MICROCHIP

Focus Product Selector Guide

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 Microcontrollers

Microchip's PIC® and AVR® microcontrollers (MCUs) represent two dominant architectures for embedded design. With a combined 45 years' experience developing commercially available and cost-effective 8-bit MCUs, Microchip is the supplier of choice for many due to its strong legacy and history of innovation in 8-bit. Our current lineup of 8-bit PIC and AVR MCUs incorporates the latest technologies to enhance system performance while reducing power consumption and development time. With more than 1,200 devices, Microchip offers the industry's largest 8-bit portfolio. Key features include Core Independent Peripherals, low-power performance with picoPower® and eXtreme Low Power (XLP) technology, industry-leading robustness driven by best-in-class EMI/EMC performance and simplified development with our suite of easy-to-use development tools. For more information visit: www.microchip.com/8bit

16-bit PIC Microcontrollers

The PIC24 is a cost-effective, low-power family of MCUs, featuring devices with eXtreme Low Power (XLP) technology, 16 MIPS performance and dual partition memory up to 1024 KB of Flash with a rich set of Core Independent Peripherals (CIPs). Our portfolio offers an upgrade in features and peripherals for applications that are pushing the boundaries of 8-bit MCU capabilities, offering more memory, more pins and faster peripherals in the same ecosystem for easy migration. The PIC24 MCUs also feature dedicated peripherals and functions to help increase the reliability in safety critical applications and with AEC Q100 qualification, the high-performance PIC24 MCUs offer 3V, 5V and up to 150°C robust operations. For more information visit: 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 100 MIPS performance capable of high-efficiency, high-precision variable speed, constant torque PI control and Field Oriented Control (FOC) motor control. Equipped with high-speed Analog-to-Digital Converters (ADCs), op-amps, and comparators coupled with functional safety features and operations up to 150°C, the dsPIC33 family is ideal for PMSM, ACIM and BLDC motor control in industrial, medical, automotive and consumer applications.

The dsPIC family also offers dual cores with up to 100 MIPS equipped with high speed PWMs, ADCs, PGAs to handle very tight control loop execution and separate time-critical control loops from housekeeping making them ideal for demanding power conversion applications and lighting in industrial, medical, automotive and consumer applications. The dsPIC33 MCUS also offer the capability to live update firmware, which is critical for server applications that cannot afford any downtime. For more information visit: www.microchip.com/dspic.

32-bit Microcontrollers

From simple embedded control to advanced graphics and secured Internet of Things applications, Microchip portfolio of 32-bit MCUs can meet your design challenge. Spanning a wide range of options—from offering the industry's lowest power consumption to delivering the highest performance—these MCUs run at up to 600 DMIPs and deliver ample code and data space with up to 2048 KB Flash and 512 KB RAM with 32 MB integrated DDR2 DRAM or 128 MB externally addressable options. They are supported by novel and easy-to-use software solutions to speed up your application development. For more information visit: www.microchip.com/32bit

32-bit Arm® Microprocessors

As you push beyond the boundaries of 32-bit MCUs, the SAM9 (ARM9) and SAMA5 (Cortex® A5) microprocessor (MPU) families provide the power and performance needed for demanding applications. They feature up to 600 MHz (942 DMIPS) operation and support for up to 512 MB of external DDR2 or DDR3 DRAM. Microchip's MPUs offer a rich set of peripherals and user interfaces including Gigabit Ethernet MACs, high-speed USB, hardware video decoding, capacitive touch, 12-bit CMOS image (camera) sensors, I^2S audio interfaces and advanced 24-bit graphic LCD controllers with overlays. They deliver market-leading low power (down to 0.3 mW sleep) and advanced security features needed for Internet-connected gateways and cost-sensitive industrial and consumer applications. The MPU devices come with free Linux® OS and third-party tools and software, and low-cost hardware development boards are available to ease development. For more information visit: www.microchip.com/mpu

Analog and Interface Products

Microchip's integrated analog technology, peripherals and features are engineered to meet today's demanding design requirements. Our extensive spectrum of analog products addresses thermal management, power management, battery management, mixed-signal, linear, interface and safety and 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.

Security and Authentication Products

Microchip offers a variety of crypto element devices that offer an ideal way to provide the three pillars of security—authentication, data integrity, and confidentiality—in applications such as disposables, accessories and nodes used in home automation, industrial networking, medical and other applications. Crypto devices employ ultra-secure, hardware-based cryptographic key storage and cryptographic countermeasures such as tamper detection, which offer higher security than software-based key storage. For more information visit: www.microchip.com/security

Timing and Communication Products

Microchip has an expansive, wide-ranging clock and timing portfolio that delivers total solutions for your complex timing requirements. Our oscillator products offer both low-jitter and low-power online-configurable products with the option of choosing a traditional quartz-based solution or going with our MEMS silicon-based resonator products. The clock generation line offers online configurable, single chip, multiple-frequency clock tree solutions. Rounding out the portfolio, our clock and data distribution product line includes one of the industry's largest portfolios of buffers, logic translators and multiplexers.

