



## Automotive Recommended Product Selector Guide

*Microcontrollers • Digital Signal Controllers • Analog • Memory • Wireless*



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# Microchip: A Partner in Your Automotive Success

Microchip is a leading provider of microcontroller and analog semiconductors, providing low-risk product development, lower total system cost and faster time to market for thousands of diverse customer applications worldwide. Offering outstanding technical support along with dependable delivery and quality, Microchip serves over 300 automotive customers globally who are designing high-volume embedded control applications, from safety and body modules to security, driver information and powertrain modules.

## Commitment to the Relentless Quest for Perfection

Microchip Technology has been an ISO/TS-16949-certified supplier since 2003. “Quality Comes First” is at the top of our list of Guiding Values, which provide the core principles that define our culture and the way we do business. Our unique Aggregate System supports our commitment to exceptional quality, demonstrating an enterprise-wide dedication to continuous improvement and fostering an environment where every employee is responsible for quality.

The image shows two overlapping forms. The top form is a 'Part Submission Warrant' (PSW) for Microchip, dated August 28, 2007. It includes fields for 'DATE', 'SUBJECT', 'REVISION', 'FA #', 'MICROCHIP P/N', 'Trace Code', 'MASK NO.', 'CUSTOMER', 'Customer Part #', and 'Customer Tracking Number'. The bottom form is a 'FAILURE MECHANISM BASED STRESS TEST QUALIFICATION FOR INTEGRATED CIRCUITS' (FMBSST) form, dated May 14, 2007. It includes sections for '1. USE TEAM APPROACH', '2. DESCRIBE PROBLEM', and '3. FAILURE MECHANISM BASED STRESS TEST QUALIFICATION'. The forms are filled out with various details and checkboxes.

Microchip supports various automotive quality initiatives:

- Zero defect initiatives
- Advanced Product/Process Quality Planning (APQP)
- AEC-Q100 Stress testing
- Production Part Approval Process (PPAP)
- 8D Reporting
- Product change notification
- ISO/TS16949 Quality management
- ISO-26262 Functional safety

**All of the products recommended for automotive use are either Q100 Qualified or Q100 Capable.**

**Q100 Qualified:** Reliability testing that complies with the automotive industry's AEC-Q100 Rev. G has been successfully completed on the specific device of interest. This includes both device and package tests as required by the AEC-Q100 Rev G specification.

**Q100 Capable:** Although the specific device of interest has not finished AEC-Q100 Rev G reliability testing, it is designed with the same standards, manufactured at the same locations and with the same equipment, and tested to the same quality standards as numerous other devices that have already completed Q100 qualification.

With over 20 years of experience in serving the demanding requirements of our valued automotive customers, Microchip Technology has a proven track record of successfully delivering cost effective and reliable total product solutions.



*Corporate Headquarters:  
Chandler, Arizona*



*Product Assembly/Test:  
Bangkok, Thailand*



*Fab 2: Tempe, Arizona*



*Fab 4: Gresham, Oregon*

# Microchip: A Partner in Your Automotive Success

## Functional Safety and ISO 26262

With their ever-increasing use in automotive designs, electronics play an essential role in vehicle operation, user convenience and the protection of human life. Given the widespread use of electronic systems in automotive applications, it can be difficult to understand how essential their correct operation is to the control of the vehicle. As long as these electronic systems work properly, the safety of the people in and around the vehicle depend primarily on the driver's skill and driving practices. But what happens when the electronics malfunction and prevent the driver from maintaining proper control? For example, an airbag may suddenly deploy while the vehicle is in motion, without being triggered by a crash. What if the driver doesn't even know that the electronics are malfunctioning, as might be the case when the image is frozen on a rear view camera? All electronics are susceptible to random failures. Although the failure rate may be quite low for individual components, the incremental use of electronics in a vehicle significantly increases the potential for failures to occur. Most software engineers will also agree that eliminating bugs is becoming more difficult as software grows in size and complexity. Functional safety is the ability of an electronic system to detect when there is a fault, make the driver aware of the fault and put the vehicle in a mode that allows the driver to maintain safe control. Returning to the example of the airbag, the diagnostics should identify the fault, disable deployment and turn on a warning light to inform the driver that the system is not working properly.

Recognizing the need to focus on the functional safety of electronic systems, the automotive industry has adopted ISO 26262, which is a derivative of IEC 61508. This automotive-specific standard applies not only the design and test of electrical and electronic systems, but to the entire life cycle of the product, from concept to eventual disposal and recycling of the vehicle. The implementation of ISO 26262 supports the ability of component suppliers, system suppliers and automotive OEMs to discuss, evaluate, design, measure and ensure an appropriate level of functional safety for electrical and electronic control systems.

Ensuring a functionally safe system requires a comprehensive analysis of the hazards and risks, a robust system design and development and validation process, and the proper selection and usage of both hardware and software components. ISO-26262 defines a series of steps to assign an acceptable level of risk for a system, to minimize errors during the product development process and to determine if the end product achieves the required level of functional safety. The utilization of this common standard also enables a team of people working together on a project who are distributed around the world to more easily discuss complex functional safety topics.

Microchip enables functional safety in automotive embedded designs—from electronic door handles to electronic steering systems—by providing you with the right building blocks to create a system that meets the most stringent requirements. Our extensive experience in creating robust applications helps us develop semiconductor components that offer the right combination of hardware and software features, plus development tools, suitable for your most demanding automotive applications.

Functional Safety Relevant Feature	PIC10FXXX	PIC12FXXX PIC16FXXX	PIC12F1XX PIC16F1XXX	PIC18FXXXX
Self-Readable Output Pins	●	●	●	●
Watchdog Timer (WDT) + Internal RC Osc.	●	●	●	●
Windowed Watchdog Timer (WWDT)	—	—	○	—
Asynchronous Master Clear Reset (MCLR)	●	●	●	●
Under Voltage Detection (BOR, PLVD, HLVD)	○	●	●	●
Over Voltage Detection (HLVD)	—	—	—	○
Self-Readable Flash Memory	○	○	●	●
Fail-Safe Clock Mode (FSCM)	—	○	○	○
Hardware CRC Engine (RAM/Flash/Data Comm)	—	—	○	—
CAN Port Loopback Mode	—	—	—	○
Hardware Limit Timer (HLT)	—	—	○	—
C-Compiler ASIL-D Qualified per ISO-26262	●	●	●	●
LDRA Compliance Management Tool Suite	●	●	●	●

### Legend

- Available in all devices
- Available in some devices

Functional Safety Relevant Feature	PIC24XXXX	dsPIC33XXXX
Self-Readable Output Pins	●	●
Watchdog Timer (WDT) + Internal RC Osc.	●	●
Windowed Watchdog Timer (WWDT)	○	○
Asynchronous Master Clear Reset (MCLR)	●	●
Under Voltage Detection (BOR, PLVD, HLVD)	●	●
Over Voltage Detection (HLVD)	○	○
Self-Readable Flash Memory	●	●
Fail-Safe Clock Mode (FSCM)	●	●
Hardware CRC Engine (RAM/Flash/Data Comm)	●	●
Flash Memory Hardware ECC	○	○
CAN Port Loopback Mode	○	○
Codeguard Memory Protection	○	○
High Precision Deadman Timer	○	○
MCAL Drivers for Autosar	●	●
C-Compiler ASIL-D Qualified per ISO-26262	●	●
LDRA Compliance Management Tool Suite	●	●

Our support for functional safety doesn't stop at the component level. We can provide system designers with detailed information on any specific feature in a given device including advice about the proper usage of a feature, its reliability rate, its signature when something goes wrong, methods for detecting malfunctions and possible safe modes when problems arise.

In addition, we have partnered with Liverpool Data Research Associates (LDRA) to provide a seamless integration between our MPLAB® X Integrated Development Environment and MPLAB XC compilers and LDRA's tool suite for functional safety compliance management, software verification, source code analysis and test tools. Contact your local Microchip representative for assistance in achieving the required level of functional safety for your next electronic system.

**Note 1:** Integrated Temperature Indicator: Reference Application Note AN1332 for implementation  
 ♦ Software PLVD implemented via ADC.  
 \* High-endurance Flash block for data storage: See Application Note AN1673  
 xLP xExtreme Low Power variants available.

 AEC-Q100 Qualified  AEC-Q100 Capable

## 8-BIT PIC® MICROCONTROLLERS

Product	Released (R) Not Released (NR)	Pins		Core	Memory				Voltage Range	Operating Speed		LCD Segments	mTouch® Channels	Analog Sensing & Measurement						Digital					Communication					Monitors		SR-Latch	Timer 1 Gate	High Temp. (150°C)	Packages (Designator)	Special Features											
		Total	I/O		Program	Self-Read/Write	Data RAM (B)	Data EE (B)		Maximum Speed	Internal Oscillator			8-bit ADC	10-bit ADC	12-bit ADC	Comparators	Charge Time Measurement Unit	Op Amp	DAC (5b/8b/9b)	PWM	CCP	ECCP	CWG/COG	NCO	PSMC	CLC	8-bit Timer	16-bit Timer	AUSART	EUSART						PC™/SPI	Ethernet (MAC/PHY)	USB 2.0 Device	CAN	BOR/PBOR	PLVD					
14-Pin	PIC16LF1554	NR	14	12	EMR	4 Kw	RW	256	128*	1.8V–3.6V	32 MHz	16 MHz	–	11	–	11	–	–	–	–	1/0/0	2	1	–	–	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), SOIC (SL), 4 × 4 QFN (ML)					
	PIC16F505	R	14	12	BL	1 Kw	–	72	–	2V–5.5V	20 MHz	4 MHz	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	PDIP (P), SOIC (SL), TSSOP (ST), 3 × 3 QFN (MG)			
	PIC16F506	R	14	12	BL	1 Kw	–	67	–	2V–5.5V	20 MHz	4 MHz, 8 MHz	–	4	4	–	–	2	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	PDIP (P), SOIC (SL), TSSOP (ST), 3 × 3 QFN (MG)		
	PIC16F526	R	14	12	BL	1 Kw	–	67	64	2V–5.5V	20 MHz	4 MHz, 8 MHz	–	4	4	–	–	2	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	PDIP (P), SOIC (SL), TSSOP (ST), 3 × 3 QFN (MG)		
	PIC16F1503	R	14	12	EMR	2 Kw	RW	128	–	1.8V–5.5V	20 MHz	16 MHz	–	2	–	8	–	2	–	–	1/0/0	4	–	–	1/0	1	–	2	2	1	–	–	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), SOIC (SL), TSSOP (ST), 3 × 3 QFN (MG)	Temperature Indicator <sup>(1)</sup>				
	PIC16F18323	NR	14	12	EMR	2 Kw	RW	256	256	1.8V–5.5V	32 MHz	32 MHz, 32 kHz	–	11	–	11	–	2	–	–	1/0/0	2	2	–	–	1/0	1	2	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	TSSOP (ST), SOIC (SL), QFN (ML), PDIP (P)					
	PIC16F610	R	14	12	MR	1 Kw	–	64	–	2V–15V	20 MHz	4/8 MHz	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	✓	–	✓	✓	–	PDIP (P), SOIC (SL), TSSOP (ST), 4 × 4 QFN (ML)					
	PIC16F1613	R	14	13	EMR	2 Kw	RW	256	128*	1.8V–5.5V	32 MHz	32 MHz, 31 kHz	–	8	–	8	–	2	–	–	–	–	2	–	1/0	–	–	–	1	1	–	–	–	–	–	–	–	✓	SW0	–	✓	–	PDIP (P), TSSOP (ST), SOIC (SN), 4 × 4 QFN (MC)	CRC, WWDT, SMT, ZCD, HLT			
	PIC16F1703	R	14	12	EMR	2 Kw	RW	256	128*	1.8V–5.5V	32 MHz	16 MHz	–	8	–	8	–	0	–	2	0/0/0	–	2	–	–	0/0	–	–	2	1	–	–	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), TSSOP (ST), 4 × 4 QFN (ML), SOIC (SL)					
	PIC16F753	R	14	12	MR	2 Kw	RW	128	–	2V–5.5V	20 MHz	4/8 MHz	–	8	–	8	–	2	–	1	0/0/1	–	1	1	0/1	–	–	–	3	1	–	–	–	–	–	–	✓	SW0	–	✓	–	PDIP (P), SOIC (SL), TSSOP (ST), 4 × 4 QFN (ML)	HV Option				
	PIC16F18324	NR	14	12	EMR	4 Kw	RW	512	256	1.8V–5.5V	32 MHz	32 MHz, 32 kHz	–	11	–	11	–	2	–	–	1/0/0	2	2	–	–	2/0	1	4	4	3	–	1	1	–	–	–	✓	SW0	–	✓	–	TSSOP (ST), SOIC (SL), QFN (ML), PDIP (P)					
	PIC16F1704	R	14	12	EMR	4 Kw	RW	512	128*	1.8V–5.5V	32 MHz	16 MHz	–	8	–	8	–	2	–	2	0/1/0	2	2	–	–	0/1	–	3	4	1	–	1	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), TSSOP (ST), 4 × 4 QFN (ML), SOIC (SL)					
	PIC16F616	R	14	12	MR	2 Kw	–	128	–	2V–15V	20 MHz	4/8 MHz	–	8	–	8	–	2	–	–	–	–	–	1	–	–	–	–	2	1	–	–	–	–	–	–	✓	SW0	✓	✓	✓	PDIP (P), SOIC (SL), TSSOP (ST), 4 × 4 QFN (ML)					
	PIC16F18325	NR	14	12	EMR	8 Kw	RW	1024	256	1.8V–5.5V	32 MHz	32 MHz, 32 kHz	–	11	–	11	–	2	–	–	1/0/0	2	2	–	–	2/0	1	4	4	3	–	1	2	–	–	–	✓	SW0	–	✓	–	TSSOP (ST), SOIC (SL), QFN (ML), PDIP (P)					
	PIC16F1705	R	14	12	EMR	8 Kw	RW	1K	128*	1.8V–5.5V	32 MHz	16 MHz	–	8	–	8	–	2	–	2	0/1/0	2	2	–	–	0/1	–	3	4	1	–	1	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), TSSOP (ST), 4 × 4 QFN (ML), SOIC (SL)					
	PIC16F1823	R	14	12	EMR	2 Kw	RW	128	256	1.8V–5.5V	32 MHz	32 MHz, 31 kHz	–	8	–	8	–	2	–	–	–	–	–	1	–	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	✓	✓	✓	PDIP (P), SOIC (SL), TSSOP (ST), 4 × 4 QFN (ML)	Temperature Indicator <sup>(1)</sup>				
	PIC16F1824	R	14	12	EMR	4 Kw	RW	256	256	1.8V–5.5V	32 MHz	32 MHz, 31 kHz	–	8	–	8	–	2	–	–	–	–	2	2	–	–	–	4	1	–	1	1	–	–	–	✓	SW0	✓	✓	✓	PDIP (P), SOIC (SL), TSSOP (ST), 4 × 4 QFN (ML)	DSM, Temperature Indicator <sup>(1)</sup>					
	PIC16F630	R	14	12	MR	1 Kw	–	64	128	2V–5.5V	20 MHz	4 MHz	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	✓	–	–	✓	✓	PDIP (P), SOIC (SL), TSSOP (ST), 4 × 4 QFN (ML)					
	PIC16F1454	R	14	12	EMR	4 Kw	RW	512	–	1.8V–5.5V	48 MHz	48 MHz, 31 kHz	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	1	1	–	✓	–	✓	–	–	–	✓	–	–	✓	–	PDIP (P), TSSOP (ST), SOIC (SL), 4 × 4 QFN (ML)	Crystal Free USB
	PIC16F636	R	14	12	MR	2 Kw	–	128	256	2V–5.5V	20 MHz	8 MHz, 31 kHz	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	✓	–	–	✓	–	PDIP (P), SOIC (SL), TSSOP (ST), 4 × 4 QFN (ML)	KeeLog®				
PIC16F1825	R	14	12	EMR	8 Kw	RW	1024	256	1.8V–5.5V	32 MHz	32 MHz, 31 kHz	–	8	–	8	–	2	–	–	–	–	2	2	–	–	–	–	4	1	–	1	1	–	–	–	✓	SW0	✓	✓	✓	PDIP (P), SOIC (SL), TSSOP (ST), 4 × 4 QFN (ML)	DSM, Temperature Indicator <sup>(1)</sup>					
PIC16F676	R	14	12	MR	1 Kw	–	64	128	2V–5.5V	20 MHz	4 MHz	–	8	–	8	–	1	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	✓	–	–	✓	–	PDIP (P), SOIC (SL), TSSOP (ST), 4 × 4 QFN (ML)						
PIC16F684	R	14	12	MR	2 Kw	–	128	256	2V–5.5V	20 MHz	8 MHz, 31 kHz	–	8	–	8	–	2	–	–	–	–	–	–	1	–	–	–	2	1	–	–	–	–	–	–	✓	–	–	✓	–	PDIP (P), SOIC (SL), TSSOP (ST), 4 × 4 QFN (ML)						
PIC16F688	R	14	12	MR	4 Kw	R	256	256	2V–5.5V	20 MHz	8 MHz, 31 kHz	–	8	–	8	–	2	–	–	–	–	–	–	–	–	–	–	1	1	–	1	–	–	–	–	✓	–	–	✓	–	PDIP (P), SOIC (SL), TSSOP (ST), 4 × 4 QFN (ML)						
PIC16F1455	R	14	12	EMR	8 Kw	RW	1024	–	1.8V–5.5V	48 MHz	48 MHz, 31 kHz	–	5	–	5	–	2	–	–	–	2	–	–	–	–	–	–	2	1	–	1	1	–	✓	–	✓	–	SW0	–	✓	–	–	PDIP (P), TSSOP (ST), SOIC (SL), 4 × 4 QFN (ML)	Crystal Free USB			
18-Pin	PIC16F54	R	18	12	BL	0.50 Kw	–	25	–	2V–5.5V	20 MHz	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	✓	–	✓	✓	–	PDIP (P), SOIC (SO), SSOP (SS)						
	PIC16F716	R	18	13	MR	2 Kw	–	128	–	2V–5.5V	20 MHz	–	–	4	–	4	–	–	–	–	–	–	–	1	–	–	–	–	2	1	–	–	–	–	–	✓	✓	–	✓	–	–	PDIP (P), SOIC (SO), SSOP (SS)					
	PIC16F1826	R	18	16	EMR	2 Kw	RW	256	256	1.8V–5.5V	32 MHz	32 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	–	–	1	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	✓	✓	✓	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)	DSM, Temperature Indicator <sup>(1)</sup>					
	PIC16F1827	R	18	16	EMR	4 Kw	RW	384	256	1.8V–5.5V	32 MHz	32 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	–	2	2	–	–	–	–	4	1	–	1	2	–	–	–	✓	SW0	✓	✓	✓	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)	DSM, Temperature Indicator <sup>(1)</sup>				
	PIC16F1847	R	18	16	EMR	8 Kw	RW	1024	256	1.8V–5.5V	32 MHz	32 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	–	2	2	–	–	–	–	4	1	–	1	2	–	–	–	✓	SW0	✓	✓	✓	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML), UQFN (MV)	DSM, Temperature Indicator <sup>(1)</sup>				

Note 1: Integrated Temperature Indicator: Reference Application Note AN1332 for implementation

◊ Software PLVD implemented via ADC.

\* High-endurance Flash block for data storage: See Application Note AN1673

eXtreme Low Power variants available.

AEC-Q100 Qualified

AEC-Q100 Capable

## 8-BIT PIC® MICROCONTROLLERS

Product	Released (R) Not Released (NR)	Pins		Core	Memory				Voltage Range	Operating Speed		LCD Segments	mTouch® Channels	Analog Sensing & Measurement						Digital				Communication				Monitors		SR Latch	Timer 1 Gate	High Temp. (150°C)	Packages (Designator)	Special Features										
		Total	I/O		Program	Self-Read/Write	Data RAM (B)	Data EE (B)		Maximum Speed	Internal Oscillator			8-bit ADC	10-bit ADC	12-bit ADC	Comparators	Charge Time Measurement Unit	Op Amp	DAC (5b/8b/9b)	PWM	CCP	ECCP	CWG/COG	NCO	PSMC	CLC	8-bit Timer	16-bit Timer						AUSART	EUSART	PC™/SPI	Ethernet (MAC/PHY)	USB 2.0 Device	CAN	BOR/PBOR	PLVD		
20-Pin	PIC16LF1559	NR	20	18	EMR	8 Kw	RW	512	128*	1.8V–3.6V	32 MHz	16 MHz	–	17	–	17	–	–	–	–	–	–	2	1	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), SSOP (SS), 4 × 4 QFN (ML)			
	PIC16F527	R	20	17	EBL	1 Kw	RW	64	64	1.8V–5.5V	20 MHz	48 MHz	–	8	8	–	–	2	–	2	–	–	–	–	–	–	–	1	–	–	–	–	–	–	✓	–	–	–	–	PDIP (P), 5 × 5 QFN (MR), SSOP (SS), SOIC (SO)				
	PIC16F1507	R	20	18	EMR	2 Kw	RW	128	–	1.8V–5.5V	20 MHz	16 MHz	–	12	–	12	–	–	–	–	–	–	4	–	–	1/0	1	–	2	2	1	–	–	–	–	–	✓	SW0	–	✓	–	PDIP (P), SOIC (SO), SSOP, 4 × 4 QFN (ML)	Temperature Indicator <sup>(1)</sup>	
	PIC16F18344	NR	20	18	EMR	4 Kw	RW	512	256	1.8V–5.5V	32 MHz	32 MHz, 32 kHz	–	17	–	17	–	2	–	–	1/0/0	2	4	–	–	2/0	1	4	4	3	–	1	1	–	–	–	✓	SW0	–	✓	–	SSOP (SS), SOIC (SL), QFN (ML), PDIP (P)		
	PIC16F18345	NR	20	18	EMR	8 Kw	RW	1024	256	1.8V–5.5V	32 MHz	32 MHz, 32 kHz	–	17	–	17	–	2	–	–	1/0/0	2	4	–	–	2/0	1	4	4	3	–	1	2	–	–	–	✓	SW0	–	✓	–	SSOP (SS), SOIC (SL), QFN (ML), PDIP (P)		
	PIC16F720	R	20	18	MR	2 Kw	RW	128	–	1.8V–5.5V	16 MHz	16 MHz, 500 kHz	–	12	12	–	–	–	–	–	–	–	–	1	–	–	–	–	2	1	1	–	1	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)	Temperature Indicator <sup>(1)</sup>
	PIC16F1508	R	20	18	EMR	4 Kw	RW	256	–	1.8V–5.5V	20 MHz	16 MHz	–	2	–	12	–	2	–	–	1/0/0	4	–	–	1/0	1	–	4	2	1	–	1	1	–	–	–	✓	SW0	✓	✓	–	PDIP (P), SOIC (SO), SSOP, 4 × 4 QFN (ML)	Temperature Indicator <sup>(1)</sup>	
	PIC16F1707	R	20	18	EMR	2 Kw	RW	256	128*	1.8V–5.5V	32 MHz	16 MHz	–	8	–	8	–	0	–	2	0/0/0	–	2	–	–	0/0	–	–	2	1	–	–	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), 4 × 4 QFN (ML), SOIC (SO), SSOP (SS)		
	PIC16F1509	R	20	18	EMR	8 Kw	RW	512	–	1.8V–5.5V	20 MHz	16 MHz	–	2	–	12	–	2	–	–	1/0/0	4	–	–	1/0	1	–	4	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), SOIC (SO), SSOP, 4 × 4 QFN (ML)	Temperature Indicator <sup>(1)</sup>	
	PIC16F1708	R	20	18	EMR	4 Kw	RW	512	128*	1.8V–5.5V	32 MHz	16 MHz	–	12	–	12	–	2	–	2	0/1/0	2	2	–	–	0/1	–	3	4	1	–	1	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), 4 × 4 QFN (ML), SOIC (SO), SSOP (SS)		
	PIC16F721	R	20	18	MR	4 Kw	RW	256	–	1.8V–5.5V	16 MHz	16 MHz, 500 kHz	–	12	12	–	–	–	–	–	–	–	–	1	–	–	–	–	2	1	1	–	1	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)	Temperature Indicator <sup>(1)</sup>
	PIC16F631	R	20	18	MR	1 Kw	R	64	128	2V–5.5V	20 MHz	8 MHz, 31 kHz	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	✓	–	✓	✓	–	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)		
	PIC16F677	R	20	18	MR	2 Kw	R	128	256	2V–5.5V	20 MHz	8 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	–	–	–	–	–	–	–	1	1	–	–	1	–	–	–	✓	SW0	✓	✓	–	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)		
	PIC16F1828	R	20	18	EMR	4 Kw	RW	256	256	1.8V–5.5V	32 MHz	32 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	–	–	2	2	–	–	–	4	1	–	1	1	–	–	–	✓	SW0	✓	✓	✓	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)	DSM, Temperature Indicator <sup>(1)</sup>	
	PIC16F1829	R	20	18	EMR	8 Kw	RW	1024	256	1.8V–5.5V	32 MHz	32 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	–	–	2	2	–	–	–	4	1	–	1	2	–	–	–	✓	SW0	✓	✓	✓	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)	DSM, Temperature Indicator <sup>(1)</sup>	
	PIC16F687	R	20	18	MR	2 Kw	R	128	256	2V–5.5V	20 MHz	8 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	–	–	–	–	–	–	1	1	–	1	1	–	–	–	✓	SW0	✓	✓	✓	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)			
	PIC16F785	R	20	18	MR	2 Kw	–	128	256	2V–15V	20 MHz	8 MHz, 31 kHz	–	12	–	12	–	2	–	2	–	2	1	–	–	–	–	–	2	1	–	–	–	–	–	–	✓	SW0	✓	✓	–	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)		
	PIC16F685	R	20	18	MR	4 Kw	R	256	256	2V–5.5V	20 MHz	8 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	–	–	–	1	–	–	–	2	1	–	–	–	–	–	–	✓	SW0	✓	✓	✓	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)		
	PIC16F689	R	20	18	MR	4 Kw	R	256	256	2V–5.5V	20 MHz	8 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	–	–	–	–	–	–	–	1	1	–	1	1	–	✓	–	✓	SW0	✓	✓	✓	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)		
	PIC16F1459	R	20	18	EMR	8 Kw	RW	1024	–	1.8V–5.5V	48 MHz	48 MHz, 31 kHz	–	9	–	9	–	2	–	–	–	–	2	–	–	–	–	–	2	1	–	1	1	–	✓	–	✓	SW0	–	✓	–	PDIP (P), SOIC (SO), SSOP (SS), 4 × 4 QFN (ML)	Crystal Free USB	
PIC16F690	R	20	18	MR	4 Kw	R	256	256	2V–5.5V	20 MHz	8 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	–	–	–	1	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	✓	✓	✓	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)			
PIC18F13K22	R	20	18	PIC18	4 Kw	RW	256	256	1.8V–5.5V	64 MHz	64 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	–	–	–	1	–	–	–	–	1	3	–	1	1	–	–	–	✓	SW0	✓	✓	–	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)	Temperature Indicator <sup>(1)</sup>	
PIC18F13K50	R	20	15	PIC18	4 Kw	RW	512	256	1.8V–5.5V	48 MHz	32 MHz, 31 kHz	–	9	–	9	–	2	–	–	–	–	–	–	1	–	–	–	–	1	3	–	1	1	–	✓	–	✓	SW0	✓	✓	–	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)	Temperature Indicator <sup>(1)</sup>	
PIC18F14K22	R	20	18	PIC18	8 Kw	RW	512	256	1.8V–5.5V	64 MHz	64 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	–	–	–	1	–	–	–	–	1	3	–	1	1	–	–	–	✓	SW0	✓	✓	✓	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)	Temperature Indicator <sup>(1)</sup>	
PIC18F14K50	R	20	15	PIC18	8 Kw	RW	768	256	1.8V–5.5V	48 MHz	32 MHz, 31 kHz	–	9	–	9	–	2	–	–	–	–	–	–	1	–	–	–	–	1	3	–	1	1	–	✓	–	✓	SW0	✓	✓	–	PDIP (P), SOIC (SO), SSOP (SS), QFN (ML)	Temperature Indicator <sup>(1)</sup>	

Note 1: Integrated Temperature Indicator: Reference Application Note AN1332 for implementation

◊ Software PLVD implemented via ADC.

