



## Focus Product Selector Guide

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



# Microchip: A Partner in Your 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 70,000 customers in more than 65 countries who are designing high-volume embedded control applications in the consumer, automotive, office-automation, communications and industrial-control markets worldwide.

## 8-bit PIC® Microcontrollers

Based on a powerful RISC core, the PIC microcontroller architecture provides users with an easy migration path from 6 to 100 pins among all families, with little or no code change required. Advanced features include sophisticated timing peripherals, integrated analog-to-digital converters and communications peripherals (Ethernet/I<sup>2</sup>C™/SPI/USB/CAN ports, LIN USARTs, op amp and digital-to-analog converters). For more information visit: [www.microchip.com/8bit](http://www.microchip.com/8bit).

## 16-bit PIC Microcontrollers

The 16-bit PIC24 Family is comprised of two sub-families. The PIC24F offers a cost-effective low power step up in performance, memory and peripherals for many applications that are pushing the envelope of 8-bit microcontroller capabilities. For more demanding applications, the PIC24H/E offers up to 70 MIPS performance, up to 150°C operation, more memory and additional peripherals, such as CAN communication modules. For more information visit: [www.microchip.com/16bit](http://www.microchip.com/16bit).

## dsPIC® Digital Signal Controllers

The dsPIC family of Digital Signal Controllers (DSCs) features a fully implemented digital signal processor (DSP) engine, with up to 70 MIPS performance, C compiler friendly design and a familiar microcontroller architecture and design environment. The dsPIC 16-bit Flash DSCs provide the industry's highest performance, and have features supporting motor control, digital power conversion, speech and audio, intelligent sensing and general purpose embedded control applications. For more information visit: [www.microchip.com/dspic](http://www.microchip.com/dspic).

## 32-bit PIC Microcontrollers

The PIC32 family adds more performance and more memory while maintaining pin, peripheral and software compatibility with Microchip's 16-bit MCU/DSC families. The PIC32 family operates at up to 105 DMIPS and offers ample code and data space capabilities with up to 512 KB Flash and 128 KB RAM. For more information visit: [www.microchip.com/32bit](http://www.microchip.com/32bit).

## Analog and Interface Products

Microchip's integrated analog technology, peripherals and features are engineered to meet today's demanding design requirements. Our broad spectrum of analog products addresses thermal management, power management, battery management, mixed-signal, linear, interface and safety & security solutions. Our broad portfolio of stand-alone analog and interface devices offers highly integrated solutions that combine various analog functions in space-saving packages and support a variety of bus interfaces. Many of these devices support functionality that enhances the analog features currently available on PIC microcontrollers. For more information visit: [www.microchip.com/analog](http://www.microchip.com/analog).

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## RF Front End Products

Microchip's selection of RF front end devices enhance the performance and operating range of wireless products at 2.4 and 5 GHz. SST Power amplifier products provide high linear output power as required for 802.11 (Wi-Fi®) and 802.15.4 (ZigBee®) standards with industry leading efficiency and reliability. Our selection of integrated Front End Modules (FEM), combines the function of power amplifier with switches, Low Noise Amplifier (LNA) and filters into a single space saving package. The FEM reduces board complexity and sizes. For more information visit: [www.microchip.com/analog](http://www.microchip.com/analog).

## Wireless Products

Microchip offers radio-frequency products for adding wireless connectivity to embedded PIC microcontroller and dsPIC DSC-based designs for the following technologies: IEEE 802.15.4/ZigBee, Sub-GHz RF, Bluetooth® and IEEE 802.11/Wi-Fi. For more information visit: [www.microchip.com/wireless](http://www.microchip.com/wireless).

## Memory Products

Microchip's broad portfolio of memory devices include Serial EEPROM, Serial SRAM, Serial Flash and Parallel Flash Devices. Our innovative, low-power designs and extensive testing have ensured industry leading robustness and endurance along with best-in-class quality at low costs. For more information visit: [www.microchip.com/memory](http://www.microchip.com/memory).

## Real-Time Clocks

Microchip offers a family of highly integrated, low cost Real-Time Clock/Calendar devices with battery backup capability, digital trimming along with onboard EEPROM and SRAM memory. For more information visit: [www.microchip.com/clock](http://www.microchip.com/clock).

## MOST®

Media Oriented Systems Transport (MOST) is the accepted standard in high-bandwidth automotive infotainment systems. MOST is broadly standardized from the physical layer up to the application level. Various speed grades and physical layers are available. MOST carries A/V streaming, packet, isochronous and control data, has a high flexibility and scalability and is approved to carry DVD and Blu-ray™ content using Digital Transmission Content Protection (DTCP). For more information visit: [www.microchip.com/automotivesmsc](http://www.microchip.com/automotivesmsc).

## PC System & I/O Controllers

Microchip offers a full line of mobile PC solutions including embedded controllers, keyboard controllers (KBC), mobile I/O controllers and docking products. For more information visit: [www.microchip.com/pcsystemscontrollersmsc](http://www.microchip.com/pcsystemscontrollersmsc).

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8-BIT PIC® MICROCONTROLLERS

Product	Released (R) Not Released (NR)	Pins		Memory		Operating Speed		Analog Sensing & Measurement										Digital										Communication						Monitors		Packages (Designator)	Special Features		
		Total	I/O	Program	Self-Read/Write	Data RAM (B)	Data EE (B)	Voltage Range	Maximum Speed	Internal Oscillator	LCD Segments	Touch™ Channels	8-bit ADC	10-bit ADC	12-bit ADC	Comparators	Charge Time Measurement Unit	Op Amp	DAC (5b/8b/9b)	PWM	ECCP	CWV/COG	NCO	PSMC	CLC	8-bit Timer	16-bit Timer	AUSART	EUSART	PC™/SPI	Ethernet (MAC/PHY)	USB 2.0 Device	CAN	BOR/PBOR	PVLD			SR-Latch	Timer 1 Gate
PIC16F1526	R	64	54	EMR	14 KB 8 KW	768	-	1.8V-5.5V	20 MHz	16 MHz	-	30	30	-	-	-	-	-	-	10	-	-	-	-	-	6	3	-	2	2	2	-	-	-	PBOR	SW0	✓	\$1.47	Temp*
PIC16F1527	R	64	54	EMR	28 KB 16 KW	1536	-	1.8V-5.5V	20 MHz	16 MHz	-	30	30	-	-	-	-	-	-	10	-	-	-	-	-	6	3	-	2	2	2	-	-	-	PBOR	SW0	✓	\$1.54	Temp*
PIC16F1946	R	64	53	EMR	14 KB 8 KW	512	256	1.8V-5.5V	32 MHz	31 kHz	184	17	17	-	3	-	-	-	-	2	3	-	-	-	-	4	1	-	2	2	2	-	-	-	BOR	SW0	✓	\$1.75	Temp*
PIC16F1947	R	64	53	EMR	28 KB 16 KW	1024	256	1.8V-5.5V	32 MHz	31 kHz	184	17	17	-	3	-	-	-	-	2	3	-	-	-	-	4	1	-	2	2	2	-	-	-	BOR	SW0	✓	\$1.82	Temp*
PIC18F6311	R	64	54	PIC18	8 KB 4 KW	1024	-	2V-3.6V	40 MHz	8 MHz, 31 kHz	-	12	12	-	2	-	-	-	-	2	-	-	-	-	-	1	3	1	1	1	1	-	-	-	PBOR	SW0	-	\$2.20	
PIC18F6510	R	64	50	PIC18	32 KB 16 KW	2048	-	2V-3.6V	40 MHz	31 kHz	-	11	11	-	2	-	-	-	-	2	3	-	-	-	-	2	3	-	2	2	2	-	-	-	BOR	✓	\$2.25		
PIC18F6411	R	64	54	PIC18	16 KB 8 KW	1024	-	2V-3.6V	40 MHz	8 MHz, 31 kHz	-	12	12	-	2	-	-	-	-	2	-	-	-	-	-	1	3	1	1	1	1	-	-	-	BOR	SW0	-	\$2.27	
PIC18F6390	R	64	51	PIC18	8 KB 4 KW	1024	-	2V-3.6V	40 MHz	8 MHz, 31 kHz	132	12	12	-	2	-	-	-	-	2	-	-	-	-	-	1	3	1	1	1	1	-	-	-	BOR	✓	\$2.35	Integrated LCD Driver	
PIC18F6511	R	64	54	PIC18	32 KB 16 KW	2048	-	2V-3.6V	40 MHz	8 MHz, 31 kHz	-	12	12	-	2	-	-	-	-	2	-	-	-	-	-	1	3	1	1	1	1	-	-	-	BOR	SW0	-	\$2.37	
PIC18F6594	R	64	51	PIC18	32 KB 16 KW	4096	-	2V-3.6V	64 MHz	64 MHz	224	24	24	-	16	3	✓	-	-	7	3	-	-	-	-	4	4	-	4	2	-	-	-	-	BOR	-	\$2.38	USB & LCD	
PIC18F6522	R	64	53	PIC18	32 KB 16 KW	2048	1024	1.8V-5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	-	16	16	-	16	3	✓	-	-	5	3	-	-	-	-	4	4	-	2	2	2	-	-	-	BOR	✓	\$2.39	Integrated LCD Driver	
PIC18F6490	R	64	51	PIC18	16 KB 8 KW	1024	-	2V-3.6V	40 MHz	8 MHz, 31 kHz	132	12	12	-	2	-	-	-	-	2	-	-	-	-	-	1	3	1	1	1	1	-	-	-	BOR	✓	\$2.41	Integrated LCD Driver	
PIC18F6610	R	64	50	PIC18	64 KB 32 KW	2048	-	2V-3.6V	40 MHz	31 kHz	-	11	11	-	11	-	-	-	-	2	3	-	-	-	-	2	3	-	2	2	2	-	-	-	BOR	✓	\$2.49		
PIC18F6590	R	64	50	PIC18	32 KB 16 KW	2048	-	2V-3.6V	40 MHz	8 MHz, 31 kHz	132	12	12	-	12	-	-	-	-	2	-	-	-	-	-	1	3	1	1	1	1	-	-	-	BOR	✓	\$2.52	Integrated LCD Driver	
PIC18F6590	R	64	53	PIC18	32 KB 16 KW	2048	1024	1.8V-5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	132	16	16	-	16	3	✓	-	-	5	3	-	-	-	-	4	4	-	2	2	2	-	-	-	BOR	✓	\$2.53	Integrated LCD Driver	
PIC18F6550	R	64	49	PIC18	32 KB 16 KW	3904	-	2V-3.6V	48 MHz	8 MHz, 31 kHz	-	8	8	-	8	-	-	-	-	2	3	-	-	-	-	2	3	-	2	2	2	-	-	-	BOR	✓	\$2.63		
PIC18F6611	R	64	50	PIC18	64 KB 32 KW	3904	-	2V-3.6V	48 MHz	8 MHz, 31 kHz	-	11	11	-	11	-	-	-	-	2	3	-	-	-	-	2	3	-	2	2	2	-	-	-	BOR	✓	\$2.63		
PIC18F6694	R	64	51	PIC18	64 KB 32 KW	4096	-	2V-3.6V	64 MHz	64 MHz	224	24	24	-	16	3	✓	-	-	7	3	-	-	-	-	4	4	-	4	2	-	-	-	-	BOR	-	\$2.69	USB & LCD	
PIC18F6693	R	64	51	PIC18	64 KB 32 KW	3900	-	2V-3.6V	48 MHz	8 MHz, 31 kHz	132	12	12	-	12	2	✓	-	-	2	-	-	-	-	-	1	3	1	1	1	1	-	-	-	BOR	✓	\$2.70	Integrated LCD Driver, RTCC	
PIC18F6580	R	64	54	PIC18	32 KB 16 KW	3648	1024	1.8V-5.5V	64 MHz	8 MHz, 31 kHz	-	11	11	-	11	2	✓	-	-	4	1	-	-	-	-	2	3	-	2	1	1	-	-	-	PBOR	✓	\$2.70	Deep Sleep Mode	
PIC18F6622	R	64	53	PIC18	64 KB 32 KW	4096	1024	1.8V-5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	-	16	16	-	16	3	✓	-	-	7	3	-	-	-	-	6	5	-	2	2	2	-	-	-	BOR	✓	\$2.70		
PIC18F6710	R	64	50	PIC18	128 KB 64 KW	3936	-	2V-3.6V	40 MHz	31 kHz	-	11	11	-	11	-	-	-	-	2	3	-	-	-	-	2	3	-	2	2	2	-	-	-	BOR	✓	\$2.77		
PIC18F6690	R	64	53	PIC18	64 KB 32 KW	4096	1024	1.8V-5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	132	16	16	-	16	3	✓	-	-	7	3	-	-	-	-	6	5	-	2	2	2	-	-	-	BOR	✓	\$2.84	Integrated LCD Driver	
PIC18F6650	R	64	49	PIC18	64 KB 32 KW	3904	-	2V-3.6V	48 MHz	8 MHz, 31 kHz	-	8	8	-	8	-	-	-	-	2	3	-	-	-	-	2	3	-	2	2	2	-	-	-	BOR	✓	\$2.90		
PIC18F6711	R	64	50	PIC18	128 KB 64 KW	3904	-	2V-3.6V	48 MHz	8 MHz, 31 kHz	-	11	11	-	11	-	-	-	-	2	3	-	-	-	-	2	3	-	2	2	2	-	-	-	BOR	✓	\$2.93		
PIC18F6794	R	64	51	PIC18	128 KB 64 KW	4096	-	2V-3.6V	64 MHz	64 MHz	224	24	24	-	16	3	✓	-	-	7	3	-	-	-	-	4	4	-	4	2	-	-	-	-	BOR	-	\$2.93	USB & LCD	
PIC18F7422	R	64	53	PIC18	128 KB 64 KW	4096	1024	1.8V-5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	-	16	16	-	16	3	✓	-	-	7	3	-	-	-	-	6	5	-	2	2	2	-	-	-	BOR	✓	\$2.94		
PIC18F6680	R	64	54	PIC18	64 KB 32 KW	3648	1024	1.8V-5.5V	64 MHz	8 MHz, 31 kHz	-	11	11	-	11	2	✓	-	-	4	1	-	-	-	-	2	3	-	2	1	1	-	-	-	PBOR	✓	\$2.98	Deep Sleep Mode	
PIC18F6793	R	64	51	PIC18	128 KB 64 KW	3900	-	2V-3.6V	48 MHz	8 MHz, 31 kHz	132	12	12	-	12	2	✓	-	-	2	-	-	-	-	-	1	3	1	1	1	1	-	-	-	BOR	✓	\$3.00	Integrated LCD Driver, RTCC	
PIC18F6790	R	64	53	PIC18	128 KB 64 KW	4096	1024	1.8V-5.5V	64 MHz	31 kHz, 500 kHz, 16 MHz	132	16	16	-	16	3	✓	-	-	7	3	-	-	-	-	6	5	-	2	2	2	-	-	-	BOR	✓	\$3.08	Integrated LCD Driver	
PIC18F6750	R	64	49	PIC18	128 KB 64 KW	3904	-	2V-3.6V	48 MHz	8 MHz, 31 kHz	-	8	8	-	8	-	-	-	-	2	3	-	-	-	-	2	3	-	2	2	2	-	-	-	BOR	✓	\$3.19		

Products sorted by pin count followed by pricing.  
 † Pricing subject to change; please contact your Microchip representative for most current pricing.  
 ‡ Software PVLD implemented via ADC.  
 \* Integrated Temperature Indicator. Reference Application Note AN1333 for implementation.  
 †† eXtreme Low Power variants available.





16-BIT PIC® MICROCONTROLLERS (PIC24F)

Product	Released (R) Not Released (NR)	I/O Pins	Memory		Voltage Range	Maximum MIPS	Operating Speed		Charge Time Measurement Unit	Analog Sensing & Measurement		Input Capture	Communication		PMP	RTCC/CRC	PPS	5-ku Pricing†	Monitors	System Mgmt. Features	Packages (Designator)
			Program (KB)	Data RAM (B)			EEPROM	DMA #Ch		Internal Oscillator	Maximum MIPS		10-bit ADC	10/12-bit ADC							
PIC24F04KL100	R	12	PIC24	4	512	AN1095 <sup>1)</sup>	-	1.8V-3.6V	16	8 MHz, 32 kHz	-	-	1	1 UART, 1 SPI, 1 I <sup>2</sup> C (MSSP)	-	-	-	\$1.06	BOR, HLVD, POR, PWRT, WDT, XLP	PDIP (P), TSSOP (ST)	
PIC24F04K200	R	12	PIC24	4	512	AN1095 <sup>1)</sup>	-	1.8V3.6V	16	8 MHz, 32 kHz	✓	7	2	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	-	-	\$1.16	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	1 UART, 1 SPI, 1 I <sup>2</sup> C (MSSP)	-	-	-	\$1.25	BOR, HLVD, POR, PWRT, WDT, XLP	PDIP (P), TSSOP (ST)	
PIC24F08KM101	NR	18	PIC24	8	1024	512	-	1.8V-5.5V	16	8 MHz, 32 kHz	✓	-	16	1 UART, 1 SPI, 1 I <sup>2</sup> C (MSSP)	-	✓	-	\$1.08	BOR, HLVD, POR, WDT, OST, XLP	PDIP (P), SOIC (SO)	
PIC24F04KL101	R	17	PIC24	4	512	AN1095 <sup>1)</sup>	-	1.8V-3.6V	16	8 MHz, 32 kHz	-	-	1	1 UART, 1 SPI, 1 I <sup>2</sup> C (MSSP)	-	-	-	\$1.15	BOR, HLVD, POR, PWRT, WDT, XLP	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)	
PIC24F04K201	R	18	PIC24	4	512	AN1095 <sup>1)</sup>	-	1.8V-3.6V	16	8 MHz, 32 kHz	✓	9	2	1 UART, 1 SPI, 1 I <sup>2</sup> C (MSSP)	-	-	-	\$1.25	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	1 UART, 1 SPI, 1 I <sup>2</sup> C (MSSP)	-	-	-	\$1.30	BOR, HLVD, POR, PWRT, WDT, XLP	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)	
PIC24F08KL301	R	18	PIC24	8	1024	256	-	1.8V-3.6V	16	8 MHz, 32 kHz	-	-	2	2 UART, 2 SPI, 1 I <sup>2</sup> C (MSSP)	-	-	-	\$1.27	BOR, HLVD, POR, PWRT, WDT, XLP	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)	
PIC24F08KL401	R	18	PIC24	8	1024	512	-	1.8V-3.6V	16	8 MHz, 32 kHz	-	12	2	2 UART, 2 SPI, 1 I <sup>2</sup> C (MSSP)	-	-	-	\$1.36	BOR, HLVD, POR, PWRT, WDT, XLP	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)	
PIC24F16KL401	R	18	PIC24	16	1024	512	-	1.8V-3.6V	16	8 MHz, 32 kHz	-	12	2	2 UART, 2 SPI, 1 I <sup>2</sup> C (MSSP)	-	-	-	\$1.43	BOR, HLVD, POR, PWRT, WDT, XLP	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)	
PIC24F08KL101	R	18	PIC24	8	1536	512	-	1.8V-3.6V	16	8 MHz, 32 kHz	✓	9	2	2 UART, 1 SPI, 1 I <sup>2</sup> C	-	✓	-	\$1.44	BOR, POR, WDT, Deep Sleep, XLP	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)	
PIC24F16KL101	R	18	PIC24	16	1536	512	-	1.8V-3.6V	16	8 MHz, 32 kHz	✓	9	2	2 UART, 1 SPI, 1 I <sup>2</sup> C	-	✓	-	\$1.51	BOR, POR, WDT, Deep Sleep, XLP	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)	
PIC24F32M101	R	15	PIC24	32	2048	AN1095 <sup>1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 kHz	✓	6	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	✓	-	\$1.68	BOR, POR, WDT	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)	
PIC24F16M101	R	15	PIC24	16	1024	AN1095 <sup>1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 kHz	✓	4	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	✓	-	\$1.73	BOR, POR, WDT	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)	
PIC24F16KL301	R	18	PIC24	16	2048	512	-	1.8V-5.5V	16	8 MHz, 32 kHz	✓	-	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	-	\$1.86	OST, WDT	SPDIP (SP), SSOP (SS), SOIC (SO)	
PIC24F32K4301	R	18	PIC24	32	2048	512	-	1.8V-5.5V	16	8 MHz, 32 kHz	✓	-	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	-	\$2.00	OST, WDT	SPDIP (SP), SSOP (SS), SOIC (SO)	
PIC24F08KL302	R	24	PIC24	8	1024	256	-	1.8V-3.6V	16	8 MHz, 32 kHz	-	-	2	2 UART, 2 SPI, 1 I <sup>2</sup> C (MSSP)	-	-	-	\$1.32	BOR, HLVD, POR, PWRT, WDT, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), 5 x 5 QFN (MQL), 6 x 6 QFN (ML)	
PIC24F08KL402	R	24	PIC24	8	1024	512	-	1.8V-3.6V	16	8 MHz, 32 kHz	-	12	2	2 UART, 2 SPI, 1 I <sup>2</sup> C (MSSP)	-	-	-	\$1.40	BOR, HLVD, POR, PWRT, WDT, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), 5 x 5 QFN (MQL), 6 x 6 QFN (ML)	
PIC24F16KL402	R	24	PIC24	16	1024	512	-	1.8V-3.6V	16	8 MHz, 32 kHz	-	12	2	2 UART, 2 SPI, 1 I <sup>2</sup> C (MSSP)	-	-	-	\$1.47	BOR, HLVD, POR, PWRT, WDT, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), 5 x 5 QFN (MQL), 6 x 6 QFN (ML)	
PIC24F08KL102	R	24	PIC24	8	1536	512	-	1.8V-3.6V	16	8 MHz, 32 kHz	✓	9	2	2 UART, 1 SPI, 1 I <sup>2</sup> C	-	✓	-	\$1.51	BOR, POR, WDT, Deep Sleep, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	
PIC24F16KL102	R	24	PIC24	16	1536	512	-	1.8V-3.6V	16	8 MHz, 32 kHz	✓	9	2	2 UART, 1 SPI, 1 I <sup>2</sup> C	-	✓	-	\$1.58	BOR, POR, WDT, Deep Sleep, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	
PIC24F16M102	R	21	PIC24	16	1024	AN1095 <sup>1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 kHz	✓	6	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	✓	-	\$1.68	BOR, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML) TLA (TL)	
PIC24F32M102	R	15	PIC24	32	2048	AN1095 <sup>1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 kHz	✓	4	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	✓	-	\$1.73	BOR, POR, WDT	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL), VTLA (TL)	
PIC24F16G4002	R	21	PIC24	16	4096	AN1095 <sup>1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	-	10	2	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	✓	-	\$1.74	BOR, LVD, POR, WDT, OST, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	
PIC24F08KM102	NR	24	PIC24	8	1024	512	-	1.8V-5.5V	16	8 MHz, 32 kHz	✓	-	19	1 UART, 1 SPI, 1 I <sup>2</sup> C (MSSP)	-	✓	-	\$1.75	BOR, HLVD, POR, WDT, OST, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MQL)	
PIC24F16KM102	NR	24	PIC24	16	1024	512	-	1.8V-5.5V	16	8 MHz, 32 kHz	✓	-	19	1 UART, 1 SPI, 1 I <sup>2</sup> C (MSSP)	-	✓	-	\$1.82	BOR, HLVD, POR, WDT, OST, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MQL)	
PIC24F08KM202	NR	24	PIC24	8	2048	512	-	1.8V-5.5V	16	8 MHz, 32 kHz	✓	-	19	3	2 UART, 2 SPI, 1 I <sup>2</sup> C (MSSP)	-	✓	-	\$1.82	BOR, HLVD, POR, WDT, OST, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MQL)
PIC24F16KM202	NR	24	PIC24	16	2048	512	-	1.8V-5.5V	16	8 MHz, 32 kHz	✓	-	19	3	2 UART, 2 SPI, 1 I <sup>2</sup> C (MSSP)	-	✓	-	\$1.88	BOR, HLVD, POR, WDT, OST, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MQL)
PIC24F32G4002	R	21	PIC24	32	8192	AN1095 <sup>1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	-	10	2	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	-	\$2.06	BOR, LVD, POR, WDT, OST, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)	
PIC24F16G4302	R	24	PIC24	16	2048	512	-	1.8V-5.5V	16	8 MHz, 32 kHz	✓	-	10	3	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	-	\$2.06	PWRT, HLVD, POR, OST, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)
PIC24F32K4302	R	24	PIC24	32	2048	512	-	1.8V-5.5V	16	8 MHz, 32 kHz	✓	-	10	3	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	-	\$2.20	PWRT, HLVD, POR, OST, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)
PIC24F32G4102	R	21	PIC24	32	8192	AN1095 <sup>1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	✓	10	3	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	-	\$2.23	BOR, LVD, POR, WDT, Deep Sleep, XLP	SPDIP (SP), SOIC (SO), QFN (ML)	
PIC24F32G8002	R	19	PIC24	32	8192	AN1095 <sup>1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	✓	9	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	✓	✓	-	\$2.44	BOR, LVD, POR, WDT, Deep Sleep, XLP	SPDIP (SP), SOIC (SO), QFN (ML)	
PIC24F16G4G102	R	21	PIC24	16	64	8192	AN1095 <sup>1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	-	10	2	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	-	\$2.48	BOR, LVD, POR, WDT, Deep Sleep, XLP	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (ML)
PIC24F16G4G102	R	21	PIC24	16	64	8192	AN1095 <sup>1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	✓	10	2	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	-	\$2.65	BOR, LVD, POR, WDT, Deep Sleep, XLP	SPDIP (SP), SOIC (SO), QFN (ML)
PIC24F16G4G8002	R	19	PIC24	16	64	8192	AN1095 <sup>1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	✓	9	2	2 UART, 2 SPI, 2 I <sup>2</sup> C	✓	✓	-	\$2.86	BOR, LVD, POR, WDT, Deep Sleep, XLP	SPDIP (SP), SOIC (SO), QFN (ML)

\* Parts available with High Temperature Options (150°C).  
 Note 1: See Application Note "AN1095: Emulating Data EEPROM".  
 Note 2: Two 16-bit timers can be concatenated to form a 32-bit timer.  
 † Pricing subject to change; please contact your Microchip representative for most current pricing.