With the right combination of products, configuration tools and technical support, Microchip's Timing and Communications products are ideal for all designs, from simple to high-performance systems. For more information visit: www.microchip.com/timing

Real-Time Clock/Calendar

Microchip offers a family of highly integrated, low-cost Real-Time Clock/Calendar devices with battery backup capability, digital trimming, plus on-board EEPROM and SRAM memory. For more information visit: www.microchip.com/clock

Memory Products

Microchip's broad portfolio of memory devices includes Serial EEPROM, Serial SRAM, Serial Flash, Serial NVSRAM, Serial EERAM, Parallel EEPROM, Parallel OTP (One-Time Programmable) 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

Wireless Products

The Microchip wireless portfolio is focused on offering extremely low-power operation and is designed for sensing or command/control operation products. This extensive portfolio is comprised of solutions for Wi-Fi®, Bluetooth®, LoRa® technology, 802.15.4 (such as zigbee® or MiWi™ wireless networking protocol) along with proprietary 2.4 GHz and Sub-GHz communications. For more information visit: www.microchip.com/wireless

High-Throughput USB and Ethernet Interface Solutions

High-speed networking is the backbone of many industrial, IoT, consumer and automotive applications. Microchip offers a complete portfolio of Ethernet PHYs, switches, controllers and bridge devices, enabling Gigabit-speed communications in harsh environments. The USB offering spans low cost to SuperSpeed and incorporates value-rich solutions such as USB smart hub controllers, power delivery and charging, transceivers/switches, Flash media controllers and security solutions. For more information visit www.microchip.com/usb and www.microchip.com/ethernet

MOST® Technology

Media Oriented Systems Transport (MOST) technology is the accepted standard in high-bandwidth automotive infotainment systems. It is broadly standardized from the physical layer up to the application level. Various speed grades and physical layers are available. The highly flexible and scalable MOST platform can transmit A/V streaming, packet, and isochronous and control data. It is also approved to transmit DVD and Blu-ray™ content using Digital Transmission Content Protection (DTCP). For more information visit: www.microchip.com/automotiveproducts