\* High-endurance Flash block for data storage: See Application Note AN1673

eXtreme Low Power variants available.



AEC-Q100 Qualified



AEC-Q100 Capable

## 8-BIT PIC® MICROCONTROLLERS

Product	Released (R) Not Released (NR)	Pins		Core	Memory				Voltage Range	Operating Speed		LCD Segments	mTouch® Channels	Analog Sensing & Measurement							Digital						Communication				Monitors		SR/Latch	Timer 1 Gate	High Temp. (150°C)	Packages (Designator)	Special Features							
		Total	I/O		Program	Self-Read/Write	Data RAM (B)	Data EE (B)		Maximum Speed	Internal Oscillator			8-bit ADC	10-bit ADC	12-bit ADC	Comparators	Charge Time Measurement Unit	Op Amp	DAC (5b/8b/9b)	PWM	CCP	ECCP	CWG/COG	NCO	PSMC	CLC	8-bit Timer	16-bit Timer	AUSART	EUSART	I²C™/SPI						Ethernet (MAC/PHY)	USB 2.0 Device	CAN	BOR/PBOR	PLVD		
PIC16F570	R	28	24	EBL	2 Kw	RW	132	64	1.8V– 5.5V	20 MHz	48 MHz	–	8	8	–	–	–	2	–	2	–	–	–	–	–	–	–	1	–	–	–	–	–	–	✓	–	–	–	PDIP (P), 6 × 6 QFN (ML), SSOP (SS), SOIC (SO)					
PIC16F1788	R	28	25	EMR	16 Kw	RW	2K	256	1.8V– 5.5V	32 MHz	32 MHz	–	11	–	–	11	4	–	2	3/1/0	–	3	–	–	–	–	4	–	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML)		
PIC16F57	R	28	20	BL	2 Kw	–	72	–	2V– 5.5V	20 MHz	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS)				
PIC16F722A	R	28	25	MR	2 Kw	R	128	–	1.8V– 5.5V	20 MHz	16 MHz	–	11	11	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	1	1	–	1	–	–	–	✓	SW0	–	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML), 4 × 4 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
PIC16LF1902	R	28	25	EMR	2 Kw	RW	128	–	1.8V– 3.6V	20 MHz	16 MHz	72	11	–	11	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	✓	SW0	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), 4 × 4 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
PIC16F1512	R	28	25	EMR	2 Kw	RW	128	–	1.8V– 5.5V	20 MHz	16 MHz, 31 kHz	–	17	–	17	–	–	–	–	–	–	–	2	–	–	–	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 4 × 4 UQFN (MV)	Temperature Indicator <sup>(1)</sup>
PIC16F723A	R	28	25	MR	4 Kw	R	192	–	1.8V– 5.5V	20 MHz	16 MHz	–	11	11	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	2	1	1	–	1	–	–	–	✓	SW0	–	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML), 4 × 4 UQFN (MV)	Temperature Indicator <sup>(1)</sup>
PIC16LF1903	R	28	25	EMR	4 Kw	RW	256	–	1.8V– 3.6V	20 MHz	16 MHz	72	11	–	11	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	✓	SW0	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), 4 × 4 UQFN (MV)	Temperature Indicator <sup>(1)</sup>
PIC16F1513	R	28	25	EMR	4 Kw	RW	256	–	1.8V– 5.5V	20 MHz	16 MHz, 31 kHz	–	17	–	17	–	–	–	–	–	–	–	2	–	–	–	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 4 × 4 UQFN (MV)	Temperature Indicator <sup>(1)</sup>
PIC16LF1906	R	28	25	EMR	8 Kw	RW	512	–	1.8V– 3.6V	20 MHz	16 MHz	72	11	–	11	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	1	–	–	–	–	✓	SW0	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), 4 × 4 UQFN (MV)	Temperature Indicator <sup>(1)</sup>
PIC16F1713	R	28	25	EMR	4 Kw	RW	512	128*	1.8V–5.5V	32 MHz	16 MHz	–	17	–	17	–	2	–	2	1/1/0	2	2	–	–	0/1	1	4	4	1	–	1	1	–	–	–	–	✓	SW0	–	✓	–	SOIC (SO), SSOP (SS), SPDIP (SP), 6 × 6 QFN (ML), 4 × 4 UQFN (MV)		
PIC16F1516	R	28	25	EMR	8 Kw	RW	512	–	1.8V– 5.5V	20 MHz	16 MHz	–	17	–	17	–	–	–	–	–	–	–	2	–	–	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 4 × 4 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
PIC16F1716	R	28	25	EMR	8 Kw	RW	1K	128*	1.8V–5.5V	32 MHz	16 MHz	–	17	–	17	–	2	–	2	1/1/0	2	2	–	–	0/1	1	4	4	1	–	1	1	–	–	–	✓	SW0	–	✓	–	SOIC (SO), SSOP (SS), SPDIP (SP), 6 × 6 QFN (ML), 4 × 4 UQFN (MV)			
PIC16F1518	R	28	25	EMR	16 Kw	RW	1024	–	1.8V– 5.5V	20 MHz	16 MHz	–	17	–	17	–	–	–	–	–	–	–	2	–	–	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 4 × 4 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
PIC16F882	R	28	25	MR	2 Kw	RW	128	128	2V– 5.5V	20 MHz	8 MHz, 31 kHz	–	11	–	11	–	2	–	–	–	–	–	1	1	–	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	✓	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML)		
PIC16F726	R	28	25	MR	8 Kw	R	368	–	1.8V– 5.5V	20 MHz	16 MHz	–	11	11	–	–	–	–	–	–	–	–	2	–	–	–	–	–	2	1	1	–	1	–	–	–	✓	SW0	–	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML), 4 × 4 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
PIC16F1782	R	28	25	EMR	2 Kw	RW	256	256	1.8V– 5.5V	32 MHz	32 MHz	–	11	–	–	11	3	–	2	0/1/0	–	2	–	–	–	–	2	–	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML), 4 × 4 UQFN (MV)		
PIC16F1933	R	28	25	EMR	4 Kw	RW	256	256	1.8V– 5.5V	32 MHz	32 MHz, 31 kHz	60	11	–	11	–	2	–	–	–	–	–	2	3	–	–	–	4	1	–	1	1	–	–	–	✓	SW0	✓	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML), 4 × 4 UQFN (MV)	Temperature Indicator <sup>(1)</sup>		
PIC18F23K20	R	28	25	PIC18	4 Kw	RW	512	256	1.8V– 3.6V	64 MHz	16 MHz, 31 kHz	–	11	–	11	–	2	–	–	–	–	–	1	1	–	–	–	–	1	3	–	1	1	–	–	–	✓	✓	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML), 4 × 4 UQFN (MV)		
PIC16F1783	R	28	25	EMR	4 Kw	RW	512	256	1.8V– 5.5V	32 MHz	32 MHz	–	11	–	–	11	3	–	2	0/1/0	–	2	–	–	–	2	–	2	1	–	1	1	–	–	–	–	✓	SW0	–	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML), 4 × 4 UQFN (MV)		
PIC16F1936	R	28	25	EMR	8 Kw	RW	512	256	1.8V– 5.5V	32 MHz	32 MHz, 31 kHz	60	11	–	11	–	2	–	–	–	–	–	2	3	–	–	–	–	4	1	–	1	1	–	–	–	✓	SW0	✓	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML), 4 × 4 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
PIC18F24K20	R	28	25	PIC18	8 Kw	RW	768	256	1.8V– 3.6V	64 MHz	16 MHz, 31 kHz	–	11	–	11	–	2	–	–	–	–	–	1	1	–	–	–	–	1	3	–	1	1	–	–	–	✓	✓	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML)		
PIC16F883	R	28	25	MR	4 Kw	RW	256	256	2V– 5.5V	20 MHz	8 MHz, 31 kHz	–	11	–	11	–	2	–	–	–	–	–	1	1	–	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	✓	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML)		
PIC16F1786	R	28	25	EMR	8 Kw	RW	1024	256	1.8V– 5.5V	32 MHz	32 MHz	–	11	–	–	11	4	–	2	0/1/0	–	3	–	–	–	–	3	–	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML)		
PIC16F1938	R	28	25	EMR	16 Kw	RW	1024	256	1.8V– 5.5V	32 MHz	32 MHz, 31 kHz	60	11	–	11	–	2	–	–	–	–	–	2	3	–	–	–	–	4	1	–	1	1	–	–	–	✓	SW0	✓	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML), 4 × 4 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
PIC18F25K20	R	28	25	PIC18	16 Kw	RW	1536	256	1.8V– 3.6V	64 MHz	16 MHz, 31 kHz	–	11	–	11	–	2	–	–	–	–	–	1	1	–	–	–	–	1	3	–	1	1	–	–	–	✓	✓	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML)		
PIC18F23K22	R	28	25	PIC18	4 Kw	RW	512	256	1.8V– 5.5V	64 MHz	16 MHz, 31 kHz	–	17	–	17	–	2	✓	–	–	–	–	1	1	–	–	–	–	–	3	–	2	2	–	–	–	✓	✓	✓	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML), 4 × 4 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
PIC18F24K22	R	28	25	PIC18	8 Kw	RW	768	256	1.8V– 5.5V	64 MHz	16 MHz, 31 kHz	–	17	–	17	–	2	✓	–	–	–	–	1	1	–	–	–	–	–	3	–	2	2	–	–	–	✓	✓	✓	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML)	Temperature Indicator <sup>(1)</sup>	
PIC16F886	R	28	25	MR	8 Kw	RW	368	256	2V– 5.5V	20 MHz	8 MHz, 31 kHz	–	11	–	11	–	2	–	–	–	–	–	1	1	–	–	–	–	–	1	–	1	1	–	–	–	✓	SW0	✓	✓	✓	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML)		
PIC18F25K22	R	28	25	PIC18	16 Kw	RW	1536	256	1.8V– 5.5V	64 MHz	16 MHz, 31 kHz	–	17	–	17	–	2	✓	–	–	–	–	2	3	–	–	–	–	4	–	2	2	–	–	–	✓	✓	✓	✓	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML)	Temperature Indicator <sup>(1)</sup>		
PIC18F24J11	R	28	21	PIC18	8 Kw	RW	3800	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	10	–	10	–	2	✓	–	–	–	–	–	2	–	–	–	–	–	3	–	2	2	–	–	–	✓	SW0	–	–	–	SPDIP (SP), SOIC (SO), QFN (ML)	Peripheral Pin Select, Deep Sleep Mode	

**Note 1:** Integrated Temperature Indicator: Reference Application Note AN1332 for implementation

◇ Software PLVD implemented via ADC.





























\* High-endurance Flash block for data storage: See Application Note AN1673

**XLP** eXtreme Low Power variants available.

AEC-Q100 Qualified

AEC-Q100 Capable

## 8-BIT PIC® MICROCONTROLLERS

Product	Released (R) Not Released (NR)	Pins		Core	Memory				Voltage Range	Operating Speed		LCD Segments	mTouch® Channels	Analog Sensing & Measurement					Digital						Communication					Monitors		Timer 1 Gate	High Temp. (150°C)	Packages (Designator)	Special Features										
		Total	I/O		Program	Self-Read/Write	Data RAM (B)	Data EE (B)		Maximum Speed	Internal Oscillator			8-bit ADC	10-bit ADC	12-bit ADC	Comparators	Charge Time Measurement Unit	Op Amp	DAC (5b/8b/9b)	PWM	CCP	ECCP	CWG/COG	NCO	PSMC	CLC	8-bit Timer	16-bit Timer	AUSART	EUSART					PC™/SPI	Ethernet (MAC/PHY)	USB 2.0 Device	CAN	BOR/PBOR	PLVD	SPLatch			
28-Pin (Cont.)	PIC18F24K50 	R	28	25	PIC18	8 Kw	RW	2K	256	1.8V– 5.5V	48 MHz	48 MHz	–	14	–	14	–	2	✓	–	–	–	–	1	1	–	–	–	2	2	–	1	1	–	✓	✓	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML)					
	PIC18F26K20 	R	28	25	PIC18	32 Kw	RW	3936	1024	1.8V– 3.6V	64 MHz	16 MHz, 31 kHz	–	11	–	11	–	2	–	–	–	–	–	1	1	–	–	–	–	3	–	1	1	–	–	✓	✓	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML)	Temperature Indicator <sup>(1)</sup>			
	PIC18F25K50 	R	28	25	PIC18	16 Kw	RW	2K	256	1.8V– 5.5V	48 MHz	48 MHz	–	14	–	14	–	2	✓	–	–	–	–	1	1	–	–	–	2	2	–	1	1	–	✓	–	✓	✓	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML)	Crystal Free USB		
	PIC18F25J11 	R	28	21	PIC18	16 Kw	RW	3800	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	10	–	10	–	2	✓	–	–	–	–	–	2	–	–	–	–	3	–	2	2	–	–	–	–	✓	SW0	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	Peripheral Pin Select, Deep Sleep Mode	
	PIC18F24J50 	R	28	22	PIC18	8 Kw	RW	3800	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	10	–	10	–	2	✓	–	–	–	–	–	2	–	–	–	2	3	–	2	2	–	✓	–	✓	SW0	–	–	–	SPDIP (SP), SOIC (SO), QFN (ML)	Peripheral Pin Select, Deep Sleep Mode		
	PIC18F26K22 	R	28	25	PIC18	32 Kw	RW	3896	1024	1.8V– 5.5V	64 MHz	16 MHz, 31 kHz	–	17	–	17	–	2	✓	–	–	–	–	2	3	–	–	–	3	4	–	2	2	–	–	–	✓	✓	✓	✓	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML)	Temperature Indicator <sup>(1)</sup>
	PIC18F25K80 	R	28	24	PIC18	16 Kw	RW	3648	1024	1.8V– 5.5V	64 MHz	8 MHz, 31 kHz	–	8	–	–	8	2	✓	–	–	–	–	4	1	–	–	–	2	3	–	2	1	–	–	✓	✓	✓	–	–	✓	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	Deep Sleep Mode		
	PIC18F25J50 	R	28	22	PIC18	16 Kw	RW	3800	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	10	–	10	–	2	✓	–	–	–	–	–	2	–	–	–	2	3	–	2	2	–	✓	–	✓	SW0	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	Peripheral Pin Select, Deep Sleep Mode		
	PIC18F26J11 	R	28	21	PIC18	32 Kw	RW	3800	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	10	–	10	–	2	✓	–	–	–	–	–	2	–	–	–	2	3	–	2	2	–	–	–	✓	SW0	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	Peripheral Pin Select, Deep Sleep Mode		
	PIC18F26K80 	R	28	24	PIC18	32 Kw	RW	3648	1024	1.8V– 5.5V	64 MHz	8 MHz, 31 kHz	–	8	–	–	8	2	✓	–	–	–	–	4	1	–	–	–	2	3	–	2	1	–	–	✓	✓	✓	–	–	✓	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	Deep Sleep Mode		
	PIC18F26J13 	R	28	23	PIC18	32 Kw	RW	3808	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	10	–	–	10	3	✓	–	–	–	–	7	3	–	–	–	4	4	–	2	2	–	–	–	✓	✓	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	SPI w/DMA		
	PIC18F26J50 	R	28	22	PIC18	32 Kw	RW	3800	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	10	–	10	–	2	✓	–	–	–	–	–	2	–	–	–	2	3	–	2	2	–	✓	–	✓	SW0	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	Peripheral Pin Select, Deep Sleep Mode		
	PIC18F26J53 	R	28	22	PIC18	32 Kw	RW	3808	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	10	–	–	10	3	✓	–	–	–	–	7	3	–	–	–	4	4	–	2	2	–	✓	–	✓	✓	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	SPI w/DMA		
	PIC18F27J13 	R	28	23	PIC18	64 Kw	RW	3808	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	10	–	–	10	3	✓	–	–	–	–	7	3	–	–	–	4	4	–	2	2	–	–	–	✓	✓	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	SPI w/DMA		
PIC18F27J53 	R	28	22	PIC18	64 Kw	RW	3808	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	10	–	–	10	3	✓	–	–	–	–	7	3	–	–	–	4	4	–	2	2	–	✓	–	✓	✓	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	SPI w/DMA			
40/44-Pin	PIC16F1789 	R	40	36	EMR	16 Kw	RW	2K	256	1.8V– 5.5V	32 MHz	32 MHz	–	14	–	–	14	4	–	3	3/1/0	–	3	–	–	–	4	–	2	1	–	1	1	–	–	–	✓	–	–	✓	–	–	–	SPDIP (SP), SOIC (SO), SSOP (SS), 6 × 6 QFN (ML), 4 × 4 UQFN (MV)	
	PIC16F59 	R	40	32	BL	2 Kw	–	134	–	2V– 5.5V	20 MHz	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	PDIP (P), TQFP (PT)	
	PIC16LF1904 	R	40	36	EMR	4 Kw	RW	256	–	1.8V– 3.6V	20 MHz	16 MHz	116	14	–	14	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	1	–	–	–	–	✓	SW0	–	–	–	PDIP (P), TQFP (PT), 5 × 5 UQFN (MV)	Integrated LCD Driver, Temperature Indicator <sup>(1)</sup>		
	PIC16LF1907 	R	40	36	EMR	8 Kw	RW	512	–	1.8V– 3.6V	20 MHz	16 MHz	116	14	–	14	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	1	–	–	–	–	✓	SW0	–	–	–	PDIP (P), TQFP (PT), 5 × 5 UQFN (MV)	Integrated LCD Driver, Temperature Indicator <sup>(1)</sup>		
	PIC16F1517 	R	40	36	EMR	8 Kw	RW	512	–	1.8V– 5.5V	20 MHz	16 MHz	–	28	–	28	–	–	–	–	–	–	–	2	–	–	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), TQFP (PT), 5 × 5 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
	PIC16F1717 	R	40	36	EMR	8 Kw	RW	1K	128*	1.8V– 5.5V	32 MHz	16 MHz	–	28	–	28	–	2	–	2	–	–	–	2	–	–	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), TQFP (PT), 5 × 5 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
	PIC16F1519 	R	40	36	EMR	16 Kw	RW	1024	–	1.8V– 5.5V	20 MHz	16 MHz	–	28	–	28	–	–	–	–	–	–	–	2	–	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), TQFP (PT), 5 × 5 UQFN (MV)	Temperature Indicator <sup>(1)</sup>		
	PIC16F724 	R	40	36	MR	4 Kw	RW	192	–	1.8V– 5.5V	20 MHz	16 MHz	–	16	14	–	–	–	–	–	–	–	–	2	–	–	–	–	2	1	1	–	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML), 5 × 5 UQFN (MV)	Temperature Indicator <sup>(1)</sup>		
	PIC16F1934 	R	40	36	EMR	4 Kw	RW	256	256	1.8V– 5.5V	32 MHz	32 MHz, 31 kHz	96	16	–	14	–	2	–	–	–	–	–	2	3	–	–	–	4	1	–	1	1	–	–	–	✓	SW0	✓	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML), 5 × 5 UQFN (MV)	Temperature Indicator <sup>(1)</sup>		
	PIC18F43K20 	R	40	36	PIC18	4 Kw	RW	512	256	1.8V– 3.6V	64 MHz	16 MHz, 31 kHz	–	14	–	14	–	2	–	–	–	–	–	1	1	–	–	–	1	3	–	1	1	–	–	–	✓	✓	–	–	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML), 5 × 5 UQFN (MV)			
	PIC16F727 	R	40	36	MR	8 Kw	RW	368	–	1.8V– 5.5V	20 MHz	16 MHz	–	16	14	–	–	–	–	–	–	–	–	2	–	–	–	–	–	2	1	1	–	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML), 5 × 5 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
	PIC16F1784 	R	40	36	EMR	4 Kw	RW	512	256	1.8V– 5.5V	32 MHz	32 MHz	–	14	–	–	14	4	–	3	0/1/0	–	3	–	–	–	3	–	–	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML), 5 × 5 UQFN (MV)		
	PIC16F1937 	R	40	36	EMR	8 Kw	RW	512	256	1.8V– 5.5V	32 MHz	32 MHz, 31 kHz	96	16	–	14	–	2	–	–	–	–	–	2	3	–	–	–	–	4	1	–	1	1	–	–	–	✓	SW0	✓	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML), 5 × 5 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	

**Note 1:** Integrated Temperature Indicator: Reference Application Note AN1332 for implementation

♦ Software PLVD implemented via ADC.

