 3 In-Circuit Debugger	Cost effective high-speed hardware debugger/programmer for Flash Digital Signal Controller (DSC) and microcontroller (MCU) devices.
AC163020	PIC10F Programmer Adapter (SOT-23)	Provides PIC10F socket support for both the SOT-23 and DIP-8 packages. It allows interfacing to Microchip's low cost family of programmers including: PICkit™ 1/2/3 and MPLAB® ICD 2/3.
AC163020-2	PIC10F Programmer Adapter (2x3 DFN)	Provides PIC10F socket support for both the 2x3 DFN and DIP-8 packages. It allows interfacing to Microchip's low cost family of programmers including: PICkit™ 1/2/3 and MPLAB® ICD 2/3.



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www.microchip.com/PIC10F32X

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