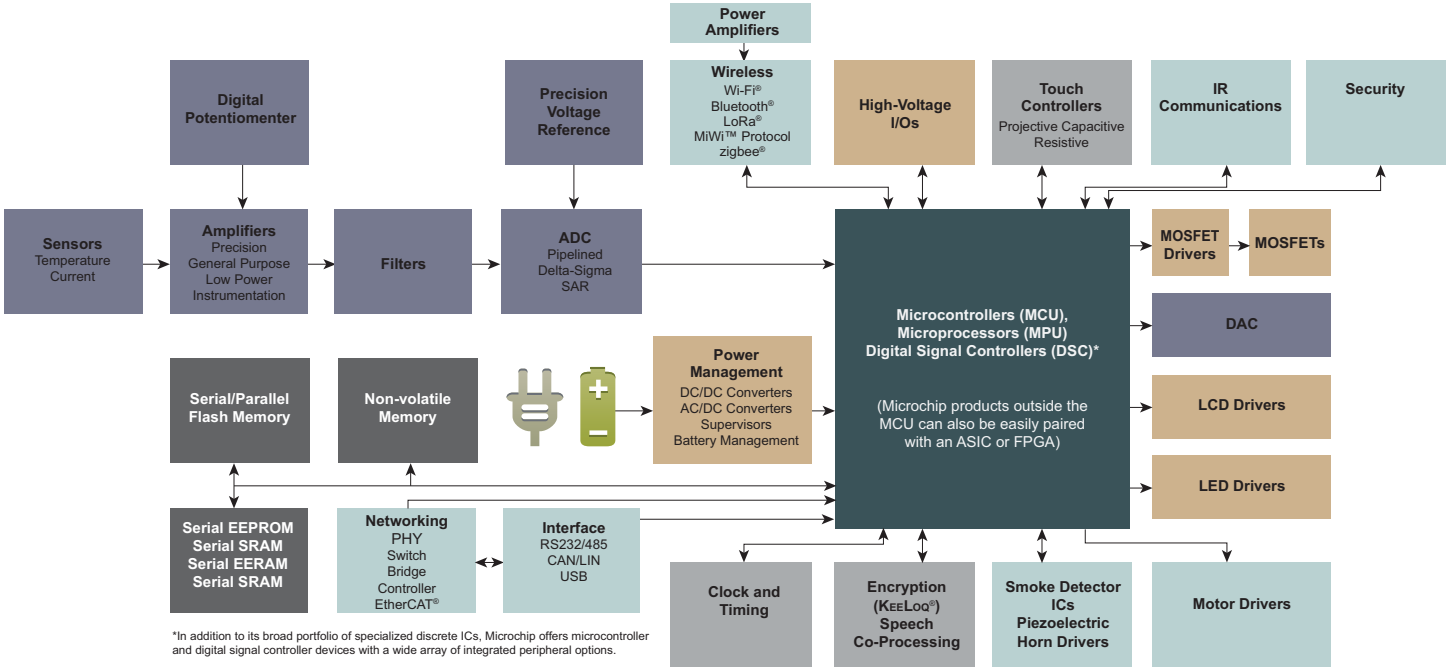
Embedded Controllers and Super I/O

Microchip's computing-related products include state-of-the-art embedded controllers based on the innovative eSPI bus technology, Input/Output (I/O) devices, keyboard controllers, root of trust, secure boot and authentication devices and system-management devices. These components serve the computing industry, including major OEMs and motherboard manufacturers worldwide. Applications include traditional computing applications such as notebooks and desktops, and embedded computing which is found in a variety of applications such as information kiosks, networking equipment, automatic teller machines and devices for the oil and gas industries. For more information visit: www.microchip.com/computing.

Touch, Multi-Touch and 3D Gesture Control

Microchip offers the most feature-rich solutions in capacitive sensing for applications ranging from single-touch buttons and proximity sensing to touchpads, touch screens and free-space 3D gesture control. Turnkey solutions (maXTouch® technology) as well as MCUs/MPUs solutions (PIC, AVR and SAM) come with Graphical User Interface (GUI) software tools and code configurators for easy design-in cycles that shorten your time to market. For more information please visit: www.microchip.com/touch.

Microchip Block Diagram Support



*In addition to its broad portfolio of specialized discrete ICs, Microchip offers microcontroller and digital signal controller devices with a wide array of integrated peripheral options.