\* High-endurance Flash block for data storage: See Application Note AN1673

**XLP** eXtreme Low Power variants available.

AEC-Q100 Qualified

AEC-Q100 Capable

## 8-BIT PIC® MICROCONTROLLERS

Product	Released (R) Not Released (NR)	Pins		Core	Memory				Voltage Range	Operating Speed		LCD Segments	mTouch® Channels	Analog Sensing & Measurement						Digital						Communication				Monitors		SR-Latch	Timer 1 Gate	High Temp. (150°C)	Packages (Designator)	Special Features							
		Total	I/O		Program	Self-Read/Write	Data RAM (B)	Data EE (B)		Maximum Speed	Internal Oscillator			8-bit ADC	10-bit ADC	12-bit ADC	Comparators	Charge Time Measurement Unit	Op Amp	DAC (5b/8b/9b)	PWM	CCP	ECCP	CWG/COG	NCO	PSMC	CLC	8-bit Timer	16-bit Timer	AUSART	EUSART						PC™/SPI	Ethernet (MAC/PHY)	USB 2.0 Device	CAN	BOR/PBOR	PLVD	
PIC18F44K20	R	40	36	PIC18	8 Kw	RW	768	256	1.8V– 3.6V	64 MHz	16 MHz, 31 kHz	–	14	–	14	–	2	–	–	–	–	1	1	–	–	–	–	1	3	–	1	1	–	–	–	✓	✓	–	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML), 5 × 5 UQFN (MV)		
PIC16F1787	R	40	36	EMR	8 Kw	RW	1024	256	1.8V– 5.5V	32 MHz	32 MHz	–	14	–	–	14	4	–	3	0/1/0	–	3	–	–	–	3	–	2	1	–	1	1	–	–	–	✓	SW0	–	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML), 5 × 5 UQFN (MV)		
PIC16F1939	R	40	36	EMR	16 Kw	RW	1024	256	1.8V– 5.5V	32 MHz	32 MHz, 31 kHz	96	16	–	14	–	2	–	–	–	–	2	3	–	–	–	–	4	1	–	1	1	–	–	–	✓	SW0	✓	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML), 5 × 5 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
PIC18F45K20	R	40	36	PIC18	16 Kw	RW	1536	256	1.8V– 3.6V	64 MHz	16 MHz, 31 kHz	–	14	–	14	–	2	–	–	–	–	1	1	–	–	–	–	1	3	–	1	1	–	–	–	✓	✓	–	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML), 5 × 5 UQFN (MV)			
PIC16F884	R	40	36	MR	4 Kw	RW	256	256	2V– 5.5V	20 MHz	8 MHz, 31 kHz	–	14	–	14	–	2	–	–	–	–	1	1	–	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	✓	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML)		
PIC18F43K22	R	40	36	PIC18	4 Kw	RW	512	256	1.8V– 5.5V	64 MHz	16 MHz, 31 kHz	–	28	–	28	–	2	✓	–	–	–	1	1	–	–	–	–	1	3	–	2	2	–	–	–	✓	✓	✓	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML), 5 × 5 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
PIC18F44K22	R	40	36	PIC18	8 Kw	RW	768	256	1.8V– 5.5V	64 MHz	16 MHz, 31 kHz	–	28	–	28	–	2	✓	–	–	–	1	1	–	–	–	–	1	3	–	2	2	–	–	–	✓	✓	✓	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML), 5 × 5 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
PIC16F887	R	40	36	MR	8 Kw	RW	368	256	2V– 5.5V	20 MHz	8 MHz, 31 kHz	–	14	–	14	–	2	–	–	–	–	1	1	–	–	–	–	2	1	–	1	1	–	–	–	✓	SW0	✓	✓	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML)	
PIC18F46K20	R	40	36	PIC18	32 Kw	RW	3936	1024	1.8V– 3.6V	64 MHz	16 MHz, 31 kHz	–	14	–	14	–	2	–	–	–	–	1	1	–	–	–	–	1	3	–	1	1	–	–	–	✓	✓	✓	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML)		
PIC18F45K22	R	40	36	PIC18	16 Kw	RW	1536	256	1.8V– 5.5V	64 MHz	16 MHz, 31 kHz	–	28	–	28	–	2	✓	–	–	–	2	2	–	–	–	–	3	4	–	2	2	–	–	–	✓	✓	✓	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML), 5 × 5 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
PIC18F44J11	R	40	34	PIC18	8 Kw	RW	3800	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	13	–	13	–	2	✓	–	–	–	–	2	–	–	–	–	2	3	–	2	2	–	–	–	✓	SW0	–	✓	–	TQFP (PT), QFN (ML)	Peripheral Pin Select, Deep Sleep Mode	
PIC18F45K50	R	40	36	PIC18	16 Kw	RW	2K	256	1.8V– 5.5V	48 MHz	48 MHz	–	25	–	25	–	2	✓	–	–	–	1	1	–	–	–	–	2	2	–	1	1	–	✓	–	✓	–	–	✓	–	PDIP (P), TQFP (PT), 5 × 5 UQFN (MV)	Crystal Free USB	
PIC18F45J11	R	40	34	PIC18	16 Kw	RW	3800	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	13	–	13	–	2	✓	–	–	–	–	2	–	–	–	–	2	3	–	2	2	–	–	–	✓	SW0	✓	✓	–	TQFP (PT), QFN (ML)	Peripheral Pin Select, Deep Sleep Mode	
PIC18F44J50	R	40	34	PIC18	8 Kw	RW	3800	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	13	–	13	–	2	✓	–	–	–	–	2	–	–	–	–	2	3	–	2	2	–	✓	–	✓	SW0	✓	✓	–	TQFP (PT), QFN (ML)	Peripheral Pin Select, Deep Sleep Mode	
PIC18F45K80	R	40	35	PIC18	16 Kw	RW	3648	1024	1.8V– 5.5V	64 MHz	8 MHz, 31 kHz	–	11	–	–	11	2	✓	–	–	–	4	1	–	–	–	–	2	3	–	2	1	–	–	✓	✓	✓	✓	✓	–	PDIP (P), TQFP (PT), QFN (ML)	Deep Sleep Mode	
PIC18F46K22	R	40	36	PIC18	32 Kw	RW	3896	1024	1.8V– 5.5V	64 MHz	16 MHz, 31 kHz	–	28	–	28	–	2	✓	–	–	–	2	2	–	–	–	–	3	4	–	2	2	–	–	–	✓	✓	✓	✓	–	PDIP (P), TQFP (PT), 8 × 8 QFN (ML), 5 × 5 UQFN (MV)	Temperature Indicator <sup>(1)</sup>	
PIC18F45J50	R	40	34	PIC18	16 Kw	RW	3800	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	13	–	13	–	2	✓	–	–	–	–	2	–	–	–	–	2	3	–	2	2	–	✓	–	✓	SW0	✓	✓	–	TQFP (PT), QFN (ML)	Peripheral Pin Select, Deep Sleep Mode	
PIC18F46J11	R	40	34	PIC18	32 Kw	RW	3800	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	13	–	13	–	2	✓	–	–	–	–	2	–	–	–	–	2	3	–	2	2	–	–	–	✓	SW0	✓	✓	–	PDIP (P), TQFP (PT), QFN (ML)	Peripheral Pin Select, Deep Sleep Mode	
PIC18F46K80	R	44	35	PIC18	32 Kw	RW	3648	1024	1.8V– 5.5V	64 MHz	8 MHz, 31 kHz	–	11	–	–	11	2	✓	–	–	–	4	1	–	–	–	–	2	3	–	2	1	–	–	✓	✓	✓	✓	✓	✓	–	PDIP (P), TQFP (PT), QFN (ML)	Deep Sleep Mode
PIC18F46J13	R	44	34	PIC18	32 Kw	RW	3808	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	13	–	–	13	3	✓	–	–	–	7	3	–	–	–	–	4	4	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT), QFN (ML)	SPI w/DMA	
PIC18F46J50	R	40	34	PIC18	32 Kw	RW	3800	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	13	–	13	–	2	✓	–	–	–	–	2	–	–	–	–	2	3	–	2	2	–	✓	–	✓	SW0	✓	✓	–	PDIP (P), TQFP (PT), QFN (ML)	Peripheral Pin Select, Deep Sleep Mode	
PIC18F46J53	R	44	33	PIC18	32 Kw	RW	3808	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	13	–	–	13	3	✓	–	–	–	7	3	–	–	–	–	4	4	–	2	2	–	✓	–	✓	✓	✓	✓	–	TQFP (PT), QFN (ML)	Integrated LCD Driver, SPI w/DMA	
PIC18F47J13	R	44	34	PIC18	64 Kw	RW	3808	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	13	–	–	13	3	✓	–	–	–	7	3	–	–	–	–	4	4	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT), QFN (ML)	SPI w/DMA	
PIC18F47J53	R	44	33	PIC18	64 Kw	RW	3808	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	13	–	–	13	3	✓	–	–	–	7	3	–	–	–	–	4	4	–	2	2	–	✓	–	✓	✓	✓	✓	–	TQFP (PT), QFN (ML)	Integrated LCD Driver, SPI w/DMA	
PIC16F1526	R	64	54	EMR	8 Kw	RW	768	–	1.8V– 5.5V	20 MHz	16 MHz	–	30	–	30	–	–	–	–	–	–	10	–	–	–	–	–	6	3	–	2	2	–	–	–	✓	SW0	✓	✓	–	TQFP (PT), QFN (MR)	Temperature Indicator <sup>(1)</sup>	
PIC16F1527	R	64	54	EMR	16 Kw	RW	1536	–	1.8V– 5.5V	20 MHz	16 MHz	–	30	–	30	–	–	–	–	–	–	10	–	–	–	–	–	6	3	–	2	2	–	–	–	✓	SW0	✓	✓	–	TQFP (PT), QFN (MR)	Temperature Indicator <sup>(1)</sup>	
PIC16F1946	R	64	53	EMR	8 Kw	RW	512	256	1.8V– 5.5V	32 MHz	32 MHz, 31 kHz	184	17	–	17	–	3	–	–	–	–	2	3	–	–	–	–	4	1	–	2	2	–	–	–	✓	SW0	✓	✓	–	TQFP (PT), QFN (MR)	Temperature Indicator <sup>(1)</sup>	
PIC16F1947	R	64	53	EMR	16 Kw	RW	1024	256	1.8V– 5.5V	32 MHz	32 MHz, 31 kHz	184	17	–	17	–	3	–	–	–	–	2	3	–	–	–	–	4	1	–	2	2	–	–	–	✓	SW0	✓	✓	–	TQFP (PT), QFN (MR)	Temperature Indicator <sup>(1)</sup>	
PIC18F63J11	R	64	54	PIC18	4 Kw	RW	1024	–	2V– 3.6V	40 MHz	8 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	–	2	–	–	–	–	–	1	3	1	1	1	–	–	–	✓	✓	✓	✓	–	TQFP (PT)		
PIC18F64J11	R	64	54	PIC18	8 Kw	RW	1024	–	2V– 3.6V	40 MHz	8 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	–	2	–	–	–	–	–	1	3	1	1	1	–	–	–	✓	✓	✓	✓	–	TQFP (PT)		
PIC18F65K22	R	64	53	PIC18	16 Kw	RW	2048	1024	1.8V– 5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	–	16	–	–	16	3	✓	–	–	–	5	3	–	–	–	–	4	4	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT), QFN (MR)		

Note 1: Integrated Temperature Indicator: Reference Application Note AN1332 for implementation

◊ Software PLVD implemented via ADC.

\* High-endurance Flash block for data storage: See Application Note AN1673

eXtreme Low Power variants available.



AEC-Q100 Qualified



AEC-Q100 Capable

## 8-BIT PIC® MICROCONTROLLERS

	Product	Released (R) Not Released (NR)	Pins		Core	Memory				Voltage Range	Operating Speed		LCD Segments	mTouch® Channels	Analog Sensing & Measurement							Digital					Communication				Monitors		SR-Latch	Timer 1 Gate	High Temp. (150°C)	Packages (Designator)	Special Features					
			Total	I/O		Program	Self-Read/Write	Data RAM (B)	Data EE (B)		Maximum Speed	Internal Oscillator			8-bit ADC	10-bit ADC	12-bit ADC	Comparators	Charge Time Measurement Unit	Op Amp	DAC (5b/8b/9b)	PWM	CCP	ECCP	CWG/COG	NCO	PSMC	CLC	8-bit Timer	16-bit Timer	AUSART	EUSART						PC™/SPI	Ethernet (MAC/PHY)	USB 2.0 Device	CAN	BOR/PBOR
64-Pin (Cont.)	PIC18F65K90	R	64	53	PIC18	16 Kw	RW	2048	1024	1.8V– 5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	132	16	–	–	16	3	✓	–	–	–	5	3	–	–	–	4	4	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT), QFN (MR)	Integrated LCD Driver
	PIC18F65J50	R	64	49	PIC18	16 Kw	RW	3904	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	8	–	8	–	2	–	–	–	2	3	–	–	–	2	3	–	2	2	–	✓	–	✓	✓	✓	✓	–	TQFP (PT)		
	PIC18F66J11	R	64	50	PIC18	32 Kw	RW	3904	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	11	–	11	–	2	–	–	–	2	3	–	–	–	2	3	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT)		
	PIC18F65K80	R	64	54	PIC18	16 Kw	RW	3648	1024	1.8V– 5.5V	64 MHz	8 MHz, 31 kHz	–	11	–	–	11	2	✓	–	–	–	4	1	–	–	–	2	3	–	2	1	–	–	✓	✓	✓	✓	✓	TQFP (PT), QFN (MR)	Deep Sleep Mode	
	PIC18F66K22	R	64	53	PIC18	32 Kw	RW	4096	1024	1.8V– 5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	–	16	–	–	16	3	✓	–	–	–	7	3	–	–	–	6	5	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT), QFN (MR)	
	PIC18F66K90	R	64	53	PIC18	32 Kw	RW	4096	1024	1.8V– 5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	132	16	–	–	16	3	✓	–	–	–	7	3	–	–	–	6	5	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT), QFN (MR)	Integrated LCD Driver
	PIC18F66J50	R	64	49	PIC18	32 Kw	RW	3904	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	8	–	8	–	2	–	–	–	2	3	–	–	–	2	3	–	2	2	–	✓	–	✓	✓	✓	✓	–	TQFP (PT)		
	PIC18F67J11	R	64	50	PIC18	64 Kw	RW	3904	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	11	–	11	–	2	–	–	–	2	3	–	–	–	2	3	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT)		
	PIC18F67K22	R	64	53	PIC18	64 Kw	RW	4096	1024	1.8V– 5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	–	16	–	–	16	3	✓	–	–	–	7	3	–	–	–	6	5	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT), QFN (MR)	
	PIC18F66K80	R	64	54	PIC18	32 Kw	RW	3648	1024	1.8V– 5.5V	64 MHz	8 MHz, 31 kHz	–	11	–	–	11	2	✓	–	–	–	4	1	–	–	–	2	3	–	2	1	–	–	✓	✓	✓	✓	✓	✓	TQFP (PT), QFN (MR)	Deep Sleep Mode
	PIC18F67K90	R	64	53	PIC18	64 Kw	RW	4096	1024	1.8V– 5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	132	16	–	–	16	3	✓	–	–	–	7	3	–	–	–	6	5	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT), QFN (MR)	Integrated LCD Driver
PIC18F67J50	R	64	49	PIC18	64 Kw	RW	3904	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	8	–	8	–	2	–	–	–	2	3	–	–	–	2	3	–	2	2	–	✓	–	✓	✓	✓	✓	–	TQFP (PT)			
80-Pin	PIC18F85K22	R	80	69	PIC18	16 Kw	RW	2048	1024	1.8V– 5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	–	24	–	–	24	3	✓	–	–	–	5	3	–	–	–	4	4	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT)	
	PIC18F85K90	R	80	69	PIC18	16 Kw	RW	2048	1024	1.8V– 5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	192	24	–	–	24	3	✓	–	–	–	5	3	–	–	–	4	4	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT)	Integrated LCD Driver
	PIC18F85J50	R	80	65	PIC18	16 Kw	RW	3904	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	2	3	–	–	–	2	3	–	2	2	–	✓	–	✓	✓	✓	✓	–	TQFP (PT)		
	PIC18F86J11	R	80	66	PIC18	32 Kw	RW	3904	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	15	–	15	–	2	–	–	–	2	3	–	–	–	2	3	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT)		
	PIC18F86K22	R	80	69	PIC18	32 Kw	RW	4096	1024	1.8V– 5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	–	24	–	–	24	3	✓	–	–	–	7	3	–	–	–	6	5	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT)	
	PIC18F86K90	R	80	69	PIC18	32 Kw	RW	4096	1024	1.8V– 5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	192	24	–	–	24	3	✓	–	–	–	7	3	–	–	–	6	5	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT)	Integrated LCD Driver
	PIC18F86J50	R	80	65	PIC18	32 Kw	RW	3904	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	2	3	–	–	–	2	3	–	2	2	–	✓	–	✓	✓	✓	✓	–	TQFP (PT)		
	PIC18F87J11	R	80	66	PIC18	64 Kw	RW	3904	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	15	–	15	–	2	–	–	–	2	3	–	–	–	2	3	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT)		
	PIC18F87K22	R	80	69	PIC18	64 Kw	RW	4096	1024	1.8V– 5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	–	24	–	–	24	3	✓	–	–	–	7	3	–	–	–	6	5	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT)	
	PIC18F87K90	R	80	69	PIC18	64 Kw	RW	4096	1024	1.8V– 5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	192	24	–	–	24	3	✓	–	–	–	7	3	–	–	–	6	5	–	2	2	–	–	–	✓	✓	✓	✓	–	TQFP (PT)	Integrated LCD Driver
	PIC18F87J50	R	80	65	PIC18	64 Kw	RW	3904	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	–	12	–	12	–	2	–	–	–	2	3	–	–	–	2	3	–	2	2	–	✓	–	✓	✓	✓	✓	–	TQFP (PT)		
	PIC18F86J72	R	80	51	PIC18	32 Kw	RW	3923	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	132	12	–	–	12	2	✓	–	–	–	2	–	–	–	–	1	3	1	1	1	–	–	–	✓	✓	✓	✓	–	TQFP (PT)	2 × 24-bit ADC, RTCC
	PIC18F87J72	R	80	51	PIC18	64 Kw	RW	3923	–	2V– 3.6V	48 MHz	8 MHz, 31 kHz	132	12	–	–	12	2	✓	–	–	–	2	–	–	–	–	1	3	1	1	1	–	–	–	✓	✓	✓	✓	–	TQFP (PT)	2 × 24-bit ADC, RTCC

Note 1: Integrated Temperature Indicator: Reference Application Note AN1332 for implementation

◊ Software PLVD implemented via ADC.

\* High-endurance Flash block for data storage: See Application Note AN1673

eXtreme Low Power variants available.



AEC-Q100 Qualified



AEC-Q100 Capable

## 16-BIT PIC® MICROCONTROLLERS (PIC24F)




















	Product	Released (R) Not Released (NR)	I/O Pins	Core	Memory				Voltage Range	Operating Speed		Analog Sensing & Measurement								Communication				High Temp. (150°C)	Monitors	Packages (Designator)						
					Program (KB)	Data RAM (B)	EEPROM (B)	DMA #Ch		Maximum MIPS	Internal Oscillator	Charge Time Measurement Unit	10-bit ADC	10/12-bit ADC 1100/500 KSPS	12-bit ADC 10 MSPS	18-bit Sigma-Delta ADC	10-bit DAC	Op Amps	Comparators	LCD Segments	Graphics Controller	Output Compare/PWM	Input Capture	16-bit Timer <sup>(2)</sup>	Digital Communication	USB 2.0 Peripheral, Host, OTG	PMP	RTCC/RTC	PPS	System Mgmt. Features		
14-Pin	PIC24F04KL100	R	12	PIC24	4	512	AN1095 <sup>(1)</sup>	–	1.8V–3.6V	16	8 MHz, 32 kHz	–	–	–	–	–	–	–	1	–	–	2	2	2	1 UART, 1 SPI/PC™ (MSSP)	–	–	–	–	–	BOR, HLVD, POR, PWRT, WDT, XLP	PDIP (P), TSSOP (ST)
	PIC24F04KA200	R	12	PIC24	4	512	AN1095 <sup>(1)</sup>	–	1.8V–3.6V	16	8 MHz, 32 kHz	✓	7	–	–	–	–	–	2	–	–	1	1	3	1 UART, 1 SPI, 1 PC	–	–	–	–	–	BOR, POR, WDT, Deep Sleep, XLP	SPDIP (SP), TSSOP (ST)
	PIC24F08KL200	R	12	PIC24	8	512	AN1095 <sup>(1)</sup>	–	1.8V–3.6V	16	8 MHz, 32 kHz	–	7	–	–	–	–	–	1	–	–	2	2	2	1 UART, 1 SPI/PC (MSSP)	–	–	–	–	–	BOR, HLVD, POR, PWRT, WDT, XLP	PDIP (P), TSSOP (ST)
20-Pin	PIC24F04KL101	R	17	PIC24	4	512	AN1095 <sup>(1)</sup>	–	1.8V–3.6V	16	8 MHz, 32 kHz	–	–	–	–	–	–	–	1	–	–	2	2	2	1 UART, 1 SPI/PC (MSSP)	–	–	–	–	–	BOR, HLVD, POR, PWRT, WDT, XLP	PDIP (P), SOIC (SO), SSOP (SS), 5 × 5 QFN (MQ)
	PIC24F04KA201	R	18	PIC24	4	512	AN1095 <sup>(1)</sup>	–	1.8V–3.6V	16	8 MHz, 32 kHz	✓	9	–	–	–	–	–	2	–	–	1	1	3	1 UART, 1 SPI, 1 PC	–	–	–	–	–	BOR, POR, WDT, Deep Sleep, XLP	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)
	PIC24F08KL201	R	17	PIC24	8	512	AN1095 <sup>(1)</sup>	–	1.8V–3.6V	16	8 MHz, 32 kHz	–	12	–	–	–	–	–	1	–	–	2	2	2	1 UART, 1 SPI/PC (MSSP)	–	–	–	–	–	BOR, HLVD, POR, PWRT, WDT, XLP	PDIP (P), SOIC (SO), SSOP (SS), 5 × 5 QFN (MQ)
	PIC24F08KL301	R	18	PIC24	8	1024	256	–	1.8V–3.6V	16	8 MHz, 32 kHz	–	–	–	–	–	–	–	2	–	–	6	3	2	2 UART, 2 SPI/PC (MSSP)	–	–	–	–	–	BOR, HLVD, POR, PWRT, WDT, XLP	PDIP (P), SOIC (SO), SSOP (SS), 5 × 5 QFN (MQ)
	PIC24F08KL401	R	18	PIC24	8	1024	512	–	1.8V–3.6V	16	8 MHz, 32 kHz	–	12	–	–	–	–	–	2	–	–	6	3	2	2 UART, 2 SPI/PC (MSSP)	–	–	–	–	–	BOR, HLVD, POR, PWRT, WDT, XLP	PDIP (P), SOIC (SO), SSOP (SS), 5 × 5 QFN (MQ)
	PIC24F16KL401	R	18	PIC24	16	1024	512	–	1.8V–3.6V	16	8 MHz, 32 kHz	–	12	–	–	–	–	–	2	–	–	6	3	2	2 UART, 2 SPI/PC (MSSP)	–	–	–	–	–	BOR, HLVD, POR, PWRT, WDT, XLP	PDIP (P), SOIC (SO), SSOP (SS), 5 × 5 QFN (MQ)
	PIC24F08KA101	R	18	PIC24	8	1536	512	–	1.8V–3.6V	16	8 MHz, 32 kHz	✓	9	–	–	–	–	–	2	–	–	1	1	3	2 UART, 1 SPI, 1 PC	–	–	✓	–	–	BOR, POR, WDT, Deep Sleep, XLP	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)
	PIC24F16KA101	R	18	PIC24	16	1536	512	–	1.8V–3.6V	16	8 MHz, 32 kHz	✓	9	–	–	–	–	–	2	–	–	1	1	3	2 UART, 1 SPI, 1 PC	–	–	✓	–	–	BOR, POR, WDT, Deep Sleep, XLP	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)
	PIC24FJ32MC101	R	15	PIC24	32	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	6	–	–	–	–	–	3	–	–	8	3	5	1 UART, 1 SPI, 1 PC	–	–	✓	✓	–	BOR, POR, WDT	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)
	PIC24FJ16MC101	R	15	PIC24	16	1024	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	4	–	–	–	–	–	3	–	–	8	3	3	1 UART, 1 SPI, 1 PC	–	–	✓	✓	–	BOR, POR, WDT	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)
	PIC24F16KA301	R	18	PIC24	16	2048	512	–	1.8V–5.5V	16	8 MHz, 32 kHz	✓	–	9	–	–	–	–	3	–	–	3	3	5	2 UART, 2 SPI, 2 PC	–	–	✓	–	–	PWRT, HLVD, POR, OST, WDT	SPDIP (SP), SSOP (SS), SOIC (SO)
	PIC24F32KA301	R	18	PIC24	32	2048	512	–	1.8V–5.5V	16	8 MHz, 32 kHz	✓	–	9	–	–	–	–	3	–	–	3	3	5	2 UART, 2 SPI, 2 PC	–	–	✓	–	–	PWRT, HLVD, POR, OST, WDT	SPDIP (SP), SSOP (SS), SOIC (SO)
28-Pin	PIC24F08KL302	R	24	PIC24	8	1024	256	–	1.8V–3.6V	16	8 MHz, 32 kHz	–	–	–	–	–	–	–	2	–	–	6	3	2	2 UART, 2 SPI/PC (MSSP)	–	–	–	–	–	BOR, HLVD, POR, PWRT, WDT, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), 5 × 5 QFN (MQ), 6 × 6 QFN (ML)
	PIC24F08KL402	R	24	PIC24	8	1024	512	–	1.8V–3.6V	16	8 MHz, 32 kHz	–	12	–	–	–	–	–	2	–	–	6	3	2	2 UART, 2 SPI/PC (MSSP)	–	–	–	–	–	BOR, HLVD, POR, PWRT, WDT, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), 5 × 5 QFN (MQ), 6 × 6 QFN (ML)
	PIC24F16KL402	R	24	PIC24	16	1024	512	–	1.8V–3.6V	16	8 MHz, 32 kHz	–	12	–	–	–	–	–	2	–	–	6	3	2	2 UART, 2 SPI/PC (MSSP)	–	–	–	–	–	BOR, HLVD, POR, PWRT, WDT, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), 5 × 5 QFN (MQ), 6 × 6 QFN (ML)
	PIC24F08KA102	R	24	PIC24	8	1536	512	–	1.8V–3.6V	16	8 MHz, 32 kHz	✓	9	–	–	–	–	–	2	–	–	1	1	3	2 UART, 1 SPI, 1 PC	–	–	✓	–	–	BOR, POR, WDT, Deep Sleep, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)
	PIC24F16KA102	R	24	PIC24	16	1536	512	–	1.8V–3.6V	16	8 MHz, 32 kHz	✓	9	–	–	–	–	–	2	–	–	1	1	3	2 UART, 1 SPI, 1 PC	–	–	✓	–	–	BOR, POR, WDT, Deep Sleep, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)
	PIC24FJ16MC102	R	21	PIC24	16	1024	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	6	–	–	–	–	–	3	–	–	8	3	3	1 UART, 1 SPI, 1 PC	–	–	✓	✓	–	BOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)
	PIC24FJ32MC102	R	21	PIC24	32	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	8	–	–	–	–	–	3	–	–	8	3	5	1 UART, 1 SPI, 1 PC	–	–	✓	✓	–	BOR, POR, WDT	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)
	PIC24FJ16GA002	R	21	PIC24	16	4096	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	–	10	–	–	–	–	–	2	–	–	5	5	5	2 UART, 2 SPI, 2 PC	–	✓	✓	✓	–	BOR, LVD, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)
	PIC24FJ32GA002	R	21	PIC24	32	8192	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	–	10	–	–	–	–	–	2	–	–	5	5	5	2 UART, 2 SPI, 2 PC	–	✓	✓	✓	–	BOR, LVD, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)
	PIC24F16KA302	R	24	PIC24	16	2048	512	–	1.8V–5.5V	16	8 MHz, 32 kHz	✓	–	10	–	–	–	–	3	–	–	3	3	5	2 UART, 2 SPI, 2 PC	–	–	✓	–	–	PWRT, HLVD, POR, OST, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)
	PIC24F32KA302	R	24	PIC24	32	2048	512	–	1.8V–5.5V	16	8 MHz, 32 kHz	✓	–	10	–	–	–	–	3	–	–	3	3	5	2 UART, 2 SPI, 2 PC	–	–	✓	–	–	PWRT, HLVD, POR, OST, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)
	PIC24FJ32GA102	R	21	PIC24	32	8192	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	10	–	–	–	–	–	3	–	–	5	5	5	2 UART, 2 SPI, 2 PC	–	✓	✓	✓	–	BOR, LVD, POR, WDT, Deep Sleep, XLP	SPDIP (SP), SOIC (SO), QFN (ML)
	PIC24FJ32GB002	R	19	PIC24	32	8192	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	9	–	–	–	–	–	3	–	–	5	5	5	2 UART, 2 SPI, 2 PC	✓	✓	✓	✓	–	BOR, LVD, POR, WDT, Deep Sleep, XLP	SPDIP (SP), SOIC (SO), QFN (ML)
	PIC24FJ64GA002	R	21	PIC24	64	8192	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	–	10	–	–	–	–	–	2	–	–	5	5	5	2 UART, 2 SPI, 2 PC	–	✓	✓	✓	–	BOR, LVD, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)
	PIC24FJ64GA202	NR	21	PIC24	64	8192	AN1095 <sup>(1)</sup>	6	2.0V–3.6V	16	8 MHz, 32 kHz	✓	–	10	–	–	–	–	3	–	–	6	6	5	4 UART, 3 SPI/ 2 PC	–	✓	✓	✓	–	BOR, HLVD, POR, WDT, OST, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)

