

PIC18-Q43 Product Family

Optimized Performance and Versatility for Hardware Customization

Summary

The PIC18-Q43 product family combines Microchip's most popular, versatile and easy to use Core Independent Peripherals with advanced interconnection capabilities for effortless hardware customization. The MCUs are equipped with Direct Memory Access (DMA), Configurable Logic Cells (CLC), 16-bit PWMs, 12-bit ADC with Computation (ADCC) and multiple communication interfaces. This combination simplifies the creation of hardware-based functions, improves system response and reduces external components and code development time. They are well suited for a wide range of real-time control applications including industrial control, consumer, lighting, automotive, motor control, capacitive touch sensing and Internet of Things (IoT).



Reliable and Deterministic Response

The PIC18-Q43 family of MCUs feature Core Independent Peripherals that provide you with the ability to accomplish tasks in hardware while freeing up the CPU to do other tasks or go to sleep to save power. The hardware-based peripherals offload timing-critical and core-intensive functions from the CPU, allowing it to focus on more complex tasks within the system. This decreases system complexity by eliminating additional code and external components, reduces power consumption, allowing for deterministic response time and decreased validation time.

Improved System Performance

The PIC18-Q43 family is equipped with six Direct Memory Access (DMA) Controllers for data transfers between all memory spaces and peripherals independent of the CPU, thereby enhancing system performance and improving power consumption.

Intelligent Analog

The MCUs offer intelligent analog peripherals including Zero Cross Detect (ZCD), on-chip comparator, 8-bit buffered DAC and a 12-bit ADC with Computation (ADCC) automating Capacitive Voltage Divider (CVD) techniques for advanced touch sensing, averaging, filtering, oversampling and automatic threshold comparison.

Hardware Customization

The PIC18-Q43 provides eight Configurable Logic Cells (CLC) which is a user-configurable peripheral for creating custom hardware-based logic functions. The CLC peripheral lets the user specify combinations of signals as inputs to a logic function and internally connects peripherals such as timers, PWMs, serial ports and I/O pins for hardware customization with unprecedented ease. The CLC enables a higher level of integration without any external components, thus reducing PCB footprint and system costs.

Flexibility

The integrated 16-bit PWMs delivers advanced capabilities beyond those found on standard PWM modules. These innovative features allow the user to easily vary phase, duty cycle and offset event count with greater precision. The high resolution PWMs offer dual independent outputs on the same time base which helps simplify drive control and offers the flexibility to be used in many applications. Additionally, PIC18-Q43 has improved and flexible serial communications, including UART with support for Asynchronous, DMX, DALI and LIN protocols along with higher-speed, standalone I²C and SPI serial communication interfaces.

Development Tool - MPLAB® Code Configurator (MCC)



The PIC18-Q43 family has been designed to integrate with MPLAB Code Configurator for a modern embedded development experience. MCC is a free software plug-in that bridges our MCUs, development hardware, and award-winning IDEs. It allows you to generate easily modifiable, production-ready application code for many 8-bit PIC® microcontrollers in just a few mouse clicks. Find out more at www.microchip.com/MCC.

Key Features

- 64 MHz internal oscillator
- Six Direct Memory Access (DMA) controllers
- Vectored Interrupt (VI) capability
- Three 16-bit dual PWMs provides 6 PWM outputs
- Eight Configurable Logic Cells (CLC)
- Up to 128 KB Flash program memory
- 1 KB data EEPROM
- Up to 8 KB data SRAM
- Memory Access Partition (MAP) offers bootloader write-protection
- Device Information Area (DIA) for protected storage of unique device IDs
- 8-bit buffered DAC
- 12-bit ADCC (ADC with Computation)
- Hardware Capacitive Voltage Divider (CVD) for touch sensing applications
- Two analog comparators
- Five UART - one UART supports LIN/DMX/DALI protocols
- SPI, I²C

Develop With Curiosity

Take your next idea to market with a cost-effective development board that you can keep in your pocket. With full program and debug capabilities, the Curiosity Nano Evaluation kit (Part Number: DM164150) offers complete support for your next design.



Curiosity Development Boards are fully integrated MCU development platforms targeted at first-time users, Makers, and those seeking a feature-rich rapid prototyping board. Designed from the ground-up to take full advantage of Microchip's MPLAB X and MPLAB Xpress development environments, Curiosity includes an integrated programmer/debugger, and requires no additional hardware to get started.

Curiosity HPC Development Board (High Pin Count, Part Number: DM164136) supports the PIC18-Q43 family, as well as a number of other Low Voltage Programming (LVP)-enabled 8-bit PIC MCUs in 28-40 pin count. www.microchip.com/curiosity

Products

Part Number	Pin Count	Program Flash (KB)	Data EEPROM (B)	RAM (B)	I/O Pins	12-bit ADCC (ch)	8-bit with HLT/16-bit Timers	Complimentary Waveform Generator	SMT	16-bit dual PWM/CCP	Comparator/ZCD	NCO/DSM	CLC	CRC w/ Mem Scan & WWDT	SPI/I ² C	UART/UART with Protocol	DMA (ch)	Vectored Interrupts	PPS/PMD/MAP	Packages
PIC18F25Q43	28	32	1,024	2,048	25	24	3/4	3	Y	3/3	2/1	3/1	8	Y	2/1	4/1	6	Y	Y/Y/Y	SPDIP, SOIC, SSOP, VQFN
PIC18F26Q43	28	64	1,024	4,096	25	24	3/4	3	Y	3/3	2/1	3/1	8	Y	2/1	4/1	6	Y	Y/Y/Y	SPDIP, SOIC, SSOP, VQFN
PIC18F27Q43	28	128	1,024	8,192	25	24	3/4	3	Y	3/3	2/1	3/1	8	Y	2/1	4/1	6	Y	Y/Y/Y	SPDIP, SOIC, SSOP, VQFN
PIC18F45Q43	40/44	32	1,024	2,048	36	35	3/4	3	Y	3/3	2/1	3/1	8	Y	2/1	4/1	6	Y	Y/Y/Y	PDIP, VQFN, TQFP
PIC18F46Q43	40/44	64	1,024	4,096	36	35	3/4	3	Y	3/3	2/1	3/1	8	Y	2/1	4/1	6	Y	Y/Y/Y	PDIP, VQFN, TQFP
PIC18F47Q43	40/44	128	1,024	8,192	36	35	3/4	3	Y	3/3	2/1	3/1	8	Y	2/1	4/1	6	Y	Y/Y/Y	PDIP, VQFN, TQFP
PIC18F55Q43	48	32	1,024	2,048	44	43	3/4	3	Y	3/3	2/1	3/1	8	Y	2/1	4/1	6	Y	Y/Y/Y	VQFN, TQFP
PIC18F56Q43	48	64	1,024	4,096	44	43	3/4	3	Y	3/3	2/1	3/1	8	Y	2/1	4/1	6	Y	Y/Y/Y	VQFN, TQFP
PIC18F57Q43	48	128	1,024	8,192	44	43	3/4	3	Y	3/3	2/1	3/1	8	Y	2/1	4/1	6	Y	Y/Y/Y	VQFN, TQFP

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