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8-bit PIC® Microcontrollers

Product Family	Pin Count	Program Flash Memory (KB)	Data EE (B)	Intelligent Analog										Waveform Control							Timing and Measurements (1)							Logic and Math				Safety and Monitoring			Communications							User Interface			Low Power and System Flexibility				Pricing ($) 5 ku	Packages
				ADC (# of bits)	ADC w/ Computation	Comp	HS Comp	DAC (# of bits)	HC I/O (mA)	OPA	PRG	SlopeComp	ZCD	CCP/ECCP	10-bit PWM	16-bit PWM	COG/CWG	NCO	DSM	AngTMR	HLT (8-bit)	16-bit PWM (16-bit)	NCO (20-bit)	SMT (24-bit)	RTCC	TEMP/TS	CLC	MULT	MathACC	CRC/SCAN	HLT	WWDT	EUSART/AUSART	UART with Protocols	I²C/SPI	CAN	USB with ACT	LIN Capable	mTouch® Sensing	HCVD	LCD	PPS	IDLE/DOZE/PMD	DMA/VI	DIA/MAP		
PIC10(L)F3XX	6	384–896 B	HEF	8											✓		✓	✓					✓			✓	✓																			0.36	SOT-23, DFN, PDIP
PIC16LF155X/6X	8–20	3.5–14	HEF	10											✓											✓							✓		2			✓	✓	✓						0.49	PDIP, SOIC 150 mil, TSSOP, QFN, SSOP 208 mil, UQFN, SOIC 300 mil, SPDIP, TQFP
PIC16(L)F145X	14–20	14	HEF	10		✓									✓		✓									✓							✓		✓		✓	✓	✓							0.87	PDIP, SOIC 150 mil, TSSOP, QFN, UQFN, SOIC 300 mil, SSOP 208 mil
PIC1X(L)F157X	8–20	1.75–14	HEF	10		✓		5								✓	✓					✓				✓							✓				✓	✓			✓				0.39	DFN, MSOP, PDIP, SOIC 150 mil, UDFN, TSSOP, UQFN, PDIP, SOIC 300 mil, SSOP 208 mil
PIC16(L)F153XX	8–48	3.5–28	HEF	10		✓		5					✓	✓	4		✓	✓			✓		✓			✓	✓				✓	✓	2		2			✓			✓	✓		✓	0.46	PDIP, SOIC 150 mil, TSSOP, UQFN, SOIC 300 mil, SSOP 208 mil, QFN, SPDIP, TQFP
PIC1X(HV)F752/53	8–14	1.75–3.5	–	10			✓	5/9	50	✓		✓		✓			✓				✓									✓							✓							0.59	DFN, PDIP, SOIC 150 mil, TSSOP, QFN
PIC1X(L)F1612/3	8–14	3.5	HEF	10		✓		8					✓	✓			✓				✓			✓		✓			✓	✓	✓						✓							0.56	DFN, PDIP, SOIC 150 mil, TSSOP, QFN
PIC16(L)F161X	14–20	7–14	HEF	10		✓		8	100				✓	✓	✓		✓			✓	✓			✓		✓	✓		✓	✓	✓	✓		✓			✓	✓			✓				0.60	PDIP, SOIC 150 mil, TSSOP, QFN, SOIC 300 mil, SSOP 208 mil, UQFN, TQFP
PIC16(L)F170X	14–20	3.5–14	HEF	10			✓	5/8		✓			✓	✓	✓		✓						✓			✓	✓						✓		✓			✓	✓	✓					0.62	PDIP, SOIC 150 mil, TSSOP, QFN, SOIC 150 mil, UQFN, SOIC 300 mil, SSOP 208 mil
PIC16(L)F171X	28–40	7–28	HEF	10			✓	5/8		✓			✓	✓	✓		✓	✓					✓			✓	✓						✓		✓			✓	✓	✓					0.92	QFN, SOIC 300 mil, SPDIP, SSOP 208 mil, UQFN, PDIP, TQFP
PIC16(L)F176X/7X	14–40	7–28	HEF	10			✓	5/10	100	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓				✓	✓				✓		✓		✓			✓	✓			✓				0.91	PDIP, SOIC 150 mil, TSSOP, QFN, SOIC 300 mil, SSOP 208 mil, SPDIP, UQFN, TQFP
PIC16(L)F183XX	8–20	3.5–14	256	10		✓		5						✓	✓		✓	✓	✓				✓			✓	✓						✓		2			✓	✓			✓	✓			0.53	PDIP, SOIC 150 mil, UDFN, TSSOP, UQFN, SOIC 300 mil, SSOP 208 mil
PIC16F184XX	14–28	7–28	256	12		✓		5					✓	✓	✓		✓	✓	✓		✓		✓			✓	✓				✓	✓	✓		2			✓	✓	✓		✓	✓	✓		0.53	PDIP, SOIC 150 mil, UQFN, TSSOP, QFN, SOIC 300 mil, SSOP 208 mil
PIC16(L)F188XX	28–40	7–56	256	10	✓	✓		5					✓	✓	✓		✓	✓	✓		✓		✓	✓		✓	✓			✓	✓	✓	✓		2			✓	✓	✓		✓	✓			0.78	QFN, SOIC 300 mil, SPDIP, SSOP 208 mil, UQFN, PDIP, TQFP
PIC16(L)F191XX	28–64	14–56	256	12	✓	✓		5					✓	✓		✓	✓				✓			✓	✓	✓	✓			✓	✓	✓		✓			✓	✓	✓	✓	✓	✓	✓		✓	1.61	QFN, TQFP
PIC18FQ10	28–40	16–128	256–1K	10	✓	✓		5					✓	✓	✓		✓		✓		✓					✓	✓	✓		✓	✓	✓	✓		✓			✓	✓	✓		✓	✓			0.81	QFN, SOIC 300 mil, SPDIP, SSOP 208 mil, UQFN, PDIP, TQFP
PIC18FK40	28–64	16–128	256–1K	10	✓	✓		5					✓	✓	✓		✓		✓		✓					✓		✓		✓	✓	✓	5		2			✓	✓	✓		✓	✓			0.87	QFN, SOIC 300 mil, SPDIP, SSOP 208 mil, UQFN, PDIP, TQFP
PIC18FK42	28–48	16–128	256–1K	12	✓	✓		5					✓	✓	4		✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	1	1	2			✓	✓	✓		✓	✓	✓	✓	1.08	QFN, SOIC 300 mil, SPDIP, SSOP 208 mil, UQFN
PIC18(L)FK50	20–40	8–32	256	10		✓		5						✓													✓						✓		✓	✓	✓	✓				✓				1.39	PDIP, QFN, SOIC 300 mil, SSOP 208 mil
PIC18FK83	28	32–64	1K	12	✓	✓		5					✓	✓	✓		✓	✓	✓		✓		✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	1.41	SOIC 300 mil, SPDIP, SSOP 208 mil, UQFN
PIC18FK90	60–80	32–128	1K	12		✓								✓											✓		✓					2		✓			✓	✓		✓		✓				2.53	QFN, TQFP