Note 1: See Application Note "AN1095: Emulating Data EEPROM".

Note 2: Two 16-bit timers can be concatenated to form a 32-bit timer.



## 16-BIT PIC® MICROCONTROLLERS (PIC24F)

	Product	Released (R) Not Released (NR)	I/O Pins	Core	Memory				Voltage Range	Operating Speed		Analog Sensing & Measurement								LCD Segments		Graphics Controller	Output Compare/PWM	Input Capture	16-bit Timer <sup>(2)</sup>	Communication			PMP	RTCC/CRC	PPS	High Temp. (150°C)	Monitors	Packages (Designator)
					Program (KB)	Data RAM (B)	EEPROM (B)	DMA #Ch		Maximum MIPS	Internal Oscillator	Charge Time Measurement Unit	10-bit ADC	10/12-bit ADC 1100/500 KSPS	12-bit ADC 10 MSPS	16-bit Sigma-Delta ADC	10-bit DAC	Op Amps	Comparators							Digital Communication	USB 2.0 (Peripheral, Host, OTG)	System Mgmt. Features						
28-Pin (Cont.)	PIC24FJ64GA102 	R	21	PIC24	64	8192	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	10	–	–	–	–	–	3	–	–	5	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C™	✓	✓	✓	✓	–	BOR, LVD, POR, WDT, Deep Sleep, XLP	SPDIP (SP), SOIC (SO), QFN (ML)		
	PIC24FJ128GA202 	NR	21	PIC24	128	8192	AN1095 <sup>(1)</sup>	6	2.0V–3.6V	16	8 MHz, 32 kHz	✓	–	10	–	–	–	–	3	–	–	6	6	5	4 UART, 3 SPI/ 2 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, HLVD, POR, WDT, OST, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)		
	PIC24FJ164GB202 	NR	20	PIC24	64	8192	AN1095 <sup>(1)</sup>	6	2.0V–3.6V	16	8 MHz, 32 kHz	✓	9	–	–	–	–	–	3	–	–	6	6	5	4 UART, 3 SPI/ 2 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, HLVD, POR, WDT, OST, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)		
	PIC24FJ64GB002 	R	19	PIC24	64	8192	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	9	–	–	–	–	–	3	–	–	5	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, LVD, POR, WDT, Deep Sleep, XLP	SPDIP (SP), SOIC (SO), QFN (ML)		
	PIC24FJ128GB202 	NR	20	PIC24	128	8192	AN1095 <sup>(1)</sup>	6	2.0V–3.6V	16	8 MHz, 32 kHz	✓	9	–	–	–	–	–	3	–	–	6	6	5	4 UART, 3 SPI/ 2 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, HLVD, POR, WDT, OST, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)		
44-Pin	PIC24FJ16GA004	R	35	PIC24	16	4096	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	–	13	–	–	–	–	–	2	–	–	5	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT), QFN (ML)		
	PIC24FJ32MC104	R	35	PIC24	32	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	14	–	–	–	–	–	3	–	–	8	3	5	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	✓	✓	–	BOR POR, WDT	TQFP (PT), QFN (ML)		
	PIC24FJ32GA004	R	35	PIC24	32	8192	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	–	13	–	–	–	–	–	2	–	–	5	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT), QFN (ML)		
	PIC24F16KA304 	R	38	PIC24	16	2048	512	–	1.8V–5.5V	16	8 MHz, 32 kHz	✓	–	16	–	–	–	–	3	–	–	3	3	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	✓	–	–	PWRT, HLVD, POR, OST, WDT	TQFP (PT), QFN (ML), UQFN (MV)		
	PIC24FJ32GA104 	R	35	PIC24	32	8192	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	13	–	–	–	–	–	3	–	–	5	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT, Deep Sleep, XLP	TQFP (PT), QFN (ML)		
	PIC24F32KA304 	R	38	PIC24	32	2048	512	–	1.8V–5.5V	16	8 MHz, 32 kHz	✓	–	16	–	–	–	–	3	–	–	3	3	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	✓	–	–	PWRT, HLVD, POR, OST, WDT	TQFP (PT), QFN (ML), UQFN (MV)		
	PIC24FJ32GB004 	R	33	PIC24	32	8192	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	13	–	–	–	–	–	3	–	–	5	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, LVD, POR, WDT, Deep Sleep, XLP	TQFP (PT), QFN (ML)		
	PIC24FJ64GA004	R	35	PIC24	64	8192	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	13	–	–	–	–	–	2	–	–	5	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT), QFN (ML)		
	PIC24FJ64GA204 	NR	35	PIC24	64	8192	AN1095 <sup>(1)</sup>	6	2.0V–3.6V	16	8 MHz, 32 kHz	✓	–	13	–	–	–	–	3	–	–	6	6	5	4 UART, 3 SPI/ 2 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, HLVD, POR, WDT, OST, XLP	TQFP (PT), QFN (ML)		
	PIC24FJ64GA104 	R	35	PIC24	64	8192	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	13	–	–	–	–	–	3	–	–	5	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT, Deep Sleep, XLP	TQFP (PT), QFN (ML)		
	PIC24FJ64GB204 	NR	34	PIC24	64	8192	AN1095 <sup>(1)</sup>	6	2.0V–3.6V	16	8 MHz, 32 kHz	✓	12	–	–	–	–	–	3	–	–	6	6	5	4 UART, 3 SPI/ 2 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, HLVD, POR, WDT, OST, XLP	TQFP (PT), QFN (ML)		
	PIC24FJ128GA204 	NR	35	PIC24	128	8192	AN1095 <sup>(1)</sup>	6	2.0V–3.6V	16	8 MHz, 32 kHz	✓	–	13	–	–	–	–	3	–	–	6	6	5	4 UART, 3 SPI/ 2 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, HLVD, POR, WDT, OST, XLP	TQFP (PT), QFN (ML)		
PIC24FJ64GB004 	R	33	PIC24	64	8192	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	13	–	–	–	–	–	3	–	–	5	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, LVD, POR, WDT, Deep Sleep, XLP	TQFP (PT), QFN (ML)			
PIC24FJ128GB204 	NR	34	PIC24	128	8192	AN1095 <sup>(1)</sup>	6	2.0V–3.6V	16	8 MHz, 32 kHz	✓	12	–	–	–	–	–	3	–	–	6	6	5	4 UART, 3 SPI/ 2 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, HLVD, POR, WDT, OST, XLP	TQFP (PT), QFN (ML)			
64-Pin	PIC24FJ64GA306 	R	53	PIC24	64	8192	AN1095 <sup>(1)</sup>	6	2.0V–3.6V	16	8 MHz, 32 kHz	✓	–	16	–	–	–	–	3	240	–	7	7	5	4 UART, 2 SPI, 2 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT, XLP, Deep Sleep	TQFP (PT), QFN (MR)		
	PIC24FJ128GA306 	R	53	PIC24	128	8192	AN1095 <sup>(1)</sup>	6	2.0V–3.6V	16	8 MHz, 32 kHz	✓	–	16	–	–	–	–	3	240	–	7	7	5	4 UART, 2 SPI, 2 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT, XLP, Deep Sleep	TQFP (PT), QFN (MR)		
	PIC24FJ64GA106	R	53	PIC24	64	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT), QFN (MR)		
	PIC24FJ128GA106	R	53	PIC24	128	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT), QFN (MR)		
	PIC24FJ64GC006 	R	48	PIC24	64	8192	AN1095 <sup>(1)</sup>	6	2.0V–3.6V	16	8 MHz, 32 kHz	30	–	–	30	2	2	2	3	248	–	9	9	5	4 UART, 2 SPI, 2 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, HLVD, POR, WDT, OST, XLP, Vbat	QFN (MR), TQFP (PT)		
	PIC24FJ64GB106	R	52	PIC24	64	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT), QFN (MR)		
	PIC24FJ128GC006 	R	48	PIC24	128	8192	AN1095 <sup>(1)</sup>	6	2.0V–3.6V	16	8 MHz, 32 kHz	30	–	–	30	2	2	2	3	248	–	9	9	5	4 UART, 2 SPI, 2 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, HLVD, POR, WDT, OST, XLP, Vbat	QFN (MR), TQFP (PT)		
PIC24FJ128GB106	R	52	PIC24	128	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT), QFN (MR)			
PIC24FJ256GA106	R	53	PIC24	256	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT), QFN (MR)			
80-Pin	PIC24FJ64GA108	R	69	PIC24	64	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT)		
	PIC24FJ128GA108	R	69	PIC24	128	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT)		
	PIC24FJ64GB108	R	68	PIC24	64	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT)		
	PIC24FJ128GB108	R	68	PIC24	128	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT)		
	PIC24FJ256GA108	R	69	PIC24	256	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT)		
PIC24FJ256GB108	R	68	PIC24	256	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT)			

Note 1: See Application Note "AN1095: Emulating Data EEPROM".

2: Two 16-bit timers can be concatenated to form a 32-bit timer.



AEC-Q100 Qualified



AEC-Q100 Capable

## 16-BIT PIC® MICROCONTROLLERS (PIC24F)

Product	Released (R) Not Released (NR)	I/O Pins	Core	Memory				Voltage Range	Operating Speed		Analog Sensing & Measurement								LCD Segments	Graphics Controller	Output Compare/PWM	Input Capture	16-bit Timer <sup>(2)</sup>	Communication		PMP	RTCC/CRC	PPS	High Temp. (150°C)	Monitors	Packages (Designator)	
				Program (KB)	Data RAM (B)	EEPROM	DMA #Ch		Maximum MIPS	Internal Oscillator	Charge Time Measurement Unit	10-bit ADC	10/12-bit ADC 1100/500 MSPS	12-bit ADC 10 MSPS	16-bit Sigma-Delta ADC	10-bit DAC	Op Amps	Comparators						Digital Communication	USB 2.0 (Peripheral, Host, OTG)					System Mgmt. Features		
100-Pin	PIC24FJ64GA110	R	85	PIC24	64	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT), BGA121 (BG)
	PIC24FJ64GC010 <sup>(1)</sup>	R	80	PIC24	64	8192	AN1095 <sup>(1)</sup>	6	2.0V–3.6V	16	8 MHz, 32 kHz	50	–	–	50	2	2	2	3	472	–	9	9	5	4 UART, 2 SPI, 2 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, HLVD, POR, WDT, OST, XLP, Vbat	TQFP (PT), BGA (BG)
	PIC24FJ128GA110	R	85	PIC24	128	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT), BGA121 (BG)
	PIC24FJ128GC010 <sup>(1)</sup>	R	80	PIC24	128	8192	AN1095 <sup>(1)</sup>	6	2.0V–3.6V	16	8 MHz, 32 kHz	50	–	–	50	2	2	2	3	472	–	9	9	5	4 UART, 2 SPI, 2 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, HLVD, POR, WDT, OST, XLP, Vbat	TQFP (PT), BGA (BG)
	PIC24FJ64GB110	R	84	PIC24	64	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT), BGA121 (BG)
	PIC24FJ128GB110	R	84	PIC24	128	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	16 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	✓	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT), BGA121 (BG)
	PIC24FJ256GA110	R	85	PIC24	256	16384	AN1095 <sup>(1)</sup>	–	2.0V–3.6V	16	8 MHz, 32 kHz	✓	16	–	–	–	–	–	3	–	–	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C	–	✓	✓	✓	–	BOR, LVD, POR, WDT	TQFP (PT), BGA121 (BG)

Note 1: See Application Note "AN1095: Emulating Data EEPROM".  
 2: Two 16-bit timers can be concatenated to form a 32-bit timer.

## 16-BIT PIC® MICROCONTROLLERS (PIC24H/E)

Product	Released (R) Not Released (NR)	I/O Pins	Core	Memory				Voltage Range	Operating Speed		Analog Sensing & Measurement						Output Compare/PWM	Motor Control PWM Ch.	QEI	Input Capture	16-bit Timer <sup>(2)</sup>	Communication			PMP	RTCC/CRC	PPS	High Temp. (150 °C)	Monitors	
				Program (KB)	Data RAM (B)	EEPROM	DMA #Ch		Maximum MIPS	Internal Oscillator	Charge Time Measurement Unit	10-bit ADC	10/12-bit ADC 1100/500 KSPS	Comparators	Op Amps	Digital Communication						CAN	FS USB OTG	System Mgmt. Features					Packages (Designator)	
18-Pin	PIC24HJ12GP201	R	13	PIC24	12	1024	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	6 ch	–	–	2	–	–	4	3	1 UART, 1 SPI, 1 I <sup>2</sup> C™	–	–	–	–	✓	–	PBOR, POR, WDT	PDIP (P), SOIC (SO)
28-Pin	PIC24EP32MC202	R	21	PIC24	32	4096	AN1095 <sup>(1)</sup>	4	3V–3.6V	70	7.37 MHz, 32 kHz	✓	–	6 ch	1+2†	2	10	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	–	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	PIC24EP32GP202	R	21	PIC24	32	4096	AN1095 <sup>(1)</sup>	4	3V–3.6V	70	7.37 MHz, 32 kHz	✓	–	6 ch	1+2†	2	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	–	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	PIC24HJ12GP202	R	21	PIC24	12	1024	AN1095 <sup>(1)</sup>	–	3V–3.6V	40	7.37 MHz, 32 kHz	–	–	10 ch	–	–	2	–	–	4	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	–	✓	–	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	PIC24HJ32GP202	R	21	PIC24	32	2048	AN1095 <sup>(1)</sup>	–	3V–3.6V	40	7.37 MHz, 32 kHz	–	–	10 ch	–	–	2	–	–	4	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	–	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), QFN (MM)
	PIC24EP512MC202	R	21	PIC24	512	49152	AN1095 <sup>(1)</sup>	4	3V–3.6V	70	7.37 MHz, 32 kHz	✓	–	6 ch	1+2†	2	10	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	PIC24EP512GP202	R	21	PIC24	512	49152	AN1095 <sup>(1)</sup>	4	3V–3.6V	70	7.37 MHz, 32 kHz	✓	–	6 ch	1+2†	2	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	PIC24EP64GP202	R	21	PIC24	64	8192	AN1095 <sup>(1)</sup>	4	3V–3.6V	70	7.37 MHz, 32 kHz	✓	–	6 ch	1+2†	2	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	PIC24EP64MC202	R	21	PIC24	64	8192	AN1095 <sup>(1)</sup>	4	3V–3.6V	70	7.37 MHz, 32 kHz	✓	–	6 ch	1+2†	2	4	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	PIC24EP128MC202	R	21	PIC24	128	16384	AN1095 <sup>(1)</sup>	4	3V–3.6V	70	7.37 MHz, 32 kHz	✓	–	6 ch	1+2†	2	10	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	PIC24EP128GP202	R	21	PIC24	128	16384	AN1095 <sup>(1)</sup>	4	3V–3.6V	70	7.37 MHz, 32 kHz	✓	–	6 ch	1+2†	2	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	PIC24HJ32GP302	R	21	PIC24	32	4096	AN1095 <sup>(1)</sup>	8	3V–3.6V	40	7.37 MHz, 32 kHz	–	–	10 ch	2	–	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), QFN (MM)
	PIC24HJ64GP202	R	21	PIC24	64	4096	AN1095 <sup>(1)</sup>	8	3V–3.6V	40	7.37 MHz, 32 kHz	–	–	10 ch	2	–	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), QFN (MM)
	PIC24EP256MC202	R	21	PIC24	256	32768	AN1095 <sup>(1)</sup>	4	3V–3.6V	70	7.37 MHz, 32 kHz	✓	–	6 ch	1+2†	2	10	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	PIC24EP256GP202	R	21	PIC24	256	32768	AN1095 <sup>(1)</sup>	4	3V–3.6V	70	7.37 MHz, 32 kHz	✓	–	6 ch	1+2†	2	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	PIC24EP256MC202	R	21	PIC24	256	32768	AN1095 <sup>(1)</sup>	4	3V–3.6V	70	7.37 MHz, 32 kHz	✓	–	6 ch	1+2†	2	4	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
PIC24HJ64GP502	R	21	PIC24	64	4096	AN1095 <sup>(1)</sup>	8	3V–3.6V	40	7.37 MHz, 32 kHz	–	–	10 ch	2	–	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), QFN (MM)	
PIC24HJ128GP202	R	21	PIC24	128	8192	AN1095 <sup>(1)</sup>	8	3V–3.6V	40	7.37 MHz, 32 kHz	–	–	10 ch	2	–	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), QFN (MM)	
PIC24HJ128GP502	R	21	PIC24	128	8192	AN1095 <sup>(1)</sup>	8	3V–3.6V	40	7.37 MHz, 32 kHz	–	–	10 ch	2	–	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), QFN (MM)	
44-Pin	PIC24EP32GP204	R	35	PIC24	32	4096	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	9 ch	1+3†	3	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	PIC24EP32MC204	R	35	PIC24	32	4096	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	9 ch	1+3†	3	10	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	PIC24HJ16GP304	R	35	PIC24	16	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	13 ch	–	–	2	–	–	4	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	–	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	PIC24HJ32GP204	R	35	PIC24	32	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	13 ch	–	–	2	–	–	4	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	–	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)

† Op amp configured as comparator.

Note 1: See Application Note "AN1095: Emulating Data EEPROM".  
 2: Two 16-bit timers can be concatenated to form a 32-bit timer.