16-BIT PIC® MICROCONTROLLERS (PIC24F)

Product	Released (R) Not Released (NR)	I/O Pins	Memory			Voltage Range	Operating Speed			Analog Sensing & Measurement				LCD Segments	Graphics Controller	Output Compare/PWM	16-bit Timer <sup>2)</sup>	Communication		RTPC/CRC	PPS	5 ku Pricing†	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 KSPS					Comparators	Digital Communication				USB 2.0 (Peripheral, Host, OTG)	System Mgmt. Features	
PIC24F16GA004	R	35	PIC24	16	4096	ANI095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	-	13	-	2	-	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C™	-	✓	✓	BOR, LVD, POR, WDT	TQFP (PT), QFN (ML)		
PIC24F32MC104	R	35	PIC24	32	2048	ANI1095 <sup>(1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 kHz	✓	14	-	3	-	8	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	✓	✓	BOR, POR, WDT	TQFP (PT), TLA, QFN (ML)		
PIC24F16KM104	NR	38	PIC24	16	1024	512	-	1.8V-5.5V	16	8 MHz, 32 kHz	✓	-	22	1	-	5	5	1 UART, 1 SPI/I <sup>2</sup> C (MSSP)	-	-	-	BOR, HLVD, POR, WDT, OST, XLP	TQFP, QFN, UQFN		
PIC24F08M204	NR	38	PIC24	8	2048	512	-	1.8V-5.5V	16	8 MHz, 32 kHz	✓	-	22	3	-	5	5	2 UART, 2 SPI/I <sup>2</sup> C (MSSP)	-	-	-	BOR, HLVD, POR, WDT, OST, XLP	TQFP, QFN, UQFN		
PIC24F16KM204	NR	38	PIC24	16	2048	512	-	1.8V-5.5V	16	8 MHz, 32 kHz	✓	-	22	3	-	5	5	2 UART, 2 SPI/I <sup>2</sup> C (MSSP)	-	-	-	BOR, HLVD, POR, WDT, OST, XLP	TQFP, QFN, UQFN		
PIC24F32GA004	R	35	PIC24	32	8192	ANI1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	-	13	-	2	-	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	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	✓	PMRT, HLVD, POR, OST, WDT	TQFP (PT), QFN (ML), UQFN (MW)		
PIC24F32KA104	R	35	PIC24	32	8192	ANI1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	✓	13	-	3	-	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	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	-	-	PMRT, HLVD, POR, OST, WDT	TQFP (PT), QFN (ML), UQFN (MW)		
PIC24F32GB004	R	33	PIC24	32	8192	ANI1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	✓	13	-	3	-	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	✓	✓	✓	BOR, LVD, POR, WDT, Deep Sleep, XLP	TQFP (PT), QFN (ML)		
PIC24F46GA006	R	53	PIC24	64	8192	ANI1095 <sup>(1)</sup>	6	2V-3.6V	16	8 MHz, 32 kHz	✓	-	16	3	240	7	7	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	✓	BOR, LVD, POR, WDT, XLP, Deep Sleep	TQFP (PT), QFN (MR)		
PIC24F128GA306	R	53	PIC24	128	8192	ANI1095 <sup>(1)</sup>	6	2V-3.6V	16	8 MHz, 32 kHz	✓	-	16	3	240	7	7	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	✓	BOR, LVD, POR, WDT, XLP, Deep Sleep	TQFP (PT), QFN (MR)		
PIC24F64GA006	R	53	PIC24	64	8192	ANI1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	-	16	-	2	-	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	✓	BOR, POR, WDT	TQFP (PT)		
PIC24F64GA106	R	53	PIC24	64	16384	ANI1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	✓	16	-	3	-	9	9	4 UART, 3 SPI, 3 I <sup>2</sup> C	-	✓	✓	BOR, LVD, POR, WDT	TQFP (PT), QFN (MR)		
PIC24F128GA006	R	53	PIC24	128	8192	ANI1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	-	16	-	2	-	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	✓	BOR, POR, WDT	TQFP (PT)		
PIC24F128GA106	R	53	PIC24	128	16384	ANI1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	✓	16	-	3	-	9	9	4 UART, 3 SPI, 3 I <sup>2</sup> C	-	✓	✓	BOR, LVD, POR, WDT	TQFP (PT), QFN (MR)		
PIC24F256GA106	R	52	PIC24	256	16384	ANI1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	✓	16	-	3	-	9	9	4 UART, 3 SPI, 3 I <sup>2</sup> C	-	✓	✓	BOR, LVD, POR, WDT	TQFP (PT), QFN (MR)		
PIC24F128GB206	R	52	PIC24	128	98304	ANI1095 <sup>(1)</sup>	-	2.2V-3.6V	16	8 MHz, 32 kHz	✓	16	-	3	-	9	9	4 UART, 3 SPI, 3 I <sup>2</sup> C	-	✓	✓	BOR, LVD, POR, WDT	TQFP (PT), QFN (MR)		
PIC24F128DA106	R	52	PIC24	128	24576	ANI1095 <sup>(1)</sup>	-	2.2V-3.6V	16	8 MHz, 32 kHz	✓	16	-	3	-	9	9	4 UART, 3 SPI, 3 I <sup>2</sup> C	✓	✓	✓	BOR, LVD, POR, WDT	TQFP (PT), QFN (MR)		
PIC24F256GB106	R	52	PIC24	256	16384	ANI1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	✓	16	-	3	-	9	9	4 UART, 3 SPI, 3 I <sup>2</sup> C	✓	✓	✓	BOR, LVD, POR, WDT	TQFP (PT), QFN (MR)		
PIC24F256GB206	R	52	PIC24	256	98304	ANI1095 <sup>(1)</sup>	-	2.2V-3.6V	16	8 MHz, 32 kHz	✓	16	-	3	-	9	9	4 UART, 3 SPI, 3 I <sup>2</sup> C	✓	✓	✓	BOR, LVD, POR, WDT	TQFP (PT), QFN (MR)		
PIC24F256DA106	R	52	PIC24	256	24576	ANI1095 <sup>(1)</sup>	-	2.2V-3.6V	16	8 MHz, 32 kHz	✓	16	-	3	-	9	9	4 UART, 3 SPI, 3 I <sup>2</sup> C	✓	✓	✓	BOR, LVD, POR, WDT	TQFP (PT), QFN (MR)		
PIC24F256DA206	R	52	PIC24	256	98304	ANI1095 <sup>(1)</sup>	-	2.2V-3.6V	16	8 MHz, 32 kHz	✓	16	-	3	-	9	9	4 UART, 3 SPI, 3 I <sup>2</sup> C	✓	✓	✓	BOR, LVD, POR, WDT	TQFP (PT), QFN (MR)		
PIC24F64GA308	R	69	PIC24	64	8192	ANI1095 <sup>(1)</sup>	6	2V-3.6V	16	8 MHz, 32 kHz	✓	-	16	3	368	7	7	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	✓	BOR, LVD, POR, WDT, XLP, Deep Sleep	TQFP (PT)		
PIC24F128GA308	R	69	PIC24	128	8192	ANI1095 <sup>(1)</sup>	6	2V-3.6V	16	8 MHz, 32 kHz	✓	-	16	3	368	7	7	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	✓	BOR, LVD, POR, WDT, XLP, Deep Sleep	TQFP (PT)		
PIC24F64GA008	R	69	PIC24	64	8192	ANI1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	-	16	-	2	-	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	✓	BOR, POR, WDT	TQFP (PT)		
PIC24F64GA108	R	69	PIC24	64	16384	ANI1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	✓	16	-	3	-	9	9	4 UART, 3 SPI, 3 I <sup>2</sup> C	-	✓	✓	BOR, LVD, POR, WDT	TQFP (PT)		
PIC24F128GA008	R	69	PIC24	128	8192	ANI1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	-	16	-	2	-	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	✓	✓	BOR, POR, WDT	TQFP (PT)		
PIC24F128GA108	R	69	PIC24	128	16384	ANI1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	✓	16	-	3	-	9	9	4 UART, 3 SPI, 3 I <sup>2</sup> C	-	✓	✓	BOR, LVD, POR, WDT	TQFP (PT)		
PIC24F64GB108	R	68	PIC24	64	16384	ANI1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 kHz	✓	16	-	3	-	9	9	4 UART, 3 SPI, 3 I <sup>2</sup> C	✓	✓	✓	BOR, LVD, POR, WDT	TQFP (PT)		

\* Parts available with High Temperature Options (150°C)  
 † Pricing subject to change; please contact your Microchip representative for most current pricing.  
 ‡ Two 16-bit timers can be concatenated to form a 32-bit timer.

Products sorted by pin count followed by pricing.  
 † Pricing subject to change; please contact your Microchip representative for most current pricing.

16-BIT PIC® MICROCONTROLLERS (PIC24F)

Product	Released (R) Not Released (NR)	I/O Pins	Core	Memory		Voltage Range	Maximum MIPS	Operating Speed		Charge Time Measurement Unit	Analog Sensing & Measurement		Communication			Monitors		Packages (Designator)										
				Program (KB)	Data RAM (B)			EEPROM	DMA #Ch		Internal Oscillator	Internal Oscillator	Measurement Unit	10-bit ADC	10/12-bit ADC	1100/500 KSPS	Comparators		LCD Segments	Graphics Controller	Input Capture	16-bit Timer <sup>2)</sup>	Digital Communication	Host, (OTC)	PMP	RTCC/CRC	PPS	5 ku Pricing <sup>1)</sup>
PIC24F128GB108	R	68	PIC24	128	16384	AN1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 KHz	✓	16	-	3	-	-	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	✓	✓	✓	\$4.20	B0R, LVD, POR, WDT	TQFP (PT)	Package (Designator)	
PIC24F1256GA108	R	69	PIC24	256	16384	AN1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 KHz	✓	16	-	3	-	-	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	✓	✓	✓	\$4.24	B0R, LVD, POR, WDT	TQFP (PT)	Package (Designator)	
PIC24F1256GB108	R	68	PIC24	256	16384	AN1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 KHz	✓	16	-	3	-	-	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	✓	✓	✓	\$4.82	B0R, LVD, POR, WDT	TQFP (PT)	Package (Designator)	
PIC24F164GA310	R	85	PIC24	64	8192	AN1095 <sup>(1)</sup>	6	2V-3.6V	16	8 MHz, 32 KHz	✓	-	24	-	3	480	-	7	7	5	4 UART, 2 SPI, 2 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$3.16	B0R, LVD, POR, WDT, Deep Sleep	TQFP (PT), BGA121 (BG)	Package (Designator)
PIC24F128GA310	R	85	PIC24	128	8192	AN1095 <sup>(1)</sup>	6	2V-3.6V	16	8 MHz, 32 KHz	✓	-	24	-	3	480	-	7	7	5	4 UART, 2 SPI, 2 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$3.42	B0R, LVD, POR, WDT, Deep Sleep	TQFP (PT), BGA121 (BG)	Package (Designator)
PIC24F164GA4010	R	85	PIC24	64	8192	AN1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 KHz	✓	16	-	3	-	-	5	5	5	2 UART, 2 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$3.51	B0R, POR, WDT	TQFP (PT)	Package (Designator)	
PIC24F164GA110	R	85	PIC24	64	16384	AN1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 KHz	✓	16	-	3	-	-	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$3.79	B0R, LVD, POR, WDT	TQFP (PT), BGA121 (BG)	Package (Designator)	
PIC24F128GA010	R	85	PIC24	128	8192	AN1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 KHz	✓	16	-	3	-	-	5	5	5	2 UART, 2 SPI, 2 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$3.81	B0R, POR, WDT	TQFP (PT)	Package (Designator)	
PIC24F128GA110	R	85	PIC24	128	16384	AN1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 KHz	✓	16	-	3	-	-	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$4.03	B0R, LVD, POR, WDT	TQFP (PT), BGA121 (BG)	Package (Designator)	
PIC24F164GB110	R	84	PIC24	64	16384	AN1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 KHz	✓	16	-	3	-	-	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$4.12	B0R, LVD, POR, WDT	TQFP (PT), BGA121 (BG)	Package (Designator)	
PIC24F128GB110	R	84	PIC24	128	16384	AN1095 <sup>(1)</sup>	-	2V-3.6V	16	16 MHz, 32 KHz	✓	16	-	3	-	-	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$4.41	B0R, LVD, POR, WDT	TQFP (PT), BGA121 (BG)	Package (Designator)	
PIC24F1256GA110	R	85	PIC24	256	16384	AN1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 KHz	✓	16	-	3	-	-	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$4.45	B0R, LVD, POR, WDT	TQFP (PT), BGA121 (BG)	Package (Designator)	
PIC24F128GB210	R	84	PIC24	128	98304	AN1095 <sup>(1)</sup>	-	2.2V-3.6V	16	8 MHz, 32 KHz	✓	24	-	3	-	-	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$4.79	B0R, LVD, POR, WDT	TQFP (PT), BGA121 (BG)	Package (Designator)	
PIC24F128DA110	R	84	PIC24	128	24576	AN1095 <sup>(1)</sup>	-	2.2V-3.6V	16	8 MHz, 32 KHz	✓	24	-	3	-	-	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$4.83	B0R, LVD, POR, WDT	TQFP (PT), BGA121 (BG)	Package (Designator)	
PIC24F1256GB110	R	84	PIC24	256	16384	AN1095 <sup>(1)</sup>	-	2V-3.6V	16	8 MHz, 32 KHz	✓	16	-	3	-	-	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$5.14	B0R, LVD, POR, WDT	TQFP (PT), BGA121 (BG)	Package (Designator)	
PIC24F1256GB210	R	84	PIC24	256	16384	AN1095 <sup>(1)</sup>	-	2.2V-3.6V	16	8 MHz, 32 KHz	✓	24	-	3	-	-	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$5.18	B0R, LVD, POR, WDT	TQFP (PT), BGA121 (BG)	Package (Designator)	
PIC24F128DA210	R	84	PIC24	128	98304	AN1095 <sup>(1)</sup>	-	2.2V-3.6V	16	8 MHz, 32 KHz	✓	24	-	3	-	-	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$5.25	B0R, LVD, POR, WDT	TQFP (PT), BGA121 (BG)	Package (Designator)	
PIC24F1256DA210	R	84	PIC24	256	98304	AN1095 <sup>(1)</sup>	-	2.2V-3.6V	16	8 MHz, 32 KHz	✓	24	-	3	-	-	9	9	5	4 UART, 3 SPI, 3 I <sup>2</sup> C <sup>(1)</sup>	-	✓	✓	\$5.60	B0R, LVD, POR, WDT	TQFP (PT), BGA121 (BG)	Package (Designator)	

\* Parts available with High Temperature Options (150°C).  
† On amp configured as comparator.  
‡ See Application Note "AN1095: Emulating Data EEPROM".  
§ 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				Communication			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 KSPS	Comparators	Op Amps	Output Compare/PWM		Motor Control PWM Ch.	QEI	Input Capture	16-bit Timer <sup>2)</sup>	Digital Communication	FS USB OTG	PMP	RTCC/CRC	PPS	5 ku Pricing <sup>1)</sup>
PIC24H128GP201	R	13	PIC24	12	1	AN1095 <sup>(1)</sup>	-	3V-3.6V	40	7.37 MHz, 32 KHz	-	-	6 ch	-	-	-	2	-	4	3	1 UART, 1 SPI, 1 I <sup>2</sup> C <sup>(1)</sup>	-	-	✓	\$2.09	PB0R, POR, WDT	PDIP (P), SOIC (SO)	Package (Designator)
PIC24EP32MC202	R	21	PIC24	32	4	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 <sup>(1)</sup>	-	-	✓	\$1.89	PB0R, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)	Package (Designator)
PIC24EP32GP202	R	21	PIC24	32	4	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 <sup>(1)</sup>	-	-	✓	\$1.89	PB0R, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)	Package (Designator)
PIC24EP64MC202	R	21	PIC24	64	8	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 <sup>(1)</sup>	-	-	✓	\$2.45	PB0R, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)	Package (Designator)
PIC24EP64GP202	R	21	PIC24	64	8	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 <sup>(1)</sup>	-	-	✓	\$2.45	PB0R, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)	Package (Designator)
PIC24EP128MC202	R	21	PIC24	128	16	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 <sup>(1)</sup>	-	-	✓	\$2.66	PB0R, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)	Package (Designator)
PIC24EP128GP202	R	21	PIC24	128	16	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 <sup>(1)</sup>	-	-	✓	\$2.66	PB0R, POR, WDT	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)	Package (Designator)

\* Parts available with High Temperature Options (150°C).  
† On amp configured as comparator.  
‡ See Application Note "AN1095: Emulating Data EEPROM".  
§ Two 16-bit timers can be concatenated to form a 32-bit timer.

Products sorted by pin count followed by pricing.  
‡ Pricing subject to change; please contact your Microchip representative for most current pricing.





**dsPIC33 DSC GENERAL PURPOSE AND MOTOR CONTROL FAMILY**

Product	Released (R) Not Released (NR)	I/O Pins	Memory		Voltage Range	Maximum Speed MIPS	Operating Speed		Analog Sensing & Measurement				Communication		RTCC/CRC	5 ku Pricing <sup>†</sup>	Monitors		Packages (Designator)	
			Core	Program (KB)			EEPROM	DMA #Ch	Internal Oscillator	Charge Time Unit	ADC 10/12-bit 1100/500 ksp/s	DAC	Comparators	Op Amps			Output Compare/PWM	Motor Control PWM Ch		16-bit Timer <sup>2)</sup>
dsPIC33F16GP01*	R	13 dsPIC	16	1	AN1095 <sup>(1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 KHz	✓	4 ch (10-bit)	-	3	-	3	1 UART, 1 SPI, 1 I <sup>2</sup> C™	-	-	-	PDI(P), SO(GSO), QFN (MQL), SSOP (SS)
dsPIC33F16MC101*	R	15 dsPIC	16	1	AN1095 <sup>(1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 KHz	✓	4 ch (10-bit)	-	3	-	3	1 UART, 1 SPI, 1 I <sup>2</sup> C™	-	-	-	PDI(P), SO(GSO), QFN (MQL), SSOP (SS)
dsPIC33F32GP01*	R	13 dsPIC	32	2	AN1095 <sup>(1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 KHz	✓	6 ch	-	3	-	5	1 UART, 1 SPI, 1 I <sup>2</sup> C™	-	-	-	PDI(P), SO(GSO), QFN (MQL), SSOP (SS)
dsPIC33F32MC101*	R	15 dsPIC	32	2	AN1095 <sup>(1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 KHz	✓	6 ch	-	3	-	5	1 UART, 1 SPI, 1 I <sup>2</sup> C™	-	-	-	PDI(P), SO(GSO), SSOP (SS)
dsPIC33F16GP02*	R	21 dsPIC	16	1	AN1095 <sup>(1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 KHz	✓	6 ch (10-bit)	-	3	-	3	1 UART, 1 SPI, 1 I <sup>2</sup> C™	-	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MQL), VTLA (TL)
dsPIC33F16MC102*	R	21 dsPIC	16	1	AN1095 <sup>(1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 KHz	✓	6 ch (10-bit)	-	3	-	3	1 UART, 1 SPI, 1 I <sup>2</sup> C™	-	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MQL), VTLA (TL)
dsPIC33F32GP02*	R	21 dsPIC	32	2	AN1095 <sup>(1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 KHz	✓	8 ch	-	3	-	5	1 UART, 1 SPI, 1 I <sup>2</sup> C™	-	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MQL), VTLA (TL)
dsPIC33F32MC102*	R	21 dsPIC	32	2	AN1095 <sup>(1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 KHz	✓	8 ch	-	3	-	5	1 UART, 1 SPI, 1 I <sup>2</sup> C™	-	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MQL), VTLA (TL)
dsPIC33EP26MC502*	R	21 dsPIC	32	4	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	6 ch	-	1+2†	2	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	1	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM), VTLA (TL)
dsPIC33EP26MC502*	R	21 dsPIC	32	4	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	6 ch	-	1+2†	2	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	1	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM), VTLA (TL)
dsPIC33EP46MC502*	R	21 dsPIC	64	8	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	6 ch	-	1+2†	2	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	1	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM), VTLA (TL)
dsPIC33EP46MC502*	R	21 dsPIC	64	8	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	6 ch	-	1+2†	2	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	1	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM), VTLA (TL)
dsPIC33EP128MC202*	R	21 dsPIC	128	16	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	6 ch	-	1+2†	2	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	1	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM), VTLA (TL)
dsPIC33EP128MC502*	R	21 dsPIC	128	16	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	6 ch	-	1+2†	2	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	1	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM), VTLA (TL)
dsPIC33EP256MC202*	R	21 dsPIC	256	32	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	6 ch	-	1+2†	2	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	1	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM), VTLA (TL)
dsPIC33EP256MC502*	R	21 dsPIC	256	32	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	6 ch	-	1+2†	2	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	1	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM), VTLA (TL)
dsPIC33EP512MC202*	NR	21 dsPIC	512	48	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	6 ch	-	1+2†	2	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	1	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM), VTLA (TL)
dsPIC33EP512GP502*	NR	21 dsPIC	512	48	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	6 ch	-	1+2†	2	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	1	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM), VTLA (TL)
dsPIC33EP512MC502*	NR	21 dsPIC	512	48	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	6 ch	-	1+2†	2	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	1	-	-	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM), VTLA (TL)
dsPIC33EP32MC203*	R	25 dsPIC	32	4	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	8 ch	-	1+2†	3	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	0	-	-	VTLA (TL)
dsPIC33EP32GP503*	R	25 dsPIC	32	4	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	8 ch	-	1+2†	3	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	0	-	-	VTLA (TL)
dsPIC33EP32MC503*	R	25 dsPIC	32	4	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	8 ch	-	1+2†	3	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	0	-	-	VTLA (TL)
dsPIC33EP64MC203*	R	25 dsPIC	64	8	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	8 ch	-	1+2†	3	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	0	-	-	VTLA (TL)
dsPIC33EP64GP503*	R	25 dsPIC	64	8	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	8 ch	-	1+2†	3	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	0	-	-	VTLA (TL)
dsPIC33EP64MC503*	R	25 dsPIC	64	8	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	8 ch	-	1+2†	3	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	0	-	-	VTLA (TL)
dsPIC33EP256MC203*	R	25 dsPIC	256	32	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	8 ch	-	1+3†	3	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	0	-	-	VTLA (TL)
dsPIC33F32GP104*	R	35 dsPIC	32	2	AN1095 <sup>(1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 KHz	✓	14 ch	-	3	-	5	1 UART, 1 SPI, 1 I <sup>2</sup> C™	-	-	-	TQFP (PT), TLA, QFN (ML)
dsPIC33F32MC104*	R	35 dsPIC	32	2	AN1095 <sup>(1)</sup>	-	3V-3.6V	16	7.37 MHz, 32 KHz	✓	14 ch	-	3	-	5	1 UART, 1 SPI, 1 I <sup>2</sup> C™	-	-	-	TQFP (PT), VTLA (TL), QFN (ML)
dsPIC33EP32MC204*	R	35 dsPIC	32	4	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	9 ch	-	1+3†	3	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	0	-	-	TQFP (PT), VTLA (TL), QFN (ML)
dsPIC33EP32GP504*	R	35 dsPIC	32	4	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	9 ch	-	1+3†	3	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	0	-	-	TQFP (PT), VTLA (TL), QFN (ML)
dsPIC33EP32MC504*	R	35 dsPIC	32	4	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	9 ch	-	1+3†	3	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	0	-	-	TQFP (PT), VTLA (TL), QFN (ML)
dsPIC33EP64MC204*	R	35 dsPIC	64	8	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	9 ch	-	1+3†	3	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	0	-	-	TQFP (PT), VTLA (TL), QFN (ML)
dsPIC33EP64GP504*	R	35 dsPIC	64	8	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	9 ch	-	1+3†	3	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	0	-	-	TQFP (PT), VTLA (TL), QFN (ML)
dsPIC33EP64MC504*	R	35 dsPIC	64	8	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	9 ch	-	1+3†	3	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	0	-	-	TQFP (PT), VTLA (TL), QFN (ML)
dsPIC33EP128MC204*	R	35 dsPIC	128	16	AN1095 <sup>(1)</sup>	-	3V-3.6V	70	7.37 MHz, 32 KHz	✓	9 ch	-	1+3†	3	4	2 UART, 2 SPI, 1 I <sup>2</sup> C™	0	-	-	TQFP (PT), VTLA (TL), QFN (ML)

\* Parts available with High Temperature Options (150°C).  
† On amp configured as comparator.  
‡ See Application Note "AN1095: Emulating Data EEPROM".  
§ Two 16-bit timers can be concatenated to form a 32-bit timer.  
¶ Pricing subject to change; please contact your Microchip representative for most current pricing.