8-bit AVR® Microcontrollers

Product Family	Pin Count Range	Program Flash Memory (KB)	Boot Code (KB)	SRAM (B)	EEPROM (B)	Speed (MHz)	Analog						Waveform Control				Timing				Logic, Crypto and Math			Safety and Monitoring				Communications						User Interface		Low Power and System Flexibility						Pricing ($) (5 ku)	Packages
							ADC (# of bits)	Comparators	ADC Gain Stage	DAC (# of bits)	Temperature Sensor	Internal Voltage Reference	8-bit PWM	16-bit PWM	Quadrature Decoder	Waveform Extension	Real-Time Counter	8-bit Timer/Counters	12-bit Timer Counter	16-bit Timer/Counters	CCL	MULT	Crypto (AES/DES)	CRC	POR	BOD	WDT	UART	USART	USB	I²C	SPI	IRCOM	QTouch® Technology with PTC	LCD	External Bus Interface	DMA Channels	Event System	SleepWalking	Sleep Modes	picoPower® Technology		
ATtiny4/9	6	0.5–1		0.032		12		✓						2						1					✓		✓												4		0.24	SOT-23, UDFN
ATtiny5/10	6	0.5–1		0.032		12	10	✓						2						1					✓		✓												4		0.24	SOT-23, UDFN
ATtiny102/ATtiny104	8–14	1		0.032		12	10	✓				✓		2						2					✓		✓		1										4		0.41	SOIC 150 mil, UDFN
ATtiny13A	8–20	1		0.064	0.064	20	10	✓						2											✓	✓	✓												3	✓	0.38	PDIP, SOIC, SOIC 150 mil, SOIJ, VDFN, WQFN
ATtiny20/40	14–20	2/4		0.128		12	10	✓			✓		2	2				1		1					✓	✓	✓				1	1							4		0.39	WLCSP, SOIC 150 mil, TSSOP, UFBGA, VQFN, SOIC 300 mil
ATtiny24A/44A/84A	14–20	2/4/8		Up to 0.512	Up to 0.512	20	10	✓	✓		✓	✓	2	2				1		1		✓			✓	✓	✓				1	1							4	✓	0.48	PDIP, SOIC 150 mil, UFBGA, VQFN, WQFN
ATtiny25(V)/45(V)/85(V)	8–20	2/4/8		Up to 0.512	Up to 0.512	20	10	✓	✓		✓	✓	4					2				✓			✓	✓	✓				1	1							3		0.54	PDIP, SOIC, SOIC 150 mil, SOIJ, WQFN, TSSOP
ATtiny48/88	28–32	4/8		Up to 0.512	0.064	12	10	✓			✓	✓	1	1				1		1					✓	✓	✓				1	1							3	✓	0.63	SPDIP, VQFN, TQFP
ATtiny87/167	20–32	8/16		0.512	0.512	20	10	✓			✓	✓	1	2				1		1		✓			✓	✓	✓	1			1	2							4		0.95	SOIC 300 mil, TSSOP, WQFN, VQFN
ATtiny261A/461A/861A	20–32	2/4/8		Up to 0.512	Up to 0.512	20	10	✓	✓		✓	✓						1		1					✓	✓	✓				1	1							4	✓	0.61	PDIP, SOIC 300 mil, TSSOP, VQFN
ATtiny212/214/412/414/416/417/814/ 816/817/1614/ 1616/1617/3216/3217	8–24	2/4/8/ 16/32		Up to 2	Up to 0.256	20	10	✓		8	✓	✓		2			✓		up to 2	2	✓	✓		✓	✓	✓	✓		1		1	1		✓				✓	✓	3	✓	0.31	VQFN, SOIC 150 mil, SOIC 300 mil
ATtiny202/204/404/406/804/806/807/1604/1606/1607	8–24	2/4/8/ 16		Up to 1	Up to 0.256	20	10	✓			✓	✓		2			✓			2	✓	✓		✓	✓	✓	✓		1		1	1						✓	✓	3	✓	0.29	VQFN, SOIC 150 mil, SOIC 300 mil
ATmega3208/3209/4808/ 4809	28–48	32/48		Up to 6	0.256	20	10	✓			✓	✓		2			✓			5	✓	✓		✓	✓	✓	✓		4		1	1						✓	✓	3	✓	0.87	VQFN, UQFN TQFP, SSOP
ATtiny441/841	14–20	4/8		Up to 0.512	Up to 0.512	16	10	✓	✓		✓		1	2				1		2					✓	✓	✓		2		1	1							4	✓	0.64	SOIC 150 mil, VQFN, WQFN
ATtiny1634	20	16		1	0.256	12	10	✓			✓	✓	2	2				1		1		✓			✓	✓	✓		2		1								4	✓	0.69	SOIC 300 mil, WQFN
ATtiny2313A	20	2		0.128	0.128	20	10	✓				✓	2	2				1		1		✓			✓	✓	✓		1		1	2							3	✓	0.48	PDIP, SOIC 300 mil, WQFN
ATmega8A/16A/32A	32–44	8/16/ 32		1/1/2	0.5/ 0.5/1	16	10	✓					2	1			✓	2		1		✓			✓	✓	✓		1		1	1							5		1.39	SPDIP, TQFP, VQFN, PDIP
ATmega8U2/16U2/32U2	32	32	4	2	1	20	10	1			✓	✓	4	6			✓	2		3		✓			✓	✓	✓		2		2	2		✓					6		1.62	TQFP, VQFN
ATmega16U4/32U4	32	8/16/ 32	4	0.5/ 0.5/1	0.5/ 0.5/1	16	10	1			✓	✓	5	-				1		1		✓			✓	✓	✓		1	1		1							6		2.72	TQFP, VQFN
ATmega48PB/ 88PB/168PB	32	4/8/ 16	1/1/ 2	0.5/ 1/1	0.25/ 0.5/1	20	10	1			✓	✓	4	2			✓	2		1		✓			✓	✓	✓		1		1	1							6		0.76	TQFP, VQFN
ATmega64A/128A	64	64/ 128	8	4	2/4	16	10	1	✓			✓	2	6				2		2		✓			✓	✓	✓		2		1	1							6		3.16	TQFP, VQFN