## 16-BIT PIC® MICROCONTROLLERS (PIC24H/E)

	Product	Released (R) Not Released (NR)	I/O Pins	Core	Memory				Voltage Range	Operating Speed		Analog Sensing & Measurement					Motor Control PWM Ch.	QEI	Input Capture	16-bit Timer <sup>(2)</sup>	Communication				PMP	RTCC/CRC	PPS	High Temp. (150 °C)	Monitors	
					Program (KB)	Data RAM (B)	EEPROM	DMA #Ch		Maximum MIPS	Internal Oscillator	Change Time Measurement Unit	10-bit ADC	10/12-bit ADC 1100/500 KSPS	Comparators	Op Amps					Output Compare/PWM	Digital Communication	CAN	FS USB OTG					System Mgmt. Features	Packages (Designator)
44-Pin (Cont.)	PIC24EP512MC204	R	35	PIC24	512	49152	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	40	7.37 MHz, 32 kHz	✓	–	9 ch	1+3†	3	10	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C™	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	PIC24EP512GP204	R	35	PIC24	512	49152	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	40	7.37 MHz, 32 kHz	✓	–	9 ch	1+3†	3	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	PIC24EP64GP204	R	35	PIC24	64	8192	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	9 ch	1+3†	3	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	PIC24EP64MC204	R	35	PIC24	64	8192	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	9 ch	1+3†	3	10	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	PIC24EP128MC204	R	35	PIC24	128	16384	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	9 ch	1+3†	3	10	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	PIC24EP128GP204	R	35	PIC24	128	16384	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	9 ch	1+3†	3	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	PIC24HJ32GP304	R	35	PIC24	32	4096	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	13 ch	2	–	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	PIC24EP256MC204	R	35	PIC24	256	32768	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	9 ch	1+3†	3	10	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	PIC24EP256GP204	R	35	PIC24	256	32768	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	9 ch	1+3†	3	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	PIC24EP256MC204	R	35	PIC24	256	32768	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	9 ch	1+3†	3	4	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	PIC24HJ64GP204	R	35	PIC24	64	8192	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	13 ch	2	–	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	PIC24HJ64GP504	R	35	PIC24	64	4096	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	13 ch	2	–	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
PIC24HJ128GP204	R	35	PIC24	128	8192	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	13 ch	2	–	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)	
PIC24HJ128GP504	R	35	PIC24	128	8192	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	13 ch	2	–	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)	
64-Pin	PIC24EP512MC206	R	53	PIC24	512	49152	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	16 ch	1+3†	3	10	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	PIC24EP512GP206	R	53	PIC24	512	49152	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	16 ch	1+3†	3	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	PIC24EP64GP206	R	53	PIC24	64	8192	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	16 ch	1+3†	3	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	PIC24EP64MC206	R	53	PIC24	64	8192	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	16 ch	1+3†	3	10	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	PIC24EP128MC206	R	53	PIC24	128	16384	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	16 ch	1+3†	3	10	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	PIC24EP128GP206	R	53	PIC24	128	16384	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	16 ch	1+3†	3	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	PIC24HJ64GP206A	R	53	PIC24	64	8192	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	18 ch	–	–	8	–	–	8	9	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	PIC24EP256GP206	R	53	PIC24	256	32768	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	16 ch	1+3†	3	4	–	–	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	PIC24EP256MC206	R	53	PIC24	256	32768	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	–	16 ch	1+3†	3	4	6	1	4	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	PIC24HJ64GP506A	R	53	PIC24	64	8192	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	18 ch	–	–	8	–	–	8	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	1	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	PIC24HJ128GP206A	R	53	PIC24	128	8192	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	18 ch	–	–	8	–	–	8	9	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	PIC24HJ128GP306A	R	53	PIC24	128	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	18 ch	–	–	8	–	–	8	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
PIC24HJ128GP506A	R	53	PIC24	128	8192	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	18 ch	–	–	8	–	–	8	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	1	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)	
PIC24HJ256GP206A	R	53	PIC24	256	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	18 ch	–	–	8	–	–	8	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)	
PIC24EP512GP806	R	53	PIC24	536	53248	AN1095 <sup>(1)</sup>	15	3.0V–3.6V	70	7.37 MHz, 32 kHz	–	–	24 ch, 2 A/D	3	–	16	–	–	16	9	4 UART, 2 SPI, 2 I <sup>2</sup> C	2	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)	
100-Pin	PIC24HJ64GP210A	R	85	PIC24	64	8192	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	32 ch	–	–	8	–	–	8	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)
	PIC24HJ64GP510A	R	85	PIC24	64	8192	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	32 ch	–	–	8	–	–	8	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	1	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)
	PIC24HJ128GP210A	R	85	PIC24	128	8192	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	32 ch	–	–	8	–	–	8	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)
	PIC24HJ128GP310A	R	85	PIC24	128	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	32 ch	–	–	8	–	–	8	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)
	PIC24HJ128GP510A	R	85	PIC24	128	8192	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	32 ch	–	–	8	–	–	8	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	1	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)
	PIC24HJ256GP210A	R	85	PIC24	256	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	32 ch	–	–	8	–	–	8	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)
	PIC24HJ256GP610A	R	85	PIC24	256	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	–	2-ADC 32 ch	–	–	8	–	–	8	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	2	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)
	PIC24EP256GU810	R	83	PIC24	280	28672	AN1095 <sup>(1)</sup>	15	3.0V–3.6V	60	7.37 MHz, 32 kHz	–	–	2-ADC 32 ch	3	–	16	–	–	16	9	4 UART, 4 SPI, 2 I <sup>2</sup> C	2	1	✓	✓	✓	–	BOR, POR, WDT	TQFP (PT, PF)
PIC24EP512GU810	R	83	PIC24	536	53248	AN1095 <sup>(1)</sup>	15	3.0V–3.6V	60	7.37 MHz, 32 kHz	–	–	2-ADC 32 ch	3	–	16	–	–	16	9	4 UART, 4 SPI, 2 I <sup>2</sup> C	2	1	✓	✓	✓	–	BOR, POR, WDT	TQFP (PT, PF)	
144-Pin	PIC24EP256GU814	R	122	PIC24	280	28672	AN1095 <sup>(1)</sup>	15	3.0V–3.6V	60	7.37 MHz, 32 kHz	–	–	2-ADC 32 ch	3	–	16	–	–	16	9	4 UART, 4 SPI, 2 I <sup>2</sup> C	2	1	✓	✓	✓	–	BOR, POR, WDT	TQFP (PH), LQFP (PL)
	PIC24EP512GU814	R	122	PIC24	536	53248	AN1095 <sup>(1)</sup>	15	3.0V–3.6V	60	7.37 MHz, 32 kHz	–	–	2-ADC 32 ch	3	–	16	–	–	16	9	4 UART, 4 SPI, 2 I <sup>2</sup> C	2	1	✓	✓	✓	–	BOR, POR, WDT	TQFP (PH), LQFP (PL)

† Op amp configured as comparator.

Note 1: See Application Note "AN1095: Emulating Data EEPROM".

2: Two 16-bit timers can be concatenated to form a 32-bit timer.



AEC-Q100 Qualified



AEC-Q100 Capable

## dsPIC30F DSC FAMILIES

	Product	Released (R) Not Released (NR)	I/O Pins	Core	Memory			Voltage Range	Operating Speed		Analog			Output Compare/PWM	Input Capture	Motor Control PWM Ch	Power Supply PWM Ch	QEI	Codec (FS™, AC97)	16-bit Timer <sup>(2)</sup>	Communication		High Temp. (150°C)	Monitors	Packages (Designator)
					Program (KB)	Data RAM (B)	EEPROM		Maximum Speed MIPS	Internal Oscillator	ADC	DAC	Comparators								Digital Communication	CAN			
18-Pin	dsPIC30F3012	R	12	dsPIC*	24	2048	1024	2.5V–5.5V	30	7.37 MHz, 32 kHz	8 × 12-bit @ 200 (ksps)	–	–	2	2	–	–	–	–	3	1 UART, 1 SPI, 1 I <sup>2</sup> C™	–	–	PBOR, LVD, POR, WDT	PDIP (P), SOIC (SO), QFN (ML)
28-Pin	dsPIC30F2010	R	20	dsPIC	12	512	1024	2.5V–5.5V	30	7.37 MHz, 32 kHz	6 × 10-bit @ 1000 (ksps)	–	–	2	4	6	–	1	–	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	PBOR, LVD, POR, WDT	PDIP (P), SPDIP (SP), SOIC (SO), QFN (ML)
	dsPIC30F3013	R	20	dsPIC	24	2048	1024	2.5V–5.5V	30	7.37 MHz, 32 kHz	10 × 12-bit @ 200 (ksps)	–	–	2	2	–	–	–	–	3	2 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	PBOR, LVD, POR, WDT	SPDIP (SP), SOIC (SO), QFN (ML)
	dsPIC30F4012	R	20	dsPIC	48	2048	1024	2.5V–5.5V	30	7.37 MHz, 32 kHz	6 × 10-bit @ 1000 (ksps)	–	–	2	4	6	–	1	–	5	1 UART, 1 SPI, 1 I <sup>2</sup> C	1	–	PBOR, LVD, POR, WDT	SPDIP (SP), SOIC (SO), QFN (ML)
40-Pin	dsPIC30F4013	R	30	dsPIC	48	2048	1024	2.5V–5.5V	30	7.37 MHz, 32 kHz	13 × 12-bit @ 200 (ksps)	–	–	4	4	–	–	–	1	5	2 UART, 1 SPI, 1 I <sup>2</sup> C	1	–	PBOR, LVD, POR, WDT	PDIP (P), TQFP (PT), QFN (ML)
	dsPIC30F4011	R	30	dsPIC	48	2048	1024	2.5V–5.5V	30	7.37 MHz, 32 kHz	9 × 10-bit @ 1000 (ksps)	–	–	4	4	6	–	1	–	5	2 UART, 1 SPI, 1 I <sup>2</sup> C	1	–	PBOR, LVD, POR, WDT	PDIP (P), TQFP (PT), QFN (ML)
64-Pin	dsPIC30F5015	R	52	dsPIC	66	2048	1024	2.5V–5.5V	30	7.37 MHz, 32 kHz	16 × 10-bit @ 1000 (ksps)	–	–	4	4	8	–	1	–	5	1 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	PBOR, LVD, POR, WDT	TQFP (PT)
	dsPIC30F6011A	R	52	dsPIC	132	6144	2048	2.5V–5.5V	30	7.37 MHz, 32 kHz	16 × 12-bit @ 200 (ksps)	–	–	8	8	–	–	–	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	2	–	PBOR, LVD, POR, WDT	TQFP (PT)
	dsPIC30F5016	R	68	dsPIC	66	2048	1024	2.5V–5.5V	30	7.37 MHz, 32 kHz	16 × 10-bit @ 1000 (ksps)	–	–	4	4	8	–	1	–	5	1 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	PBOR, LVD, POR, WDT	TQFP (PF)
	dsPIC30F6014A	R	68	dsPIC	144	8192	4096	2.5V–5.5V	30	7.37 MHz, 32 kHz	16 × 12-bit @ 200 (ksps)	–	–	8	8	–	–	–	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	2	–	PBOR, LVD, POR, WDT	TQFP (PF)
80-Pin	dsPIC30F6010A	R	68	dsPIC	144	8192	4096	2.5V–5.5V	30	7.37 MHz, 32 kHz	16 × 10-bit @ 1000 (ksps)	–	–	8	8	8	–	1	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	2	–	PBOR, LVD, POR, WDT	TQFP (PF)

Note 1: Two 16-bit times can be concatenated to form a 32-bit timer.

## dsPIC33 DSC GENERAL PURPOSE FAMILY

	Product	Released (R) Not Released (NR)	I/O Pins	Core	Memory				Voltage Range	Operating Speed		Analog Sensing & Measurement						Output Compare/PWM	Input Capture	Codec (FS™, AC97)	16-bit Timer <sup>(2)</sup>	Communication		PMP	RTCC/CRC	PPS	High Temp. (150 °C)	Monitors	
					Program (KB)	Data RAM (B)	EEPROM	DMA #Ch		Maximum Speed MIPS	Internal Oscillator	Charge Time Measurement Unit	ADC 10/12-bit 1100/500 ksp/s	DAC	Comparators	Op Amps	Digital Communication					CAN	System Mgmt. Features					Packages (Designator)	
18-Pin	dsPIC33FJ16GP101	R	15	dsPIC®	16	1024	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	4 Ch (10-bit)	–	3	–	2	3	–	3	1 UART, 1 SPI, 1 I <sup>2</sup> C™	–	–	✓	✓	✓	BOR, POR, WDT	PDIP (P), SOIC (SO), SSOP (SS)	
	dsPIC33FJ32GP101	R	13	dsPIC	32	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	6 ch	–	3	–	2	3	–	5	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	✓	✓	✓	PBOR, POR, WDT	PDIP (P), SOIC (SO), SSOP (SS)	
28-Pin	dsPIC33FJ32GP102	R	21	dsPIC	32	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	8 ch	–	3	–	2	3	–	5	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	
	dsPIC33FJ16GP102	R	21	dsPIC	16	1024	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	6 Ch (10-bit)	–	3	–	2	3	–	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	✓	✓	✓	BOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	
	dsPIC33EP32GP502	R	21	dsPIC	32	4096	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	60	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	BOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)	
	dsPIC33EP64GP502	R	21	dsPIC	64	8192	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	60	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)	
	dsPIC33EP128GP502	R	21	dsPIC	128	16384	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	60	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)	
	dsPIC33EP256GP502	R	21	dsPIC	256	32768	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	60	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)	
	dsPIC33FJ64GP802	R	21	dsPIC	64	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	10 ch	2 × 16-bit @ 100 (ksp/s)	2	–	4	4	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	✓	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), QFN (MM)	
	dsPIC33EP512GP502	R	21	dsPIC	512	49152	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	60	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)	
	dsPIC33FJ128GP802	R	21	dsPIC	128	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	10 ch	2 × 16-bit @ 100 (ksp/s)	2	–	4	4	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	✓	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), QFN (MM)	
44-Pin	dsPIC33FJ32GP104	R	35	dsPIC	32	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	14 ch	–	3	–	2	3	–	5	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)	
	dsPIC33EP32GP504	R	35	dsPIC	32	4096	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	64	7.37 MHz, 32 kHz	✓	9 ch	–	1+3†	3	4	4	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	BOR, POR, WDT	TQFP (PT), QFN (ML)	
	dsPIC33EP64GP504	R	35	dsPIC	64	8192	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	64	7.37 MHz, 32 kHz	✓	9 ch	–	1+3†	3	4	4	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)	
	dsPIC33EP128GP504	R	35	dsPIC	128	16384	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	64	7.37 MHz, 32 kHz	✓	9 ch	–	1+3†	3	4	4	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)	
	dsPIC33EP256GP504	R	35	dsPIC	256	32768	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	64	7.37 MHz, 32 kHz	✓	9 ch	–	1+3†	3	4	4	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)	
	dsPIC33FJ64GP804	R	35	dsPIC	64	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	13 ch	2 × 16-bit @ 100 (ksp/s)	2	–	4	4	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)	
	dsPIC33EP512GP504	R	35	dsPIC	512	48	AN1095 <sup>(1)</sup>	4	3V–3.6V	70	7.37 MHz, 32 kHz	✓	9 ch	–	1+3†	3	4	4	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)	
	dsPIC33FJ128GP804	R	35	dsPIC	128	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	13 ch	2 × 16-bit @ 100 (ksp/s)	2	–	4	4	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)	

† Op amp configured as comparator.

Note 1: See Application Note "AN1095: Emulating Data EEPROM".

2: Two 16-bit timers can be concatenated to form a 32-bit timer.



AEC-Q100 Qualified



AEC-Q100 Capable

## dsPIC33 DSC GENERAL PURPOSE FAMILY

Product		Released (R) Not Released (NR)	I/O Pins	Core	Memory				Voltage Range	Operating Speed		Analog Sensing & Measurement							Communication					Monitors				
					Program (KB)	Data RAM (B)	EEPROM	DMA #Ch		Maximum Speed MIPS	Internal Oscillator	Charge Time Measurement Unit	ADC 10/12-bit 1100/500 ksps	DAC	Comparators	Op Amps	Output Compare/PWM	Input Capture	Codec (I <sup>2</sup> S™, AC97)	16-bit Timer <sup>(2)</sup>	Digital Communication	CAN	PMP			RTCC/CRC	PPS	High Temp. (150°C)
64-Pin	dsPIC33EP64GP506	R	53	dsPIC*	64	8192	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	66	7.37 MHz, 32 kHz	✓	16 ch	–	1+3†	3	4	4	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C™	1	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP128GP506	R	53	dsPIC	128	16384	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	66	7.37 MHz, 32 kHz	✓	16 ch	–	1+3†	3	4	4	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP256GP506	R	53	dsPIC	256	32768	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	66	7.37 MHz, 32 kHz	✓	16 ch	–	1+3†	3	4	4	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP512GP506	R	53	dsPIC	512	49152	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	66	7.37 MHz, 32 kHz	✓	16 ch	–	1+3†	3	4	4	–	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP512GP806	R	53	dsPIC	536	53248	AN1095 <sup>(1)</sup>	15	3.0V–3.6V	70	7.37 MHz, 32 kHz	–	24 ch, 2ADC	–	3	–	16	16	1	9	4 UART, 2 SPI, 2 I <sup>2</sup> C	2	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
100-Pin	dsPIC33FJ64GP310A	R	85	dsPIC	64	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	32 ch	–	–	–	8	8	1	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)
	dsPIC33FJ128GP310A	R	85	dsPIC	128	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	32 ch	–	–	–	8	8	1	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)
	dsPIC33FJ64GP710A	R	85	dsPIC	64	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	32 ch 2ADC	–	–	–	8	8	1	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	2	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)
	dsPIC33FJ256GP510A	R	85	dsPIC	256	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	32 ch	–	–	–	8	8	1	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	1	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)
	dsPIC33FJ128GP710A	R	85	dsPIC	128	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	32 ch 2ADC	–	–	–	8	8	1	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	2	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)
	dsPIC33FJ256GP710A	R	85	dsPIC	256	30720	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	32 ch 2ADC	–	–	–	8	8	1	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	2	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)

† Op amp configured as comparator.

Note 1: See Application Note "AN1095: Emulating Data EEPROM".

2: Two 16-bit timers can be concatenated to form a 32-bit timer.

## dsPIC33 DSC MOTOR CONTROL AND POWER CONVERSION FAMILY

Product	Released (R) Not Released (NR)	I/O Pins	Core	Memory				Voltage Range	Operating Speed		Analog Sensing & Measurement				Output Compare/PWM	Input Capture	Motor Control PWM Ch	QEI	16-bit Timer <sup>(2)</sup>	Communication				PMP	RTCC/CRC	PPS	High Temp. (150° C)	Monitors	Packages (Designator)	
				Program (KB)	Data RAM (B)	EEPROM	DMA #Ch		Maximum Speed MIPS	Internal Oscillator	Charge Time Measurement Unit	ADC 10/12-bit 1100/500 ksps	DAC	Comparators						Op Amps	Digital Communication	CAN	FS USB OTG					System Mgmt. Features		
20-Pin	dsPIC33FJ16MC101	R	15	dsPIC*	16	1024	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	4 ch (10-bit)	–	3	–	2	3	6	–	3	1 UART, 1 SPI, 1 I <sup>2</sup> C™	–	–	–	✓	✓	✓	BOR, POR, WDT	SOIC (SO), PDIP (P), SSOP (SS)
	dsPIC33FJ32MC101	R	15	dsPIC	32	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	6 ch	–	3	–	2	3	6	–	5	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	BOR, POR, WDT	SOIC (SO), PDIP (P), SSOP (SS)
28-Pin	dsPIC33FJ16MC102	R	21	dsPIC	16	1024	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	6 ch (10-bit)	–	3	–	3	3	6	–	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	BOR, POR, WDT	QFN (ML), SOIC (SO), SPDIP (SP), SSOP (SS)
	dsPIC33FJ32MC102	R	21	dsPIC	32	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	8 ch	–	3	–	2	3	6	–	5	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	BOR, POR, WDT	QFN (ML), SOIC (SO), SPDIP (SP), SSOP (SS)
	dsPIC33EP32MC202	R	21	dsPIC	32	4096	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	dsPIC33EP32MC502	R	21	dsPIC	32	4096	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	dsPIC33EP64MC202	R	21	dsPIC	64	8192	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	dsPIC33EP64MC502	R	21	dsPIC	64	8192	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	dsPIC33EP128MC202	R	21	dsPIC	128	16384	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	dsPIC33EP128MC502	R	21	dsPIC	128	16384	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	dsPIC33EP256MC202	R	21	dsPIC	256	32768	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	dsPIC33EP256MC502	R	21	dsPIC	256	32768	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	dsPIC33EP512MC202	R	21	dsPIC	512	49152	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	dsPIC33EP512MC502	R	21	dsPIC	512	49152	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	6 ch	–	1+2†	2	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)

† Op amp configured as comparator.

Note 1: See Application Note "AN1095: Emulating Data EEPROM".

2: Two 16-bit timers can be concatenated to form a 32-bit timer.



AEC-Q100 Qualified



AEC-Q100 Capable

## dsPIC33 DSC MOTOR CONTROL AND POWER CONVERSION FAMILY

Product	Released (R) Not Released (NR)	I/O Pins	Core	Memory				Voltage Range	Maximum Speed MIPS	Internal Oscillator	Analog Sensing & Measurement				Output Compare/PWM	Input Capture	Motor Control PWM Ch	QEI	16-bit Timer <sup>(2)</sup>	Communication			PMP	RTCC/CRC	PPS	High Temp. (150 °C)	Monitors	Packages (Designator)		
				Program (KB)	Data RAM (B)	EEPROM	DMA #ch				Charge Time Measurement Unit	ADC 10/12-bit 1100/500 ksps	DAC	Comparators						Op Amps	Digital Communication	CAN					FS USB OTG		System Mgmt. Features	
44-Pins	dsPIC33FJ32MC104	R	35	dsPIC*	32	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	16	7.37 MHz, 32 kHz	✓	14 ch	–	3	–	2	3	6	–	5	1 UART, 1 SPI, 1 I <sup>2</sup> C™	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP32MC204	R	35	dsPIC	32	4096	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	9 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP32MC504	R	35	dsPIC	32	4096	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	9 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP64MC204	R	35	dsPIC	64	8192	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	9 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP128MC204	R	35	dsPIC	128	16384	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	9 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP128MC504	R	35	dsPIC	128	16384	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	9 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP256MC204	R	35	dsPIC	256	32768	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	9 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP256MC504	R	35	dsPIC	256	32768	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	9 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP512MC204	R	35	dsPIC	512	49152	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	9 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP128GM304	R	35	dsPIC	128	16384	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	18 ch, 2 A/D	–	1+4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	–	–	–	✓	✓	✓	BOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP256GM304	R	35	dsPIC	256	32768	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	18 ch, 2 A/D	–	1+4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	–	–	–	✓	✓	✓	BOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP512MC504	R	35	dsPIC	512	49152	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	9 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP128GM604	R	35	dsPIC	128	16384	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	18 ch, 2 A/D	–	1+4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	2	–	–	✓	✓	✓	BOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP256GM604	R	35	dsPIC	256	32768	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	18 ch, 2 A/D	–	1+4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	2	–	–	✓	✓	✓	BOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP512GM304	R	35	dsPIC	512	49152	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	18 ch, 2 A/D	–	1+4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	–	–	–	✓	✓	✓	BOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33EP512GM604	R	35	dsPIC	512	49152	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	18 ch, 2 A/D	–	1+4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	2	–	–	✓	✓	✓	BOR, POR, WDT	TQFP (PT), QFN (ML)
64-Pins	dsPIC33EP64MC206	R	53	dsPIC	64	8192	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	16 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP64MC506	R	53	dsPIC	64	8192	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	16 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP128MC206	R	53	dsPIC	128	16384	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	16 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP128MC506	R	53	dsPIC	128	16384	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	16 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP256MC206	R	53	dsPIC	256	32768	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	16 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP256MC506	R	53	dsPIC	256	32768	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	16 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP512MC206	R	53	dsPIC	512	49152	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	16 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	–	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP128GM306	R	53	dsPIC	128	16384	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	30 ch, 2 A/D	–	1+4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	–	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP512MC506	R	53	dsPIC	512	49152	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	16 ch	–	1+3†	3	4	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	1	–	–	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP256GM306	R	53	dsPIC	256	32768	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	30 ch, 2 A/D	–	1+4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	–	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP128GM706	R	53	dsPIC	128	16384	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	30 ch, 2 A/D	–	1+4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	2	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP256GM706	R	53	dsPIC	256	32768	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	30 ch, 2 A/D	–	1+4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	2	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP512GM306	R	53	dsPIC	512	49152	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	30 ch, 2 A/D	–	1+4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	–	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP512GM706	R	53	dsPIC	512	49152	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	30 ch, 2 A/D	–	1+4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	2	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP512MC806	R	53	dsPIC	536	53248	AN1095 <sup>(1)</sup>	15	3.0V–3.6V	70	7.37 MHz, 32 kHz	–	24 ch, 2-ADC	–	3	–	16	16	8	2	9	4 UART, 2 SPI, 2 I <sup>2</sup> C	2	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33EP256MU806	R	53	dsPIC	280	28672	AN1095 <sup>(1)</sup>	15	3.0V–3.6V	60	7.37 MHz, 32 kHz	–	24 ch, 2-ADC	–	3	–	16	16	8	2	9	4 UART, 4 SPI, 2 I <sup>2</sup> C	2	1	✓	✓	✓	–	BOR, POR, WDT	TQFP (PT), QFN (MR)

† Op amp configured as comparator.

Note 1: See Application Note "AN1095: Emulating Data EEPROM".

2: Two 16-bit timers can be concatenated to form a 32-bit timer.