**dSPIC33 DSC GENERAL PURPOSE AND MOTOR CONTROL FAMILY**

Product	Released (R) Not Released (NR)	Memory			Operating Speed		Analog Sensing & Measurement				Communication			Monitors		Packages (Designator)											
		Core	Program (KB)	Data RAM (B)	EEPROM	DMA #Ch	Maximum Speed MIPS	Internal Oscillator	Charge Time Measurement Unit	ADC 100/500 ksp/s	DAC	Comparators	Op Amps	Output Compare/PWM	Input Capture		Motor Control PWM Ch	QEI	16-bit Timer <sup>(2)</sup>	PMP	RTCC/CRC	PPS	5 ku Pricing <sup>†</sup>	System Mgmt. Features			
dSPIC33EP128GP504*	R	35 dsPIC	128	16	AN1095 <sup>(b)</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 <sup>m</sup>	FS USB OTG	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), VTA (TL), QFN (ML)	
dSPIC33EP128MC504*	R	35 dsPIC	128	16	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	9 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), VTA (TL), QFN (ML)	
dSPIC33EP256MC204*	R	35 dsPIC	256	32	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	9 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), VTA (TL), QFN (ML)	
dSPIC33EP256GP504*	R	35 dsPIC	256	32	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	9 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), VTA (TL), QFN (ML)	
dSPIC33EP512MC204*	NR	35 dsPIC	512	48	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	9 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), VTA (TL), QFN (ML)	
dSPIC33EP512GP504*	NR	35 dsPIC	512	48	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	9 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), VTA (TL), QFN (ML)	
dSPIC33EP512MC504*	NR	35 dsPIC	512	48	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	9 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), VTA (TL), QFN (ML)	
dSPIC33EP64MC206*	R	53 dsPIC	64	8	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	16 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)	
dSPIC33EP64GP506*	R	53 dsPIC	64	8	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	16 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)	
dSPIC33EP64MC506*	R	53 dsPIC	64	8	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	16 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)	
dSPIC33EP128MC206*	R	53 dsPIC	128	16	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	16 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)	
dSPIC33EP128GP506*	R	53 dsPIC	128	16	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	16 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)	
dSPIC33EP256MC206*	R	53 dsPIC	256	32	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	16 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)	
dSPIC33EP256GP506*	R	53 dsPIC	256	32	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	16 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)	
dSPIC33EP512MC206*	NR	53 dsPIC	512	48	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	16 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)	
dSPIC33EP512GP506*	NR	53 dsPIC	512	48	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	16 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)	
dSPIC33EP512MC506*	NR	53 dsPIC	512	48	AN1095 <sup>(b)</sup>	4	3V-3.6V	70	7.37 MHz, 32 KHz	✓	16 ch	-	1+3*	3	4	6	1	5	2 UART, 2 SPI, 1 I <sup>2</sup> C	-	-	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)	
dSPIC33EP64GP310A*	R	85 dsPIC	64	16	AN1095 <sup>(b)</sup>	8	3V-3.6V	40	7.37 MHz, 32 KHz	-	32 ch	-	-	3	16	16	8	2	9	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP64MC510A*	R	85 dsPIC	64	8	AN1095 <sup>(b)</sup>	8	3V-3.6V	40	7.37 MHz, 32 KHz	-	24 ch	-	-	3	16	16	8	2	9	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP128GP310A*	R	85 dsPIC	128	16	AN1095 <sup>(b)</sup>	8	3V-3.6V	40	7.37 MHz, 32 KHz	-	32 ch	-	-	3	16	16	8	2	9	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP128MC510A*	R	85 dsPIC	128	8	AN1095 <sup>(b)</sup>	8	3V-3.6V	40	7.37 MHz, 32 KHz	-	24 ch	-	-	3	16	16	8	2	9	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP64GP710A*	R	85 dsPIC	64	16	AN1095 <sup>(b)</sup>	8	3V-3.6V	40	7.37 MHz, 32 KHz	-	32 ch, 2 ADC	-	-	3	16	16	8	2	9	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP64MC710A*	R	85 dsPIC	64	16	AN1095 <sup>(b)</sup>	8	3V-3.6V	40	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	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP256GP510A*	R	85 dsPIC	256	16	AN1095 <sup>(b)</sup>	8	3V-3.6V	40	7.37 MHz, 32 KHz	-	32 ch	-	-	3	16	16	8	2	9	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP128GP710A*	R	85 dsPIC	128	16	AN1095 <sup>(b)</sup>	8	3V-3.6V	40	7.37 MHz, 32 KHz	-	32 ch	-	-	3	16	16	8	2	9	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP256MC510A*	R	85 dsPIC	256	16	AN1095 <sup>(b)</sup>	8	3V-3.6V	40	7.37 MHz, 32 KHz	-	32 ch	-	-	3	16	16	8	2	9	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP128MC710A*	R	85 dsPIC	128	16	AN1095 <sup>(b)</sup>	8	3V-3.6V	40	7.37 MHz, 32 KHz	-	32 ch, 2 ADC	-	-	3	16	16	8	2	9	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP256GP710A*	R	85 dsPIC	256	16	AN1095 <sup>(b)</sup>	8	3V-3.6V	40	7.37 MHz, 32 KHz	-	32 ch, 2 ADC	-	-	3	16	16	8	2	9	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP256MC710A*	R	85 dsPIC	256	30	AN1095 <sup>(b)</sup>	8	3V-3.6V	40	7.37 MHz, 32 KHz	-	32 ch, 2 ADC	-	-	3	16	16	8	2	9	4 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP512MC810A*	R	83 dsPIC	512	28	AN1095 <sup>(b)</sup>	15	3V-3.6V	60	7.37 MHz, 32 KHz	-	32 ch, 2 ADC	-	-	3	16	16	12	2	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP256MC810A*	R	83 dsPIC	256	52	AN1095 <sup>(b)</sup>	15	3V-3.6V	60	7.37 MHz, 32 KHz	-	32 ch, 2 ADC	-	-	3	16	16	12	2	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP256MC810A*	R	122 dsPIC	280	28	AN1095 <sup>(b)</sup>	15	3V-3.6V	60	7.37 MHz, 32 KHz	-	32 ch, 2 ADC	-	-	3	16	16	12	2	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)
dSPIC33EP512MC810A*	R	122 dsPIC	536	52	AN1095 <sup>(b)</sup>	15	3V-3.6V	60	7.37 MHz, 32 KHz	-	32 ch, 2 ADC	-	-	3	16	16	12	2	9	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	Y	✓	✓	✓	PEOR, POR, WDT	TQFP (PT), QFN (MR)

\* Parts available with High Temperature Options (150°C).  
 † On amp configured as comparator.  
 ‡ See Application Note "AN1095: Emulating Data EEPROM".  
 § Two 16-bit timers can be concatenated to form a 32-bit timer.  
 † Pricing subject to change; please contact your Microchip representative for most current pricing.

**dsPIC33 DSC SMPS AND DIGITAL POWER CONVERSION FAMILY**

Product	Released (R) Not Released (NR)	I/O Pins	Memory			Voltage Range	Maximum Speed MIPS	Operating Speed		Analog			Communication		5 Ku Pricing <sup>†</sup>	Monitors	Packages (Designator)								
			Core	Program (KB)	Data RAM (B)			EEPROM	DMA #Ch	Internal Oscillator	ADC 10-bit (± 4000 ksp)	DAC	Comparators	Output Compare/PWM				Input Capture	Power Supply PWM Ch <sup>‡</sup>	QEI	16-bit Timer <sup>§</sup>	Digital Communication	CAN	System Mgmt. Features	
dsPIC33F06GS001	R	13	dsPIC <sup>¶</sup>	6	256	ANI095 <sup>  </sup>	-	3V-3.6V	40	7.37 MHz, 32 kHz	6 ch	2 x 10-bit	2	-	4	-	2	1 UART, 1 SPI, 1 I <sup>2</sup> C™	-	-	-	✓	\$1.61	BOR, POR, WDT	PDIP (P), SOIC (SO), SSOP (SS)
dsPIC33F06GS101A	R	13	dsPIC	6	256	ANI095 <sup>  </sup>	-	3V-3.6V	40	7.37 MHz, 32 kHz	6 ch	-	-	1	4	-	2	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	-	-	✓	\$1.75	BOR, POR, WDT	PDIP (P), SOIC (SO), SSOP (SS)
dsPIC33F06GS102A	R	21	dsPIC	6	256	ANI095 <sup>  </sup>	-	3V-3.6V	40	7.37 MHz, 32 kHz	6 ch	-	-	1	4	-	2	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	-	-	✓	\$1.95	BOR, POR, WDT	SDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
dsPIC33F06GS202A	R	21	dsPIC	6	1024	ANI095 <sup>  </sup>	-	3V-3.6V	40	7.37 MHz, 32 kHz	6 ch	2 x 10-bit	-	2	4	-	2	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	-	-	✓	\$2.06	BOR, POR, WDT	SDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
dsPIC33F09GS302	R	21	dsPIC	9	1024	ANI095 <sup>  </sup>	-	3V-3.6V	40	7.37 MHz, 32 kHz	8 ch	2 x 10-bit	-	2	6	-	2	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	-	-	✓	\$2.17	BOR, POR, WDT	SDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
dsPIC33F16GS402*	R	21	dsPIC	16	2048	ANI095 <sup>  </sup>	-	3V-3.6V	50	7.37 MHz, 32 kHz	8 ch	-	-	2	6	-	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	-	-	✓	\$2.52	BOR, POR, WDT	SPDIP (SP), SOIC (SO), QFN (MM)
dsPIC33F16GS502*	R	21	dsPIC	16	2048	ANI095 <sup>  </sup>	-	3V-3.6V	50	7.37 MHz, 32 kHz	8 ch, 2 ADC†	4 x 10-bit	-	4	2	8	-	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	-	✓	\$3.04	BOR, POR, WDT	SPDIP (SP), SOIC (SO), QFN (MM)
dsPIC33F16GS404*	R	35	dsPIC	16	2048	ANI095 <sup>  </sup>	-	3V-3.6V	50	7.37 MHz, 32 kHz	8 ch	-	-	-	2	6	-	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	-	✓	\$2.77	BOR, POR, WDT	TQFP (PT), QFN (ML)
dsPIC33F16GS504*	R	35	dsPIC	16	2048	ANI095 <sup>  </sup>	-	3V-3.6V	50	7.37 MHz, 32 kHz	12 ch, 2 ADC†	4 x 10-bit	-	4	2	8	-	3	1 UART, 1 SPI, 1 I <sup>2</sup> C	-	-	✓	\$3.42	BOR, POR, WDT	TQFP (PT), QFN (ML)
dsPIC33F32GS406	R	58	dsPIC	32	4096	ANI095 <sup>  </sup>	-	3V-3.6V	50	7.37 MHz, 32 kHz	16 ch	-	-	-	4	12	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	-	-	-	\$3.07	BOR, POR, WDT	TQFP (PT), QFN (MR)
dsPIC33F64GS406	R	58	dsPIC	64	8192	ANI095 <sup>  </sup>	-	3V-3.6V	50	7.37 MHz, 32 kHz	16 ch	-	-	-	4	12	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	-	-	-	\$3.35	BOR, POR, WDT	TQFP (PT), QFN (MR)
dsPIC33F32GS606	R	58	dsPIC	32	4096	ANI095 <sup>  </sup>	-	3V-3.6V	50	7.37 MHz, 32 kHz	16 ch, 2 ADC†	4 x 10-bit	-	4	4	12	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	-	-	-	\$3.36	BOR, POR, WDT	TQFP (PT), QFN (MR)
dsPIC33F64GS606	R	58	dsPIC	64	9216	ANI095 <sup>  </sup>	4	3V-3.6V	50	7.37 MHz, 32 kHz	16 ch, 2 ADC†	4 x 10-bit	-	4	4	12	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	1	-	-	-	\$3.81	BOR, POR, WDT	TQFP (PT), QFN (MR)
dsPIC33F32GS608	R	74	dsPIC	32	4096	ANI095 <sup>  </sup>	-	3V-3.6V	50	7.37 MHz, 32 kHz	18 ch, 2 ADC†	4 x 10-bit	-	4	4	16	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	-	-	-	\$3.85	BOR, POR, WDT	TQFP (PT)
dsPIC33F64GS608	R	74	dsPIC	64	9216	ANI095 <sup>  </sup>	4	3V-3.6V	50	7.37 MHz, 32 kHz	18 ch, 2 ADC†	4 x 10-bit	-	4	4	16	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	1	-	-	-	\$4.34	BOR, POR, WDT	TQFP (PT)
dsPIC33F32GS610	R	85	dsPIC	32	4096	ANI095 <sup>  </sup>	-	3V-3.6V	50	7.37 MHz, 32 kHz	24 ch, 2 ADC†	4 x 10-bit	-	4	4	18	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	-	-	-	-	\$4.41	BOR, POR, WDT	TQFP (PF, PT)
dsPIC33F64GS610	R	85	dsPIC	64	9216	ANI095 <sup>  </sup>	4	3V-3.6V	50	7.37 MHz, 32 kHz	24 ch, 2 ADC†	4 x 10-bit	-	4	4	18	5	2 UART, 2 SPI, 2 I <sup>2</sup> C	1	-	-	-	\$4.89	BOR, POR, WDT	TQFP (PF, PT)

\* Parts available with High Temperature Options (150°C).

† 4 Msps devices with 2 ADCs

Note 1: See Application Note "ANI095: Emulating Data EEPROM".

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

Products sorted by pin count followed by pricing.  
† Pricing subject to change; please contact your Microchip representative for most current pricing.



## 32-BIT PIC32 MICROCONTROLLERS

Product	Released (R) Not Released (NR)	I/O Pins	Core	Memory		DMA Channels General/Dedicated	Voltage Range	Operating Speed		Charge Time Measurement Unit	Analog		Communication						RTCC	Peripheral Pin Select (PPS)	5 kV Pricing†	Monitors	System Mgmt. Features	Packages (Designator)							
				Flash KB + Boot Flash	Data RAM (KB)			EEPROM	Maximum Speed (MHz)		Internal Oscillator	ADC 10-bit kSps	Comparators	IC/OC/PWM	Timers 16/32-bit	SPI/PS	PC/M	UARTS							FS USB	Ethernet	CAN	PMP			
																													8 MHz, 32 kHz	8 MHz, 32 kHz	2
PIC32MX764F128H	R	51	PIC32	128 + 12	32	AN1095 <sup>U</sup>	4/6	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	3/0	4	6	OTG	10/100	1	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), QFN (MR)	
PIC32MX340F512H	R	51	PIC32	512 + 12	32	AN1095 <sup>U</sup>	4/6	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	2/0	2	2	OTG	-	-	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), QFN (MR)	
PIC32MX575F256H	R	51	PIC32	256 + 12	64	AN1095 <sup>U</sup>	8/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	3/0	4	6	OTG	-	1	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), QFN (MR)	
PIC32MX40F512H	R	51	PIC32	512 + 12	32	AN1095 <sup>U</sup>	4/2	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	2/0	2	2	OTG	-	-	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), QFN (MR)	
PIC32MX675F256H	R	51	PIC32	256 + 12	64	AN1095 <sup>U</sup>	8/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	3/0	4	6	OTG	-	10/100	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), QFN (MR)	
PIC32MX575F512H	R	51	PIC32	512 + 12	64	AN1095 <sup>U</sup>	8/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	3/0	4	6	OTG	-	1	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), QFN (MR)	
PIC32MX775F512H	R	51	PIC32	256 + 12	64	AN1095 <sup>U</sup>	8/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	3/0	4	6	OTG	-	10/100	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), QFN (MR)	
PIC32MX775F512H	R	51	PIC32	512 + 12	64	AN1095 <sup>U</sup>	8/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	3/0	4	6	OTG	-	10/100	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), QFN (MR)	
PIC32MX695F512H	R	51	PIC32	512 + 12	128	AN1095 <sup>U</sup>	8/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	3/0	4	6	OTG	-	10/100	-	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), QFN (MR)	
PIC32MX795F512H	R	51	PIC32	512 + 12	128	AN1095 <sup>U</sup>	8/8	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	3/0	4	6	OTG	-	10/100	2	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), QFN (MR)	
PIC32MX330F064L	NR	85	PIC32	64 + 12	16	AN1095 <sup>U</sup>	4/0	2.3V-3.6V	80	8 MHz, 32 kHz	✓	28	2	5/5/5	5/2	2/2	2	5	-	-	-	-	-	-	-	-	-	-	-	TOFP (PT, PF), VTLA (TL)	
PIC32MX430F064L	NR	85	PIC32	64 + 12	16	AN1095 <sup>U</sup>	4/2	2.3V-3.6V	80	8 MHz, 32 kHz	✓	28	2	5/5/5	5/2	2/2	2	5	OTG	-	-	-	-	-	-	-	-	-	-	TOFP (PT, PF), VTLA (TL)	
PIC32MX534F064L	R	85	PIC32	64 + 12	16	AN1095 <sup>U</sup>	4/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	1	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), XBGA (BG)	
PIC32MX320F128L	R	85	PIC32	128 + 12	16	AN1095 <sup>U</sup>	0/0	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	2/0	2	2	-	-	-	-	-	-	-	-	-	-	-	TOFP (PT, PF), XBGA (BG)	
PIC32MX340F128L	R	85	PIC32	128 + 12	32	AN1095 <sup>U</sup>	4/0	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	2/0	2	2	-	-	-	-	-	-	-	-	-	-	-	TOFP (PT, PF), XBGA (BG)	
PIC32MX564F064L	R	85	PIC32	64 + 12	32	AN1095 <sup>U</sup>	4/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	1	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), XBGA (BG)	
PIC32MX440F128L	R	85	PIC32	128 + 12	32	AN1095 <sup>U</sup>	4/2	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	2/0	2	2	OTG	-	OTG	-	-	-	-	-	-	-	-	TOFP (PT, PF), XBGA (BG)	
PIC32MX360F256L	R	85	PIC32	256 + 12	32	AN1095 <sup>U</sup>	4/0	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	2/0	2	2	-	-	-	-	-	-	-	-	-	-	-	TOFP (PT, PF), XBGA (BG)	
PIC32MX564F128L	R	85	PIC32	128 + 12	32	AN1095 <sup>U</sup>	4/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	1	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), XBGA (BG)	
PIC32MX664F064L	R	85	PIC32	64 + 12	32	AN1095 <sup>U</sup>	4/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	OTG	-	-	-	-	-	-	-	-	TOFP (PT, PF), XBGA (BG)	
PIC32MX460F256L	R	85	PIC32	256 + 12	32	AN1095 <sup>U</sup>	4/2	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	2/0	2	2	OTG	-	OTG	-	-	-	-	-	-	-	-	TOFP (PT, PF), XBGA (BG)	
PIC32MX640F128L	R	85	PIC32	128 + 12	32	AN1095 <sup>U</sup>	4/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	10/100	-	-	-	-	-	-	-	-	TOFP (PT, PF), XBGA (BG)	
PIC32MX764F128L	R	85	PIC32	128 + 12	32	AN1095 <sup>U</sup>	4/6	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	10/100	1	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), XBGA (BG)
PIC32MX360F512L	R	85	PIC32	512 + 12	32	AN1095 <sup>U</sup>	4/0	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	2/0	2	2	-	-	-	-	-	-	-	-	-	-	-	TOFP (PT, PF), XBGA (BG)	
PIC32MX575F256L	R	85	PIC32	256 + 12	64	AN1095 <sup>U</sup>	8/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	1	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), XBGA (BG)	
PIC32MX460F512L	R	85	PIC32	512 + 12	32	AN1095 <sup>U</sup>	4/2	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	2/0	2	2	OTG	-	OTG	-	-	-	-	-	-	-	-	TOFP (PT, PF), XBGA (BG)	
PIC32MX675F256L	R	85	PIC32	256 + 12	64	AN1095 <sup>U</sup>	8/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	10/100	-	-	-	-	-	-	-	-	TOFP (PT, PF), XBGA (BG)	
PIC32MX575F512L	R	85	PIC32	512 + 12	64	AN1095 <sup>U</sup>	8/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	1	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), XBGA (BG)	
PIC32MX75F256L	R	85	PIC32	256 + 12	64	AN1095 <sup>U</sup>	8/8	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	10/100	2	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), XBGA (BG)
PIC32MX675F512L	R	85	PIC32	512 + 12	64	AN1095 <sup>U</sup>	8/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	10/100	-	-	-	-	-	-	-	-	TOFP (PT, PF), XBGA (BG)	
PIC32MX75F512L	R	85	PIC32	512 + 12	64	AN1095 <sup>U</sup>	8/8	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	10/100	-	-	-	-	-	-	-	-	TOFP (PT, PF), XBGA (BG)	
PIC32MX75F512L	R	85	PIC32	512 + 12	64	AN1095 <sup>U</sup>	8/8	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	10/100	-	-	-	-	-	-	-	-	TOFP (PT, PF), XBGA (BG)	
PIC32MX95F512L	R	85	PIC32	512 + 12	128	AN1095 <sup>U</sup>	8/4	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	10/100	2	✓	✓	-	✓	✓	-	✓	✓	TOFP (PT, PF), XBGA (BG)
PIC32MX795F512L	R	85	PIC32	512 + 12	128	AN1095 <sup>U</sup>	8/8	2.3V-3.6V	80	8 MHz, 32 kHz	-	16 ch	2	5/5/5	5/1	4/0	5	6	OTG	-	10/100	-	-	-	-	-	-	-	-	TOFP (PT, PF), XBGA (BG)	

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



### THERMAL MANAGEMENT: Temperature Sensors

Product	Description	# Temps. Monitored	Typical/Max Accuracy (°C)	Temp. Range (°C)	Vcc Range (V)	Typical Supply Current (µA)	Alerts	Resistance Error Correction	Beta Compensation	Packages
MCP9501/2/3/4	Temperature Switch replacing MAX6601/2/3/4	1	1.0/3.0	-40 to +125	+2.7 to +5.5	25	-	-	-	5-pin SOT-23
MCP9509/10	Resistor-Programmable Temperature Switch	1	0.5/3.5	-40 to +125	+2.7 to +5.5	30	-	-	-	5-pin SOT-23
MCP9800/1/2/3	SMBus/1°C <sup>m</sup> Temperature Sensor	1	0.5/1.0	-55 to +125	+2.7 to +5.5	200	1	-	-	5-pin SOT-23
MCP9804	SMBus/FC Temperature Sensor	1	0.25/1.0	-40 to +125	+2.7 to +5.5	200	1	-	-	8-pin DFN, 8-pin MSOP
MCP9808	SMBus/FC Temperature Sensor	1	0.25/0.5	-40 to +125	+2.7 to +5.5	200	1	-	-	8-pin DFN, 8-pin MSOP
MCP98243	SMBus/FC Temperature Sensor with EEPROM	1	0.5/3.0	-40 to +125	+3.0 to +3.6	200	1	-	-	8-pin DFN, 8-pin TDR, 8-pin TSSOP, 8-pin UDFN
MCP9843	SMBus/FC JEDEC Temperature Sensor	1	0.5/3.0	-40 to +125	+3.0 to +3.6	200	1	-	-	8-pin DFN, 8-pin TDR, 8-pin TSSOP
TON75A	SMBus/FC Temperature Sensor	1	0.5/3.0	-40 to +125	+2.7 to +5.5	200	1	-	-	8-pin MSOP, 8-pin SOIC 150mil
MCP9700/01	Linear Active Thermistor IC	1	1.0/4.0	-40 to +150	+2.3 to +5.5	6	-	-	-	3-pin SOT-23, 3-pin TO-92, 5-pin SC-70
MCP9700/01A	Linear Active Thermistor IC	1	1.0/2.0	-40 to +150	+2.3 to +5.5	6	-	-	-	3-pin SOT-23, 3-pin TO-92, 5-pin SC-70
EMC1033	SMBus/FC Multi Temperature Sensor	3	1.0/3.0	-40 to +125	+3.0 to +3.6	50	2	✓	-	8-pin MSOP
EMC1043	SMBus/FC Multi Temperature Sensor	3	0.5/1.0	-40 to +125	+3.0 to +3.6	105	-	✓	Configurable	8-pin MSOP
EMC1046	SMBus/FC Multi Temp Sensor with Hottest of Zones	6	0.25/1.0	-40 to +125	+3.0 to +3.6	395	-	✓	Automatic	10-pin MSOP
EMC1047	SMBus/FC Multi Temp Sensor with Hottest of Zones	7	0.25/1.0	-40 to +125	+3.0 to +3.6	395	-	✓	Automatic	10-pin MSOP
EMC1412/3/4	SMBus/FC Multi Temperature Sensor	2/3/4	0.25/1.0	-40 to +125	+3.0 to +3.6	430	2	✓	Automatic	8-pin TDR, 8-pin MSOP, 10-pin DFN, 10-pin MSOP
EMC1422/3/4	SMBus/FC Multi Temp Sensor with Shutdown	2/3/4	0.25/1.0	-40 to +125	+3.0 to +3.6	430	1	✓	Automatic	8-pin MSOP, 10-pin MSOP
EMC1428	SMBus/FC Multi Temp Sensor with Hottest of Zones	8	0.25/1.0	-40 to +125	+3.0 to +3.6	450	1	✓	Automatic	16-pin QFN