1: LIN port also **2:** Peripheral Touch Controller **3:** Only on the ATtiny5/10 **4:** Not on the ATtiny212/214/412/414/416 **5:** Only on the ATmega1281/2561 **6:** Only on the ATmega328PB **7:** Only on the C3 and C4

8-bit AVR® Microcontrollers

Product Family	Pin Count Range	Program Flash Memory (KB)	Boot Code (KB)	SRAM (B)	EEPROM (B)	Speed (MHz)	Analog						Waveform Control				Timing				Logic, Crypto and Math			Safety and Monitoring				Communications						User Interface		Low Power and System Flexibility						Pricing ($) (5 ku)	Packages
							ADC (# of bits)	Comparators	ADC Gain Stage	DAC (# of bits)	Temperature Sensor	Internal Voltage Reference	8-bit PWM	16-bit PWM	Quadrature Decoder	Waveform Extension	Real-Time Counter	8-bit Timer/Counters	12-bit Timer Counter	16-bit Timer/Counters	CCL	MULT	Crypto (AES/DES)	CRC	POR	BOD	WDT	UART	USART	USB	I²C	SPI	IRCOM	QTouch® Technology with PTC	LCD	External Bus Interface	DMA Channels	Event System	SleepWalking	Sleep Modes	picoPower® Technology		
ATmega164PA/ 324PA/644PA	44	16/64/ 128	4/4/8	1/4/ 16	0.5/ 2/4	20	10	1	✓			✓	4	2/2/ 4			✓	2		1/ 1/2		✓			✓	✓	✓		2		1	1								6	✓	2.45	PDIP, TQFP, VQFN, VFBGA
ATmega165PA/325PA	44	16/32	4	2	1	20	10	1				✓	4	6			✓	2		3		✓			✓	✓	✓		3		2	2		✓						6	✓	2.40	TQFP, VQFN
ATmega169PA/329PA	64	16/32	2	1/2	0.5/1	16/30	10	1				✓	2	2			✓	2		1		✓			✓	✓	✓		1		1	1								5		2.61	TQFP, VQFN
ATmega324PB	64	16/32	2	1/2	0.5/1	16/30	10	1				✓	2	2			✓	2		1		✓			✓	✓	✓		1		1	1			✓					5		1.30	TQFP, VQFN
ATmega328PB	32	32	4	2	1	20	10	✓			✓	✓	4	6			✓	2		3		✓			✓	✓	✓		2		2	2		✓						6		0.92	TQFP, VQFN
ATmega640/1280/2560	100	64/128/ 256	8	8	4	16	10	✓	✓			✓	4	6/ 12			✓	2		4		✓			✓	✓	✓		2/4		1	1								6		5.65	TFBGA, TQFP
ATmega645P	64	64	8	4	2	16	10	✓	✓			✓	2	2			✓	2		1		✓			✓	✓	✓		1		1	1								5		3.86	TQFP, VQFN
ATmega649P	64	64	4	4	2	16	10	✓	✓			✓	2	2			✓	2		1		✓			✓	✓	✓		1		1	1			✓					5	✓	4.21	TQFP, VQFN
ATmega1281/2561	64	128/256	8	8	4	16	10	✓	✓			✓	4	6/ 12			✓	2		4		✓			✓	✓	✓		2/4		1	1				✓				6		6.28	TQFP, VQFN