AEC-Q100 Qualified



AEC-Q100 Capable

## dsPIC33 DSC MOTOR CONTROL AND POWER CONVERSION FAMILY

Product	Released (R) Not Released (NR)	I/O Pins	Core	Memory				Voltage Range	Operating Speed		Analog Sensing & Measurement					Output Compare/PWM	Input Capture	Motor Control PWM Ch		QE	16-bit Timer <sup>(2)</sup>	Communication				PMP	RTCC/CRC	PPS	High Temp. (150 °C)	Monitors	Packages (Designator)
				Program (KB)	Data RAM (B)	EEPROM	DMA #Ch		Maximum Speed MIPS	Internal Oscillator	Charge Time Measurement Unit	ADC 10/12-bit 1100/500 kcps	DAC	Comparators	Op Amps			Digital Communication	CAN			FS USB OTG	System Mgmt. Features								
100-Pins	dsPIC33FJ64MC510A	R	85	dsPIC*	64	8192	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	24 ch	–	–	–	8	8	8	1	9	2 UART, 2 SPI, 2 I <sup>2</sup> C™	1	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)	
	dsPIC33FJ128MC510A	R	85	dsPIC	128	8192	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	24 ch	–	–	–	8	8	8	1	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	1	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)	
	dsPIC33FJ64MC710A	R	85	dsPIC	64	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	24 ch, 2-ADC	–	–	–	8	8	8	1	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	2	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)	
	dsPIC33FJ256MC510A	R	85	dsPIC	256	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	16 ch	–	–	–	8	8	8	1	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	1	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)	
	dsPIC33FJ128MC710A	R	85	dsPIC	128	16384	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	24 ch, 2-ADC	–	–	–	8	8	8	1	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	2	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)	
	dsPIC33FJ256MC710A	R	85	dsPIC	256	30720	AN1095 <sup>(1)</sup>	8	3.0V–3.6V	40	7.37 MHz, 32 kHz	–	24 ch, 2-ADC	–	–	–	8	8	8	1	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	2	–	–	–	–	✓	PBOR, POR, WDT	TQFP (PT, PF)	
	dsPIC33EP256MU810	R	83	dsPIC	280	28672	AN1095 <sup>(1)</sup>	15	3.0V–3.6V	60	7.37 MHz, 32 kHz	–	32 ch, 2-ADC	–	3	–	16	16	12	2	9	4 UART, 4 SPI, 2 I <sup>2</sup> C	2	1	✓	✓	✓	–	BOR, POR, WDT	TQFP (PT, PF)	
	dsPIC33EP512MU810	R	83	dsPIC	536	53248	AN1095 <sup>(1)</sup>	15	3.0V–3.6V	60	7.37 MHz, 32 kHz	–	32 ch, 2-ADC	–	3	–	16	16	12	2	9	4 UART, 4 SPI, 2 I <sup>2</sup> C	2	1	✓	✓	✓	–	BOR, POR, WDT	TQFP (PT, PF)	
	dsPIC33EP128GM310	R	85	dsPIC	128	16384	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	49 ch, 2 A/D	–	1 +4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	–	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP(PT, PF), TFBGA(BG)	
	dsPIC33EP256GM310	R	85	dsPIC	256	32768	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	49 ch, 2 A/D	–	1 +4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	–	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP(PT, PF), TFBGA(BG)	
	dsPIC33EP128GM710	R	85	dsPIC	128	16384	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	49 ch, 2 A/D	–	1 +4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	2	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP(PT, PF), TFBGA(BG)	
	dsPIC33EP256GM710	R	85	dsPIC	256	32768	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	49 ch, 2 A/D	–	1 +4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	2	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP(PT, PF), TFBGA(BG)	
	dsPIC33EP512GM310	R	85	dsPIC	512	49152	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	49 ch, 2 A/D	–	1 +4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	–	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP(PT, PF), TFBGA(BG)	
	dsPIC33EP512GM710	R	85	dsPIC	512	49152	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	70	7.37 MHz, 32 kHz	✓	49 ch, 2 A/D	–	1 +4†	4	8	8	12	2	9	4 UART, 3 SPI, 2 I <sup>2</sup> C	2	–	✓	✓	✓	✓	PBOR, POR, WDT	TQFP(PT, PF), TFBGA(BG)	
144-Pins	dsPIC33EP256MU814	R	122	dsPIC	280	28672	AN1095 <sup>(1)</sup>	15	3.0V–3.6V	60	7.37 MHz, 32 kHz	–	32 ch, 2-ADC	–	3	–	16	16	14	2	9	4 UART, 4 SPI, 2 I <sup>2</sup> C	2	1	✓	✓	✓	–	BOR, POR, WDT	TQFP (PH), LQFP (PL)	
	dsPIC33EP512MU814	R	122	dsPIC	536	53248	AN1095 <sup>(1)</sup>	15	3.0V–3.6V	60	7.37 MHz, 32 kHz	–	32 ch, 2-ADC	–	3	–	16	16	14	2	9	4 UART, 4 SPI, 2 I <sup>2</sup> C	2	1	✓	✓	✓	–	BOR, POR, WDT	TQFP (PH), LQFP (PL)	

† Op amp configured as comparator.

Note 1: See Application Note "AN1095: Emulating Data EEPROM".

2: Two 16-bit timers can be concatenated to form a 32-bit timer.

## dsPIC33 DSC SMPS AND DIGITAL POWER CONVERSION FAMILY

Product	Released (R) Not Released (NR)	I/O Pins	Core	Memory				Voltage Range	Operating Speed		Analog			Output Compare/PWM	Input Capture	Power Supply PWM Ch	QEI	16-bit Timer <sup>(2)</sup>	Communication		PMP	RTCC	PPS	High Temp. (150°C)	Monitors	Packages (Designator)	
				Program (KB)	Data RAM (B)	EEPROM	DMA #Ch		Maximum Speed MIPS	Internal Oscillator	ADC 10-bit 2000/4000 kcps	DAC	Comparators						Digital Communication	CAN					System Mgmt. Features		
18-Pin	dsPIC33FJ06GS001	R	13	dsPIC*	6	256	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	40	7.37 MHz, 32 kHz	6 ch	2 × 10-bit	2	–	–	4	–	2	1 UART, 1 SPI, 1 I <sup>2</sup> C™	–	–	–	✓	–	BOR, POR, WDT	PDIP (P), SOIC (SO), SSOP (SS)
	dsPIC33FJ06GS101A	R	13	dsPIC	6	256	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	40	7.37 MHz, 32 kHz	6 ch	–	–	1	–	4	–	2	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	✓	–	BOR, POR, WDT	PDIP (P), SOIC (SO), SSOP (SS)
	dsPIC33FJ06GS101	R	13	dsPIC	6	256	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	40	7.37 MHz, 32 kHz	6 ch	–	–	1	–	4	–	2	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	✓	–	BOR, POR, WDT	SOIC (SO)
28-Pin	dsPIC33FJ06GS102A	R	21	dsPIC	6	256	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	40	7.37 MHz, 32 kHz	6 ch	–	–	1	–	4	–	2	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	✓	–	BOR, POR, WDT	SDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	dsPIC33FJ06GS102	R	21	dsPIC	6	256	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	40	7.37 MHz, 32 kHz	6 ch	–	–	1	–	4	–	2	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	✓	–	BOR, POR, WDT	SPDIP (SP), SOIC (SO), QFN (MM)
	dsPIC33FJ06GS202A	R	21	dsPIC	6	1024	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	40	7.37 MHz, 32 kHz	6 ch	2 × 10-bit	2	1	1	4	–	2	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	✓	–	BOR, POR, WDT	SDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	dsPIC33FJ06GS202	R	21	dsPIC	6	1024	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	40	7.37 MHz, 32 kHz	6 ch	2 × 10-bit	2	1	1	4	–	2	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	✓	–	BOR, POR, WDT	SPDIP (SP), SOIC (SO), QFN (MM)
	dsPIC33FJ09GS302	R	21	dsPIC	9	1024	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	40	7.37 MHz, 32 kHz	8 ch	2 × 10-bit	2	1	1	6	–	2	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	✓	–	BOR, POR, WDT	SDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
	dsPIC33FJ16GS402	R	21	dsPIC	16	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	50	7.37 MHz, 32 kHz	8 ch	–	–	2	2	6	–	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	✓	–	BOR, POR, WDT	SPDIP (SP), SOIC (SO), QFN (MM)
	dsPIC33FJ16GS502	R	21	dsPIC	16	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	50	7.37 MHz, 32 kHz	8 ch, 2-ADC*	4 × 10-bit	4	2	2	8	–	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	✓	–	BOR, POR, WDT	SPDIP (SP), SOIC (SO), QFN (MM)

\* 4 Msps devices with 2 ADCs

† Op amp configured as comparator.

Note 1: See Application Note "AN1095: Emulating Data EEPROM".

2: Two 16-bit timers can be concatenated to form a 32-bit timer.

AEC-Q100 Qualified

AEC-Q100 Capable

## dsPIC33 DSC SMPS AND DIGITAL POWER CONVERSION FAMILY

Product	Released (R) Not Released (NR)	I/O Pins	Core	Memory				Voltage Range	Operating Speed		Analog			Output Compare/ PWM	Input Capture	Power Supply PWM Ch	QEI	16-bit Timer <sup>(2)</sup>	Communication		PMP	RTCC	PPS	High Temp. (150 °C)	Monitors	Packages (Designator)	
				Program (KB)	Data RAM (B)	EEPROM	DMA # Ch		Maximum Speed MIPS	Internal Oscillator	ADC 10-bit 2000/4000 ksp/s	DAC	Comparators						Digital Communication	CAN					System Mgmt. Features		
44-Pin	dsPIC33FJ16GS404	R	35	dsPIC*	16	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	50	7.37 MHz, 32 kHz	8 ch	–	–	2	2	6	–	3	1 UART, 1 SPI, 1 I <sup>2</sup> C™	–	–	–	✓	–	BOR, POR, WDT	TQFP (PT), QFN (ML)
	dsPIC33FJ16GS504	R	35	dsPIC	16	2048	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	50	7.37 MHz, 32 kHz	12 ch, 2-ADC*	4 × 10-bit	4	2	2	8	–	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	–	–	–	✓	–	BOR, POR, WDT	TQFP (PT), QFN (ML)
64-Pin	dsPIC33FJ32GS406	R	58	dsPIC	32	4096	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	50	7.37 MHz, 32 kHz	16 ch	–	–	4	4	12	1	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	–	–	–	BOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33FJ64GS406	R	58	dsPIC	64	8192	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	50	7.37 MHz, 32 kHz	16 ch	–	–	4	4	12	1	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	–	–	–	BOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33FJ32GS606	R	58	dsPIC	32	4096	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	50	7.37 MHz, 32 kHz	16 ch, 2-ADC*	4 × 10-bit	4	4	4	12	2	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	–	–	–	BOR, POR, WDT	TQFP (PT), QFN (MR)
	dsPIC33FJ64GS606	R	58	dsPIC	64	9216	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	50	7.37 MHz, 32 kHz	16 ch, 2-ADC*	4 × 10-bit	4	4	4	12	2	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	1	–	–	–	–	BOR, POR, WDT	TQFP (PT), QFN (MR)
80-Pins	dsPIC33FJ32GS608	R	74	dsPIC	32	4096	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	50	7.37 MHz, 32 kHz	18 ch, 2-ADC*	4 × 10-bit	4	4	4	16	2	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	–	–	–	BOR, POR, WDT	TQFP (PT)
	dsPIC33FJ64GS608	R	74	dsPIC	64	9216	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	50	7.37 MHz, 32 kHz	18 ch, 2-ADC*	4 × 10-bit	4	4	4	16	2	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	1	–	–	–	–	BOR, POR, WDT	TQFP (PT)
100-Pin	dsPIC33FJ32GS610	R	85	dsPIC	32	4096	AN1095 <sup>(1)</sup>	–	3.0V–3.6V	50	7.37 MHz, 32 kHz	24 ch, 2-ADC*	4 × 10-bit	4	4	4	18	2	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	–	–	–	–	–	BOR, POR, WDT	TQFP (PF, PT)
	dsPIC33FJ64GS610	R	85	dsPIC	64	9216	AN1095 <sup>(1)</sup>	4	3.0V–3.6V	50	7.37 MHz, 32 kHz	24 ch, 2-ADC*	4 × 10-bit	4	4	4	18	2	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	1	–	–	–	–	BOR, POR, WDT	TQFP (PF, PT)

\*4 Msps devices with 2 ADCs

† Op amp configured as comparator.

Note 1: See Application Note "AN1095: Emulating Data EEPROM".

2: Two 16-bit timers can be concatenated to form a 32-bit timer.



AEC-Q100 Qualified



AEC-Q100 Capable

POWER MANAGEMENT: Hybrid PWM Controllers

Product	Input Voltage Range (V)	Output Voltage (V)	Operating Temp. Range (°C)	Control Scheme	Switching Frequency (kHz)	Program Memory Size (K words)	RAM (Bytes)	Features	Packages
MCP19110	4.5 to 32	90% of $V_{IN}$	-40 to +125	Buck	adjustable	4	256	Synchronous buck controller, Integrated MCU, LDO, and synchronous MOSFET driver, User configurable/programmable including MOSFET dead time, Switching frequency, Analog loop compensation, and protection thresholds	4 x 4 QFN
MCP19111	4.5 to 32	90% of $V_{IN}$	-40 to +125	Buck	adjustable	4	256	Synchronous buck controller, Integrated MCU, LDO, and synchronous MOSFET driver, User configurable/programmable including MOSFET dead time, Switching frequency, Analog loop compensation, and protection thresholds.	5 x 5 QFN

POWER MANAGEMENT: Linear Regulators

Product	Max. Input Voltage (V)	Output Voltage (V)	Output Current (mA)	Typical Active Current (μA)	Typical Dropout Voltage @ Max. I <sub>OUT</sub> (mV)	PSRR (dB)	Typical Output Voltage Accuracy (%)	Features	Packages
TC1017	6	1.8 to 4.0	0.15	53	285	-	±0.5	Shutdown	SOT-23A, SC70
TC1014/1015/1185	6	1.8 to 5.0	50/100/150	50	85/180/270	64	±0.5	Reference bypass	SOT-23
TC1054/1055/1186	6.5	1.8 to 5.0	50/100/150	50	85/180/270	64	±0.5	Error Output	SOT-23
TC1070/1071/1187	6	1.2 to 5.5	50/100/150	50	85/180/270	64	±0.5	Adjustable output	SOT-23
TC1262/4	6	1.8 to 5.0	500/800	80	350/450	64	±0.5	Low noise, fast transient response	SOT-223
MCP1700	6	1.2 to 5.0	250	1.6	300	44	±0.4	Very low I <sub>q</sub>	SOT-23A, SOT-89, TO-92
MCP1702	13.2	1.2 to 5.5	250	2	625	44	±0.4	Very low I <sub>q</sub>	SOT-23, SOT-89, TO-92
MCP1703A	16	1.2 to 5.5	250	2	625	35	±0.4	Very low I <sub>q</sub> , low ground pin current in dropout	SOT-23A, SOT-89, SOT-223, 2 x 3 DFN
MCP1725/6/7	6	0.8 to 5.0	500/1000/1500	120/140/140	210/300/330	60	±0.5	Shutdown, C <sub>delay</sub> , Power Good	SOIC, DFN
MCP1754/5	16	1.8 to 5.5	150/300	56/68	300	72/80	0.2/0.85	Powergood, shutdown	SOT-23A, SOT-89, SOT-223, 2 x 3 DFN
MCP1754S/5S	16	1.8 to 5.5	150/300	56/68	300	72/80	0.2/0.85		SOT-23, SOT-223, 2 x 3 DFN
MCP1790	30	3.0, 3.3, 5.0	70	70	700	90	±0.2	Load dump protected, fast transient response	SOT-223
MCP1791	30	3.0, 3.3, 5.0	70	70	700	90	±0.2	Load dump protected, fast transient response, shutdown, powergood	SOT-223
MCP1824/5/6/7	6	0.8 to 5.0	300/500/1000/1500	120/120/140/140	200/210/300/330	55	±0.5	Fixed and Adjustable output, Shutdown, Power Good	SOT-23, SOT-223, TO-220, DDPACK
MCP1824S/5S/6S/7S	6	0.8 to 5.0	300/500/1000/1500	120/120/140/140	200/210/300/330	55	±0.5	3-pin high current LDOs	SOT-223, TO-220, DDPACK

POWER MANAGEMENT: Charge Pump DC-to-DC Converters

Product	Configuration	Input Voltage Range (V)	Output Voltage (V)	Typical Output Current (mA)	Switching Frequency (kHz)	Supply Current (μA)	Output Resistance (Ω)	Power Conversion Efficiency (%)	Features	Packages
TC7662A	Inverting or Doubling	3.0 to 18.0	- $V_{IN}$ or 2* $V_{IN}$	40	12	190	50	97% at 7.5 mA	No low-voltage terminal required	PDIP
TC7662B	Inverting or Doubling	1.5 to 15.0	- $V_{IN}$ or 2* $V_{IN}$	20	10 or 35	80	65	96% at 1 mA	Boost pin increases switching frequency	SOIC, PDIP
TC962	Inverting or doubling	3 to 18	- $V_{IN}$ or 2 x $V_{IN}$	80	12 or 24	190	35	97% at 7.5 mA	Boost pin increases switching frequency	SOIC, PDIP
TC682	Inverted doubling	2.4 to 5.5	-2 x $V_{IN}$	10	12	185	140	92% at 2.5 mA		SOIC, PDIP
MCP1252/3	Regulated	2.0 to 5.5	3.3, 5.0, or adjustable	120	650/1000	60	N/A	81% at 10 mA	Shutdown, power good, regulated output, adjustable version	MSOP
MCP1256/7/8/9	Regulated	1.8 to 3.6	3.3	100	650	2300	N/A	85% at 50 mA	Soft start, shutdown, options for power good, brown out warning, sleep and bypass modes	MSOP, DFN

POWER MANAGEMENT: CPU/System Supervisors

Product	Description	Operating Temp. Range (°C)	Features	Packages
MCP11(1/2)	System Voltage Detectors (No Reset Delay)	-40 to +125	Wide V <sub>CC</sub> input range, Wide detection range (custom options available), Low current, CMOS/Push-Pull active low reset options	3-SOT-23A, 3-SOT-89, 3-SC70
MCP809, MCP100, MCP130, MCP120 MCP13XX, TC1270A and more	System Voltage Supervisors (Available Reset Delays)	-40 to +125 -40 to +85	Wide detection range (custom options available), Low current, Push-Pull/Open Drain, Active high/low, Watchdog, Manual reset, Dual output options, Multiple reset delay options	8-SOIC (150 mil), 5-SOT-23, 4-SOT-143, 3-TO-92, 3-SOT-23, 5-SC70



AEC-Q100 Qualified



AEC-Q100 Capable

## POWER MANAGEMENT: Switching Regulators/PWM Controllers

Product	Input Voltage Range (V)	Output Voltage (V)	Operating Temp. Range (°C)	Control Scheme	Switching Frequency (kHz)	Typical Active Current (µA)	Output Current (mA)	Features	Packages
TC1303/04/13	2.7 to 5.5	DC/DC: 0.8 to 4.5 LDO: 1.5 to 3.3	-40 to +85	PFM/PWM	2000	65/600	DC/DC: 500 mA LDO: 300 mA	Synchronous Buck Regulator, LDO w/Power Good with PFM/PWM auto-switching, Power Good output or Power Sequencing	MSOP, DFN
MCP1602/3	2.7 to 5.5	0.8 to 4.5 /4.0	-40 to +85	PFM/PWM	2000	35/45	500	Synchronous Buck Regulator PFM, PWM auto-switching, UVLO, Soft-start, Power Good indicator, Over-temperature/current protection	MSOP, DFN, TSOT
MCP1630/V 1631/V	3.0 to 5.5	–	-40 to +125	PWM	1000/2000	2800/3700	Ext	Current/Voltage mode PWM controller, UVLO, Short Circuit and Over-temperature Protection, Integrated MOSFET driver	MSOP, SSOP, TSSOP, DFN
MCP1631HV/VHV	3.5 to 16	–	-40 to +125	PWM	2000	3700	Ext	Current/Voltage mode PWM controller with integrated 16V LDO, UVLO, Integrated error, Current and voltage sense amplifier, Overvoltage comparator and MOSFET driver	SSOP, TSSOP
MCP1640/B/C/D	0.65 to 6	2.0 to 5.5	-40 to +85	PWM or PWM/PFM	500	19	350	Integrated synchronous boost regulator, -0.65V start-up voltage, Soft-start, True load disconnect or input-to-output bypass option	SOT-23, DFN
MCP1650/1/2/3	2.7 to 5.5	2.5 to ext. tx limited	-40 to +125	Constant Frequency	750	120	560/440	Step-up DC/DC Controller with shutdown control, Low battery detect, Power Good indicator, UVLO, Soft start	MSOP
MCP16301	4.0 to 30	2.0 to 15	-40 to +85	PWM	500	2000	600	Integrated N-channel, UVLO, Soft-start, Over-temperature protection	SOT-23
MCP16301H	4.7 to 36	2.0 to 15	-40 to +85	PWM	500	2000	600	Integrated N-channel, UVLO, Soft-start, Over-temperature protection	SOT-23
MCP16311	4.4 to 30	2.0 to 24	-40 to +125	PFM/PFM	500	44	1000	Synchronous buck regulator, PRM/PWM operation, Enable function	MSOP, TDFN
MCP16312	4.4 to 30	2.0 to 24	-40 to +125	PWM	500	3800	1000	Synchronous buck regulator, PWM operation, Enable function	MSOP, TDFN
MCP16331	4.4 to 50	2.0 to 24	-40 to +125	PWM	500	1000	>500	Integrated N-channel, UVLO, Soft-start, Over-temperature protection	SOT-23, TDFN
MCP1632	3 to 5.5	Adjustable	-40 to +125	PWM	300/600	5	Ext	Voltage-or-current mode PWM controller with integrated low-side MOSFET driver, Adjustable $V_{ref}$ and soft start with UVLO, Short circuit and overtemperature protection	MSOP, DFN
MCP1643	0.65 to 5	1.8 to 5	-40 to +85	PWM	1000	–	550	LED boost driver, 0.65V start-up, 1.6A switch, Enable function	MSOP, DFN

## POWER MANAGEMENT: Power MOSFET Drivers

Product	Q100 Completed	Drivers	Configuration	Peak Output Current (A)	Max Supply Voltage (V)	Output Resistance (Source/Sink, Ω)	Propagation Delay (TD1/TD2, ns)	Rise Time (Tr, ns)	Fall Time (Tr, ns)	Capacitive Load Drive	Features	Packages
MCP1401/2	Yes	Low Side Single	Inverting/Non-inverting	0.5/0.5	18	12/10	35/35	19	15	470 pF in 19 ns	Small footprint	SOT-23
MCP1415/16	Yes	Low Side Single	Inverting/Non-inverting	1.5/1.5	18	6/4	41/48	20	20	470 pF in 13 ns	Small footprint	SOT-23
TC4426A/7A/8A	Yes	Low Side Dual	Inverting/Non-inverting/Complimentary	1.5/1.5	18	7/7	30/30	25	25	1000 pF in 25 ns		PDIP, SOIC, DFN
MCP14E6/7/8	Yes	Low Side Dual	Inverting/Non-inverting/Complimentary	2.0/2.0	18	5/5	45/45	12	15	1000 pF in 15 ns	Enable pin	SOIC, PDIP, DFN
TC4423A/4A/5A	Yes	Low Side Dual	Inverting/Non-inverting/Complimentary	3.0/3.0	18	2.2/2.8	40/41	12	12	1800 pF in 12 ns		SOIC, PDIP, DFN
MCP14E9/10/11	Yes	Low Side Dual	Inverting/Non-inverting/Complimentary	3.0/3.0	18	4/4	45/45	14	17	1800 pF in 17 ns	Enable pin	SOIC, PDIP, DFN
MCP14E3/4/5	Yes	Low Side Dual	Inverting/Non-inverting/Complimentary	4.0/4.0	18	2.5/2.5	46/50	15	18	2200 pF in 15 ns	Enable pin	SOIC, PDIP, DFN
MCP1403/4/5	Yes	Low Side Dual	Inverting/Non-inverting/Complimentary	4.5/4.5	18	2.2/2.8	40/40	15	18	2200 pF in 15 ns		SOIC, PDIP, DFN
MCP1406/7	Yes	Low Side Single	Inverting/Non-inverting	6.0/6.0	18	2.1/1.5	40/40	20	20	2500 pF in 20 ns		SOIC, PDIP, DFN
TC4421A/2A	Yes	Low Side Single	Inverting/Non-inverting	9.0/9.0	18	1.25/0.8	38/42	28	26	4700 pF in 15 ns		SOIC, PDIP, DFN
TC4451/2	Yes	Low Side Single	Inverting/Non-inverting	12.0/12.0	18	1.0/0.9	44/44	30	32	10,000 pF in 21 ns		SOIC, PDIP, DFN
TC4431/2	Yes	High Side Single	Inverting/Non-inverting	3.0/1.5	30	7/7	62/78	25	33	1000 pF in 15ns	30V, high side driver	SOIC, PDIP
MCP14628A	Yes, but QS=No	Sync. Buck Dual	Synchronous Buck (high/low)	2.0/2/0 (3.5 low side)	5.5 (36V boot pin)	1/1 ( 0.5 on low side)	15–22	10	10	3300 pF in 10 ns	Continuous or discontinuous operation	SOIC, DFN
MCP14700	Yes, but QS=No	Sync. Buck Dual	Synchronous Buck (high/low)	2.0/2/0 (3.5 low side)	5.5 (36V boot pin)	1/1 ( 0.5 on low side)	15–22	10	10	3300 pF in 10 ns	Allows external dead time control	SOIC, DFN