### THERMAL MANAGEMENT: Fan Controllers

Product	Description	# Fan Drivers	PWM/Linear Control	# External Temp. Inputs	Typical Accuracy	Typical/Max. Accuracy	Vcc Range (V)	Interface	Alerts	Fan Speed Lookup Table	Packages
EMC2101	Programmable Fan Controller with Thermal Mgt	1	PWM	2	0.5	0.5/1.0	+3.0 to +3.6	SMBus/1°C <sup>m</sup>	✓	✓	8-pin MSOP, 8-pin SOIC
EMC2300	Programmable Multifan Controller with Thermal Mgt	3	PWM	3	0.25	0.25/3.0	+3.0 to +3.6	SMBus/FC	✓	✓	16-pin SSOP
EMC2112	Programmable Fan Controller with Thermal Mgt	1	Linear	3	0.25	0.25/1.0	+3.3 and +5	SMBus/FC	✓	✓	20-pin QFN
EMC2103-1	Programmable Fan Controller with Thermal Mgt	1	PWM	1	0.5	0.5/1.0	+3.0 to +3.6	SMBus/FC	✓	✓	12-pin QFN
EMC2103-4	Programmable Fan Controller with EEPROM Load	1	PWM	3	0.5	0.5/1.0	+3.0 to +3.6	SMBus/FC	✓	✓	16-pin QFN
EMC2104	Programmable Multifan Controller with Thermal Mgt	2	PWM	4	0.25	0.25/1.0	+3.0 to +3.6	SMBus/FC	✓	✓	20-pin QFN
EMC2105	Programmable Fan Controller with Thermal Mgt	1	Linear	4	0.25	0.25/1.0	+3.3 and +5	SMBus/FC	✓	✓	20-pin QFN
EMC2113	Programmable Fan Controller with Thermal Mgt	1	PWM	3	0.5	0.5/1.0	+3.0 to +3.6	SMBus/FC	✓	✓	16-pin QFN
EMC2301/2/3/5	Programmable Fan Controller	1/2/3/5	PWM	-	-	-	+3.0 to +3.6	SMBus/FC	✓	-	8-pin MSOP, 10-pin MSOP, 12-pin QFN, 16-pin QFN

### 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 amplifier, Overvoltage comparator and integrated MOSFET driver	MSOP, DFN, TSOT
MCP1630/1631/V/HV	3.0 to 16	-	-40 to +125	PWM	1000/2000	2800/3700	Ext	Voltage mode PWM synchronous buck controller. Integrates LDO, error amplifier, current and voltage sense, UVLO/OVLO/MOSFET Dead time adj. and MOSFET Drivers	MSOP, SSOP, TSSOP, DFN
MCP19035	4.5 to 30	-	-40 to +125	PWM	300	6000	Ext	Integrated synchronous boost regulator. -0.65V start-up voltage. Soft-start. True load disconnect or input/output bypass option	DFN
MCP1640/B/C/D	0.65 to 6	2.0 to 5.5	-40 to +85	PWM or PWM/PFM	500	19	350	Step-up DC/DC Controller with shutdown control. Low battery detect, Power Good indicator, UVLO, Soft start	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	Integrated N-channel, UVLO, Soft-start, Overtemperature protection	MSOP
MCP16301	4.0 to 30	2.0 to 15	-40 to +85	PWM	500	2000	600	Integrated synchronous buck controller. Integrates LDO, error amplifier, current and voltage sense, UVLO/OVLO/MOSFET Dead time adj. and MOSFET Drivers	SOT-23
MCP16321	6 to 24	0.9 to 5	-40 to +125	PWM/PFM	1000	2300	1000	Integrated switches, Internal compensation, Peak current mode control, Soft-start, UVLO, Power Good pin	QFN
MCP16322	6 to 24	0.9 to 5	-40 to +125	PWM/PFM	1000	2300	2000	Integrated switches, Internal compensation, Peak current mode control, Soft-start, UVLO, Power Good pin	QFN
MCP16323	6 to 18	0.9 to 5	-40 to +125	PWM/PFM	1000	2300	3000	Integrated switches, Internal compensation, Peak current mode control, Soft-start, UVLO, Power Good pin	QFN

### POWER MANAGEMENT: Hybrid PWM Controllers

Product	Input Voltage Range (V)	Output Voltage (V)	Operating Temp. Range (°C)	Topologies Supported	Integrated MCU	Program Memory Size (kWords)	RAM (bytes)	Features	Packages
MCP19111	4.5 to 32	-	-40 to +125	Buck	✓	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	QFN

**POWER MANAGEMENT: Power MOSFETs**

Product	Vds (V)	Configuration	Polarity	Rds (on) @ 4.5V (mΩ, Max.)	Rds (on) @ 10V (mΩ, Max.)	Qg @ 4.5V (nC, Max.)	Id (A, Max. @ 25°C, Tcase)	Vgs (th) (V, Min.)	Qgd (nC, Typ.)	Rg (Ω Typ.)	Package
MCP87018	25	Single	-	2.2	1.9	37	100	1	13	1.5	5 × 6 PDFN
MCP87022	25	Single	-	2.6	2.3	29	100	1	9	1.3	5 × 6 PDFN
MCP87030	25	Single	-	4	3.5	22	100	1	6.7	1.2	5 × 6 PDFN
MCP87050	25	Single	-	6	5	15	100	1	4.7	1.1	5 × 6 PDFN
MCP87055	25	Single	-	7	6	14	60	1	4.5	2.1	3.3 × 3.3 PDFN
MCP87090	25	Single	-	12	10.5	10	64	1.1	2.8	1.8	5 × 6 PDFN, 3.3 × 3.3 PDFN
MCP87130	25	Single	-	16.5	13.5	8	54	1.1	2.6	1.7	5 × 6 PDFN, 3.3 × 3.3 PDFN

**POWER MANAGEMENT: Linear Regulators**

Product	Max. Input Voltage (V)	Output Voltage (V)	Output Current (mA)	Typical Active Current (µA)	Typical Dropout Voltage @ Max. Iout (mV)	Typical Output Voltage Accuracy (%)	Features	Packages
TC1016/17	6	1.8 to 4.0	80/150	53	150/285	±0.5	Shutdown	SOT-23A, SC70
TC1301A/B	6	1.5 to 3.3	LD01: 300 LD02: 150	103/114	LD01: 104 LD02: 150	±0.5	Dual LDO plus Reset output, Shutdown, Reference bypass, Voltage detect	MSOP, DFN
TC1302AB	6	1.5 to 3.3	LD01: 300 LD02: 150	103/114	LD01: 104 LD02: 150	±0.5	Dual LDO, Shutdown, Reference bypass, Voltage detect	MSOP, DFN
TC2014/5, TC2185	6	1.8 to 5.0	50/100/150	55	45/90/140	±0.4	Shutdown, Reference bypass input	SOT-23A
TC2084/5, TC2186	6	1.8 to 5.0	50/100/150	55	45/90/140	±0.4	Shutdown, Error output	SOT-23A
MCP1700	6	1.2 to 5.0	250	1.6	300	±0.4	Very low Iq	SOT-23A, SOT-89, TO-92
MCP1702/3/3A	13.2/16/16	1.2 to 5.0	250	2	330/625/625	±0.4	Very low Iq	DFN, TO-92, SOT-23A, SOT-89, SOT-223
MCP1725/6/7	6	0.8 to 5.0	500/1000/1500	120/140/140	210/300/330	±0.5	Shutdown, CRELAY, Power Good	SOIC, DFN
MCP1754/S	16	1.8 to 5.5	150	56	300	±0.4	Power Good, Shutdown	DFN, SOT-23A, SOT-89, SOT-223
MCP1790/1	30	3.0, 3.3, 5.0	70	70	500	±0.2	Load dump, Shutdown, Power Good	SOT-223, DPAK
MCP1801/2	10	0.9 to 6.0	150/300	25	250/800	±0.4	Shutdown, High PSRR	SOT-23A
MCP1804	28	1.8 to 18	150	50	300	±0.5	Shutdown, High PSRR	SOT-23, SOT-89, SOT-223
MCP1824/5/6/7	6	0.8 to 5.0	300/500/1000/1500	120/120/140/140	200/210/300/330	±0.5	Fixed and Adjustable output, Shutdown, Power Good	SOT-23, SOT-223, TO-220, DPAK
MCP1824S/5S/6S/7S	6	0.8 to 5.0	300/500/1000/1500	120/120/140/140	200/210/300/330	±0.5	3-pin high current LDOs	SOT-223, TO-220, DPAK

**POWER MANAGEMENT: Charge Pump DC-to-DC Converters**

Product	Input Voltage Range (V)	Output Voltage (V)	Operating Temp. Range (°C)	Max. Input Current (µA)	Typical Output Current (mA)	Features	Packages
TC1044S	1.5 to 12	-V <sub>IN</sub> or 2*V <sub>IN</sub>	-40 to +85	160	20	85 kHz oscillator Boost mode	PDIP, SOIC
TC7660	1.5 to 10	-V <sub>IN</sub> or 2*V <sub>IN</sub>	-40 to +85	180	20	10 kHz oscillator	PDIP, SOIC
TC7660H	1.5 to 10	-V <sub>IN</sub> or 2*V <sub>IN</sub>	-40 to +85	1000	20	120 kHz oscillator	PDIP, SOIC
TC7660S	1.5 to 12	-V <sub>IN</sub> or 2*V <sub>IN</sub>	-40 to +85	160	20	45 kHz oscillator Boost mode	PDIP, SOIC
TC7662B	1.5 to 15	-V <sub>IN</sub> or 2*V <sub>IN</sub>	-40 to +85	180	20	35 kHz oscillator Boost mode	PDIP, SOIC
TC7662A	3.0 to 18	-V <sub>IN</sub> or 2*V <sub>IN</sub>	-40 to +85	200	40	12 kHz oscillator	PDIP, SOIC
MCP1256	1.8 to 3.6	3.3	-40 to +85	100	100	Power Good Sleep mode	MSOP, DFN
MCP1257	1.8 to 3.6	3.3	-40 to +85	100	100	Sleep mode low battery indication	MSOP, DFN
MCP1258	1.8 to 3.6	3.3	-40 to +85	100	100	Low battery indication input/output bypass 1	MSOP, DFN

**POWER MANAGEMENT: CPU/System Supervisors**

Product	Description	Operating Temp. Range (°C)	Features	Packages
MCP111(L/2) TC112(3/4)	System Voltage Detectors (No Reset Delay)	-40 to +125 -40 to +85	Wide V <sub>IN</sub> input range, Wide detection range (custom options available), Low current, CMOS/ Push-Pull active low reset options	5-SOT-23, 3-TO-92, 3-SOT-23A, 3-SOT-89, 3-SC70
MCP90S, 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-23, 3-TO-92, 3-SOT-23, 5-SC70

**POWER MANAGEMENT: Power MOSFET Drivers**

Product	Configuration	Operating Temp. Range (°C)	Peak Output Current (A)	Output Resistance (Max. @ 25°C)	Max Supply Voltage (V)	Input/Output Delay (ns)	Packages
MCP1401/02 Single	Inverting/Non-inverting	-40 to +125	0.5	18/16	18	40/40	SOT-23
MCP1415/16 Single	Inverting/Non-inverting	-40 to +125	1.5	7.5/5.5	18	50/55	SOT-23
TO4467/8/9 Quad	Inverting/Non-inverting	-40 to +85	1.2	15/15	18	40/40	PDFP, SOIC
TO4426A/27A/28A Dual	Inverting/Non-inverting	-40 to +125	1.5	9/9	18	30/30	PDFP, SOIC, DFN
TO4423A/24A/25A Dual	Inverting/Non-inverting	-40 to +125	3	3 (typ.)/4 (typ.)	18	40 (typ.)/40 (typ.)	PDFP, SOIC, DFN
MCP14E3/EA/ES Dual	Inverting/Non-inverting	-40 to +125	4	3.5/3.0	18	55/55	PDFP, SOIC, DFN
MCP14E6/E7/ES Dual	Inverting/Non-inverting/Inverting and Non-inverting	-40 to +125	2	2.2/2.8	18	45/45	PDFP, SOIC, DFN
MCP14E9/E10/E11 Dual	Inverting/Non-inverting/Inverting and Non-inverting	-40 to +125	3	2.2/2.8	18	75/75	PDFP, SOIC, DFN
MCP1406/07 Single	Inverting/Non-inverting	-40 to +125	6	1.8/2.0 (typ.)	18	30/30	TO-220, PDFP, SOIC, DFN
TO4420/29	Inverting/Non-inverting	-40 to +125	6	2.8/2.5	18	55/55	TO-220, PDFP, SOIC, DFN
TO4421A/22A Single	Inverting/Non-inverting	-40 to +125	9	1.25 (typ.)/1.5	18	38/42	TO-220, PDFP, SOIC, DFN
TO4451/52 Single	Inverting/Non-inverting	-40 to +125	12	0.6 (typ.)/1.5	18	15/15	TO-220, PDFP, SOIC, DFN, DDP4K
TO4431/32 Single	Inverting/Non-inverting	-40 to +85	1.5	10/10	30	62/78	PDFP, SOIC

**POWER MANAGEMENT: Synchronous Buck High-Side Driver**

Product	Configuration	Operating Temp Range (°C)	Peak Output Current (A)	Output Resistance (Max. @ 25°C)	Max Supply Voltage (V)	Input/Output Delay (ns)	Packages
MCP14700/14628	Dual input/Single input	-40 to +85	2	2.5/2.5	5 (V <sub>ov</sub> ), 38 (Boot Pin)	18/20	SOIC, DFN

**POWER MANAGEMENT: Battery Chargers**

Product	Mode	Cell Type	# of Cells	V <sub>oc</sub> Range (V)	Cell Voltage (V)	Max Charging Current (mA)	Max Voltage Regulation (%)	Int/Ext FET	Features	Packages
MCP3313/14/23	Linear	LiIon/LiPolymer and LiFePO4	1	4 to 16	3.6, 4.1, 4.2, 4.35, 4.4	1100	±0.5	Int	6.5/5.8V Overvoltage protection, UVLO, Thermal regulation	10-pin 3 x 3 DFN
MCP3313/23	Linear	LiIon/LiPolymer and LiFePO4	2	4 to 16	7.2, 8.2, 8.4, 8.7, 8.8	1100	±0.6	Int	13V Overvoltage protection	10-pin 3 x 3 DFN
MCP33830/L	Linear	LiIon/LiPolymer	1	3.75 to 6	4.2	1000/200	±0.75	Int	Softstart, Charge enable pin	6-pin 2 x 2 TDFN
MCP33831/2	Linear	LiIon/LiPolymer	1	3.7 to 6.0	4.2, 4.35, 4.4, 4.5	500	±0.75	Int	UVLO, Thermal regulation, Programmable charge current, Tri-state or open-drain STAT pin	8-pin 2 x 3 DFN, 5-pin SOT-23
MCP33837/8	Linear	LiIon/LiPolymer	1	3.7 to 6.0	4.2, 4.35, 4.4, 4.5	1000	±0.75	Int	Dual input (USB/DC) auto-switching, Thermistor input, Power Good output or Timer enable input	10-pin MSOP, 10-pin 3 x 3 DFN
MCP33871	Linear	LiIon/LiPolymer	1	3.75 to 6.0	4.1, 4.2, 4.35, 4.4	1500 (A/C Adapter) 500 (USB)	±0.5	Int	Simultaneous charging of load and battery, Load-dependent charging, Multiple programmable charge currents	20-pin 4 x 4 QFN

**LINEAR: Op Amps**

Product	# per Package	GBWP (MHz)	I <sub>o</sub> Typical (µA)	V <sub>os</sub> Max (mV)	Operating Voltage (V)	Packages
MCP661/2/3/4/5/9	1/2/1/4/2/4	60	6000	8	2.5 to 5.5	SOIC, MSOP, DFN, TSSOP, QFN, SOT
MCP651/1S/2/3/4/5/9	1/2/1/4/2/4	50	6000	0.2	2.5 to 5.5	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	SOIC, MSOP, DFN, TSSOP, QFN, SOT
MCP621/1S/2/3/4/5/9	1/2/1/4/2/4	20	2500	0.2	2.5 to 5.5	SOIC, MSOP, DFN, TSSOP, QFN, SOT
MCP6191/2/4	1/2/4	10	2000	4	3.5 to 12.0	DFN, SOIC, TSSOP
MCP6021/2/3/4	1/2/1/4	10	1000	0.5	2.5 to 5.5	PDFP, SOIC, MSOP, TSSOP, SOT
MCP6291/2/3/4/5	1/2/1/4/2	10	1000	3	2.4 to 6.0	PDFP, SOIC, MSOP, TSSOP, SOT
MCP6491	1	7.5	530	1	2 to 5.5	SOT, SC70
MCP6H81/2/4	1/2/4	5.5	700	4	3.5 to 12.0	DFN, SOIC, TSSOP
MCP6281/2/3/4/5	1/2/1/4/2	5	445	3	2.2 to 6.0	PDFP, SOIC, MSOP, TSSOP, SOT
MCP6481	1	4	240	1	2 to 5.5	SOT, SC70
MCP6286	1	3.5	540	1.5	2.2 to 5.5	SOT
MCP601/2/3/4	1/2/1/4	2.8	230	2	2.7 to 6.0	PDFP, SOIC, TSSOP, SOT
MCP6H71/2/4	1/2/4	2.7	480	4	3.5 to 12.0	DFN, SOIC, TSSOP
MCP6271/2/3/4/5	1/2/1/4/2	2	170	3	2.0 to 6.0	PDFP, SOIC, MSOP, TSSOP, SOT
MCP6471	1	2	100	1	2 to 5.5	SOT, SC70
MCP6V01/2/3	1/2/1	1.3	300	0.002	1.8 to 5.5	SOIC, DFN, TDFN
MCP6V06/7/8	1/2/1	1.3	300	0.003	1.8 to 5.5	SOIC, DFN, TDFN
MCP6V26/7/8	1/2/1	1.2	300	0.002	1.8 to 5.5	SOIC, MSOP, DFN, SOT
MCP6V31/2/4	1/2/4	1.2	110	0.15	1.8 to 6.0	SOIC, TSSOP, DFN, SOT
MCP6H01/2/4	1/2/4	1.2	135	4.5	3.5 to 16	SOIC, TSSOP, DFN, SOT, SC70
MCP6001/2/4	1/2/4	1	100	4.5	1.8 to 6.0	PDFP, SOIC, MSOP, TSSOP, TDFN, SOT, SC70
MCP6401/2/4	1/2/4	1	45	4.5	1.8 to 6.0	SOIC, TSSOP, TDFN, SOT, SC70
MCP6001/2/4	1/2/4	0.73	60	0.15	1.8 to 6.0	SOIC, TSSOP, DFN, SOT
MCP6241/2/4	1/2/4	0.55	50	5	1.8 to 5.5	PDFP, SOIC, MSOP, TSSOP, TDFN, SOT, SC70
MCP6051/2/4	1/2/4	0.385	30	0.15	1.8 to 6.0	SOIC, TSSOP, DFN, SOT
MCP6V31	1	0.3	23	0.008	1.8 to 5.5	SOT, SC70
MCP6231/2/4	1/2/4	0.3	20	5	1.8 to 6.0	PDFP, SOIC, MSOP, TSSOP, TDFN, SOT, SC70
MCP616/7/8/9	1/2/1/4	0.19	19	0.15	2.3 to 5.5	PDFP, SOIC, MSOP, TSSOP
MCP606/7/8/9	1/2/1/4	0.155	19	0.25	2.5 to 6.0	PDFP, SOIC, TSSOP, SOT
MCP6141/2/3/4	1/2/1/4	0.1	0.6	3	1.4 to 6.0	PDFP, SOIC, MSOP, TSSOP, SOT
MCP6V11	1	0.08	7.5	0.008	1.6 to 5.5	SOT, SC70
MCP6041/2/3/4	1/2/1/4	0.014	0.6	3	1.4 to 6.0	PDFP, SOIC, MSOP, TSSOP, SOT
MCP6031/2/3/4	1/2/1/4	0.01	0.9	0.15	1.8 to 5.5	SOIC, MSOP, TSSOP, DFN, SOT
MCP6441/2/4	1/2/4	0.009	0.45	4.5	1.4 to 6.0	SOIC, MSOP, TSSOP, SOT, SC70

## LINEAR: Comparators

Product	# per Package	Typical Propagation Delay (µs)	I <sub>O</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, $\overline{9V}$ , 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)	SOT23
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

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

Product	Resolution (bits)	Maximum Sampling Rate (ksamples/sec)	# of Input Channels	Interface	Input Type	DNL (±LSB)	Typical Operating Current (µA)	Temperature Range (°C)	Packages
MCP3021/3221	10/12	22	1	FC™	Single-ended	0.25	250	-40 to +125	SOT23A
MCP3001/2/4/8	10	200	1/2/4/8	SPI	Single-ended	0.05/0.188/0.715	500-550	-40 to +85	PDIP, SOIC, MSOP, TSSOP
MCP3201/2/4/8	12	100	1/2/4/8	SPI	Single-ended	0.75	400-550	-40 to +85	PDIP, SOIC, MSOP, TSSOP
MCP3301/2/4	13	100	1/2/4	SPI	Differential	0.75	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	FC™	V <sub>DD</sub>	6	0.25	130	-40 to +125	SOT23
MCP4706/16/26	8/10/12	1	FC	Ext	6	0.05/0.188/0.715	210	-40 to +125	SOT23
MCP4725	12	1	FC	V <sub>DD</sub>	6	0.75	175	-40 to +125	SOT23
MCP4728	12	4	FC	Int	6	0.75	250	-40 to +125	MSOP
MCP4801/11/21	8/10/12	1	SPI	Int	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	Int	4.5	0.5/0.5/0.75	415	-40 to +125	MSOP, PDIP, SOIC
MCP4901/11/21	8/10/12	1	SPI	Ext	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	Ext	4.5	0.5/0.5/0.75	350	-40 to +125	PDIP, SOIC, TSSOP
TC1320/1	8/10	1	SMBus	Ext	10	0.8/2	350	-40 to +85	MSOP, SOIC

## MIXED SIGNAL: Energy Measurement ICs

Product	Dynamic Range	Typical Accuracy	ADC Channels	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	up to 32	SPI	1.7	2.7 to 3.6	2.7 to 3.6	-40 to +125	SSOP, QFN
MCP3903	24-bit resolution	91 dB SINAD	6	up to 32	SPI	8.3	4.5 to 5.5	2.7 to 3.6	-40 to +125	SSOP
MCP3905V/06A	500:1 / 1000:1	0.1%	2	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	0.1%	2	up to 16	Active power pulse/SPI	3.9	4.5 to 5.5	4.5 to 5.5	-40 to +125	SSOP

## MIXED SIGNAL: Current/DC Power Measurement ICs

Product	# Current Sensors	Description	Full Scale Range (mV)	Current Measurement Max. Accr. (%)	Effective Sampling Interval Min. to Max. (msec)	Bus Voltage Range (V)	# Temp. Monitors (ambient, remote)	Temp. Accuracy Typ./Max. (°C)	Alert/Therm.	Peak Detection	Interface	Packages
PAC1710	1	Current/DC Power Sensor	10, 20, 40, 80	±1	2.5 to 2600	0 to +40	N/A	N/A	1	-	SMBus/FC™	10-pin DFN
PAC1720	2	Dual Current/DC Power Sensor	10, 20, 40, 80	±1	2.5 to 2600	0 to +40	N/A	N/A	1	-	SMBus/FC	10-pin DFN
EMCI701/2/4	1	Current/DC Power Sensor with Temperature Monitoring	10, 20, 40, 80	±1	2.5 to 2600	+3 to +24	1, 0/1/3	±0.25/±1.0	2	✓	SMBus/FC	12-pin QFN, 10-pin MSOP, 16-pin QFN, 14-pin SOIC

**MIXED SIGNAL: Digital Potentiometers**

Product	# of Taps	Memory	Channels	Interface	Resistance (kΩ)	Temperature Range (°C)	Packages
MCP4021/12/13/14	64	Volatile	1	Up/Down	2.1, 5.10, 50	-40 to +125	DFN, SOT-23
MCP4017/18/19	128	Volatile	1	PC™	5.10, 50, 100	-40 to +125	SC70
MCP40017/D18/D19	128	Volatile	1	PC	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	DFN, SOT-23
MCP4441/42	128	Nonvolatile	1	SPI	5.10, 50, 100	-40 to +125	MSOP, QFN, DFN
MCP4241/42	128	Nonvolatile	2	SPI	5.10, 50, 100	-40 to +125	MSOP, QFN, DFN
MCP4131/32	128	Volatile	1	SPI	5.10, 50, 100	-40 to +125	QFN, DFN
MCP4231/32	128	Volatile	2	SPI	5.10, 50, 100	-40 to +125	MSOP, QFN, DFN
MCP4151/52	256	Volatile	1	SPI	5.10, 50, 100	-40 to +125	MSOP, QFN, DFN
MCP4161/62	256	Nonvolatile	1	SPI	5.10, 50, 100	-40 to +125	MSOP, QFN, DFN
MCP4251/52	256	Volatile	2	SPI	5.10, 50, 100	-40 to +125	MSOP, QFN, DFN
MCP4261/62	256	Nonvolatile	2	SPI	5.10, 50, 100	-40 to +125	MSOP, QFN, DFN
MCP4341/42	129	Nonvolatile	4	SPI	5.10, 50, 100	-40 to +125	TSSOP, QFN
MCP4661/62	257	Nonvolatile	4	SPI	5.10, 50, 100	-40 to +125	TSSOP, QFN

