**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.

**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
Additional Information
- PIC10F32X Data Sheet, DS41585
- μC™ 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

Sample Information
On-line Sampling: sample.microchip.com

PIC10F32X Microcontrollers

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

Development Tools from Microchip

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Development Tool</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DV164131</td>
<td>PICkit™ 3 Debug Express</td>
<td>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.</td>
</tr>
<tr>
<td>DV164035</td>
<td>MPLAB® ICD 3 In-Circuit Debugger</td>
<td>Cost effective high-speed hardware debugger/programmer for Flash Digital Signal Controller (DSC) and microcontroller (MCU) devices.</td>
</tr>
<tr>
<td>AC163020</td>
<td>PIC10F Programmer Adapter (SOT-23)</td>
<td>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.</td>
</tr>
<tr>
<td>AC163020-2</td>
<td>PIC10F Programmer Adapter (2x3 DFN)</td>
<td>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.</td>
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www.microchip.com/PIC10F32X
Visit our web site for additional product information and to locate your local sales office.
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Printed in the U.S.A, 9/11