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## LINEAR: Op Amps

Product	# per Package	GBWP (MHz)	I <sub>q</sub> Typical (μA)	V <sub>os</sub> Max (mV)	Operating Voltage (V)	Operating Temperature	Packages
MCP661/2/3/4/5/9	1/2/1/4/2/4	60	6000	8	2.5 to 5.5	-40°C +125°C	SOIC, MSOP, DFN, TSSOP, QFN, SOT
MCP651/1S/2/3/4/5/9	1/1/2/1/4/2/4	50	6000	0.2	2.5 to 5.5	-40°C +125°C	SOIC, MSOP, DFN, TSSOP, QFN, SOT
MCP631/2/3/4/5/9	1/2/1/4/2/4	24	2500	8	2.5 to 5.5	-40°C +125°C	SOIC, MSOP, DFN, TSSOP, QFN, SOT
MCP621/1S/2/3/4/5/9	1/1/2/1/4/2/4	20	2500	0.2	2.5 to 5.5	-40°C +125°C	SOIC, MSOP, DFN, TSSOP, QFN, SOT
MCP6H91/2/4	1/2/4	10	2000	4	3.5 to 12.0	-40°C +125°C	DFN, SOIC, TSSOP
MCP6021/2/3/4	1/2/1/4	10	1000	0.5	2.5 to 5.5	-40°C +125°C	PDIP, SOIC, MSOP, TSSOP, SOT
MCP6291/2/3/4/5	1/2/1/4/2	10	1000	3	2.4 to 6.0	-40°C +125°C	PDIP, SOIC, MSOP, TSSOP, SOT
MCP6491/2/4	1/2/4	7.5	530	1.5	2.4 to 5.5	-40°C +125°C	SOT, SC70, MSOP, TDFN, SOIC, TSSOP
MCP6H81/2/4	1/2/4	5.5	700	4	3.5 to 12.0	-40°C +125°C	DFN, SOIC, TSSOP
MCP6281/2/3/4/5	1/2/1/4/2	5	445	3	2.2 to 6.0	-40°C +125°C	PDIP, SOIC, MSOP, TSSOP, SOT
MCP6481/2/4	1/2/4	4	240	1.5	2.2 to 5.5	-40°C +125°C	SOT, SC70, MSOP, TDFN, SOIC, TSSOP
MCP6286	1	3.5	540	1.5	2.2 to 5.5	-40°C +125°C	SOT
MCP601/2/3/4	1/2/1/4	2.8	230	2	2.7 to 6.0	-40°C +125°C	PDIP, SOIC, TSSOP, SOT
MCP6H71/2/4	1/2/4	2.7	480	4	3.5 to 12.0	-40°C +125°C	DFN, SOIC, TSSOP
MCP6271/2/3/4/5	1/2/1/4/2	2	170	3	2.0 to 6.0	-40°C +125°C	PDIP, SOIC, MSOP, TSSOP, SOT
MCP6471/2/4	1/2/4	2	100	1.5	2 to 5.5	-40°C +125°C	SOT, SC70, MSOP, TDFN, SOIC, TSSOP
MCP6V01/2/3	1/2/1	1.3	300	0.002	1.8 to 5.5	-40°C +125°C	SOIC, DFN, TDFN
MCP6V06/7/8	1/2/1	1.3	300	0.003	1.8 to 5.5	-40°C +125°C	SOIC, DFN, TDFN
MCP6V26/7/8	1/2/1	2	620	0.002	2.3 to 5.5	-40°C +125°C	SOIC, MSOP, DFN
MCP6071/2/4	1/2/4	1.2	110	0.15	1.8 to 6.0	-40°C +125°C	SOIC, TSSOP, DFN, SOT
MCP6001/2/4	1/2/4	1	100	4.5	1.8 to 6.0	-40°C +125°C	PDIP, SOIC, MSOP, TSSOP, TDFN, SOT, SC70
MCP6401/2/4	1/2/4	1	45	4.5	1.8 to 6.0	-40°C +150°C	SOIC, TSSOP, TDFN, SOT, SC70
MCP6061/2/4	1/2/4	0.73	60	0.15	1.8 to 6.0	-40°C +125°C	SOIC, TSSOP, DFN, SOT
MCP6241/2/4	1/2/4	0.55	50	5	1.8 to 5.5	-40°C +125°C	PDIP, SOIC, MSOP, TSSOP, TDFN, SOT, SC70
MCP6051/2/4	1/2/4	0.385	30	0.15	1.8 to 6.0	-40°C +125°C	SOIC, TSSOP, DFN, SOT
MCP6V31	1	0.3	23	0.008	1.8 to 5.5	-40°C +125°C	SOT, SC70
MCP6231/2/4	1/2/4	0.3	20	5	1.8 to 6.0	-40°C +125°C	PDIP, SOIC, MSOP, TSSOP, TDFN, SOT, SC70
MCP606/7/8/9	1/2/1/4	0.155	19	0.25	2.5 to 6.0	-40°C +125°C	PDIP, SOIC, TSSOP, SOT
MCP6141/2/3/4	1/2/1/4	0.1	0.6	3	1.4 to 6.0	-40°C +125°C	PDIP, SOIC, MSOP, TSSOP, SOT
MCP6421/2/4	1/2/4	0.009	4.4	1	1.8 to 5.5	-40°C +125°C	SOT, SC70, MSOP, SOIC, TSSOP
MCP6V11	1	0.08	7.5	0.008	1.6 to 5.5	-40°C +125°C	SOT, SC70
MCP6041/2/3/4	1/2/1/4	0.014	0.6	3	1.4 to 6.0	-40°C +125°C	PDIP, SOIC, MSOP, TSSOP, SOT
MCP6031/2/3/4	1/2/1/4	0.01	0.9	0.15	1.8 to 5.5	-40°C +125°C	SOIC, MSOP, TSSOP, DFN, SOT
MCP6441/2/4	1/2/4	0.009	0.45	4.5	1.4 to 6.0	-40°C +125°C	SOIC, MSOP, TSSOP, SOT, SC70

## LINEAR: Comparators

Product	# per Package	Typical Propagation Delay (μs)	I <sub>q</sub> Typical (μA)	V <sub>os</sub> Max (mV)	Operating Voltage (V)	Temperature Range (°C)	Features	Packages
MCP6541/2/3/4	1/2/1/4	4	1	5	1.6 to 5.5	-40 to +125	Push-Pull, Rail-to-Rail Input/Output	PDIP, SOIC, MSOP, TSSOP, SOT, SC70
MCP6546/7/8/9	1/2/1/4	4	1	5	1.6 to 5.5	-40 to +125	Open-drain, 9V, Rail-to-Rail Input/Output	PDIP, SOIC, MSOP, TSSOP, SOT, SC70
MCP65R41/6	1	4	2.5	10	1.8 to 5.5	-40 to +125	Integrated V <sub>REF</sub> (1.21V or 2.4V)	SOT-23
MCP6561/2/4	1/2/4	0.047	100	10	1.8 to 5.5	-40 to +125	Push-Pull, Rail-to-Rail Input/Output	SOIC, MSOP, TSSOP, SOT, SC70
MCP6566/7/9	1/2/4	0.047	100	10	1.8 to 5.5	-40 to +125	Open-Drain, Rail-to-Rail Input/Output	SOIC, MSOP, TSSOP, SOT, SC70



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## THERMAL MANAGEMENT: Temperature Sensors

Product	Typical Accuracy (°C)	Max. Accuracy @ 25°C (°C)	Max. Temp. Range (°C)	V <sub>CC</sub> Range (V)	Max. Op Current (μA)	Features	Packages
MCP9501/2/3/4	±0.5	±3	–55 to +125	+2.7 to +5.5	40	Cross to MAX6501/2/3/4, Open-drain and push-pull output options	SOT-23A
MCP9509/10	±0.5	NS	–40 to +125	+2.7 to +5.5	50	Resistor-programmable temperature switch	SOT-23A
MCP9700/01	±1	±4	–40 to +150	+2.3 to +5.5	12	Linear Active Thermistor® IC	SOT-23A, T0-92, SC70
MCP9700/01A	±1	±2	–40 to +125	+2.3 to +5.5	12	Linear Active Thermistor IC	SOT-23A, T0-92, SC70
TC1046	±0.5	±2	–40 to +125	+2.7 to +4.4	60	High precision temperature-to-voltage converter, 6.25 mV/°C	SOT-23A
TC1047A	±0.5	±2	–40 to +125	+2.5 to +5.5	60	High precision temperature-to-voltage converter, 10 mV/°C	SOT-23A
MCP9808	±0.25	±0.5	–40 to +125	+2.7 to +5.5	400	0.5°C temperature accuracy from –10°C to +100°C	MSOP, DFN
MCP9800/1/2/3	±0.5	±1	–55 to +125	+2.7 to +5.5	400	SMbus/I <sup>2</sup> C™ compatible interface, 0.0625°C to 0.5°C adj. resolution, Power-saving one-shot temperature measurement	SOIC, MSOP, SOT-23A
MCP9804	±0.25	±1	–40 to +125	+2.7 to +5.5	400	User programmable temperature limits with alert output, 1°C temp. accuracy from –40°C to +125°C	MSOP, DFN
MCP9843	±0.5	±1	–20 to +125	+3.0 to +3.6	400	JEDEC compatible register set, SMbus/I <sup>2</sup> C compatible interface, Programmable, Shut-down modes and EVENT output	TSSOP, DFN
MCP98243	±1	±3	–40 to +125	+3.0 to +3.6	500	Serial output temperature sensor with integrated EEPROM	TSSOP, DFN, TDFN
TCN75A	±0.5	±2	–40 to +125	+2.7 to +5.5	500	SMbus/I <sup>2</sup> C compatible interface, Power-saving one-shot temperature measurement, Multi-drop capability, 0.0625°C to 0.5°C adjustable temperature resolution	SOIC, MSOP

## MIXED SIGNAL: Successive Approximation Register (SAR) Analog-to-Digital Converters

Product	Resolution (bits)	Maximum Sampling Rate (ksamples/sec)	# of Input Channels	Input Type	Interface	Max. Supply Current (μA)	Temperature Range (°C)	Packages
MCP3021/3221	10/12	22	1	Single-ended	I <sup>2</sup> C™	250	–40 to +125	SOT-23A
MCP3001/2/4/8	10	200	1/2/4/8	Single-ended	SPI	500-550	–40 to +85	PDIP, SOIC, MSOP, TSSOP
MCP3201/2/4/8	12	100	1/2/4/8	Single-ended	SPI	400-550	–40 to +85	PDIP, SOIC, MSOP, TSSOP
MCP3301/2/4	13	100	1/2/4	Differential	SPI	450	–40 to +85	PDIP, SOIC, MSOP, TSSOP

## MIXED SIGNAL: Digital-to-Analog Converters

Product	Resolution (Bits)	DAC Channels	Interface	Voltage Reference	Output Settling Time (μs)	DNL (±LSB)	Typical Operating Current (μA)	Temperature Range (°C)	Packages
MCP47DA1	6	1	I <sup>2</sup> C™	V <sub>DD</sub>	6	0.25	130	–40 to +125	SOT-23
MCP4706/16/26	8/10/12	1	I <sup>2</sup> C	External	6	0.05/0.188/0.75	210	–40 to +125	SOT-23
MCP4725	12	1	I <sup>2</sup> C	V <sub>DD</sub>	6	0.75	175	–40 to +125	SOT-23
MCP4728	12	4	I <sup>2</sup> C	Internal	6	0.75	250	–40 to +125	MSOP
MCP4801/11/21	8/10/12	1	SPI	Internal	4.5	0.5/0.5/0.75	330	–40 to +125	PDIP, SOIC, MSOP, 2x3 DFN
MCP4802/12/22	8/10/12	2	SPI	Internal	4.5	0.5/0.5/0.75	415	–40 to +125	MSOP, PDIP, SOIC
MCP4901/11/21	8/10/12	1	SPI	External	4.5	0.5/0.5/0.75	175	–40 to +125	PDIP, SOIC, MSOP, 2x3 DFN
MCP4902/12/22	8/10/12	2	SPI	External	4.5	0.5/0.5/0.75	350	–40 to +125	PDIP, SOIC, TSSOP

## MIXED SIGNAL: Energy Measurement ICs

Product	Dynamic Range	Typical Accuracy	ADC Channels	ADC Resolution	SINAD	Gain Selection	Output Type	Typical Supply Current (mA)	Analog Voltage Range (V)	Digital Voltage Range (V)	Temperature Range (°C)	Packages
MCP3911	24-bit resolution	94.5 dB SINAD	2	24-bit	94.5 dB	up to 32	SPI	1.7	2.7 to 3.6	2.7 to 3.6	–40 to +125	SSOP, QFN
MCP3905A/06A	500:1/1000:1	0.10%	2	16-bit	–	up to 32	Active power pulse	3.9	4.5 to 5.5	4.5 to 5.5	–40 to +125	SSOP
MCP3909	1000:1	0.10%	2	16-bit	81 dB	up to 16	Active power pulse/SPI	3.9	4.5 to 5.5	4.5 to 5.5	–40 to +125	SSOP
MCP39F501	4000:01:00	0.10%	3	24-bit	94.5 dB	Up to 32	UART	13	2.7 to 3.6	2.7 to 3.6	–40 to +125	QFN



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**MIXED SIGNAL: Digital Potentiometers**

Product	# of Taps	Memory	Channels	Interface	Resistance (k $\Omega$ )	Temperature Range (°C)	Packages
MCP4011/12/13/14	64	Volatile	1	Up/Down	2.1, 5, 10, 50	-40 to +125	MSOP, DFN, SOT-23, SOIC (SN)
MCP4017/18/19	128	Volatile	1	I <sup>2</sup> C™	5, 10, 50, 100	-40 to +125	SC70
MCP40D17/D18/D19	128	Volatile	1	I <sup>2</sup> C	5, 10, 50, 100	-40 to +125	SC70
MCP4021/22/23/24	64	Nonvolatile	1	Up/Down	2.1, 5, 10, 50	-40 to +125	MSOP, DFN, SOT-23, SOIC (SN)
MCP4141/42	128	Nonvolatile	1	SPI	5, 10, 50, 100	-40 to +125	MSOP, DFN, SOIC (SN)
MCP4241/42	128	Nonvolatile	2	SPI	5, 10, 50, 100	-40 to +125	MSOP, QFN, DFN, SOIC (SL)
MCP4131/32	128	Volatile	1	SPI	5, 10, 50, 100	-40 to +125	QFN, DFN, SOIC (SN)
MCP4231/32	128	Volatile	2	SPI	5, 10, 50, 100	-40 to +125	TSSOP, MSOP, QFN, DFN, SOIC (SL)
MCP4151/52	256	Volatile	1	SPI	5, 10, 50, 100	-40 to +125	MSOP, DFN, SOIC (SN)
MCP4161/62	256	Nonvolatile	1	SPI	5, 10, 50, 100	-40 to +125	MSOP, DFN, SOIC (SN)
MCP4251/52	256	Volatile	2	SPI	5, 10, 50, 100	-40 to +125	TSSOP, MSOP, QFN, DFN, SOIC (SL)
MCP4261/62	256	Nonvolatile	2	SPI	5, 10, 50, 100	-40 to +125	TSSOP, MSOP, QFN, DFN, SOIC (SL)
MCP4341/42	129	Nonvolatile	4	SPI	5, 10, 50, 100	-40 to +125	TSSOP, QFN
MCP4361/62	257	Nonvolatile	4	SPI	5, 10, 50, 100	-40 to +125	TSSOP, QFN
MCP4331/32	129	Volatile	4	SPI	5,10,50,100	-40 to +125	TSSOP, QFN
MCP4351/52	257	Volatile	4	SPI	5,10,50,100	-40 to +125	TSSOP, QFN
MCP4431/32	129	Volatile	4	I <sup>2</sup> C	5, 10, 50, 100	-40 to +125	TSSOP, QFN
MCP4441/42	129	Nonvolatile	4	I <sup>2</sup> C	5, 10, 50, 100	-40 to +125	TSSOP, QFN
MCP4451/52	257	Volatile	4	I <sup>2</sup> C	5, 10, 50, 100	-40 to +125	TSSOP, QFN
MCP4461/62	257	Nonvolatile	4	I <sup>2</sup> C	5, 10, 50, 102	-40 to +125	TSSOP, QFN
MCP4531/32	128	Volatile	1	I <sup>2</sup> C	5, 10, 50, 100	-40 to +125	MSOP, DFN
MCP4631/32	128	Volatile	2	I <sup>2</sup> C	5, 10, 50, 100	-40 to +125	TSSOP, MSOP, DFN, QFN, DFN
MCP4541/42	128	Nonvolatile	1	I <sup>2</sup> C	5, 10, 50, 100	-40 to +125	MSOP, DFN
MCP4641/42	128	Nonvolatile	2	I <sup>2</sup> C	5, 10, 50, 100	-40 to +125	TSSOP, MSOP, DFN, QFN, DFN
MCP4551/52	256	Volatile	1	I <sup>2</sup> C	5, 10, 50, 100	-40 to +125	MSOP, DFN
MCP4651/52	256	Volatile	2	I <sup>2</sup> C	5, 10, 50, 100	-40 to +125	TSSOP, MSOP, DFN, QFN, DFN
MCP4561/62	256	Nonvolatile	1	I <sup>2</sup> C	5, 10, 50, 100	-40 to +125	MSOP, DFN
MCP4661/62	256	Nonvolatile	2	I <sup>2</sup> C	5, 10, 50, 100	-40 to +125	TSSOP, MSOP, DFN, QFN, DFN

**MIXED SIGNAL: Delta-Sigma Analog-to-Digital Converters**

Product	Resolution (bits)	Maximum Sampling Rate (samples/sec)	# of Input Channels	Interface	Typical Supply Current ( $\mu$ A)	Temperature Range (°C)	Features	Packages
MCP3421/2/3/4	18 to 12	4 to 240	1/2/2/4 Diff	I <sup>2</sup> C™	155	-40 to +125	PGA, V <sub>REF</sub>	SOIC, TSSOP, MSOP, DFN, SOT
MCP3425/6/7/8	16 to 12	15 to 240	1/2/2/4 Diff	I <sup>2</sup> C	155	-40 to +125	PGA, V <sub>REF</sub>	SOIC, TSSOP, MSOP, DFN, SOT
MCP3550/1/3	22	13/14/60	1 Diff	SPI	120	-40 to +125	50 & 60 Hz Rejection	SOIC, MSOP



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AEC-Q100 Capable

**INTERFACE: Controller Area Network (CAN), Infrared, LIN Transceivers, Ethernet, Serial Peripherals, USB**

Product	Description	Operating Temperature Range (°C)	Other Features	Packages
MCP200(3/4)A, MCP202(1/2)A, MCP2025, MCP2050	LIN (Local Interconnect Network) transceivers	-40 to +125	Product options: Stand-alone transceiver, integrated $V_{BES} = 3.3V$ or $5V @ 70 mA$ , integrated WWDT, integrated ratio-metric battery monitor. $V_{CC}$ Range = 6 to 18 V, Max Baud Rate = 20 Kbaud, Compliant with LIN 1.3, 2.0 2.1, SAE J2602, Automotive grade	PDIP, SOIC, TSSOP, DFN, QFN
MCP23X09/18	8-bit I/O port expander, 16-bit I/O port expander	-40 to +125	I <sup>2</sup> C™ (up to 3.4 MHz) or SPI (up to 10 MHz) interface, 25 mA source/sink per I/O	PDIP, SDIP, SOIC, SSOP
MCP2200, MCP2210	USB Bridge Products: USB-to-UART, USB-to-SPI	-40 to +85	Supports full speed, USB 2.0 compliant, integrated PHY, Tx/Rx buffer size 64–128 bytes each, 8–9 GPIO, $V_{DD}$ Range = 3.0 to 5.5V	SOIC, SSOP, QFN

**INTERFACE: mTouch® AR1000 Resistive Touch Screen Controllers**

Product	Type	Communication	Touch Screens Supported	A/D	Resolution	Power	Points per second	Operating Temp. Range (°C)	Static Protection	Special Features	Packages
AR1021	Analog Resistive	SPI, I <sup>2</sup> C™	All Manufacturers 4, 5 and 8 wire	Internal 10-bit Ratiometric	1024 × 1024	2.5V DC ±5% 5.5V DC ±5%	140 pps	-40 to +85	Per schematic	Controller driven calibration & Universal for all touch screens	20-pin SSOP (SS), SOIC (SO), QFN (ML)
AR1011	Analog Resistive	UART	All Manufacturers 4, 5 and 8 wire	Internal 10-bit Ratiometric	1024 × 1024	2.5V DC ±5% 5.5V DC ±5%	140 pps	-40 to +85	Per schematic	Controller driven calibration & Universal for all touch screens	20-pin SSOP (SS), SOIC (SO), QFN (ML)
AR1100	Analog Resistive	USB, UART	All Manufacturers 4, 5 and 8 wire	Internal 10-bit Ratiometric	1024 × 1024	3.3V DC ±5% 5.5V DC ±5%	150 pps	-40 to +85	Per schematic	Controller driven calibration & Universal for all touch screens	20-pin SSOP (SS), SOIC (SO), QFN (ML)
AR1100BRD	Analog Resistive	USB, RS-232	All Manufacturers 4, 5 and 8 wire	Internal 10-bit Ratiometric	1024 × 1024	3.3V DC ±5% 5.5V DC ±5%	150 pps	-40 to +85	Per schematic	Controller driven calibration & Universal for all touch screens	Board Module

**MOTOR DRIVERS**

Product	Motor Type	Input Voltage Range (V)	Internal/External FETs	Output Current (mA)	Control Scheme	Motor Speed Output	Protections	Operating Temp. Range (°C)	Features	Packages
MCP8024	3-Phase Brushless Motor	6.0 to 28.0	External	500	Direct PWM	No	Overcurrent, Overvoltage, Undervoltage, Overtemperature, 48V Load Dump Protection, Short Circuit, Shoot Through	-40 to +150	Adj. Buck Regulator, LDO, Op amp, Overcurrent Comparator, Fault Output, Thermal Warning, Selectable Dead Time and Blanking Time	40-pin QFN-EP (5 × 5), 48-pin TQFP-EP (7 × 7)

**REAL-TIME CLOCK/CALENDAR (RTCC)**

Bus	Product	Pins	Timing Features				Memory <sup>(1)</sup>			Power		Unique Features <sup>(2)</sup>	Packages
			Digital Trimming (Adj./Range)	Alarm Settings	WDT	Outputs	SRAM (Bytes)	EERPOM (Kbits)	ID/MAC (Bits)	Min $V_{CC}$	Min $I_{BAT}$		
I <sup>2</sup> C™	MCP7940M	8	±127 ppm	1 sec.	–	$\overline{IRQ}/CLK$	64	0	0	1.8	–	–	SOIC (SN), TSSOP (ST), MSOP (MS), TDFN (MNY), PDIP (P)
	MCP7940N	8	±127 ppm	1 sec.	–	$\overline{IRQ}/CLK$	64	0	0	1.8	1.3	Power Fail Timestamp	SOIC (SN), TSSOP (ST), MSOP (MS), TDFN (MNY)
	MCP7940X	8	±127 ppm	1 sec.	–	$\overline{IRQ}/CLK$	64	0	64	1.8	1.3	Power Fail Timestamp	SOIC (SN), TSSOP (ST), MSOP (MS), TDFN (MNY)
	MCP7941X	8	±127 ppm	1 sec.	–	$\overline{IRQ}/CLK$	64	1	64	1.8	1.3	Power Fail Timestamp	SOIC (SN), TSSOP (ST), MSOP (MS), TDFN (MNY)
I <sup>2</sup> S	MCP7951X	10	±255 ppm	0.01 sec.	–	$\overline{IRQ}/CLK$	64	1	128	1.8	1.3	Power Fail Timestamp	SOIC (SL), TSSOP (ST)
	MCP7952X	10	±255 ppm	0.01 sec.	–	$\overline{IRQ}/CLK$	64	2	128	1.8	1.3	Power Fail Timestamp	MSOP (MS), TDFN (MN)
	MCP795W1X	14	±255 ppm	0.01 sec.	✓	1. CLK 2. $\overline{IRQ}$ 3. WDT RST	64	1	128	1.8	1.3	Power Fail Timestamp, Event Detects (x 2)	SOIC (SL), TSSOP (ST)
	MCP795W2X	14	±255 ppm	0.01 sec.	✓	1. CLK 2. $\overline{IRQ}$ 3. WDT RST	64	2	128	1.8	1.3	Power Fail Timestamp, Event Detects (x 2)	SOIC (SL), TSSOP (ST)

**Note 1:** All part numbers with an "X" have three ID programming options: [0 = Blank ID], [1 = EUI-48™ MAC Address], [2 = EUI-64™ MAC Address]  
**Note 2:** The Power Fail Timestamp in all RTCCs occur at Battery Switchover.