Product	# of Taps	Memory	Channels	Interface	Resistance (kΩ)	Temperature Range (°C)	Packages
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	PC	5, 10, 50, 100	-40 to +125	TSSOP, QFN
MCP4441/42	129	Nonvolatile	4	PC	5, 10, 50, 100	-40 to +125	TSSOP, QFN
MCP4451/52	257	Volatile	4	PC	5, 10, 50, 100	-40 to +125	TSSOP, QFN
MCP4461/62	257	Nonvolatile	4	PC	5, 10, 50, 102	-40 to +125	TSSOP, QFN
MCP4531/32	128	Volatile	1	PC	5, 10, 50, 100	-40 to +125	MSOP, DFN
MCP4631/32	128	Volatile	2	PC	5, 10, 50, 100	-40 to +125	MSOP, DFN
MCP4541/42	128	Nonvolatile	1	PC	5, 10, 50, 100	-40 to +125	MSOP, DFN
MCP4641/42	128	Nonvolatile	2	PC	5, 10, 50, 100	-40 to +125	MSOP, DFN
MCP4651/52	256	Volatile	1	PC	5, 10, 50, 100	-40 to +125	MSOP, DFN
MCP4651/52	256	Volatile	2	PC	5, 10, 50, 100	-40 to +125	MSOP, DFN
MCP4661/62	256	Nonvolatile	1	PC	5, 10, 50, 100	-40 to +125	MSOP, DFN
MCP4661/62	256	Nonvolatile	2	PC	5, 10, 50, 100	-40 to +125	MSOP, DFN

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

Product	Resolution (bits)	Maximum Sampling Rate (samples/sec)	# of Input Channels	Interface	Typical Supply Current (µA)	Temperature Range (°C)	Features	Packages
MCP421/2/3/4	18 to 12	4 to 240	1/2/2/4 Diff	PC™	155	-40 to +125	PGA, Vref	SOIC, TSSOP, MSOP, DFN, SOT
MCP425/6/7/8	16 to 12	15 to 240	1/2/2/4 Diff	PC	155	-40 to +125	PGA, Vref	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

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

Product	Description	Operating Temperature Range (°C)	Other Features	Packages
MCP2515	Stand-alone CAN controller with SPI interface	-40 to +125	3 Tx Buffers, 2 Rx Buffers, 6 Filters, 2 Masks, Interrupt output, MCP2510 upgrade	PDIP, SOIC, TSSOP, QFN
MCP2551	CAN (Controller Area Network), High-speed CAN transceiver	-40 to +125	1 Mbps max. CAN bus speed, ISO11898 compatible, industry standard pinout	PDIP, SOIC
MCP2003/4/A, MCP2021/2/A, MCP2050, MCP2050	LIN (Local Interconnect Network) transceivers	-40 to +125	Product options: Stand-alone transceiver, integrated Vref = 3.3V or 5V @ 70 mA, integrated WWDT, integrated ratiometric battery monitor, Vcc 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
MCP23009/18	8-bit I/O port expander, 16-bit I/O port expander	-40 to +125	PC™ (up to 3.4 MHz) or SPI (up to 10 MHz) interface, 25 mA source/sink per I/O	PDIP, SDIP, SOIC, SSOP
MCP212(0/2), MCP2140A, MCP215(0/5)	Infrared IRDA encoders, Decoders, Protocol handlers	-40 to +85	UART to IR encoder/decoder w/hardware & software baud rate selection, IDA* standard protocol handler plus encoder/decoder	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, Vio Range = 3.0 to 5.5V	SOIC, SSOP, QFN
ENC28J60	Stand-alone 10 Base-T Ethernet controller with SPI interface	-40 to +85	Ethernet controller, 8 KB RAM Buffer, integrated 10 BASE-T PHY	SPDIP, SOIC, SSOP, QFN
ENC24J600	Stand-alone 10/100 Base-T Ethernet controller with SPI and parallel interface	-40 to +85	Ethernet controller, 24 KB RAM Buffer, Cryptographic Security Engine, 10/100 Base-T PHY	TQFP, QFN
ENC524J600	Stand-alone 10/100 Base-T Ethernet controller with SPI and parallel interface	-40 to +85	Ethernet controller, 24 KB RAM Buffer, Cryptographic Security Engine, 10/100 Base-T PHY	TQFP

**INTERFACE: USB Port Power Controllers with Charger Emulation**

Product	Description	USB Port Power Switch (55 mW)	Hi-Speed USB 2.0 Switch	Battery Charger Emulation Profiles	8 Resistor Set Current Limits	Indicator Output	Current Measurement	Interface	Packages
UCS1001-1/2	USB Port Power Controller with Charger Emulation	1	1	9	Up to 2.5A	Charging/Attach Detect	-	Discrete I/O	20-pin 4 x 4 QFN
UCS1002-1	Programmable USB Port Power Controller with Charger Emulation	1	1	9 plus 1 programmable	Up to 2.5A	Charging	✓	PC™ / SMBus	20-pin 4 x 4 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	5 ku Pricing†	Special Features	Packages
AR1021	Analog Resistive	SPI, I²C™	All Manufacturers 4, 5 and 8 wire	Internal 10-bit Ratiometric	1024 x 1024	2.5V DC ±5% 5.5V DC ±5%	140 pps	-40 to +85	Per schematic	\$1.32	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 x 1024	2.5V DC ±5% 5.5V DC ±5%	140 pps	-40 to +85	Per schematic	\$1.39	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 x 1024	3.3V DC ±5% 5.5V DC ±5%	150 pps	-40 to +85	Per schematic	\$1.61	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 x 1024	3.3V DC ±5% 5.5V DC ±5%	150 pps	-40 to +85	Per schematic	\$12.78	Controller driven calibration & Universal for all touch screens	Board Module

## SAFETY & SECURITY: Smoke Detector and Horn Driver ICs

Product	Horn Driver	Detection Method	Low Battery Detection	Alarm Memory	Alarm Interconnect	Hush/Sensitivity Timer	Operating Temperature Range (°C)	Packages
RE46C140/1/3/4/5	Yes	Photo	Yes	No	Yes	140/4/5	-25 to +75	PDIP, SOIC
RE46C12X & 152	Yes	Ion	Yes	No	Not 120	122/7,152	-10 to +60	PDIP
RE46C10X & 11X	Yes	Just Driver	5/7/9/19	NA	9/19	None	See Datasheet	See Datasheet
RE46C162/3, 5/6/7/8	Yes	Ion/Photo	Yes	Yes	Yes	Yes	-25 to +75	PDIP, SOIC
RE46C180	Yes	Ion	Yes	Yes	Yes	Yes	-10 to +60	PDIP, SOIC
RE46C190	Yes	Photo	Yes	Yes	Yes	Yes	-10 to +60	SOIC
RE46C317/8	Yes	Just Driver	No	No	No	No	-10 to +60	PDIP, SOIC

## MOTOR DRIVERS: Stepper Motors, DC Motors and 3 Phase BLDC Fan Controllers

Product	Motor Type	Input Voltage Range (V)	Internal/External FETs	Output Current (mA)	Control Scheme	Motor Speed Output	Protections	Temp. Operating Range (°C)	Features	Packages
MTS6C19A	One Bipolar Stepper Motor or Two DC Motors	1.0 to 40.0	Internal	750	Direct PWM Input, Current Limit Control, Microstepping	No	Overcurrent, Overtemperature, Under Voltage	-20 to +85	Dual Full Bridge Motor Driver for Stepper Motors, Pin Compatible with Allegro 6219	24-SOP
MTS2916A	One Bipolar Stepper Motor or Two DC Motors	1.0 to 40.0	Internal	750	Direct PWM Input, Current Limit Control, Microstepping	No	Overcurrent, Overtemperature, Under Voltage	-20 to +85	Dual Full Bridge Motor Driver for Stepper Motors, Pin Compatible with Allegro 2916	24-SOP
MTD6605	3-Phase Brushless DC Motor	2.0 to 5.5	Internal	750	Sensorless Sinusoidal	Frequency Generator	Overcurrent, Overvoltage, Short Circuit, Overtemperature, Motor Lock-up	-40 to +125	180° Sinusoidal Sensorless Drive, Direction Control, Programmable BEWF Coefficient Range, Fsw = 30 kHz	10-UDFN (3 x 3)
MTD6601C/D/G	3-Phase Brushless DC Motor	2.0 to 14.0	Internal	800/500/800	Sensorless Sinusoidal	Frequency Generator	Overcurrent, Short Circuit, Overtemperature, Motor Lock-up	-30 to +95	180° Sinusoidal Sensorless Drive, Direction Control, Boost Mode (D), Fsw = 20 kHz (C/D), 23 kHz (G)	8-SOP (C, G), 10-MSOP (D)
MTD6602B	3-Phase Brushless DC Motor	2.0 to 5.5	Internal	750	Sensorless Sinusoidal	Frequency Generator	Overcurrent, Short Circuit, Overtemperature, Motor Lock-up	-40 to +125	180° Sinusoidal Sensorless Drive, Direction Control, Fsw = 30 kHz	10-TDFN (3 x 3)

## REAL-TIME CLOCK/CALENDAR (RTCC)

Product	Pins	Digital Trimming (Adj./Range)	Timing Features			Memory <sup>(1)</sup>			Power			Unique Features <sup>(2)</sup>	5 ku Pricing†	Packages
			Alarm Settings	WDT	Outputs	SRAM (Bytes)	EERPOM (kbits)	ID/MAC (Bits)	Min Vcc	Min Icc	Min Icc			
MCP7940M	8	±127 ppm	1 sec.	-	IRQ/CLK	64	0	0	1.8	-	-	-	\$0.46	SOIC (SN), TSSOP (ST), MSOP (MS), TDFN (MNY), PDIP (P)
MCP7940N	8	±127 ppm	1 sec.	-	IRQ/CLK	64	0	0	1.8	-	Power Fail Timestamp	-	\$0.59	SOIC (SN), TSSOP (ST), MSOP (MS), TDFN (MNY), PDIP (P)
MCP7940X	8	±127 ppm	1 sec.	-	IRQ/CLK	64	0	64	1.8	1.3	Power Fail Timestamp	-	\$0.66	SOIC (SN), TSSOP (ST), MSOP (MS), TDFN (MNY)
MCP7941X	8	±127 ppm	1 sec.	-	IRQ/CLK	64	1	64	1.8	1.3	Power Fail Timestamp	-	\$0.72	SOIC (SN), TSSOP (ST), MSOP (MS), TDFN (MNY)
MCP7951X	10	±255 ppm	0.01 sec.	-	IRQ/CLK	64	1	128	1.8	1.3	Power Fail Timestamp	-	\$0.90	SOIC (SL), TSSOP (ST)
MCP7952X	10	±255 ppm	0.01 sec.	-	IRQ/CLK	64	2	128	1.8	1.3	Power Fail Timestamp	-	\$0.96	MSOP (MS), TDFN (MNY)
MCP795W1X	14	±255 ppm	0.01 sec.	✓	1. CLK 2. IRQ 3. WDT RST	64	1	128	1.8	1.3	Power Fail Timestamp, Event Detects (x 2)	-	\$1.22	SOIC (SL), TSSOP (ST)
MCP795W2X	14	±255 ppm	0.01 sec.	✓	1. CLK 2. IRQ 3. WDT RST	64	2	128	1.8	1.3	Power Fail Timestamp, Event Detects (x 2)	-	\$1.28	SOIC (SL), TSSOP (ST)

Note 1: All part numbers with an "X" have three ID programming options: [0 = Blank ID], [1 = EU-48™ MAC Address], [2 = EU-64™ MAC Address]

Note 2: The Power Fail Timestamp in all RTCCs occur at Battery Switchover.

Products sorted by pin count followed by pricing.

† Pricing subject to change; please contact your Microchip representative for most current pricing.

**SERIAL MEMORY PRODUCTS**

Product	Released (R) Not Released (NR)	Density	Organization	Max. Clock Frequency	Operating Voltage	Temperature Range	E/W Endurance (Minimum)	Data Retention (Minimum)	Max. Write Spreads	Max. Standby Current (@ 5.5V, 85°C)	Write Protect		Protected Array Size	5 Ku Pricing†	Special/Unique Features	Packages
											Hardware	Software				
<b>Serial SRAM</b>																
23X640	R	64 Kb	x 8	20 MHz	1.5V-1.95V 2.7V-3.6V	-40°C to +125°C	∞	Volatile	0 ms	4 µA	-	-	-	\$0.51	Zero write cycle time. Infinite endurance. Volatile RAM. Byte/page/sequential read-write modes	PDIP (P), SOIC (SN), TSSOP (ST)
23X256	R	256 Kb	x 8	20 MHz	1.5V-1.95V 2.7V-3.6V	-40°C to +125°C	∞	Volatile	0 ms	4 µA	-	-	-	\$0.87	Zero write cycle time. Infinite endurance. Volatile RAM. Byte/page/sequential read-write modes	PDIP (P), SOIC (SN), TSSOP (ST)
23XX512	R	512 Kb	x 8	20 x 4 MHz	1.7V-2.2V 2.5V-5.5V	-40°C to +125°C	∞	Volatile	0 ms	4 µA	-	-	-	\$1.24	Fast Speed-Quad SPI available (80 MHz); Infinite endurance; Zero write times, 5V capable	SOIC (SN), PDIP (P), TSSOP (ST)
23XX1024	R	1024 Kb	x 8	20 x 4 MHz	1.7V-2.2V 2.5V-5.5V	-40°C to +125°C	∞	Volatile	0 ms	4 µA	-	-	-	\$1.73	Fast Speed-Quad SPI available (80 MHz); Infinite endurance; Zero write times, 5V capable	SOIC (SN), PDIP (P), TSSOP (ST)
<b>Serial NVRAM</b>																
23LCV612	R	512 Kb	x 8	20 MHz	-	-40°C to +125°C	∞	20 Years via battery	0 ms	4 µA	-	-	-	\$1.40	Battery backed nonvolatile SRAM; infinite endurance; Zero write times	SOIC (SN), PDIP (P), TSSOP (ST)
23LCV1024	R	1024 Kb	x 8	20 MHz	-	-40°C to +125°C	∞	20 Years via battery	0 ms	4 µA	-	-	-	\$1.98	Battery backed nonvolatile SRAM; infinite endurance; Zero write times	SOIC (SN), PDIP (P), TSSOP (ST)
<b>Serial EEPROM</b>																
11XX010	R	1 Kb	x 8	100 kHz	1.8V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	1 µA	-	✓	W, ½, ¼	\$0.23	Single I/O for all clock, data, control and write protection	PDIP (P), SOIC (SN), MSOP (MNY), DFN (MC), TO-92 (TO), 3-SOT23 (TT), WLCSP (CS)
11XX020/E48	R	2 Kb	x 8	100 kHz	1.8V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	1 µA	-	✓	W, ½, ¼	\$0.25	Single I/O for all clock, data, control and write protection, Unique EU-48™/EU-64™, MAC address option available	PDIP (P), SOIC (SN), MSOP (MNY), DFN (MC), TO-92 (TO), 3-SOT23 (TT), WLCSP (CS)
11XX040	R	4 Kb	x 8	100 kHz	1.8V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	1 µA	-	✓	W, ½, ¼	\$0.26	Single I/O for all clock, data, control and write protection	PDIP (P), SOIC (SN), MSOP (MNY), DFN (MC), TO-92 (TO), 3-SOT23 (TT), WLCSP (CS)
11XX080	R	8 Kb	x 8	100 kHz	1.8V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	1 µA	-	✓	W, ½, ¼	\$0.30	Single I/O for all clock, data, control and write protection	PDIP (P), SOIC (SN), MSOP (MNY), DFN (MC), TO-92 (TO), 3-SOT23 (TT), WLCSP (CS)
11XX160	R	16 Kb	x 8	100 kHz	1.8V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	1 µA	-	✓	W, ½, ¼	\$0.33	Single I/O for all clock, data, control and write protection	PDIP (P), SOIC (SN), MSOP (MNY), DFN (MC), TO-92 (TO), 3-SOT23 (TT), WLCSP (CS)
24XX00	R	128 b	x 8	400 kHz	1.7V-5.5V	-40°C to +125°C	1M	200 Years	4 ms	1 µA	-	-	-	\$0.17	100 KHz operation from 1.7V to 4.5V	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MC), 5-SOT23 (OT)
24XX01/014	R	1 Kb	x 8	400 kHz	1.7V-5.5V 1.5V-3.6V	-40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	-	W, ½	\$0.18	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-SOT23 (OT), SC70 (LT)
24XX02/024/E48	R	2 Kb	x 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	\$0.20	Address pin option: connect up to 8 devices on bus, Very low voltage option, Unique EU-48™/EU-64™ MAC address option available	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MNY), DFN (MC), 5-SOT23 (OT), SC70 (LT)
34XX02	R	2 Kb	x 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	\$0.18	1 MHz @ 2.5V, Permanent and restable software WP - DIMM-DDR2/3	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MNY), DFN (MC), 5-SOT23 (OT), SC70 (LT)
24XX00	R	128 b	x 8	400 kHz	1.7V-5.5V	-40°C to +125°C	1M	200 Years	4 ms	1 µA	-	-	-	\$0.17	100 KHz operation from 1.7V to 4.5V	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MC), 5-SOT23 (OT)
24XX01/014	R	1 Kb	x 8	400 kHz	1.7V-5.5V 1.5V-3.6V	-40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	-	W, ½	\$0.18	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-SOT23 (OT), SC70 (LT)
24XX02/024/E48	R	2 Kb	x 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	\$0.20	Address pin option: connect up to 8 devices on bus, Very low voltage option, Unique EU-48™/EU-64™ MAC address option available	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MNY), DFN (MC), 5-SOT23 (OT), SC70 (LT)
34XX02	R	2 Kb	x 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	\$0.18	1 MHz @ 2.5V, Permanent and restable software WP - DIMM-DDR2/3	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MNY), DFN (MC), 5-SOT23 (OT)
24XX04	R	4 Kb	x 8	400 kHz	1.7V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	-	W, ½	\$0.21	400 KHz @ 2.5V, 16 byte page write buffer, No address pins	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MNY), DFN (MC), 5-SOT23 (OT), WLCSP (CS)
24XX08	R	8 Kb	x 8	400 kHz	1.7V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	-	W, ½	\$0.23	400 KHz @ 2.5V, 16 byte page write buffer, No address pins	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MNY), DFN (MC), 5-SOT23 (OT), WLCSP (CS)
24XX16	R	16 Kb	x 8	400 kHz	1.7V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	-	W, ½	\$0.25	400 KHz @ 2.5V, 16 byte page write buffer, No address pins	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MNY), DFN (MC), 5-SOT23 (OT), WLCSP (CS)
24XX32A	R	32 Kb	x 8	400 kHz	1.7V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	-	W, ¼	\$0.31	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-SOT23 (OT), WLCSP (CS)
24XX64/65	R	64 Kb	x 8	1 MHz	1.7V-5.5V	-40°C to +125°C	1M 10M	200 Years	5 ms	1 µA	✓	-	W, ¼	\$0.38	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-SOT23 (OT), WLCSP (CS)
24XX128	R	128 Kb	x 8	1 MHz	1.7V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	-	W	\$0.54	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	x 8	1 MHz	1.7V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	-	W	\$0.83	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	x 8	1 MHz	1.7V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	1 µA	✓	-	W	\$1.50	1 MHz @ 2.5V, 128 byte page. Connect up to 8 devices on bus	PDIP (P), SOIC (SN), TSSOP (ST), DFN (WF), SOU (SM), WLCSP (CS)
24XX1025/26	R	1 Mb	x 8	1 MHz	1.7V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	5 µA	✓	-	W	\$3.14	1 MHz @ 2.5V, 128 byte page. Connect up to 4 devices on bus	PDIP (P), SOIC (SN), SOU (SM)
24XX1024	NR	1 Mb	x 8	1 MHz	2.5V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	5 µA	✓	-	W	-	1 MHz @ 2.5V, 256 byte page. Connect up to 4 devices on bus	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MF), SOU (SM)

1: All devices are Pb-Free and RoHS compliant.  
 2: ESD protection (kV (HBM)) > 400V (MIL) on all pins.  
 3: Write Protect (WP), W = Whole Array, ½ = Half Array, ¼ = Quarter Array.  
 4: Factory program and unique ID option's available.  
 5: Die and wafer options available on all devices.  
 † Pricing Subject to change; please contact your Microchip representative for most current pricing.

**SERIAL MEMORY PRODUCTS**

Product	Released (R) Not Released (NR)	Density	Organization	Max. Clock Frequency	Operating Voltage	Temperature Range	E/W Endurance (Minimum)	Data Retention (Minimum)	Max. Write Spreads	Max. Standby Current @ 5.5V, 85°C	Write Protect		Protected Array Size	5 ku Pricing†	Special/Unique Features	Packages
											Hardware	Software				
<b>Serial EERPOM (Cont.)</b>																
<b>Bus</b>																
<b>Microwire</b>																
93XX46A/B/C	R	1 Kb	x 8/x 16	3 MHz	1.8V-5.5V	-40°C to +125°C	1M	200 Years	6 ms	1 µA	-	-	-	\$0.18	ORG pin to select word size on 46C version	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6SOT-23 (OT)
93XX56A/B/C	R	2 Kb	x 8/x 16	3 MHz	1.8V-5.5V	-40°C to +125°C	1M	200 Years	6 ms	1 µA	-	-	-	\$0.20	ORG pin to select word size in 56C version	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6SOT-23 (OT)
93XX66A/B/C	R	4 Kb	x 8/x 16	3 MHz	1.8V-5.5V	-40°C to +125°C	1M	200 Years	6 ms	1 µA	-	-	-	\$0.21	ORG pin to select word size in 66C version	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6SOT-23 (OT)
93XX76A/B/C	R	8 Kb	x 8/x 16	3 MHz	1.8V-5.5V	-40°C to +125°C	1M	200 Years	6 ms	1 µA	✓	-	W	\$0.30	ORG pin to select word size in 76C version	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6SOT-23 (OT)
93XX86A/B/C	R	16 Kb	x 8/x 16	3 MHz	1.8V-5.5V	-40°C to +125°C	1M	200 Years	6 ms	1 µA	✓	-	W	\$0.33	ORG pin to select word size in 86C version	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6SOT-23 (OT)
25XX010A	R	1 Kb	x 8	10 MHz	1.8V-5.5V	-40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, 1/2, 1/4	\$0.30	5 MHz @ 2.5V, Status register, 16 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6SOT-23 (OT)
25XX020A/E4B	R	2 Kb	x 8	10 MHz	1.8V-5.5V	-40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, 1/2, 1/4	\$0.31	5 MHz @ 2.5V, Status register, 16 byte page, Unique EU48™/EUJ64™ MAC address option available	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6SOT-23 (OT)
25XX040A	R	4 Kb	x 8	10 MHz	1.8V-5.5V	-40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, 1/2, 1/4	\$0.33	5 MHz @ 2.5V, Status register	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6SOT-23 (OT)
25XX080C/D	R	8 Kb	x 8	10 MHz	1.8V-5.5V	-40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, 1/2, 1/4	\$0.40	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	x 8	10 MHz	1.8V-5.5V	-40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, 1/2, 1/4	\$0.41	16/32 byte page, 5 MHz @ 2.5V, Status register	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY)
25XX320A	R	32 Kb	x 8	10 MHz	1.8V-5.5V	-40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, 1/2, 1/4	\$0.45	5 MHz @ 2.5V, Status register, 32 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY)
25XX640A	R	64 Kb	x 8	10 MHz	1.8V-5.5V	-40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, 1/2, 1/4	\$0.46	5 MHz @ 2.5V, Status register, 32 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), MF
25XX128	R	128 Kb	x 8	10 MHz	1.8V-5.5V	-40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, 1/2, 1/4	\$0.74	5 MHz @ 2.5V, Status register, 64 byte page	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MF)
25XX256	R	256 Kb	x 8	10 MHz	1.8V-5.5V	-40°C to +150°C	1M	200 Years	5 ms	1 µA	✓	✓	W, 1/2, 1/4	\$1.01	5 MHz @ 2.5V, Status register, 64 byte page	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MF), SOU (SM)
25XX512	R	512 Kb	x 8	20 MHz	1.8V-5.5V	-40°C to +125°C	1M	200 Years	5 ms	10 µA	✓	✓	W, 1/2, 1/4	\$1.53	10 MHz @ 2.5V, Deep power down, Status register, Page/sector/chip erase	PDIP (P), SOIC (SN), DFN (MF), SOI (SM)
25XX1024	R	1 Mb	x 8	20 MHz	1.8V-5.5V	-40°C to +125°C	1M	200 Years	6 ms	12 µA	✓	✓	W, 1/2, 1/4	\$2.59	10 MHz @ 2.5V, Deep power down, Status register, Page/sector/chip erase	PDIP (P), DFN (MF), SOIJ (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, 1/2 = Half Array, 1/4 = Quarter Array.  
 4: Factory program and unique ID options available.  
 5: Die and wafer options available on all devices.  
 † Pricing subject to change; please contact your Microchip representative for most current pricing.