ATmega3250PA	100	32	8	2	1	20	10	✓	✓			✓	2	2			✓	2		1		✓			✓	✓	✓		1		1	1								5		3.35	TQFP
ATmega3290A/6490A	100	32/64	4	2/4	1/2	20	10	✓	✓			✓	2	2			✓	2		1		✓			✓	✓	✓		1		1	1		✓						5	✓	3.29	TQFP
ATmega3290P/6490P	100	32/64	8	2/4	1/2	20	10	✓	✓			✓	2	2			✓	2		1		✓			✓	✓	✓		1		1	1		✓						5		3.76	TQFP
ATmega6450A	100	64	8	4	2	20	10	✓	✓			✓	2	2			✓	2		1		✓			✓	✓	✓		1		1	1								5		3.01	TQFP
ATmega6450P	100	64	8	4	2	20	10	✓	✓			✓	2	2			✓	2		1		✓			✓	✓	✓		1		1	1								5		3.38	TQFP
ATxmega64A1U/128A1U	100	64/128	4/8	4/8	2	32	12	✓	✓	12	✓	✓		8	✓	✓	✓			8		✓	✓	✓	✓	✓	✓		8	✓	4	4	✓			✓	4	✓		5	✓	4.10	TFBGA, TQFP, VFBGA
ATxmega64A3U/128A3U/ 192A3U/256A3U	64	64/128/ 192/256	4/8/ 8/8	4/8/ 16/16	2/2/ 2/4	32	12	✓	✓	12	✓	✓		7	✓	✓	✓			7		✓	✓	✓	✓	✓	✓		7	✓	2	3	✓				4	✓		5	✓	3.01	TQFP, VQFN
ATxmega256A3BU	64	256	8	16	4	32	12	✓	✓	12	✓	✓		7	✓	✓	BB[2]			7		✓	✓	✓	✓	✓	✓		6	✓	2	2	✓				4	✓		5	✓	4.90	TQFP, VQFN
ATxmega16A4U/32A4U/ 64A4U/128A4U	44-49	16/32/ 64/128	4/4/ 4/8	2/4/ 4/8	1/1/ 2/2	32	12	✓	✓	12	✓	✓		5	✓	✓	✓			5		✓	✓	✓	✓	✓	✓		5	✓	2	2	✓				4	✓		5	✓	2.00	TQFP, VQFN, VFBGA
ATxmega64B1/128B1	100	64/128	4/8	4/8	2/2	32	12	✓	✓	12	✓	✓		3	✓	✓	✓			3		✓	✓	✓	✓	✓	✓		2	✓	1	1	✓		✓		2	✓		5	✓	3.50	TQFP, VFBGA
ATxmega64B3/128B3	64	64/128	4/8	4/8	2/2	32	12	✓	✓	12	✓	✓		2	✓	✓	✓			2		✓	✓	✓	✓	✓	✓		1	✓	1	1	✓		✓		2	✓		5	✓	3.33	TQFP, VQFN
ATxmega32D3/64D3/ 128D3/192D3/256D3/384D3	64	32/64/ 128/192/ 256/384	4/4/8/ 8/8/8	4/4/8/ 16/16/32	1/2/2/ 2/4/4	32	12	✓	✓	12	✓	✓		5	✓	✓	✓			5		✓			✓	✓	✓	✓	3		2	2	✓					✓		5	✓	2.55	TQFP, VQFN
ATxmega16D4/32D4/ 64D4/128D4	44-49	16/32/ 64/128	4/4/ 4/8	2/4/4/8	1/1/ 2/2	32	12			12	✓	✓		4	✓	✓	✓			4		✓			✓	✓	✓	✓	2		2	2	✓					✓		5	✓	1.96	TQFP, VQFN, VFBGA
ATxmega8E5/16E5/32E5	32	8/16/32	2/4/4	1/2/4	0.5/ 0.5/1	32	12	✓	✓	12	✓	✓		3	✓	✓	✓			3	✓	✓			✓	✓	✓	✓	2		1	1	✓					✓		5	✓	1.75	TQFP, UQFN, VQFN

1: LIN port also **2:** Peripheral Touch Controller **3:** Only on the ATtiny5/10 **4:** Not on the ATtiny212/214/412/414/416 **5:** Only on the ATmega1281/2561 **6:** Only on the ATmega328PB **7:** Only on the C3 and C4