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## SERIAL MEMORY PRODUCTS

Bus	Product	Released (R) Not Released (NR)	Density	Organization	Max. Clock Frequency	Operating Voltage	Temperature Range	E/W Endurance (Minimum)	Data Retention (Minimum)	Max. Write Speeds	Max. Standby Current (@ 5.5V, 85°C)	Write Protect		Protected Array Size	Special/Unique Features	Packages
												Hardware	Software			
Serial SRAM																
SPI	23X640	R	64 Kb	× 8	20 kHz	1.5–1.95V 2.7V–3.6V	–40°C to +125°C	∞	Volatile	0 ms	4 µA	–	–	–	Zero write cycle time, infinite endurance, Volatile RAM, Byte/page/sequential read/write modes	PDIP (P), SOIC (SN), TSSOP (ST)
	23X256	R	2 Kb	× 8	100 kHz	1.8V–5.5V	–40°C to +125°C	∞	Volatile	0 ms	4 µA	–	–	–	Zero write cycle time, infinite endurance, Volatile RAM, Byte/page/sequential read/write modes	PDIP (P), SOIC (SN), TSSOP (ST)
	23XX512	R	4 Kb	× 8	100 kHz	1.8V–5.5V	–40°C to +125°C	∞	Volatile	0 ms	4 µA	–	–	–	Fast Speed: Quad SPI available (80 MHz); Infinite endurance; Zero write times, 5V capable	PDIP (P), SOIC (SN), TSSOP (ST)
	23XX1024	R	8 Kb	× 8	100 kHz	1.8V–5.5V	–40°C to +125°C	∞	Volatile	0 ms	4 µA	–	–	–	Fast Speed: Quad SPI available (80 MHz); Infinite endurance; Zero write times, 5V capable	PDIP (P), SOIC (SN), TSSOP (ST)
Serial EEPROM																
UNI/O® Bus	11XX010	R	1 Kb	× 8	100 kHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	5 ms	1 µA	–	✓	W, ½, ¼	Single I/O for all clock, data, control and write protection	PDIP (P), SOIC (SN), MSOP (MNY), DFN (MC), TO-92 (TO), 3-SOT-23 (TT), WLCSP (CS)
	11XX020/E48	R	2 Kb	× 8	100 kHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	5 ms	1 µA	–	✓	W, ½, ¼	Single I/O for all clock, data, control and write protection, Unique EUI-48™/EUI-64™, MAC address option available	PDIP (P), SOIC (SN), MSOP (MNY), DFN (MC), TO-92 (TO), 3-SOT-23 (TT), WLCSP (CS)
	11XX040	R	4 Kb	× 8	100 kHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	5 ms	1 µA	–	✓	W, ½, ¼	Single I/O for all clock, data, control and write protection	PDIP (P), SOIC (SN), MSOP (MNY), DFN (MC), TO-92 (TO), 3-SOT-23 (TT), WLCSP (CS)
	11XX080	R	8 Kb	× 8	100 kHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	5 ms	1 µA	–	✓	W, ½, ¼	Single I/O for all clock, data, control and write protection	PDIP (P), SOIC (SN), MSOP (MNY), DFN (MC), TO-92 (TO), 3-SOT-23 (TT), WLCSP (CS)
	11XX160	R	16 Kb	× 8	100 kHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	5 ms	1 µA	–	✓	W, ½, ¼	Single I/O for all clock, data, control and write protection	PDIP (P), SOIC (SN), MSOP (MNY), DFN (MC), TO-92 (TO), 3-SOT-23 (TT), WLCSP (CS)
I²C™	24XX00	R	128 b	× 8	400 kHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	4 ms	1 µA	–	–	–	100 KHz operation from 1.7V to 4.5V	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MC), 5-SOT-23 (OT)
	24XX01B/014	R	1 Kb	× 8	400 kHz	1.7V–5.5V 1.5V–3.6V	–40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	–	W, ½	Address pin option: connect up to 8 devices on bus, Very low voltage option	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MNY), DFN (MC), 5-SOT-23 (OT), SC70 (LT)
	34XX02	R	2 Kb	× 8	1 MHz	1.7V–5.5V 1.5V–3.6V	–40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	✓	W, ½	1 MHz @ 2.5V, Permanent and restable software WP-DIMM-DDR2/3	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	24XX04B	R	4 Kb	× 8	400 kHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	–	W, ½	400 kHz @ 2.5V, 16 byte page write buffer, No address pins	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MNY), DFN (MC), 5-SOT-23 (OT), WLCSP (CS)
	24XX08B	R	8 Kb	× 8	400 kHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	–	W, ½	400 kHz @ 2.5V, 16 byte page write buffer, No address pins	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 5-SOT-23 (OT),
	24XX16B	R	16 Kb	× 8	400 kHz	1.7V–5.5V	–40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	–	W, ½	400 kHz @ 2.5V, 16 byte page write buffer, No address pins	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MNY), DFN (MC), 5-SOT-23 (OT), WLCSP (CS)
	24XX32A	R	32 Kb	× 8	400 kHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	–	W, ¼	400 kHz @ 2.5V, 32 byte page write buffer, connect up to 8 devices on bus	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MNY), DFN (MC), 5-SOT-23 (OT), WLCSP (CS)
	24XX64/65	R	64 Kb	× 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M, 10M	200 Years	5 ms	1 µA	✓	–	W, ¼	1 MHz @ 2.5V, 32/64 byte page, Relocatable 4 Kb block with 10M cycles endurance	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MNY), DFN (MC), 5-SOT-23 (OT), WLCSP (CS)
	24XX128	R	128 Kb	× 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	–	W	1 MHz @ 2.5V, 64 byte page, Connect up to 8 devices on bus	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MNY), DFN (MC), WLCSP (CS)
	24XX256	R	256 Kb	× 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	–	W	1 MHz @ 2.5V, 64 byte page, Connect up to 8 devices on bus	PDIP (P), SOIC (SN), TSSOP (ST), SOU (SM), MSOP (MS), DFN (MF), WLCSP (CS)
	24XX512	R	512 Kb	× 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	–	W	1 MHz @ 2.5V, 128 byte page, Connect up to 8 devices on bus	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MF), SOU (SM), WLCSP (CS)
	24XX1025/26	R	1 Mb	× 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	5 ms	5 µA	✓	–	W	1 MHz @ 2.5V, 128 byte page, Connect up to 4 devices on bus	PDIP (P), SOIC (SN), SOU (SM)
Microwave	93XX46A/B/C	R	1 Kb	× 8/× 16	3 MHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	6 ms	1 µA	–	–	–	ORG pin to select word size on 46C version	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	93XX56A/B/C	R	2 Kb	× 8/× 16	3 MHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	6 ms	1 µA	–	–	–	ORG pin to select word size in 56C version	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	93XX66A/B/C	R	4 Kb	× 8/× 16	3 MHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	6 ms	1 µA	–	–	–	ORG pin to select word size in 66C version	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	93XX76A/B/C	R	8 Kb	× 8/× 16	3 MHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	6 ms	1 µA	✓	–	W	ORG pin to select word size in 76C version	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	93XX86A/B/C	R	16 Kb	× 8/× 16	3 MHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	6 ms	1 µA	✓	–	W	ORG pin to select word size in 86C version	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
SPI	25XX010A	R	1 Kb	× 8	10 MHz	1.8V–5.5V	–40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, ½, ¼	5 MHz @ 2.5V, Status register, 16 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	25XX020A/E48	R	2 Kb	× 8	10 MHz	1.8V–5.5V	–40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, ½, ¼	5 MHz @ 2.5V, Status register, 16 byte page, Unique EUI-48™/EUI-64™ MAC address option available	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	25XX040A	R	4 Kb	× 8	10 MHz	1.8V–5.5V	–40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, ½, ¼	5 MHz @ 2.5V, Status register, 16 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	25XX080C/D	R	8 Kb	× 8	10 MHz	1.8V–5.5V	–40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, ½, ¼	16/32 byte page, 5 MHz @ 2.5V, Status register	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY)
	25XX160C/D	R	16 Kb	× 8	10 MHz	1.8V–5.5V	–40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, ½, ¼	16/32 byte page, 5 MHz @ 2.5V, Status register	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY)
	25XX320A	R	32 Kb	× 8	10 MHz	1.8V–5.5V	–40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, ½, ¼	5 MHz @ 2.5V, Status register, 32 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY)
	25XX640A	R	64 Kb	× 8	10 MHz	1.8V–5.5V	–40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, ½, ¼	5 MHz @ 2.5V, Status register, 32 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY, MF),
	25XX128	R	128 Kb	× 8	10 MHz	1.8V–5.5V	–40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, ½, ¼	5 MHz @ 2.5V, Status register, 64 byte page	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MF)
	25XX256	R	256 Kb	× 8	10 MHz	1.8V–5.5V	–40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, ½, ¼	5 MHz @ 2.5V, Status register, 64 byte page	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MF), SOU (SM)
	25XX512	R	512 Kb	× 8	20 MHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	5 ms	10 µA	✓	✓	W, ½, ¼	10 MHz @ 2.5V, Deep power down, Status register, Page/sector/chip erase	PDIP (P), SOIC (SN), DFN (MF), SOU (SM)
	25XX1024	R	1 Mb	× 8	20 MHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	6 ms	12 µA	✓	✓	W, ½, ¼	10 MHz @ 2.5V, Deep power down, Status register, Page/sector/chip erase	PDIP (P), DFN (MF), SOU (SM)

- 1: All devices are Pb-Free and RoHS compliant.  
2: ESD protection > 4kV (HBM); > 400V (MM) on all pins.  
3: Write Protect (WP); W = Whole Array, ½ = Half Array, ¼ = Quarter Array.  
4: Factory program and unique ID options available.  
5: Die and wafer options available on all devices.



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## MOST® (MEDIA ORIENTED SYSTEMS TRANSPORT) DEVICES

Product	Type of Device	Features	Interface	Temperature Range	Pins	Packages
OS81110	INIC	Fully-encapsulated, single-chip, embedded network management, supports MOST embedded Ethernet channel and isochronous channels (MOST150)	MOST150 FOT or MOST150 coax transceiver, I <sup>2</sup> C™, I <sup>2</sup> S™/SPDIF, TSI, SPI, MediaLB®	–40° to 105°C	48	QFN
OS81082	INIC	Fully-encapsulated, single-chip, embedded network management (MOST50)	MOST50 electrical (UTP), I <sup>2</sup> C, I <sup>2</sup> S, MediaLB	–40° to 95°C	64	ETQFP
OS81092	INIC	ROM version of OS81082 INIC (MOST50)	MOST50 electrical (UTP), I <sup>2</sup> C, I <sup>2</sup> S, MediaLB	–40° to 105°C	48	QFN
OS81050	INIC	Fully-encapsulated, single-chip with embedded network management (MOST25)	MOST25 FOT, I <sup>2</sup> C, I <sup>2</sup> S, MediaLB	Standard range: –40° to 85°C Extended range: –40° to 105°C	44	QFP, ETQFP
OS81060	INIC	ROM version of OS81050 INIC (MOST25)	MOST25 FOT, I <sup>2</sup> C, I <sup>2</sup> S, MediaLB	–40° to 105°C (targeted)	40	QFN
MPM85000	Power Managemenet	Power management companion for diagnostics, status monitoring and power supply	LIN 2.0, I <sup>2</sup> C	–40° to 105°C	24	QFN
OS85650	I/O Port Expander	Low-cost multimedia I/O port expander, DTCP co-processor	MediaLB® 3-pin and 6-pin, Host Bus Interface (HBI), 2 × multi-channel streaming ports, 2 × TSI, 2 × SPI, I <sup>2</sup> C	–40° to 105°C	128	ETQFP
OS85652	I/O Port Expander	Low-cost multimedia I/O port expander	MediaLB 3-pin and 6-pin, Host Bus Interface (HBI), 2 × multi-channel streaming ports, 2 × TSI, 2 × SPI, I <sup>2</sup> C	–40° to 105°C	128	ETQFP
OS85654	I/O Port Expander	Low-cost multimedia I/O port expander well-suited for streaming applications, DTCP co-processor	MediaLB 3-pin, streaming port I <sup>2</sup> S (FSYN, FCLK, 4 × IN, 4 × Out, @ 512 Fs ), serial transport stream interface (TSI), I <sup>2</sup> C	–40° to 105°C	48	QFN
OS85656	I/O Port Expander	Low-cost multimedia I/O port expander well-suited for streaming applications	MediaLB 3-pin, streaming port I <sup>2</sup> S (FSYN, FCLK, 4 × IN, 4 × Out, @ 512 Fs ), serial transport stream interface (TSI), I <sup>2</sup> C	–40° to 105°C	48	QFN

## ETHERNET DEVICES

Product	Description	Features	Interface	Temperature Range	Ports	Pins	Packages
LAN89218	High-performance, 10/100 single-chip Ethernet controller with HP Auto-MDIX support, which eliminates the need for special "crossover" cables when connecting LAN devices together	MAC/PHY, 10Base-T/100Base-TX, 32- and 16-bit Host Bus Interface (HBI)	–	–40° to 85°C	–	100	TQFP
LAN89530	Hi-Speed USB 2.0 to 10/100 Ethernet controller	–	USB 2.0	–40° to 85°C	–	56	QFN
LAN89730	Hi-Speed HSIC to 10/100 Ethernet controller	–	HSIC	–40° to 85°C	–	56	QFN
LAN89303	10/100 Ethernet Switch with HP Auto-MDIX support, which eliminates the need for special "crossover" cables when connecting LAN devices together	High-performance, small-footprint, full-featured, single MII/RMII/Turbo MII support	MI/RMII, 2 × 10/100 PHYS, 3 × 10/100 MACs	–40° to 85°C	4	56	QFN
LAN88730	10/100 Ethernet Transceiver with HP Auto-MDIX support, which eliminates the need for special "crossover" cables when connecting LAN devices together	Small-footprint, low-power consumption, full-featured	10Base-T/100Base-TX, MII/RMII	LAN88730AM: –40° to 85°C LAN88730BM: –40° to 105°C	–	32	QFN

## HI-SPEED USB 2.0

Product	Features	Socket Type	Interface	Temperature Range	Ports	Pins	Packages
USB82512	USB 2.0 Hub, versatile, cost-effective, energy-efficient, incorporating MultiTRAK™, PortMap, PortSwap, PHYBoost technologies	–	I <sup>2</sup> C™, SMBus	–40° to 85°C	2	36	QFN
USB82513	USB 2.0 Hub, versatile, cost-effective, energy-efficient, incorporating MultiTRAK, PortMap, PortSwap, PHYBoost technologies	–	I <sup>2</sup> C, SMBus	–40° to 85°C	3	36	QFN
USB82514	USB 2.0 Hub, versatile, cost-effective, energy-efficient, incorporating MultiTRAK, PortMap, PortSwap, PHYBoost technologies	–	I <sup>2</sup> C, SMBus	–40° to 85°C	4	36	QFN
USB82640	USB 2.0 Hub and Flash media card controller, features PortMap, PortSwap and PHYBoost technologies	Single	SD™/SD High Capacity™/MultiMediaCard™/Memory Stick®/MS PRO™, MS PRO-HG™	–40° to 85°C	2	48	QFN
USB82642	USB 2.0 Hub and Flash media card controller, USB bridge/card reader combo with USB to SDIO and USB to I <sup>2</sup> C™ bridging functionality and PortMap, PortSwap and PHYBoost technologies	Single	SD/SD High Capacity/MultiMediaCard/Memory Stick/MS PRO, MS PRO-HG	–40° to 85°C	2	48	QFN
USB82662	USB 2.0 Hub and Flash media card controller, USB bridge/card reader combo with USB to SDIO and USB to I <sup>2</sup> C bridging functionality and PortMap, PortSwap and PHYBoost technologies	Dual	SD/SD High Capacity/MultiMediaCard/Memory Stick/MS PRO, MS PRO-HG	–40° to 85°C	2	64	QFN
USB83340	USB 2.0 Transceiver with Multi-frequency reference clock	–	1.8V ULPI	–40° to 105°C	1	32	QFN
UCS81001	USB battery charger supporting BC1.2, China charging, Apple® and RIM® charging profiles as well as programmable charging profiles for unforeseen peripherals	–	USB, I <sup>2</sup> C, SMBus	–40° to 85°C	–	28	QFN
UCS81002	USB battery charger supporting BC1.2, China charging, Apple and RIM charging profiles as well as programmable charging profiles for unforeseen peripherals	–	USB, I <sup>2</sup> C, SMBus	–40° to 85°C	–	28	QFN

## WIRELESS AUDIO

Product	Features	Typical Sink Mode Power Consumption	PA Output Power	Audio	Qualification
KLR83012	Wirelessly streams uncompressed lossless audio up to 25m over robust 2.4 GHz radio link, multi-point to multi-point connectivity, strong Wi-Fi® coexistence, data channel for audio playback control, very low power consumption	20 mW	1.5 dBm	16 bit, 44.1 Ks/s stereo	AEC Q100

## CAPACITIVE TOUCH SENSORS

Product	Features	Input Channels	LED Drivers	Proximity Included	Interface	Pin	Packages
CAP1188	Reset, wake and alert, automatic recalibration, base capacitance compensation	8	8	✓	I <sup>2</sup> C™/SPI/BC-Link™	24	QFN



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AEC-Q100 Capable

## Automotive Grade Support

Microchip Technology has an ISO/TS-16949-certified Quality Management System and has an understanding of automotive requirements from concept through production support. Automotive support is provided to our customers who specifically order devices listed in the Automotive Product Selector Guide as capable of meeting AEC requirements. Devices not listed in Microchip's Automotive Product Selector Guide as AEC-Q100 "compliant" or "capable" are not recommended for automotive applications. If the buyer desires support of the stringent automotive requirements for quality, reliability, failure analysis, and change control, the buyer should not purchase standard part number devices.

As Microchip Technology supplies devices listed in the Automotive Product Selector Guide for both automotive and non-automotive applications, it is the buyer's responsibility to work with the local sales team to create and order custom part numbers to satisfy their automotive customer's quality requirements and support. Ordering standard versions of devices listed in the Microchip Automotive Product Selector Guide, Microchip Corporate Focus Product Selector Guide, microchipDIRECT or Microchip's website will not ensure the delivery of automotive-compliant devices and subsequent support. In the event that a buyer orders a non-AEC-Q100 compliant device or a standard version of a device, Microchip Technology will only warrant commercial-level support.

## Certifications



**ISO/TS16949**  
Quality Management



**ISO14001**  
Environmental Management  
MTAI



**ISO9001**  
Quality Management

## TERMS AND DEFINITIONS

1 KB	1024 bytes	EEPROM	Electrically Erasable Programmable Read Only Memory	NCO	Numerically Controlled Oscillator
1 Kw	1024 words	EFT	Electrical Fast Transient	Op Amp	Operational Amplifier
18F/PIC18	16-bit instruction word: 75/83 instructions	EMC	Electromagnetic Compatibility	PIC10/12/16/18	8-bit Core
ADC	Analog to Digital Converter	EMI	Electromagnetic Interference	PIC24	16-bit Core
AUSART	Addressable Universal Synchronous Asynchronous Receiver Transceiver	EMF/Enhanced Mid-Range	14-bit instruction word: 49 instructions (denoted as PIC1XF1XXX)	PIC32	32-bit Core
BL/Baseline	12-bit instruction word: 33 instructions	ESD	Electrostatic Discharge	PLVD	Programmable Low Voltage Detect
BOR/PBOR	Brown Out Reset/Programmable Brown Out Reset	EUSART	Enhanced Universal Synchronous Asynchronous Receiver Transceiver	PMP	Parallel Master Port
CAN	Controller Area Network	EWD/WDT	Extended Watch Dog Timer/Watch Dog Timer	POR/POOR	Power ON Reset/Power ON/OFF Reset
CCP/ECCP	Capture Compare PWM/Enhanced Capture Compare PWM	HV	High Voltage	PPS	Peripheral Pin Select
CLC	Configurable Logic Cell	ICD	In-Circuit Debug	PSMC	Programmable Switch Mode Controller
COG	Complementary Output Generator	ICE	In-Circuit Emulation	PWM	Pulse Width Modulation
Comp	Capacitive Sensing implemented via Comparator	ICSP™	In-Circuit Serial Programming™	QEI	Quadrature Encoder Interface
CRC	Cyclical Redundancy Check	IDE	Integrated Development Environment	RAM	Random Access Memory
CSM	mTouch®: Capacitive Sensing Module	Inst Amp	Instrumentation Amplifier	RTCC	Real-Time Clock Calendar
CSP	Chip Scale Package	LCD	Liquid Crystal Display	Source/Sink Current	All Products Support 25 mA per I/O
CTMU	mTouch: Charge Time Measurement Unit	LDO	Low Drop-Out voltage regulator	SR Latch	Set Reset Latch
CVD	Charge Voltage Divide (Capacitive Sensing Implemented via ADC)	LF	Low Power Flash	SRAM	Static Random Access Memory
CWG	Complementary Waveform Generator	MI2C/I2C™	Master Inter-Integrated Circuit bus/Inter-Integrated Circuit bus	SPI	Serial Peripheral Interface
DAC	Digital-to-Analog Converter	MIPS	Million Instructions Per Second	T1G	Timer 1 Gate
DSM	Data Signal Modulator	MR/Mid-Range	14-bit instruction word: 35 instructions	USART	Universal Synchronous Asynchronous Receiver Transceiver
dsPIC®	16-bit Core with DSP	MSSP/SSP	Master/Synchronous Serial Port (I²C & SPI Peripheral)	USB	Universal Serial Bus
EBL	Enhanced Baseline	mTouch	Proprietary Touch Sensing Technology	USB (Full Speed)	12 Mb/s Data Rate
				USB OTG	USB On-The-Go
				XLP	nanoWatt XLP eXtreme Low Power Technology







































AEC-Q100 Qualified



AEC-Q100 Capable

# Product Packages

Small Outline	Dual Flat No Lead DFN	Quad Flat No Lead QFN	Plastic Shrink Small Outline SSOP	Plastic Small Outline SOIC
 3-lead SC70 (LB)	 8-lead DFN (MC) 2 × 3 × 0.9 mm	 16-lead QFN (MG) 3 × 3 × 0.9 mm	 8-lead MSOP (MS)	 8-lead SOIC (SN)
 5-lead SC70 (LT)	 8-lead TDFN (MN) 2 × 3 × 0.75 mm	 16-lead QFN (ML) 4 × 4 × 0.9 mm	 10-lead MSOP (UN)	 8-lead SOIC (SM)
 3-lead SOT-23 (TT/CB)	 8-lead UDFN (MU) 2 × 3 × 0.5 mm	 20-lead QFN (ML) 4 × 4 × 0.9 mm	 16-lead QSOP (QR)	 14-lead SOIC (SL)
 5-lead SOT-23 (OT)	 8-lead DFN (MF) 3 × 3 × 0.9 mm	 20-lead QFN (MQ) 5 × 5 × 0.9 mm	 20-lead SSOP (SS)	 16-lead SOIC (SL)
 6-lead SOT-23 (OT/CH)	 8-lead DFN (MD) 4 × 4 × 0.9 mm	 28-lead UQFN (MV) 4 × 4 × 0.5 mm	 28-lead SSOP (SS)	 18-lead SOIC (SO)
 3-SOT-223 (DB)	 8-lead DFN (MF) 6 × 5 × 0.9 mm	 28-lead QFN (MQ) 5 × 5 × 0.9 mm		 20-lead SOIC (SO)
 4-lead SOT-143 (RC)		 28-lead QFN (MM & ML) 6 × 6 × 0.9 mm		 28-lead SOIC (SO)
 5-lead TO-220 (AT)		 40-lead UQFN (MV) 5 × 5 × 0.5 mm		
		 44-lead QFN (ML) 8 × 8 × 0.9 mm		
		 64-lead QFN (MR) 9 × 9 × 0.9 mm		

Packages are shown approximate size.

Additional packages are available: contact your local Microchip sales office for information.

For detailed dimensions, view our Package Drawing and Dimensions Specification at: [www.microchip.com/packaging](http://www.microchip.com/packaging).

# Product Packages

## Plastic Thin Quad Flatpack TQFP



44-lead TQFP (PT)  
10 × 10 × 1 mm



64-lead TQFP (PT)  
10 × 10 × 1 mm



64-lead TQFP (PF)  
14 × 14 × 1 mm



80-lead TQFP (PT)  
12 × 12 × 1 mm



80-lead TQFP (PF)  
14 × 14 × 1 mm



100-lead TQFP (PT)  
12 × 12 × 1 mm



100-lead TQFP (PF)  
14 × 14 × 1 mm



144-lead TQFP (PH)  
16 × 16 × 1 mm

## Plastic Quad Flatpack QFP



32-lead LQFP (LQ)  
7 × 7 × 1.4 mm



44-lead MQFP (PQ)  
10 × 10 × 2 mm



144-lead LQFP (PL)  
20 × 20 × 1.4 mm

## Plastic Thin Shrink Small Outline TSSOP



8-lead TSSOP (ST)



14-lead TSSOP (ST)

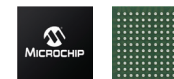


20-lead TSSOP (ST)

## Ball Grid Array BGA



100-ball BGA (BG)  
10 × 10 × 1.1 mm



121-ball BGA (BG)  
10 × 10 × 0.8 mm

Packages are shown approximate size.

Additional packages are available: contact your local Microchip sales office for information.

For detailed dimensions, view our Package Drawing and Dimensions Specification at: [www.microchip.com/packaging](http://www.microchip.com/packaging).

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