**SERIAL FLASH MEMORY**

Product	Released (R) Not Released (NR)	Density	Organization	Max. Clock Frequency	Operating Voltage	Temperature Range	E/W Endurance (Minimum)	Data Retention (Minimum)	Write Speed (Typical)	Write Protect			Special/Unique Features	Packages*
										Max. Standby Current	Hardware	Protected Array Size		
SST25VF512A	R	512 Kb	64K x 8	33 MHz	2.7-3.6V	0°C to 70°C -40°C to +85°C -20 to +85°C	100,000 cycles (typical)	100 years	14 µs (Byte Program)	8 µA	✓	✓	Various	8L-SOIC, 8C-WSON, 8B-XFPGA
SST25VF010A	R	1 Mb	128K x 8	33 MHz	2.7-3.6V	0°C to 70°C -40°C to +85°C -20 to +85°C	100,000 cycles (typical)	100 years	14 µs (Byte Program)	8 µA	✓	✓	Various	8L-SOIC, 8C-WSON, 8B-XFPGA
SST25VF020B	R	2 Mb	256K x 8	80 MHz	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles (typical)	100 years	7 µs (Word Program)	5 µA	✓	✓	Various	8L-SOIC, 8C-WSON
SST25VF020B	R	2 Mb	256K x 8	40 MHz	2.3-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles (typical)	100 years	7 µs (Word Program)	5 µA	✓	✓	Various	8L-SOIC, 8C-WSON
SST25VF020A	NR	2 Mb	256K x 8	40 MHz	1.65-1.95V	0°C to 70°C -40°C to +85°C	100,000 cycles (typical)	20 years	3 ms (Page Program)	10 µA	✓	✓	Various	8L-SOIC, 8C-WSON
SST25VF040B	R	4 Mb	512K x 8	80 MHz	2.7-3.6V	-40°C to +85°C	100,000 cycles (typical)	100 years	7 µs (Word Program)	5 µA	✓	✓	Various	8L-SOIC, 8C-WSON, 8B-XFPGA
SST25VF040B	R	4 Mb	512K x 8	40 MHz	2.3-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles (typical)	100 years	7 µs (Word Program)	5 µA	✓	✓	Various	8L-SOIC, 8C-WSON, 8B-XFPGA
SST25VF080B	R	8 Mb	1M x 8	80 MHz	2.7-3.6V	-40°C to +85°C	100,000 cycles (typical)	100 years	7 µs (Word Program)	5 µA	✓	✓	Various	8L-SOIC, 8C-WSON, 8B-XFPGA
SST25VF080B	R	8 Mb	1M x 8	40 MHz	2.3-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles (typical)	100 years	7 µs (Word Program)	5 µA	✓	✓	Various	8L-SOIC, 8C-WSON
SST25VF016B	R	16 Mb	2M x 8	75 MHz	2.7-3.6V	-40°C to +85°C	100,000 cycles (typical)	100 years	7 µs (Word Program)	5 µA	✓	✓	Various	8L-SOIC, 8C-WSON
SST25VF032B	R	32 Mb	4M x 8	80 MHz	2.7-3.6V	-40°C to +85°C	100,000 cycles (typical)	100 years	7 µs (Word Program)	5 µA	✓	✓	Various	8L-SOIC, 8C-WSON
SST25VF040B	NR	4 Mb	512K x 8	40 MHz	1.65-1.95V	0°C to 70°C -40°C to +85°C	100,000 cycles (typical)	20 years	1 ms (Page Program)	10 µA	✓	✓	Various	8L-SOIC, 8C-WSON
SST25VF080B	NR	8 Mb	1M x 8	40 MHz	1.65-1.95V	0°C to 70°C -40°C to +85°C	100,000 cycles (typical)	20 years	1 ms (Page Program)	10 µA	✓	✓	Various	8L-SOIC, 8C-WSON
SST25VF04C	R	64 Mb	8M x 8	80 MHz	2.7-3.6V	-40°C to +85°C	100,000 cycles (typical)	100 years	1.5 ms (Page Program)	5 µA	✓	✓	Various	8L-SOIC, 8C-WSON, 16L-SOIC
SST26VF016	R	16 Mb	2M x 8	80 MHz	2.7-3.6V	-40°C to +85°C	100,000 cycles (minimum)	100 years	1 ms (Page Program)	8 µA	✓	✓	Various	8L-SOIC, 8C-WSON
SST26VF032	R	32 Mb	4M x 8	80 MHz	2.7-3.6V	-40°C to +85°C	100,000 cycles (minimum)	100 years	1 ms (Page Program)	8 µA	✓	✓	Various	8L-SOIC, 8C-WSON
SST26VF080B	NR	8 Mb	1M x 8	104 MHz	1.65-1.95V	0°C to 70°C -40°C to +85°C	100,000 cycles (minimum)	100 years	1 ms (Page Program)	3 µA	✓	✓	Various	8L-SOIC, 8C-WSON
SST26VF016B	NR	16 Mb	2M x 8	104 MHz	1.65-1.95V	0°C to 70°C -40°C to +85°C	100,000 cycles (minimum)	100 years	1 ms (Page Program)	3 µA	✓	✓	Various	8L-SOIC, 8C-WSON
SST26VF032B/BA	NR	32 Mb	4M x 8	104 MHz	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles (minimum)	100 years	1 ms (Page Program)	15 µA	✓	✓	Various	8L-SOIC, 8C-WSON
SST26VF064B/BA	NR	64 Mb	8M x 8	104 MHz	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles (minimum)	100 years	1 ms (Page Program)	15 µA	✓	✓	Various	8L-SOIC, 8C-WSON

\* Only standard packages are listed here. Please inquire with your local sales office for devices in die form or in chip-scale packages.

**LPC FIRWARE FLASH/FIRMWARE HUB FLASH MEMORY**

Product	Released (R) Not Released (NR)	Density	Organization	Max. Clock Frequency	Operating Voltage	Temperature Range	E/W Endurance (Minimum)	Data Retention (Minimum)	Write Speed (Typical)	Write Protect			Special/Unique Features	Packages
										Max. Standby Current	Hardware	Protected Array Size		
SST49LF08A	R	8 Mb	1M x 8	33 MHz	3.0-3.6V	0°C to 70°C	100,000 cycles (minimum)	100 years	14 µs (Byte Program)	14 µA	✓	✓	Various	32L-PLCC, 32L-TSOP
SST49LF016C	R	16 Mb	2M x 8	33 MHz	3.0-3.6V	0°C to 70°C	100,000 cycles (minimum)	100 years	14 µs (Byte Program)	14 µA	✓	✓	Various	32L-PLCC, 32L-TSOP
SST49LF080A	R	8 Mb	1M x 8	33 MHz	3.0-3.6V	0°C to 70°C	100,000 cycles (minimum)	100 years	14 µs (Byte Program)	14 µA	✓	✓	Various	32L-PLCC, 32L-TSOP
SST49LF160C	R	16 Mb	2M x 8	33 MHz	3.0-3.6V	0°C to 70°C	100,000 cycles (minimum)	100 years	14 µs (Byte Program)	14 µA	✓	✓	Various	32L-PLCC

**PARALLEL FLASH MEMORY**

Product*	Released (R) Not Released (NR)	Density	Organization	Max. Clock Frequency	Operating Voltage	Temperature Range	E/W Endurance (Minimum)	Data Retention (Minimum)	Write Speed (Typical)	Write Protect			Special/Unique Features	Packages**
										Max. Standby Current	Hardware	Software		
<b>Bus</b>														
SST39SF00A	R	1 Mb	128K x 8	45/70 ns	4.5-5.5V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	14 µs (Byte Program)	30 µA	-	-	N/A	32L-PLCC, 32L-PDIP, 32LTSOP
SST39LF010	R	1 Mb	512K x 8	45 ns	3.0-3.6V	0°C to 70°C	100,000 cycles	100 years	14 µs (Byte Program)	1 µA	-	-	N/A	48B-IFBGA, 32LTSOP, 32L-PLCC
SST39WF030	R	1 Mb	512K x 8	70 ns	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	14 µs (Byte Program)	1 µA	-	-	N/A	48B-IFBGA, 32LTSOP, 32L-PLCC
SST39LF020	R	2 Mb	512K x 8	45 ns	3.0-3.6V	0°C to 70°C	100,000 cycles	100 years	14 µs (Byte Program)	1 µA	-	-	N/A	48B-IFBGA, 32LTSOP, 32L-PLCC
SST39SF020A	R	2 Mb	256K x 8	45/55/70 ns	4.5-5.5V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	14 µs (Byte Program)	30 µA	-	-	N/A	32L-PLCC, 32L-PDIP, 32LTSOP
SST39WF020	R	2 Mb	512K x 8	70 ns	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	14 µs (Byte Program)	1 µA	-	-	N/A	48B-IFBGA, 32LTSOP, 32L-PLCC
SST39SF040	R	4 Mb	512K x 8	45/70 ns	4.5-5.5V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	14 µs (Byte Program)	30 µA	-	-	N/A	32L-PLCC, 32L-PDIP, 32LTSOP
SST39LF040	R	4 Mb	512K x 8	45 ns	3.0-3.6V	0°C to 70°C	100,000 cycles	100 years	14 µs (Byte Program)	1 µA	-	-	N/A	48B-IFBGA, 32LTSOP, 32L-PLCC
SST39WF040	R	4 Mb	512K x 8	70 ns	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	14 µs (Byte Program)	1 µA	-	-	N/A	48B-IFBGA, 32LTSOP, 32L-PLCC
SST39WF08X	R	16 Mb	2M x 8	70 ns	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	7 µs (Byte Program)	3 µA	✓	-	64 KB	48B-IFBGA, 48LTSOP
SST39LF200A	R	2 Mb	128K x 16	55 ns	3.0-3.6V	0°C to 70°C	100,000 cycles	100 years	14 µs (Word Program)	3 µA	-	-	N/A	48B-IFBGA, 48LTSOP
SST39WF200A	R	2 Mb	128K x 16	70 ns	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	14 µs (Word Program)	3 µA	-	-	N/A	48B-IFBGA, 48LTSOP, 48B-WFBGA
SST39LF040C	R	4 Mb	256K x 16	55 ns	3.0-3.6V	0°C to 70°C	100,000 cycles	100 years	7 µs (Word Program)	3 µA	✓	-	8 KB	48B-IFBGA, 48LTSOP, 48B-WFBGA
SST39WF400B	R	4 Mb	256K x 16	70 ns	1.65-1.95V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	28 µs (Word Program)	5 µA	-	-	N/A	48B-IFBGA, 48B-WFBGA, 48B-XFBGA
SST39LF40XC	R	4 Mb	256K x 16	70 ns	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	7 µs (Word Program)	3 µA	✓	-	8 KB	48B-IFBGA, 48LTSOP, 48B-WFBGA
SST39WF800B	R	8 Mb	512K x 16	70 ns	1.65-1.95V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	28 µs (Word Program)	5 µA	-	-	N/A	48B-IFBGA, 48B-WFBGA, 48B-XFBGA
SST39LF80XC	R	8 Mb	512K x 16	55 ns	3.0-3.6V	0°C to 70°C	100,000 cycles	100 years	7 µs (Word Program)	3 µA	✓	-	N/A	48B-IFBGA, 48LTSOP, 48B-WFBGA
SST39WF80XC	R	8 Mb	512K x 16	70 ns	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	7 µs (Word Program)	3 µA	✓	-	N/A	48B-IFBGA, 48LTSOP, 48B-WFBGA
SST39WF160X	R	16 Mb	1M x 16	70 ns	1.65-1.95V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	28 µs (Word Program)	5 µA	✓	-	32 KB	48B-IFBGA, 48B-WFBGA, 48B-XFBGA
SST39WF160XC	R	16 Mb	1M x 16	70 ns	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	7 µs (Word Program)	3 µA	✓	-	8 KB	48B-IFBGA, 48LTSOP, 48B-WFBGA
SST39WF160X	R	16 Mb	2M x 8	70 ns	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	7 µs (Byte Program)	3 µA	✓	-	64 KB	48B-IFBGA, 48LTSOP
SST39WF320XB	R	32 Mb	2M x 16	70 ns	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	7 µs (Word Program)	4 µA	✓	-	32 KB	48B-IFBGA, 48LTSOP
SST39WF320XC	R	32 Mb	2M x 16	70 ns	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	7 µs (Word Program)	4 µA	✓	-	8 KB	48B-IFBGA, 48LTSOP
SST39WF640X	R	64 Mb	4M x 16	70 ns	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	7 µs/1.75 µs (Write Buffer Program)	3 µA	✓	✓	32 KB/8 KB	48B-IFBGA, 48LTSOP
SST39WF640XB	NR	64 Mb	4M x 16	70 ns	2.7-3.6V	0°C to 70°C -40°C to +85°C	100,000 cycles	100 years	7 µs/1.75 µs (Write Buffer Program)	3 µA	✓	✓	32 KB/8 KB	48B-IFBGA, 48LTSOP

\*X is a wildcard to indicate "top" or "bottom" boot block support. Please refer to the respective datasheets for more details.

\*\*Only standard packages are listed here. Please inquire with your local sales office for devices in die form or in chip-scale packages.

**WIRELESS PRODUCTS**

Product	Pin Count	Frequency Range (GHz)	Sensitivity (dBm)	Power Output (dBm)	RSSI	Tx Power Consumption (mA)	Rx Power Consumption (mA)	Clock	Sleep	MAC	MAC Features	Protocols	Encryption	Interface	Volume Pricing <sup>1</sup>	Packages
<b>IEEE 802.11 Modules</b>																
MR24WB0MA	36	2.412-2.484	-91	10	Yes	156	85	25 MHz	0.1 µA <sup>(1)</sup>	Yes	802.11b	WiFi® Connection Manager, Announce, DNS, DDNS, DHCP FTP, HTTP, NNBS, SNMP, SMTP, SSL, TCP, UDP, ZeroConf <sup>(2)</sup>	WPA, WPA2, WEP	4-wire SPI	\$12.48	36/Module
MR24WB0MB	36	2.412-2.484	-91	10	Yes	156	85	25 MHz	0.1 µA <sup>(1)</sup>	Yes	802.11b	WiFi Connection Manager, Announce, DNS, DDNS, DHCP FTP, HTTP, NNBS, SNMP, SMTP, SSL, TCP, UDP, ZeroConf <sup>(2)</sup>	WPA, WPA2, WEP	4-wire SPI	\$12.48	36/Module
RM171	49	2.412-2.484	-83	12	Yes	130	30	44 MHz	4 µA	Yes	802.11b/g, WiFi Direct, SoftAP, WFS, Webscan	DHCP, DNS, ARP, ICMP, FTP client, HTTP client, TCP, UDP	UART, SPI Slave, WiFi	\$18.11	49/Module	
MR24WG0MA	36	2.412-2.484	-95	18	Yes	240	156	25 MHz	0.1 mA <sup>(1)</sup>	Yes	802.11b/g, WiFi Direct, SoftAP, WFS	WiFi Connection Manager, Announce, DNS, DDNS, DHCP FTP, HTTP, NNBS, SNMP, SMTP, SSL, TCP, UDP, ZeroConf <sup>(2)</sup>	WPA2, WPA3, WPA-PSK, WPA-FSK, WEP	4-wire SPI	\$18.75	36/Module
MR24WG0MB	36	2.412-2.484	-95	18	Yes	240	156	25 MHz	0.1 mA <sup>(1)</sup>	Yes	802.11b/g, WiFi Direct, SoftAP, WFS	WiFi Connection Manager, Announce, DNS, DDNS, DHCP FTP, HTTP, NNBS, SNMP, SMTP, SSL, TCP, UDP, ZeroConf <sup>(2)</sup>	WPA2, WPA3, WPA-PSK, WPA-FSK, WEP	4-wire SPI	\$18.75	36/Module
RM131C	44	2.412-2.484	-85	18	Yes	210 (+1.8 dBm)	40	44 MHz	4 µA	Yes	802.11b/g, WiFi Direct, SoftAP, WFS, Webscan	DHCP, DNS, ARP, ICMP, FTP client, HTTP client, TCP, UDP	UART, SPI Slave, WiFi	\$24.90	44/Module	
RM131G	44	2.412-2.484	-85	18	Yes	210 (+1.8 dBm)	40	44 MHz	4 µA	Yes	802.11b/g, WiFi Direct, SoftAP, WFS, Webscan	DHCP, DNS, ARP, ICMP, FTP client, HTTP client, TCP, UDP	UART, SPI Slave, WiFi	\$27.75	44/Module	
<b>IEEE 802.15.4 Transceivers/Modules</b>																
MR24J40	40	2.405-2.48	-95	0	Yes	23	19	20 MHz	2 µA	Yes	CSMA-CA	-	AES128	4-wire SPI	\$2.36	40/QFN
MR24J40MA	12	2.405-2.48	-95	0	Yes	23	19	20 MHz	2 µA	Yes	CSMA-CA	-	AES128	4-wire SPI	\$4.94	12/Module
MR24J40MB	12	2.405-2.48	-102	20	Yes	130	25	20 MHz	5 µA	Yes	CSMA-CA	-	AES128	4-wire SPI	\$10.66	12/Module
MR24J40MC	12	2.405-2.48	-108	20	Yes	120	25	20 MHz	12 µA	Yes	CSMA-CA	-	AES128	4-wire SPI	\$10.66	12/Module

1. Indicates "off" current for sleep column.  
2. Supported in the provided stack.

**WIRELESS PRODUCTS**

Product	Pin Count	Frequency Range (GHz)	Sensitivity (dBm)	Power Output (dBm)	Power Consumption			Sleep	MAC	Profiles	Interface	Volume Pricing	Packages
<b>Bluetooth®</b>													
RM42L/RM	35	2.4 to 2.48	-80	4	Standby/Idle 25 mA, Connected (normal mode) 3 mA, Connected (low power sniff) 8 mA	Standby/Idle 25 mA, Connected (normal mode) 3 mA, Connected (low power sniff) 8 mA	Standby/Idle 25 mA, Connected (normal mode) 3 mA, Connected (low power sniff) 8 mA	Yes	SPP, DUN, HID, IAP, HCI, RFCOMM, L2CAP, SDP	UART, USB, Bluetooth®	\$12.50	35/Module	
RM52L/RM*	40	2.4 to 2.48	-85	4	TBD	TBD	TBD	Yes	AZDP, AVRCP, SPP, HFP, HSP, IAP	(audio) Analog speaker, microphone, iS master mode, S/PDIF, (data) UART, USB, GPIO	\$16.04	40/Module	
RM4L/RM	35	2.4 to 2.48	-80	15	Standby/Idle 25 mA, Connected (normal mode) 30 mA, Connected (low power sniff) 8 mA	Standby/Idle 25 mA, Connected (normal mode) 30 mA, Connected (low power sniff) 8 mA	Standby/Idle 25 mA, Connected (normal mode) 30 mA, Connected (low power sniff) 8 mA	Yes	SPP, DUN, HID, IAP, HCI, RFCOMM, L2CAP, SDP	UART, USB, Bluetooth	\$18.75	35/Module	

\* Not yet released.

**Sub-GHz Transceivers/Modules**

Product	Pin Count	Frequency Range (MHz)	Sensitivity (dBm)	Power Output (dBm)	RSSI	Tx Power Consumption (mA)	Rx Power Consumption (mA)	Clock	Sleep	Interface	Volume Pricing <sup>1</sup>	Packages
MR69XA	16	433/689/915	-110	7	Yes	15 mA @ 0 dBm	1.1	10 MHz	0.3 µA	4-wire SPI	\$1.71	16/TSSOP
MR69XA	32	689/915/950	-113	12.5	Yes	25 mA @ 0 dBm	3	12.8 MHz	0.1 µA	4-wire SPI	\$1.76	32/TQFN
MR69XAMB	12	868	-113	12.5	Yes	25 mA @ 0 dBm	3	12.8 MHz	0.1 µA	4-wire SPI	\$5.20	12/Module
MR69XAMB	12	915	-113	12.5	Yes	25 mA @ 0 dBm	3	12.8 MHz	0.1 µA	4-wire SPI	\$5.20	12/Module

**rPIC™ Transmitters + PIC® MCUs**

Product	I/O Pins	Frequency Range (MHz)	Program Memory (Bytes)	EEPROM (bytes)	RAM (bytes)	Digital Timer	Watch Dog Timer	Max Speed (MHz)	ICSP™	Modulation	Data Rate (kbps)	Output Power (dBm)	Operating Voltage	Volume Pricing	Packages
PIC12F520T48A	6	418-568	2.3 K	-	201	1	1	8	Yes	OOK/FSK	100	10	2.0-3.7	\$0.85	14/TSSOP
PIC12F520T39A	6	310-928	2.3 K	-	201	1	1	8	Yes	OOK/FSK	100	10	2.0-3.7	\$0.95	14/TSSOP
PIC12F1840T48A	6	418-868	7.1 K	256	256	2	1	32	Yes	OOK/FSK	100	10	1.8-3.6	\$1.12	14/TSSOP
PIC12F1840T39A	6	310-928	7.1 K	256	256	2	1	32	Yes	OOK/FSK	100	10	1.8-3.6	\$1.27	14/TSSOP
rPIC12F675F	6	380-450	1.7 K	128	64	1	1	20	Yes	ASK/FSK	40	10	2.0-5.5	\$2.11	20/SSOP
rPIC12F675H	6	850-930	1.7 K	128	64	1	1	20	Yes	ASK/FSK	40	10	2.0-5.5	\$2.11	20/SSOP
rPIC12F675K	6	290-350	1.7 K	128	64	1	1	20	Yes	ASK/FSK	40	10	2.0-5.5	\$2.11	20/SSOP

† Pricing subject to change; please contact your Microchip representative for most current pricing.



