THE DATASHEET OF

PIC16LF1828-I/SS

PIC12F/PIC16F182X Microcontrollers

High Feature, Low Pin Count 8-bit MCUs

Overview

The PIC1XF182X family represents Microchip's latest generation 8-bit product offering in 8, 14, 18 and 20 pins, and provides increased functionality along with many other enhancements. These products are pin compatible with all previous generations of low pin count PIC microcontrollers, allowing users to upgrade to new features and functionality while retaining a compatible footprint to their existing application.

The 10 members of the PIC1XF182X family offer up to 14 KB of Flash memory, up to 1 KB of RAM, 256 bytes of on-board EEPROM, and a number of integrated peripherals that save engineers both time and cost. Among those are SPI/I²C™ and EUSART modules available from 8 to 20 pins, built-in Capacitive Sensing capability, and a proprietary Data Signal Modulator that supports the creation of Amplitude Shift Keying (ASK) and Phase Shift Keying (PSK) patterns with no code overhead.

These new devices combine world class levels of integration with industry leading current consumption. nanoWatt XLP technology and other power saving enhancements allow the PIC1XF182X family to achieve Sleep currents as low as 20 nA, and Run mode current consumption of less than 50 µA/MHz.

Key Features

The PIC1XF182X family is designed with a host of features that enable maximum integration with the smallest possible footprint.

- **Enhanced Mid-Range Architecture –** At the heart of the PIC1XF182X family is the 32 MHz Enhanced Mid-Range core architecture. This new engine offers enhancements that allow for faster, C-friendly, and more efficient code execution – including hardware context save during interrupts.
- **Communications –** SPI/I²C, EUSART and the Data Signal Modulator are standard on all PIC1XF182X devices. The PIC16F1827, PIC16F1829 and PIC16F1847 all feature dual SPI/I²C interfaces for added communication capability.
- **Human Interface –** mTouch™ Capacitive Sensing technology can be implemented using a variety of methods, including the integrated Capacitive Sensing Module and the Analog-to-Digital converter.
- **Analog Interface –** All devices in the PIC1XF182X family feature 10-bit Analog-to-Digital converters and Rail-to-Rail comparators with Set/Reset latch.
- **Motor and Lighting Control –** Multiple independent PWMs with up to 4 available time bases are available to support a wide array of motor control and lighting types, such as LED and fluorescent lighting.

The "Green" Microcontroller

Whether your application requires years of coin-cell powered operation in "standby" mode, or simply needs to execute code with as little current consumption as possible, the PIC1XF182X family is designed to fit within your power budget.

- ✓ Consumes as little as 20 nA in Sleep Mode(1) with nanoWatt XLP technology
- ✓ World's Lowest Active Current Consumption (<50 µA/MHz)
- ✓ <500 nA(1) Integrated Low Power Watchdog Timer for periodic wakeup
- ✓ Real Time Clock functionality at less than 800 nA(1)
- ✓ For more detailed information, visit: **www.microchip.com/xlp**

Note 1: Typical measurements taken at V_{DD} = 1.8V

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Development Made Easy

The PIC1XF182X family provides a low-cost development experience from code creation to integration into the end application.

Develop your Code – MPLAB® IDE with integrated HI-TECH C® LITE compiler allows designers to develop code and simulate their application with zero initial investment.

Program and Debug – The PIC1XF182X family supports In-Circuit Debug functionality without the use of an additional header. Connect the PICkit™ 3 In-Circuit Debugger, MPLAB ICD 3 In-Circuit Debugger or REAL ICE™ In-Circuit Emulator to get started.

Integrate – The PICDEM™ Lab Development Kit (DM163035) supports all members of the PIC1XF182X family. The kit provides a quick and easy way to integrate the MCUs into a prototype application. The board provides a number of components and a breadboard to support simple application development.

Development Tools from Microchip

Part Number	Development Tool
DV164131	PICkit 3 Debug Express
DV164035	MPLAB ICD 3 In-Circuit Debugger Kit
DM163035	PICDEM Lab Development Kit
DM164120-4	PICkit 18-pin Demo Board
DM164120-1	PICkit 2 Low Pin Count Demo Board (8/14/20 pins)

PIC12F/PIC16F182X Flash Microcontrollers

Device	Pins	I/O	Program Memory	Data RAM (Bytes)	Data EEPROM (Bytes)	Self Read/Write Flash	Operating Voltage	Comparators	CCP/ ECCP PWMs	CSM Channels	EUSART	MSSP (I²C™/SPI)	Timers 8-bit/ 16-bit	Packages
PIC12F1822 PIC12LF1822	8	6	3.5 KB 2 Kw	128	256	Yes	1.8-5.5V	1	0/1	4	1	1/1	2/1	PDIP, SOIC, 3x3 DFN
PIC12F1840 PIC12LF1840	8	6	7 KB 4 Kw	256	256	Yes	1.8-5.5V	1	0/1	4	1	1/1	2/1	PDIP, SOIC, 3x3 DFN
PIC16F1823 PIC16LF1823	14	12	3.5 KB 2 Kw	128	256	Yes	1.8-5.5V	2	0/1	8	1	1/1	2/1	PDIP, SOIC, TSSOP, 4x4 QFN
PIC16F1824 PIC16LF1824	14	12	7 KB 4 Kw	256	256	Yes	1.8-5.5V	2	0/1	8	1	1/1	2/1	PDIP, SOIC, TSSOP, 4x4 QFN
PIC16F1825 PIC16LF1825	14	12	14 KB 8 Kw	1024	256	Yes	1.8-5.5V	2	0/1	8	1	1/1	3/1	PDIP, SOIC, TSSOP, 4x4 QFN
PIC16F1826 PIC16LF1826	18	16	3.5 KB 2 Kw	128	256	Yes	1.8-5.5V	2	2/2	12	1	1/1	4/1	PDIP, SOIC, SSOP, QFN
PIC16F1827 PIC16LF1827	18	16	7 KB 4 Kw	256	256	Yes	1.8-5.5V	2	2/2	12	1	2/2	4/1	PDIP, SOIC, SSOP, QFN
PIC16F1847 PIC16LF1847	18	16	14 KB 8 Kw	1024	256	Yes	1.8-5.5V	2	2/2	12	1	2/2	4/1	PDIP, SOIC, SSOP, QFN
PIC16F1828 PIC16LF1828	20	18	7 KB 4 Kw	256	256	Yes	1.8-5.5V	2	2/2	12	1	1/1	4/1	PDIP, SOIC, SSOP, QFN
PIC16F1829 PIC16LF1829	20	18	14 KB 8 Kw	1024	256	Yes	1.8-5.5V	2	2/2	12	1	2/2	4/1	PDIP, SOIC, SSOP, QFN

Additional Information

- *Software Real-Time Clock and Calendar Using PIC16F1827*, AN1303
- *How To Use The Capacitive Sensing Module (CSM)*, AN1171
- *8-bit PIC® Microcontroller Solutions Brochure*, DS39630
- *Corporate Focus Product Selector Guide*, DS01308
- *Quick Guide to Microchip Development Tools Brochure*, DS51894

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www.microchip.com/8bit

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