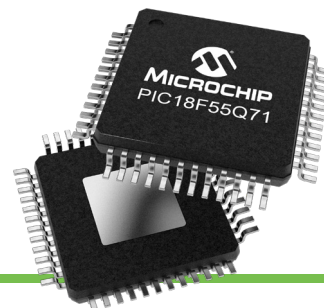


PIC18 Q71 Family of Microcontrollers (MCUs)



Summary

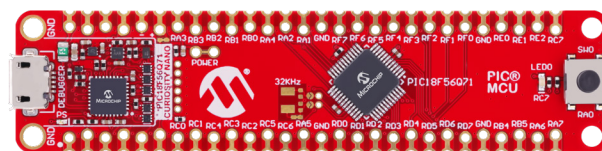
The PIC18-Q71 product family has a rich set of Core Independent Peripherals (CIPs) that can help you transform complex ideas into projects. For projects that need extended timing capabilities for precision control, these MCUs come with integrated, high-resolution 16-bit dual Pulse Width Modulators (PWMs). By using the PIC18-Q71 family, you can easily configure peripherals and functions, generate application code and simulate analog circuits prior to creating hardware prototyping. By leveraging these features, this MCU family can reduce Bill of Materials (BOM) costs, simplify sensor interfacing and analog measurements and optimize system performance.

A PIC18-Q71 MCU contains a 12-bit differential Analog-to-Digital Converter with Computation (ADCC), configurable operational amplifiers (op amps), high-speed analog comparators and an 8-bit virtual port to interconnect digital peripherals. The PIC18-Q71 family is available in package and memory options for a variety of applications including LED lighting, predictive maintenance, medical, home automation, industrial process control, automotive and Internet of Things (IoT).

Minimal Application Maintenance

The PIC18-Q71 MCU's ADCC and op amps will minimize maintenance and supervision of the application. The ADCC holds up to 43 external channels with differential or single-ended ADC conversion. The automated math functions on input signals can calculate averages and filter calculations, oversampling and threshold comparisons. The PIC18-Q71 MCU contains two op amps with a 5.5-MHz gain bandwidth and programmable gain using internal resistor ladder with built-in hardware peak detect operation.

Reduce Development Time



Spending too much time on reconfiguring your hardware? PIC18-Q71 MCUs can simulate analog circuits before the hardware prototyping starts. This will reduce development time and help you get to market faster. With Microchip University learning courses, our MPLAB® development ecosystem and other resources, you will be able to find quicker solutions to your applications, shortening the design process and creating an easier coding experience. The PIC18-Q71 Curiosity Nano Evaluation kit (EV01G21A) is the ideal platform for rapid prototyping. Connecting seamlessly to the MPLAB X IDE and our intuitive graphical configuration tool MPLAB® Code Configurator (MCC), this development ecosystem will significantly reduce your development time.

Functional Safety Ready

This product follows the functional safety standards that the automotive, industrial and medical industries require. It comes with two important documents, the Failure Mode Effect and Diagnostics Analysis (FMEDA) report and the safety manual. We have experts on functional safety around the globe who are ready to advise and help you achieve safety compliance for safety-critical automotive, industrial and medical applications. PIC18-Q71 MCUs can supply an elevated level of safety by detecting failures in the system before occurring.

Power-Conserving Functionality

Does your application require low-power performance? The analog peripheral manager will optimize power consumption in applications by switching the analog peripherals on and off as needed.

Improved System Response and Performance

The configurable CIPs require almost no additional code and no additional components to enable this family of MCUs to accomplish mission-critical and time-sensitive tasks smoothly without CPU intervention. This allows you to use the CPU's resources to run complex systems efficiently. The PIC18Q71 family holds four DMA controllers that will quickly transfer data between different memory locations without any CPU interactions. There are multiple DMA techniques that you can use to reduce power consumption while increasing your system's performance.

Key Features

- Dual on-chip op amps
- 12-bit differential ADCC with context switching
- Analog peripheral manager
- 8-bit virtual port
- 8× Configurable Logic Cells (CLCs)
- 4× Direct Memory Access (DMA) controllers
- Three 16-bit dual Pulse Width Modulators (PWMs)
- Two 8-bit buffered Digital-to-Analog Converters (DACs)
- One 10-bit buffered Digital-to-Analog Converter (DAC)
- Two 16-bit wide universal timers
- 64 MHz internal oscillator
- Up to 4 KB data SRAM
- 256B data EEPROM
- 3× Complementary Waveform Generators (CWGs)
- 2× analog comparators
- Zero Cross Detect (ZCD)
- 32-bit CRC
- Windowed Watchdog Timer (WWDT)
- Peripheral Pin Select (PPS)

Part Numbers

Product	Program Memory Size (KB)	Data EEPROM (bytes)	Max I/O Pins	Timers	Complementary Waveform Generator (CWG) / Complementary Output Generator (COG)	Numerically Controlled Oscillator (NCO)	Configurable Logic Cell Modules (CLC /CCL)	Number of Op Amps
PIC18F46Q71	64	256	36	0	1	1	8	2
PIC18F56Q71	64	256	44	0	1	1	8	2
PIC18F26Q71	64	256	26	0	1	1	8	2
PIC18F25Q71	32	256	26	0	1	1	8	2
PIC18F24Q71	16	256	26	0	1	1	8	2
PIC18F45Q71	32	256	36	0	1	1	8	2
PIC18F44Q71	16	256	36	0	1	1	8	2
PIC18F55Q71	32	256	44	0	1	1	8	2
PIC18F54Q71	16	256	44	0	1	1	8	2