## USB: SuperSpeed USB 3.0 Hubs

### USB 3.0 Hub Controller Family for Computing and Consumer Applications

Product	Features	Downstream USB Ports	Industrial Temp. Option (-40 to 85°C)	Pin	Packages
USB5532B	USB 3.0 Superspeed hub, two port, OTP flash programmable with advanced battery charging support	2	USB5532BI	64	QFN
USB5533B	USB 3.0 Superspeed hub, three port, OTP flash programmable with advanced battery charging support	3	USB5533BI	64	QFN
USB5534B	USB 3.0 Superspeed hub, four port, OTP flash programmable with advanced battery charging support	4	USB5534BI	64	QFN
USB5537B	USB 3.0 hybrid hub, seven total ports, four USB 3.0 with three additional USB 2.0 downstream ports, OTP flash programmable with advanced battery charging support	USB 3.0: 4 USB 2.0: 3	USB5537BI	72	QFN

## USB: Hi-Speed USB 2.0 Hubs

### Low-Power, Small-Footprint, Cost-Effective USB 2.0 Hub Controller Family

Product	Features	Downstream USB Ports	Industrial Temp. Option (-40 to 85°C)	Pin	Packages
USB2422	Small-footprint, two port value hub, commercial and industrial temperature with USB battery charging 1.1	2	USB2422I	24	QFN
USB2412	Small-footprint, low-power, standard commercial temperature range	2	-	28	QFN
USB2512B	Low-power, extended commercial temperature range, USB Battery Charging 1.1	2	USB2512BI	36	QFN
USB2513B	Low-power, small-footprint, extended commercial temperature range, USB Battery Charging 1.1 (USB2513B/2514B only), SNOSC's proprietary PortMap, PortSwap, TrueSpeed, PHYBoost and MultiTRAK technologies	3	USB2513BI	36	QFN
USB2514B	Low-power, small-footprint, extended commercial temperature range, USB Battery Charging 1.1 (USB2513B/2514B only), SNOSC's proprietary PortMap, PortSwap, TrueSpeed, PHYBoost and MultiTRAK technologies	4	USB2514BI	36/64	QFN, VFBGA
USB2517	Low-power, small-footprint, extended commercial temperature range, USB Battery Charging 1.1 (USB2513B/2514B only), SNOSC's proprietary PortMap, PortSwap, TrueSpeed, PHYBoost and MultiTRAK technologies	7	USB2517I	64	QFN
USB2524	MultiSwitch™ technology combining Hi-Speed USB hub and switching functionality in a single-chip, cost-effective solution	2 upstream/4 downstream	-	56	QFN
USB2532	Low-power, small-footprint, extended commercial temperature range, USB Battery Charging 1.2, PortMap, PortSwap, TrueSpeed, PHYBoost, MultiTRAK, VarSense and FlexConnect technologies	2	USB2532I	36	SOQFN
USB2533	Low-power, small-footprint, extended commercial temperature range, USB Battery Charging 1.2, PortMap, PortSwap, TrueSpeed, PHYBoost, MultiTRAK, VarSense and FlexConnect technologies	3	USB2533I	36	SOQFN
USB2534	Low-power, small-footprint, extended commercial temperature range, USB Battery Charging 1.2, PortMap, PortSwap, TrueSpeed, PHYBoost, MultiTRAK, VarSense and FlexConnect technologies	4	USB2534I	36	SOQFN
USB3613	Ultra small, extremely low power, mobile embedded USB 2.0 hub with HSIC host connectivity, LPM compatibility and advanced battery charging support	USB 2.0: 2 HSIC: 1	USB3613I	30	WLCSOP
USB3813	Ultra small, extremely low power, mobile embedded USB 2.0 hub with HSIC host connectivity, LPM compatibility and advanced battery charging support	USB 2.0: 2 HSIC: 1	USB3813I	30	WLCSOP
USB4604	Advanced USB 2.0 hub with USB 2.0 downstream ports and HSIC or USB host connectivity, I/O bridging, low power and advanced battery charging support	USB 2.0: 4	USB4604I	48	QFN
USB4624	Advanced USB 2.0 hub with USB 2.0/HSC downstream ports and HSIC or USB host connectivity, I/O bridging, low power and advanced battery charging support	USB 2.0: 2 HSIC: 2	USB4624I	48	QFN

## USB: Hi-Speed USB 2.0 Portable Hubs

### Ultra-Small Hubs for Portable Applications

Product	Features	Industrial Temp. Option (-40 to 85°C)	Upstream Interface	Pin/Ball	Packages
USB3803C	Ultra-small, extremely low standby power, high-performance, built-in ESD protection, USB Battery Charging 1.2 detection	USB3803I	USB	25	WLCSOP
USB3503A	Ultra-small, extremely low standby power, high-performance, built-in ESD protection, USB Battery Charging 1.2 detection	USB3503I	HSIC	25	WLCSOP

## USB: Hi-Speed USB to Ethernet Controllers

### USB 2.0 to 10/100 or 10/100/1000 Ethernet Controllers

Product	Features	Industrial Temp. Option (-40 to 85°C)	Pin	Packages
LAN9500A	10/100, NetDetach™ technology, EEPROM-less operation, UniClock™ technology	LAN9500AI	56	QFN
LAN7500	10/100/1000 Gigabit controller with integrated USB and Ethernet PHYs, single-chip, high-performance, cost-effective, EEPROM-less operation, UniClock technology	LAN7500I	56	QFN
LAN9730	HSIC Ethernet controller, multiple low-power modes, HSIC interface reduces pin count and power budget, drivers fully backward compatible to existing USB 2.0 software for seamless transition, industrial temperature for rugged environments	LAN9730I	56	QFN

## USB: Hi-Speed USB to Ethernet Controllers

### USB 2.0 Hub and 10/100 Ethernet Controllers with Superior ESD Protection

Product	Features	Downstream USB Ports	Industrial Temp. Option (-40 to 85°C)	Pin	Packages
LAN9512	Industry's first fully-integrated, single-chip device, UniClock™ technology, EEPROM-less design option	2	LAN9512I	64	QFN
LAN9513	Industry's first fully-integrated, single-chip device, UniClock™ technology, EEPROM-less design option	3	LAN9513I	64	QFN
LAN9514	Industry's first fully-integrated, single-chip device, UniClock™ technology, EEPROM-less design option	4	LAN9514I	64	QFN

**USB: Hi-Speed USB Flash Media Controllers**  
Standalone USB 2.0, Multi-Format Flash Media Controllers

Product	Features	Socket Type	Supports	Industrial Temp. Option (-40 to 85°C)	Pin	Packages
USB2240	Ultra Hi-Speed, cost-effective, external or internal ROM option, secure memory format options	Single	SD™/MultiMediaCard™/SmartMedia™/xD-Picture Card™/Memory Stick®	USB2240i	36	QFN
USB2241	Ultra Hi-Speed, cost-effective, external or internal ROM option, secure memory format options	Single	SD/MultiMediaCard/SmartMedia/Memory Stick	USB2241i	36	QFN
USB2242	Ultra Hi-Speed, cost-effective, external or internal ROM option, secure memory format options	Single	Memory Stick	USB2242i	36	QFN
USB2244	Ultra Hi-Speed, cost-effective, external or internal ROM option, secure memory format options	Single	SD/MultiMediaCard	USB2244i	36	QFN
USB2250	Ultra Hi-Speed, cost-effective, external or internal ROM option, secure memory format options	Multi	SD/MultiMediaCard/SmartMedia/xD-Picture Card/Memory Stick/Compact Flash® and external memory	USB2250i	128	VTOFP
USB2251	Ultra Hi-Speed, cost-effective, external or internal ROM option, secure memory format options	Multi	SD/MultiMediaCard/SmartMedia/xD-Picture Card/Memory Stick/Compact Flash and external memory	USB2251i	128	VTOFP

**USB: Transceivers**

Product	Features	Interface	Reference Clock	Pin/Ball	Packages
USB3310	Highly-integrated, small footprint, internal ESD protection circuits, integrated 3.3V LDO regulator, integrated USB switch, external passive components minimized, flexPWR® technology	1.8V ULPI	Multi-frequency	24-pin	QFN
USB3311	Highly-integrated, small footprint, internal ESD protection circuits, integrated 3.3V LDO regulator, integrated USB switch, external passive components minimized, flexPWR technology	1.8V ULPI	26 MHz	24-pin /25-ball	QFN, VFBGA
USB3313	Highly-integrated, small footprint, internal ESD protection circuits, integrated 3.3V LDO regulator, integrated USB switch, external passive components minimized, flexPWR technology	1.8V-3.3V ULPI	26 MHz	25-ball	VFBGA
USB3315	Highly-integrated, small footprint, internal ESD protection circuits, integrated 3.3V LDO regulator, integrated USB switch, external passive components minimized, flexPWR technology	1.8V-3.3V ULPI	24 MHz	24-pin	QFN
USB3316	Highly-integrated, small footprint, internal ESD protection circuits, integrated 3.3V LDO regulator, integrated USB switch, external passive components minimized, flexPWR technology	1.8V ULPI	19.2 MHz	24-pin /25-ball	QFN, VFBGA, UFBGA
USB3317	Highly-integrated, small footprint, internal ESD protection circuits, integrated 3.3V LDO regulator, integrated USB switch, external passive components minimized, flexPWR technology	1.8V-3.3V ULPI	26 MHz	24-pin /25-ball	QFN, VFBGA
USB3318	Highly-integrated, small footprint, internal ESD protection circuits, integrated 3.3V LDO regulator, integrated USB switch, external passive components minimized, flexPWR technology	1.8V-3.3V ULPI	13 MHz	24-pin	QFN
USB3319	Highly-integrated, small footprint, internal ESD protection circuits, integrated 3.3V LDO regulator, integrated USB switch, external passive components minimized, flexPWR technology	1.8V ULPI	13 MHz	24-pin /25-ball	QFN, VFBGA
USB3320	Full-featured, USB OTG transceiver, integrated Vbus over-voltage protection, USB switch, ESD protection circuits and 3.3V LDO regulator, ULPI 60 MHz clock-in mode including crystal support, flexPWR technology	1.8V-3.3V ULPI	Multi-frequency	32-pin	QFN
USB3321	Small-footprint, integrated Vbus over-voltage protection, USB switch, ESD protection circuits and 3.3V LDO regulator, ULPI 60 MHz clock-in mode, flexPWR technology	1.8V ULPI	26 MHz	25-ball	WLCSP
USB3322	Small-footprint, integrated Vbus over-voltage protection, USB switch, ESD protection circuits and 3.3V LDO regulator, ULPI 60 MHz clock-in mode, flexPWR technology	1.8V ULPI	12 MHz	25-ball	WLCSP
USB3326	Small-footprint, integrated Vbus over-voltage protection, USB switch, ESD protection circuits and 3.3V LDO regulator, ULPI 60 MHz clock-in mode, flexPWR technology	1.8V ULPI	19.2 MHz	25-ball	WLCSP
USB3327	Small-footprint, integrated Vbus over-voltage protection, USB switch, ESD protection circuits and 3.3V LDO regulator, ULPI 60 MHz clock-in mode, flexPWR technology	1.8V ULPI	27 MHz	25-ball	WLCSP
USB3329	Small-footprint, integrated Vbus over-voltage protection, USB switch, ESD protection circuits and 3.3V LDO regulator, ULPI 60 MHz clock-in mode, flexPWR technology	1.8V ULPI	13 MHz	25-ball	WLCSP
USB3330	Small-footprint, integrated Vbus over-voltage protection, internal ESD protection circuits, integrated 1.8V & 3.3V LDO regulators, ULPI 60 MHz clock-in mode, flexPWR technology, battery charger detection supported through RapidCharge Anywhere™ technology	1.8V ULPI	Multi-frequency	25-ball	WLCSP
USB3331	Small-footprint, integrated Vbus over-voltage protection, internal ESD protection circuits, integrated 1.8V & 3.3V LDO regulators, integrated USB switch, ULPI 60 MHz clock-in mode, flexPWR technology, battery charger detection supported through RapidCharge Anywhere technology	1.8V ULPI	26 MHz	25-ball	WLCSP
USB3333	Small-footprint, integrated Vbus over-voltage protection, internal ESD protection circuits, integrated 1.8V & 3.3V LDO regulators, ULPI 60 MHz clock-in mode, flexPWR technology, battery charger detection supported through RapidCharge Anywhere technology	1.8V-3.3V ULPI	19.2 MHz/26 MHz	25-ball	WLCSP
USB3336	Small-footprint, integrated Vbus over-voltage protection, internal ESD protection circuits, integrated 1.8V & 3.3V LDO regulators, integrated USB switch, ULPI 60 MHz clock-in mode, flexPWR technology, battery charger detection supported through RapidCharge Anywhere technology	1.8V ULPI	19.2 MHz	25-ball	WLCSP
USB3338	Small-footprint, integrated Vbus over-voltage protection, internal ESD protection circuits, integrated 1.8V & 3.3V LDO regulators, integrated USB switch, ULPI 60 MHz clock-in mode, flexPWR technology, battery charger detection supported through RapidCharge Anywhere technology	1.8V ULPI	38.4 MHz	25-ball	WLCSP
USB3340	Highly-integrated, small footprint, internal ESD protection circuits, integrated 1.8V & 3.3V LDO regulators, integrated USB switch, ULPI 60 MHz clock-in mode, flexPWR technology, battery charger detection supported through RapidCharge Anywhere technology	1.8V-3.3V ULPI	Multi-frequency	32-pin	QFN
USB3341	Highly-integrated, small footprint, internal ESD protection circuits, integrated 1.8V & 3.3V LDO regulators, integrated USB switch, ULPI 60 MHz clock-in mode, flexPWR technology, battery charger detection supported through RapidCharge Anywhere technology	1.8V ULPI	26 MHz	24-pin	QFN
USB3343	Highly-integrated, small footprint, internal ESD protection circuits, integrated 1.8V & 3.3V LDO regulators, ULPI 60 MHz clock-in mode, flexPWR technology, battery charger detection supported through RapidCharge Anywhere technology	1.8V-3.3V ULPI	26 MHz crystal	24-pin	QFN
USB3346	Highly-integrated, small footprint, internal ESD protection circuits, integrated 1.8V & 3.3V LDO regulators, integrated USB switch, ULPI 60 MHz clock-in mode, flexPWR technology, battery charger detection supported through RapidCharge Anywhere technology	1.8V ULPI	19.2 MHz	24-pin	QFN
USB3347	Highly-integrated, small footprint, internal ESD protection circuits, integrated 1.8V & 3.3V LDO regulators, ULPI 60 MHz clock-in mode, flexPWR technology, battery charger detection supported through RapidCharge Anywhere technology	1.8V ULPI	27 MHz	24-pin	QFN

**USB: Switches**

Product	Features	Pin	Packages
USB3740	Ultra-small package options, high-bandwidth, extremely low operating power, low on resistance	10	QFN

## USB: Hi-Speed USB Hub and Flash Media Controllers

### Hi-Speed USB 2.0 Hub and Multi-Format Flash Media Reader Combos

Product	Features	Socket Type	Supports	Downstream USB Ports	Industrial Temp. Option (-40 to 85° C)	Pin	Packages
USB2660	Ultra Hi-Speed, cost-effective, low-power, small footprint	Dual	SD™/MultiMediaCard™/xD-Picture Card™/Memory Stick®	2	USB2660I	64	QFN
USB2640	Ultra Hi-Speed, cost-effective, low-power, small footprint	Single	SD/MultiMediaCard/Memory Stick	2	USB2640I	48	QFN
USB2641	Ultra Hi-Speed, cost-effective, low-power, small footprint	Single	SD/MultiMediaCard/xD-Picture Card/Memory Stick	2	USB2641I	48	QFN
USB2601/2602	Integrated card power FETs and Hi-Speed USB 2.0 hub	Multi	SD/MultiMediaCard/SmartMedia™/Memory Stick® /CompactFlash® and external memory	3	-	128	VTQFP
USB4640	Ultra-fast digital, Hi-Speed Interchip Interface (HSIC)	Single	SD/MultiMediaCard/xD-Picture Card/Memory Stick	2	USB4640I	48	QFN

## USB: Hi-Speed USB 2.0 Portable Power

Product	Features	Pin	Packages
USB3750	Ultra-small package options, VBUS overvoltage and ESD protection, USB Battery Charging v1.2 detection	16	QFN
USB3751	Ultra-small package options, VBUS overvoltage and ESD protection, USB Battery Charging v1.2 detection	16	QFN

## USB: HSIC Controllers

### Hi-Speed USB Interchip Controllers for On-Board USB Connectivity

Product	Features	Upstream Port	Downstream Port	Bridge Function	Pin/Ball	Packages
USB4640	HSIC Flash media reader hub multi-function controller	HSIC	USB	SD™/MultiMediaCard™/Memory Stick®	48	QFN
USB3503	3-port HSIC hub for portable applications, ultra-small, extremely low standby power, high-performance, built-in ESD protection, USB Battery Charging 1.2 detection	HSIC	USB	USB pass-thru	25	WLCSP
LAN9730	HSIC Ethernet controller, multiple low-power modes, HSIC interface reduces pin count and power budget, drivers fully backward compatible to existing USB 2.0 software for seamless transition, industrial temperature for rugged environments	HSIC	N/A	10/100 Ethernet	56	QFN
SEC4410	USB secure authentication and encrypted storage token with AES encryption, 35 MB/s transfer rates and 32-bit controller	HSIC	N/A	SD/MultiMediaCard/ISO-7816	64/72	QFN

## ETHERNET: Hi-Speed USB to Ethernet Controllers

### USB 2.0 to 10/100 or 10/100/1000 Ethernet Controllers

Product	Features	Industrial Temp. Option (-40 to 85° C)	Pin	Packages
LAN9500A	10/100, NetDetach™ technology, EEPROM-less operation, UniClock™ technology	LAN9500AI	56	QFN
LAN7500	10/100/1000 gigabit controller integrated USB and Ethernet PHYs, single-chip, high-performance, cost-effective, EEPROM-less operation, UniClock technology	LAN7500I	56	QFN
LAN9730	HSIC Ethernet controller, multiple low-power modes, HSIC interface reduces pin count and power budget, drivers fully backward compatible to existing USB 2.0 software for seamless transition, industrial temperature for rugged environments	LAN9730I	56	QFN

## ETHERNET: Hi-Speed USB and Ethernet Controllers

### USB 2.0 and 10/100 Ethernet Controllers with Superior ESD Protection

Product	Features	Downstream USB Ports	Industrial Temp. Option (-40 to 85° C)	Pin	Packages
LAN9512	Industry's first fully-integrated, single-chip device, ±8 kV/±15 kV ESD protection, UniClock™ technology, EEPROM-less design option	2	LAN9512I	64	QFN
LAN9513	Industry's first fully-integrated, single-chip device, ±8 kV/±15 kV ESD protection, UniClock technology, EEPROM-less design option	3	LAN9513I	64	QFN
LAN9514	Industry's first fully-integrated, single-chip device, ±8 kV/±15 kV ESD protection, UniClock technology, EEPROM-less design option	4	LAN9514I	64	QFN

## ETHERNET: PCI Ethernet Controllers

### High-Performance 10/100 Ethernet Controllers Supporting HP Auto-MDIX

Product	Features	Bus Interface (Bits)	Industrial Temp. Option (-40 to 85° C)	Pin	Packages
LAN9420	33 MHz, PCI 3.0-compliant interface	32	LAN9420I	128	VTQFP

## ETHERNET: Local Bus Ethernet Controllers

### 10/100 Ethernet Controllers Supporting HP Auto-MDIX

Product	Features	BUS Interface (Bits)	Industrial Temp. Option (-40 to 85° C)	Pin	Packages
LAN9221	Small footprint, advanced performance options, supports a wide range of software drivers, supports local bus interface from 1.8V to 3.3V, integrated checksum offload engine	16	LAN9221I	56	QFN
LAN9220	Small footprint, advanced performance options, supports a wide range of software drivers, supports local bus interface from 1.8V to 3.3V, integrated checksum offload engine	16	-	56	QFN
LAN9218	High-throughput performance options	32	LAN9218I	100	TQFP
LAN9217	External MII, high-throughput performance options	16	-	100	TQFP

### ETHERNET: Ethernet Switches

Product	Features	Ports	Host Interface	Industrial Temp. Option (-40 to 85 °C)	Pin	Packages
LAN9303	High-performance, small-footprint, full-featured	3	Single MII/RMII	LAN9303i	56	QFN
LAN9303M	High-performance, small-footprint, full-featured	3	Dual MII/RMII	LAN9303MI	72	QFN
LAN9311	Local bus, IEEE 1588 support	2	16-bit local bus	LAN9311i	128	VTQFP, XVTQFP
LAN9312	Local bus, IEEE 1588 support	2	32-bit local bus	-	128	VTQFP, XVTQFP
LAN9313	MII interface, IEEE 1588 support	3 (1-port MII)	Single MII	LAN9313i	128	VTQFP, XVTQFP

### ETHERNET: Ethernet Transceivers

Product	Features	Industrial Temp. Option (-40 to 85 °C)	Host Interface	Pin	Packages
LAN8710A	Full-featured, small-footprint, variable I/O, low power consumption	LAN8710Ai	MII/RMII	32	QFN
LAN8720A	Full-featured, small-footprint, variable I/O, low power consumption	LAN8720Ai	RMII	24	QFN
LAN8740A	Small-footprint, full-featured, variable I/O with Energy Efficient Ethernet, Wake-on-LAN for overall system power reduction, cable diagnostics for ease of network installation and maintenance (Devices available for sampling)	LAN8740i	MII/RMII	32	SQFN
LAN8741A	Small-footprint, full-featured, variable I/O with Energy Efficient Ethernet, Wake-on-LAN for overall system power reduction, cable diagnostics for ease of network installation and maintenance (Devices available for sampling)	LAN8741i	MII/RMII	32	SQFN
LAN8742A	Small-footprint, full-featured, variable I/O with Energy Efficient Ethernet, Wake-on-LAN for overall system power reduction, cable diagnostics for ease of network installation and maintenance (Devices available for sampling)	LAN8742i	RMII	24	SQFN
LAN8810	Single-chip Ethernet physical layer transceiver (PHY), compliant with IEEE 802.3ab (1000BASE-T), IEEE 802.3u (Fast Ethernet) and ISO 802.3/IEEE 802.3 (10BASE-T)	LAN8810i	GMII	72	QFN
LAN8820	Single-chip Ethernet physical layer transceiver (PHY), compliant with IEEE 802.3ab (1000BASE-T), IEEE 802.3u (Fast Ethernet) and ISO 802.3 (10BASE-T) (Devices available for sampling)	LAN8820i	RG MII	56	QFN

### NETWORKING: ARCNET Controllers

Product	Features	Speed	Pin	Packages
COM20019i	Controller with operating temperature range of -40° to 85°C	312.5 Kbps	28/48	PLCC/TQFP
COM20020i	Controller with operating temperature range of -40° to 85°C	5 Mbps	28/48	PLCC/TQFP
COM20022i	Controller with operating temperature range of -40° to 85°C	10 Mbps	48	TQFP
TMC2005	5-port hub	156.25K-10 Mbps	64	TQFP
HYC5068A RLF	High-impedance transceiver	2.5 Mbps	20	SIP
HYC2000	High-impedance transceiver	156.25-625 Kbps	8	SIP
HYC5000	High-impedance transceiver	2.5M-10 Mbps	8	SIP

### NETWORKING: CirrusLink® Controllers

Product	Features	Speed	Pin	Packages
TMC2074	Peripheral and standalone	5 Mbps	128	VTQFP
TMC2072	Peripheral	5 Mbps	100	TQFP
TMC2084	Standalone	5 Mbps	48	TQFP

### AUTOMOTIVE: MOST® (Media Oriented Systems Transport) Network Interface Controllers

Product	Features	Interface	Temperature Range	Pin	Packages
OS8110 INIC	Fully-encapsulated, single-chip, embedded network management, supports MOST embedded Ethernet channel and isochronous channels (MOST150)	MOST150 FOT or MOST150 coax transceiver, iPC™, iPS™/SPDIF, TSI, SPI, MediaLB®	-40° to 105°C	48	QFN
OS81082 INIC	Fully-encapsulated, single-chip, embedded network management (MOST150)	MOST150 electrical (UTP), iPC, iPS, MediaLB	-40° to 95°C	64	ETQFP
OS81092 INIC	ROM version of OS81082 INIC (MOST150)	MOST150 electrical (UTP), iPC, iPS, MediaLB	-40° to 105°C	48	QFN
OS81050 INIC	Fully-encapsulated, single-chip with embedded network management (MOST125)	MOST125 FOT, iPC, iPS, MediaLB	Standard range: -40° to 85°C Extended range: -40° to 105°C	44	QFP, ETQFP
OS81060 INIC	ROM version of OS81050 INIC (MOST125)	MOST125 FOT, iPC, iPS, MediaLB	-40° to 105°C (targeted)	40	QFN

**AUTOMOTIVE: Power Management Companion**  
For Diagnostics, Status Monitoring and Power Supply

Product	Features	Interface	Temperature Range	Pin	Packages
MPM85000	Power management companion for diagnostics, status monitoring and power supply	LIN 2.0, I <sup>2</sup> C™	-40° to 105°C	24	QFN

**AUTOMOTIVE: Multimedia I/O Companion**  
Multimedia I/O Port Expander

Product	Features	Interface	Temperature Range	Pin	Packages
OS88650	Low-cost multimedia I/O port expander, DTCP co-processor	MediaLB 3-pin and 6-pin, Host Bus Interface (HBI), 2 x multi-channel streaming ports, 2 x TSI, 2 x SPI, I <sup>2</sup> C™	-40° to 105°C	128	ETQFP
OS88652	Low-cost multimedia I/O port expander	MediaLB 3-pin and 6-pin, Host Bus Interface (HBI), 2 x multi-channel streaming ports, 2 x TSI, 2 x SPI, I <sup>2</sup> C	-40° to 105°C	128	ETQFP
OS88656	Low-cost multimedia I/O port expander well-suited for streaming applications	MediaLB 3-pin, streaming port FS™, FCLK, 4 x IN, 4 x Out, @ 51.2 Fs ), serial transport stream interface (TSI), I <sup>2</sup> C	-40° to 105°C	48	QFN
OS88654	Low-cost multimedia I/O port expander well-suited for streaming applications, DTCP co-processor	MediaLB 3-pin, streaming port FS (FSYN, FCLK, 4 x IN, 4 x Out, @ 51.2 Fs ), serial transport stream interface (TSI), I <sup>2</sup> C	-40° to 105°C	48	QFN

**AUTOMOTIVE: Ethernet Controllers**  
10/100 Ethernet Controllers with USB 2.0, HSIC or HBI

Product	Features	Interface	Temperature Range	Pin	Packages
LAN8924B	High-performance, single-chip controller with HP Auto-MDIX support*	MAC/PHY, 10BASE-T/100BASE-TX, 32- and 16-bit Host Bus Interface (HBI)	-40° to 85°C	100	TQFP
LAN89530	HiSpeed USB 2.0 to 10/100 Ethernet controller	USB 2.0	-40° to 85°C	56	QFN
LAN89730	HiSpeed HSIC to 10/100 Ethernet controller	HSIC	-40° to 85°C	56	QFN

\*HP Auto MDIX eliminates the need for special "crossover" cables when connecting LAN devices together.

**AUTOMOTIVE: Ethernet Switch**  
10/100 Managed Ethernet Switch with HP Auto-MDIX Support

Product	Features	Interface	Temperature Range	Ports	Pin	Packages
LAN89303	High-performance, small footprint, full-featured, single MII/RMII/Turbo MII support	MII/RMII, 2 x 10/100 PHYs, 3 x 10/100 MACs	-40° to 85°C	4	56	QFN

**AUTOMOTIVE: Ethernet Transceiver**  
10/100 Ethernet Transceiver with HP Auto-MDIX Support\*, Featuring flexPWR® Technology

Product	Features	Interface	Temperature Range	Pin	Packages
LAN88730	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

\*HP Auto MDIX eliminates the need for special "crossover" cables when connecting LAN devices together.

**AUTOMOTIVE: Hi-Speed USB 2.0 Hub**  
USB 2.0 Hub Featuring MultiTRAK™ Technology

Product	Features	Interface	Temperature Range	Ports	Pin	Packages
USB82512	Versatile, cost-effective, energy-efficient, incorporating MultiTRAK™, PortMap, PortSwap, PHYBoost technologies	SMBus/PC™	-40° to 85°C	2	36	QFN
USB82513	Versatile, cost-effective, energy-efficient, incorporating MultiTRAK, PortMap, PortSwap, PHYBoost technologies	SMBus/PC	-40° to 85°C	3	36	QFN
USB82514	Versatile, cost-effective, energy-efficient, incorporating MultiTRAK, PortMap, PortSwap, PHYBoost technologies	SMBus/PC	-40° to 85°C	4	36	QFN

**AUTOMOTIVE: Hi-Speed USB 2.0 Hub and Flash Media Card Controllers**  
USB 2.0 Hub and Card Controller Combos

Product	Features	Socket Type	Supports	Temperature Range	USB Ports	Pin	Packages
USB82640	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 bridge/card reader combo with USB to SDIO and USB to PC™ 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 bridge/card reader combo with USB to SDIO and USB to PC bridging functionality and PortMap, PortSwap and PHYBoost technologies	Dual	SD/SD High Capacity/MultiMediaCard/Memory Stick/MS PRO, MS PRO-HG	-40° to 105°C	2	64	QFN

**AUTOMOTIVE: Hi-Speed USB 2.0 Transceiver**  
USB 2.0 Transceiver with 1.8V ULP1 Interface

Product	Features	Interface	Temperature Range	Ports	Pin	Packages
USB83340	Multi-frequency reference clock	1.8V ULP1	-40° to 105°C	1	32	QFN

### AUTOMOTIVE: Hi-Speed USB 2.0 Battery Charger

Product	Features	Temperature Range	Supports	Pin	Packages
UCS81001	USB battery charger supporting BCL2, China charging, Apple® and RIM® charging profiles as well as programmable charging profiles for unforeseen peripherals	-40° to 85°C	USB, I <sup>2</sup> C™, SMBus	28	QFN
UCS81002	USB battery charger supporting BCL2, China charging, Apple and RIM charging profiles as well as programmable charging profiles for unforeseen peripherals	-40° to 85°C	USB, I <sup>2</sup> C, SMBus	28	QFN

### AUTOMOTIVE: 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® co-existence, data channel for audio playback control, very low power consumption	20 mW	1.5 dBm	16 bit, 44.1 Ks/s stereo	AEC Q100

### AUTOMOTIVE: Capacitive Touch Sensors

Product	Features	Input Channels	LED Drivers	Proximity Included	Interface	Pin	Packages
CAF81188	Reset, wake and alert, automatic recalibration, base capacitance compensation	8	8	✓	I <sup>2</sup> C™/SPI/SMBus/BC-Link™	24	QFN

### PC SYSTEM & I/O CONTROLLERS: Notebook PC Products

Product	Features	I/O Ports	System Interface	Pin	Packages
MEC1621	32bit embedded controller with 192K bytes embedded flash, 1K bytes EEPROM, 16K bytes SRAM, ADC, temp sensing, connected standby support	3 PS/2, 3 SMBus, 2 SPI, 16 PWM, 6 tachs, 1 serial (2-pin), 16 ADC channels, 4 temp inputs, 3 LED, 1 HDMI-CEC, 146 GPIOs, 3 SMSC BC-Link™	LPC/SMBus	176/225	LFBGA, LFBGA
MEC1620	32bit embedded controller with 192K bytes embedded flash, 1K bytes EEPROM, 16K bytes SRAM, ADC, connected standby support	3 PS/2, 3 SMBus, 2 SPI, 16 PWM, 6 tachs, 1 serial (2-pin), 16 ADC channels, 3 LED, 1 HDMI-CEC, 153 GPIOs, 3 SMSC BC-Link	LPC/SMBus	176	LFBGA, LFBGA
MEC1308	8-bit embedded controller with 64K bytes SRAM, SPI Flash Memory Interface, ADC, Consumer IR, SMSC BC-Link technology	4 PS/2, 2 SMBus, 4 PWMs, 2 tachs, 1 serial (2-pin), 55 GPIOs, RC-6 CIR, 1 SMSC BC-Link	LPC/SMBus	128/144	VTOFP, TFBGA
MEC1312	8-bit embedded controller with 96K bytes SRAM, SPI Flash Memory Interface, PECE, ADC, PID Fan Control, SMSC BC-Link technology	4 PS/2, 3 SMBus, PECE, 4 PWMs, 2 tachs, 1 serial (2-pin), 63 GPIOs, 1 SMSC BC-Link	LPC/SMBus	128	VTOFP
SI01028	Super I/O controller, small form factor package	3 serial, 24 GPIOs	LPC	64	QFN
LPC47N217	Super I/O controller for notebook and embedded PC applications	1 serial, 1 parallel, 14 GPIOs, I <sup>2</sup> A* - CIR	LPC	64/56	STQFP
LPC47N217N	Super I/O controller for notebook and embedded PC applications	1 serial, 1 parallel, 14 GPIOs	LPC	64/56	STQFP, QFN
ECE1088	GPIO expander with SMSC BC-Link technology	20 GPIOs	SMBus or SMSC BC-Link	28	QFN
ECE1099	GPIO expander with Keyscan and SMSC BC-Link technology	32 GPIOs, 23.8 Keyscan	SMBus or SMSC BC-Link	40	QFN
ECE1105	GPIO expander with Keyscan, PS/2 and SMSC BC-Link technology	40 GPIOs, 23.8 Keyscan, 2 PS/2	SMBus or SMSC BC-Link	48	QFN

### PC SYSTEM & I/O CONTROLLERS: Desktop PC Products

Product	Features	I/O Ports	System Interface	Pin	Packages
SCH5636	Desktop embedded controller, embedded SRAM for custom applications, close-loop fan control, PECE 3.0 support, temperature and voltage monitoring	FDC, parallel, 2 serial, 8042 KB controller, 2 SMBus, 4 PWMs, 4 tachs, 60 GPIOs	LPC	128	QFP
SCH5627	Desktop embedded controller, SMBus master for PCH temperature support, PECE 3.0 support, voltage monitoring	FDC, parallel, 2 serial, 8042 KB controller, 2 SMBus, 4 PWMs, 4 tachs, 60 GPIOs	LPC	128	QFP
SCH5627P	Desktop embedded controller with "XLS5" power savings mode, SMBus master for PCH temperature support, PECE 3.0 support and voltage monitoring	FDC, parallel, 2 serial, 8042 KB controller, 2 SMBus, 4 PWMs, 4 tachs, 60 GPIOs	LPC	128	QFP
SCH5147	Super I/O controller, LPC hardware monitoring, PECE support, voltage monitoring	FDC, parallel, 2 serial, 8042 KB controller, 2 SMBus, 3 PWMs, 3 tachs, 29 GPIOs	LPC	128	QFP

### PC SYSTEM & I/O CONTROLLERS: Server/Workstation Products

Product	Features	I/O Ports	System Interface	Pin	Packages
SCH4304	Super I/O controller, X-Bus interface, RTC and auto fan control over SensorBus™ sensor interface	FDC, parallel, 2 serial, 8042 KB controller, SMBus, 3 PWMs, 8 tachs, 51 GPIOs	LPC	128	QFP

### PC SYSTEM & I/O CONTROLLERS: Embedded I/O Products

Product	Features	I/O Ports	System Interface	Pin	Packages
SCH3112	Super I/O controller with SMBus hardware and voltage monitoring	2 serial, parallel, FDC, 8042 KB controller, 40 GPIOs	LPC	128	VTOFP
SCH3114	Super I/O controller with SMBus hardware and voltage monitoring	4 serial, parallel, FDC, 8042 KB controller, 40 GPIOs	LPC	128	VTOFP
SCH3116	Super I/O controller with SMBus hardware and voltage monitoring	6 serial, parallel, FDC, 8042 KB controller, 40 GPIOs	LPC	128	VTOFP
LPC47M10X	Super I/O controller, full legacy I/O support	2 serial ports, parallel, 8042 KB controller, FDC, 37 GPIOs	LPC	100	QFP
SI010N268	Super I/O controller for ISA or LPC designs, X-Bus interface for I/O memory and RWH emulation	4 serial ports, parallel, FDC, WDT, 33 GPIOs	LPC/ISA	128	VTOFP
FDC37B78X	Super I/O controller, real-time clock, consumer IR, watchdog timer, 5V operation	2 serial ports, parallel, FDC, 8042 KB controller, parallel IRQs, serial IRQs, 20 GPIOs	ISA	128	QFP



## CAPACITIVE TOUCH SENSORS

Product	Input Channels	LED Drivers	Additional Features	Proximity Included	Interface	Pin	Packages
CAP1114	14	11	Slider, reset and alert, automatic recalibration, base capacitance compensation	✓	PC™/SMBus	32	QFN
CAP1188	8	8	Reset, wake and alert, automatic recalibration, base capacitance compensation	✓	PC/SPI/SMSC BC-Link™	24	QFN
CAP1128	8	2	Reset, wake and alert, automatic recalibration, base capacitance compensation	✓	PC/SPI/SMSC BC-Link	20	QFN
CAP1166	6	6	Reset, wake and alert, automatic recalibration, base capacitance compensation	✓	PC/SPI/SMSC BC-Link	20	QFN
CAP1126	6	2	Reset, wake and alert, automatic recalibration, base capacitance compensation	✓	PC/SPI/SMSC BC-Link	16	QFN
CAP1133	3	3	Alert, automatic recalibration, base capacitance compensation	✓	PC/SMBus	10	DFN
CAP1106	6	0	Alert, automatic recalibration, base capacitance compensation	✓	PC/SMSC BC-Link	10	DFN
CAP1105	5	0	Automatic recalibration, base capacitance compensation	✓	SPI	10	DFN
CAP1214	14	11	Slider, reset and alert, automatic recalibration, base capacitance compensation, audio output	✓	PC/SMBus	32	QFN

## WIRELESS AUDIO: Highly Integrated Wireless Audio Baseband Processors

Product	Additional Features	Frequency	Interface	Pin	Packages
DARR82	Supports streaming of four wireless, uncompressed stereo audio channels, simultaneously or complete wireless 7.1 channel surround sound system, latency < 20 ms, point-to-multipoint transmission in home audio networking, SD & HD audio, excellent WiFi® and Bluetooth® coexistence, bi-directional audio support, control data channel up to 100kpbs, integrated MCU and SRC	Dualband 2.4/5.8GHz	PS, S/PDIF, PC™, SPI	80	LQFP
DARR83	Supports streaming of four wireless, uncompressed stereo audio channels, simultaneously or complete wireless 7.1 channel surround sound system, latency < 20 ms, point-to-multipoint transmission in home audio networking, SD & HD audio, excellent WiFi and Bluetooth coexistence, bi-directional audio support, control data channel up to 100kpbs, integrated MCU and SRC, integrated audio class USB	Tri-band 2.4/5.2/5.8GHz	PS, S/PDIF, PC, SPI, USB 2.0	129	FBGA
DARR84	Supports streaming of two wireless, uncompressed stereo audio channels, simultaneously, supports a microphone input for voice applications, latency < 20 ms, point-to-multipoint transmission, SD & HD audio, excellent WiFi and Bluetooth coexistence using Wireless DMA™ technology, control data channel up to 100 kpbs, integrated MCU and SRC, integrated codec and headphone amplifier for headset applications	Tri-band 2.4/5.2/5.8GHz	PS, S/PDIF, PC, SPI/Analog In	129	FBGA
DM870A	Networked media processor, highly-flexible interface processor well-suited for secure, real time encoding/decoding and processing of multi-channel media content, offering industry standard networking and I/O interfaces, enables rapid product development by OEMs and ODMs, API structure on the software packages allows for easy product customization resulting in a faster time to market.	2.4GHz, 802.11 b/g	PS, S/PDIF, PC, USB, SD/SDIO, Ethernet, TFT for Display, SPI, CCIR 656 out	320	LFBGA
DM875	Reduced feature set version of the DM870A with no LCD and video output capability, well-suited for customer applications that support standard software APIPlay® software package	2.4GHz, 802.11 b/g	PS, S/PDIF, PC, USB, SD/SDIO, Ethernet, SPI, Display, SPI, CCIR 656 out	320	LFBGA
DM860A	Available as an alternative to DM870A with no WiFi capability.	-	-	320	LFBGA

## WIRELESS AUDIO: Reference Designs

Product	Features	Frequency	Interface	Pin	Module Dimensions
DWM862	Uncompressed wireless digital audio transmitter OEM modules based on the DARR82 and DARR83 chipsets, supports up to four stereo audio streams, data encryption, bi-directional control messaging, automatic pairing, WLAN detection, automatic frequency allocation	Single-band, 5.8 GHz	PS, S/PDIF, PC™, SPI	26-pin FFC Connector	42 x 42 mm Square PCB
DWM883	Uncompressed wireless digital audio transmitter OEM modules based on the DARR82 and DARR83 chipsets, supports up to four stereo audio streams, data encryption, bi-directional control messaging, automatic pairing, WLAN detection, automatic frequency allocation	Tri-band, 2.4/5.2/5.8 GHz	PS, S/PDIF, PC, SPI	26-pin FFC Connector	35 x 35 mm Square PCB
DWU883	Uncompressed wireless digital audio transmitter OEM modules based on the DARR82 and DARR83 chipsets, supports up to four stereo audio streams, data encryption, bi-directional control messaging, automatic pairing, WLAN detection, automatic frequency allocation	Tri-band, 2.4/5.2/5.8 GHz	USB	-	49 x 18 mm
DWPCIE83	Uncompressed wireless digital audio transmitter OEM module based on the DARR82 chip, supports up to two stereo audio streams, data encryption, bi-directional control messaging, automatic pairing, WLAN detection, automatic frequency allocation, well-suited for receiver applications such as speakers	Tri-band, 2.4/5.2/5.8 GHz	USB	-	30 x 26.8 mm
LC0382	Uncompressed wireless digital audio transmitter OEM module based on the DARR82 chip, supports up to two stereo audio streams, data encryption, bi-directional control messaging, automatic pairing, WLAN detection, automatic frequency allocation, well-suited for receiver applications such as speakers	Single-band, 2.4 GHz	PS, S/PDIF, PC, SPI	26-pin Pin Header Connector	30 x 50 mm Rectangle

## WIRELESS AUDIO: Highly-Integrated Wireless Audio Modules

Product	Features	Frequency	Interface	Pin	Module Dimensions
DWH584	Uncompressed digital audio ready-to-go headset and headphone application reference design that supports audio and microphone inputs to process gaming and VOIP headsets/headphone applications, supports multiple RF bands making it well-suited to effectively manage the interference commonly associated with Wi-Fi®, Bluetooth® and microwave ovens, using our Wireless DNA architecture, integrates 3MB SPI Flash, enabling SMS2's KleeNet™ interoperability platform which allows for connectivity across products and brands	Tri-band 2.4/5/2.7/5.8 GHz	PS, S/PDIF, I <sup>2</sup> C, SPI	–	54 x 54.5 mm
DWLC84	Uncompressed wireless digital audio transceiver OEM module based on the DWR824 chip, supports up to two stereo audio streams, data encryption, bi-directional control messaging, automatic pairing, WLAN detection, excellent Wi-Fi and Bluetooth coexistence using Wireless DNA architecture, well-suited for applications such as speakers and soundbars with subwoofers	Tri-band 2.4/5/2.7/5.8 GHz	PS, S/PDIF, I <sup>2</sup> C, SPI	–	30 x 42 mm
CX870	Single-board, networked, media player module based on the DM870A media processors, enables fast product developments with Ethernet, USB and Wi-Fi connectivity, connects to standard legacy components in various audio, video/LCD and control formats.	2.4GHz, 802.11 b/g	PS, S/PDIF, I <sup>2</sup> C, USB, SD/SDIO, Ethernet, I <sup>2</sup> C, I <sup>2</sup> S, Display, SPI, CCIR B56 out	64-pin PCB Low Density Connector	46 x 85.8 mm

## WIRELESS AUDIO: Radio Frequency Digital Audio Transceivers











































Product	Features	Typical Sink Mode Power Consumption	PA Output Power	Audio	Qualification
KLR3012	Wireless 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	JEDEC

## SECURITY: Smart Card Readers and Encrypted Storage

Product	Features	USB Interface	Pin	Packages
SEC1100	USB single-port smart card reader with integrated self clock	USB 1.1	16	QFN
SEC1200	USB dual-port smart card reader with UART/SPI interface and integrated self clock	USB 1.1	24/48	QFN
SEC1300	USB keyboard and LCD controller with smart card reader and self clock (Device available for sampling)	USB 1.1	64	QFN, Bare Die
SEC2410	USB secure authentication and encrypted storage token with AES encryption, 35 MB/s transfer rates and 32-bit controller	USB 2.0	64/72	QFN
SEC4410	USB secure authentication and encrypted storage token with AES encryption, 35 MB/s transfer rates and 32-bit controller	HSC	64/72	QFN

## TERMS AND DEFINITIONS

<b>1 KB</b>	1024 bytes	<b>EBL</b>	Enhanced Baseline	<b>MSSP/SSP</b>	Master/Synchronous Serial Port (I <sup>2</sup> C & SPI Peripheral)
<b>1 Kw</b>	1024 words	<b>EEPROM</b>	Electrically Erasable Programmable Read Only Memory	<b>mTouch</b>	Proprietary Touch Sensing Technology
<b>18F/PIC18</b>	16-bit instruction word: 75/83 instructions	<b>EFT</b>	Electrical Fast Transient	<b>NCO</b>	Numerically Controlled Oscillator
<b>ADC</b>	Analog to Digital Converter	<b>EMC</b>	Electromagnetic Compatibility	<b>Op Amp</b>	Operational Amplifier
<b>AUSART</b>	Addressable Universal Synchronous Asynchronous Receiver Transceiver	<b>EMI</b>	Electromagnetic Interference	<b>PIC10/12/16/18</b>	8-bit Core
<b>BL/Baseline</b>	1.2-bit instruction word: 33 instructions	<b>EMF/Enhanced Mid-Range</b>	1.4-bit instruction word: 49 instructions (denoted as PIC1XF1XXX)	<b>PIC24</b>	16-bit Core
<b>BOR/PBOR</b>	Brown Out Reset/Programmable Brown Out Reset	<b>ESD</b>	Electrostatic Discharge	<b>PIC32</b>	32-bit Core
<b>CCP/ECOP</b>	Controller Area Network Capture Compare PWM/Enhanced Capture Compare PWM	<b>EUSART</b>	Enhanced Universal Synchronous Asynchronous Receiver Transceiver	<b>PLVD</b>	Programmable Low Voltage Detect
<b>CLC</b>	Configurable Logic Cell	<b>EWDT/WDT</b>	Extended Watch Dog Timer/Watch Dog Timer	<b>POR/POOR</b>	Power On Reset/Power On/OFF Reset
<b>COG</b>	Complementary Output Generator	<b>HV</b>	High Voltage	<b>PSMC</b>	Programmable Switch Mode Controller
<b>Comp</b>	Capacitive Sensing implemented via Comparator	<b>ICD</b>	In-Circuit Debugger	<b>PWM</b>	Pulse Width Modulation
<b>CRC</b>	Cyclical Redundancy Check	<b>ICE</b>	In-Circuit Emulation	<b>RAM</b>	Random Access Memory
<b>CSP</b>	Chip Scale Package	<b>ICSP™</b>	In-Circuit Serial Programming™	<b>RTCC</b>	Real-Time Clock Calendar
<b>CSP</b>	Chip Scale Package	<b>IDE</b>	Integrated Development Environment	<b>Source/Sink Current</b>	All Products Support 25 mA per I/O
<b>CTMU</b>	mTouch™: Charge Time Measurement Unit	<b>Inst Amp</b>	Instrumentation Amplifier	<b>SR Latch</b>	Set Reset Latch
<b>CVD</b>	Charge Voltage Divide (Capacitive Sensing Implemented via ADC)	<b>LCD</b>	Liquid Crystal Display	<b>SRAM</b>	Static Random Access Memory
<b>CWG</b>	Complementary Waveform Generator	<b>LDO</b>	Low Drop-Out voltage regulator	<b>SPI</b>	Serial Peripheral Interface
<b>DAC</b>	Digital-to-Analog Converter	<b>LF</b>	Low Power Flash	<b>T1G</b>	Timer 1 Gate
<b>DSM</b>	Data Signal Modulator	<b>MIPC/PC™</b>	Master Inter-Integrated Circuit bus/Inter-Integrated Circuit bus	<b>USART</b>	Universal Synchronous Asynchronous Receiver Transceiver
<b>dsPIC®</b>	16-bit Core with DSP	<b>MIPS</b>	Million Instructions Per Second	<b>USB</b>	Universal Serial Bus
		<b>MR/Mid-Range</b>	14-bit instruction word: 35 instructions	<b>USB (Full Speed)</b>	12 Mb/s Data Rate
				<b>USB OTG</b>	USB On-The-Go
				<b>XLP</b>	nanoWatt XLP eXtreme Low Power Technology

	<b>Small Outline</b>	<b>Dual Flat No Lead DFN</b>	<b>Quad Flat No Lead QFN</b>	<b>Plastic Shrink Small Outline SSOP</b>	<b>Plastic Small Outline SOIC</b>
Bumped Die (WL CSP)					
Die/Wafer (WL CSP)					
3-lead SC70 (LB)					
5-lead SC70 (LT)					
3-lead SOT-23 (TT/CB)					
5-lead SOT-23 (OT)					
6-lead SOT-23 (OT/CH)					
3-SOT-223 (DB)					
4-lead SOT-143 (RC)					
		<p> 8-lead DFN (MC) 2 x 3 x 0.9 mm</p> <p> 8-lead TDFN (MN) 2 x 3 x 0.75 mm</p> <p> 8-lead UDFN (MU) 2 x 3 x 0.5 mm</p> <p> 8-lead DFN (MF) 3 x 3 x 0.9 mm</p> <p> 8-lead DFN (MD) 4 x 4 x 0.9 mm</p> <p> 8-lead DFN (MF) 6 x 5 x 0.9 mm</p>	<p> 16-lead QFN (MG) 3 x 3 x 0.9 mm</p> <p> 20-lead QFN (ML) 4 x 4 x 0.9 mm</p> <p> 20-lead QFN (MQ) 5 x 5 x 0.9 mm</p> <p> 28-lead UQFN (MV) 4 x 4 x 0.5 mm</p> <p> 28-lead QFN (MQ) 5 x 5 x 0.9 mm</p> <p> 28-lead QFN (MM &amp; ML) 6 x 6 x 0.9 mm</p> <p> 40-lead UQFN (MV) 5 x 5 x 0.5 mm</p> <p> 44-lead QFN (ML) 8 x 8 x 0.9 mm</p> <p> 64-lead QFN (MR) 9 x 9 x 0.9 mm</p>	<p> 8-lead MSOP (MS)</p> <p> 10-lead MSOP (UN)</p> <p> 16-lead QSOP (QR)</p> <p> 20-lead SSOP (SS)</p> <p> 28-lead SSOP (SS)</p>	<p> 8-lead SOIC (SN)</p> <p> 8-lead SOIC (SM)</p> <p> 14-lead SOIC (SL)</p> <p> 16-lead SOIC (SL)</p> <p> 18-lead SOIC (SO)</p> <p> 20-lead SOIC (SO)</p> <p> 28-lead SOIC (SO)</p>
				<p><b>Plastic Thin Shrink Small Outline TSSOP</b></p> <p> 8-lead TSSOP (ST)</p> <p> 14-lead TSSOP (ST)</p> <p> 20-lead TSSOP (ST)</p>	
					<p><b>Very Thin Thermal Leadless Array VTLA</b></p> <p> 36-lead VTLA (TL) 5 x 5 x 0.9 mm</p> <p> 44-lead VTLA (TL) 6 x 6 x 0.9 mm</p> <p> 124-lead VTLA (TL) 9 x 9 x 0.9 mm</p>

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 x 10 x 1 mm



64-lead TQFP (PT)  
10 x 10 x 1 mm



64-lead TQFP (PF)  
14 x 14 x 1 mm



80-lead TQFP (PT)  
12 x 12 x 1 mm



80-lead TQFP (PF)  
14 x 14 x 1 mm



100-lead TQFP (PT)  
12 x 12 x 1 mm



100-lead TQFP (PF)  
14 x 14 x 1 mm



144-lead TQFP (PH)  
16 x 16 x 1 mm

## Plastic Quad Flatpack QFP



32-lead LQFP (LQ)  
7 x 7 x 1.4 mm



44-lead MQFP (PQ)  
10 x 10 x 2 mm



144-lead LQFP (PL)  
20 x 20 x 1.4 mm

## Ball Grid Array BGA



100-ball BGA (BG)  
10 x 10 x 1.1 mm



121-ball BGA (BG)  
10 x 10 x 0.8 mm

## Plastic Dual In-Line PDIP



8-lead PDIP (P)



14-lead PDIP (P)



18-lead PDIP (P)



20-lead PDIP (P)



24-lead PDIP (P)



28-lead SPDIP (SP)



40-lead PDIP (P)

## Additional Package Options

### NOR Flash Memory



8-lead WSON (A6/QAE)  
5 x 6 mm



32-lead PDIP (P2/PHE)  
600 mil



32-lead PLCC (PE/NHE)  
0.452" x 0.552"



40-lead TSOP (W8/EIE)  
10 x 20 mm



48-lead WFBGA (3T/MAQE)  
4 x 6 x 0.73 mm



48-lead TFBGA (8T/B3KE)  
6 x 8 x 1.2 mm



48-lead TSOP (W9/EKE)  
12 x 20 x 1.2 mm

### RF Devices



6-lead XSON (QX/QX6E)  
1.5 x 1.5 x 0.5 mm



8-lead XSON (Q7/QX8E)  
2 x 2 x 0.5 mm



6-lead UQFN (QU/QU6E)  
3 x 1.6 x 0.5 mm



16-lead LFLGA (MF/MLCF)  
4 x 4 x 1.4 mm

### 8051-based Microcontrollers



44-lead PLCC (T2/NJE)  
0.652" x 0.652"

Packages are shown approximate size.

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