8-bit PIC and AVR MCU Terminology

Intelligent Analog: Sensor Interfacing and Signal Conditioning	
ADC: Analog-to-Digital Converter	General-purpose 10-/12-bit ADC
ADC Gain Stage: Analog-to-Digital Converter Gain Stage	Programmable gain stage, providing amplification steps on the differential input voltage
Comp: Comparator	General-purpose rail-to-rail comparator
DAC: Digital-to-Analog Converter	Programmable voltage reference with multiple internal and external connections
VREF: Voltage Reference	Stable fixed voltage reference for use with integrated analog peripherals
Waveform Control: PWM Drive and Waveform Generation	
PWM: Pulse-Width Modulation	General-purpose 10-bit PWM control
16-bit PWM: Standalone 16-bit PWM and 16-bit Timer/Counter	1. High-resolution 16-bit PWM with edge- and center-aligned modes 2. General-purpose 16-bit timer/counter
Timing and Measurements: Signal Measurement with Timing and Counter Control	
8-/12-/16-bit Timer	General-purpose 8-/12-/16-bit timer/counter
Logic, Crypto and Math: Customizable Logic and Math Functions	
CCL: Configurable Custom Logic	1. Integrated combinational and sequential logic 2. Customer interconnection and re-routing of digital peripherals
MULT: Hardware Multiplier	MULTIPLY function of two 8-bit values with 16-bit result
Crypto (AES/DES)	Data encryption and decryption can be easily performed for both internally stored data or for small external data packets
Safety and Monitoring: Hardware Monitoring and Fault Detection	
CRC/SCAN: Cyclical Redundancy Check with Memory Scan	Automatically calculates CRC checksum of Program/DataEE memory for NVM integrity

Communications: General, Industrial, Lighting and Automotive	
USART: Universal Asynchronous Receiver Transmitter	1. General-purpose serial communications 2. Support for LIN/IrDA®
I²C: Inter-Integrated Circuit	General-purpose 2-wire serial communications
SPI: Serial Peripheral Interface	General-purpose 4-wire serial communications
IRCOM: Infrared Communication Module	Encodes and decodes data according to the IrDA communication protocol
User Interface: Capacitive Touch Sensing and LCD Control	
LCD: Liquid Crystal Display	Highly integrated segmented LCD controller
QTouch® Technology: Microchip Proprietary Touch Technology	Provides a simple-to-use solution to create touch-sensitive interfaces
QTouch Technology with PTC: QTouch Technology with Peripheral Touch Controller	Provides a simple-to-use solution to create touch-sensitive interfaces with a Peripheral Touch Controller
Low Power and System Flexibility: Low-Power Technology, Peripheral and Interconnects	
DMA: Direct Memory Access	Moves data between memories and peripherals without CPU overhead, improving overall system performance and efficiency
Event System	Flexible routing of peripheral events, ability to control peripheral independent from the CPU
External Bus Interface	Highly flexible module for interfacing external memories and memory-addressable peripherals
picoPower® Technology	Low-power technology
Sleep Modes	Low-power saving modes, IDLE, power-down, power-save, standby and extended standby
SleepWalking	Ability to put the CPU core to sleep until a relevant event occurs

16-bit Microcontrollers and dsPIC® Digital Signal Controllers

Product Family	Maximum MIPS	Program Flash Memory (KB)	RAM (KB)	Pin Count	Integrated Analog					Waveform Control							Clocks and Timers					Safety and Monitoring					Communication										User Interface		Secure Data			System Flexibility							Pricing ($) (5 ku)	Packages
					ADC (resolution)[1]	DAC (resolution)[2]	CVREF	HS Comp	OPA/PGA	CCP/ECCP	SCCP	MCCP	PWM	MC PWM	SMPS PWM	IC and OC	PWM Resolution (ns)	8-bit Timer	16-bit Timer	32-bit Timer	RTCC	QEI	LVD	WDT	DMT	CRC	Class B Safety[3]	USB	CAN	UART	LIN	IrDA®	I²C	SPI	PPS™	SENT	Parallel Port	CTMU and mTouch® Sensing	LCD (Segments)	GFX	Cryptographic Engine	Secure Key Storage	RNG	Dual Partition Flash	CLC	PPS	PTG	DMA	IDLE, SLEEP and PMD	DOZE	XLP	VBAT		
PIC24F Family																																																	
PIC24 F04KA201	8	4	0.5	14–20	10		✓	✓					✓			✓	62		✓	✓			✓	✓			L1			✓	✓	✓	✓	✓	✓			✓										✓	✓	✓		1.00	SPDIP (SP), TSSOP (ST), PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)
PIC24 F04KL101	16	4	0.5	14–20			✓	✓		✓			✓			✓	15	✓	✓	✓			✓	✓			L1			✓	✓	✓	✓	✓														✓	✓	✓		0.80	PDIP (P), TSSOP (ST), SOIC (SO), SSOP (SS), 5 × 5 QFN (MQ)
PIC24 F08KL201	16	8	0.5	14–20	10		✓	✓		✓			✓			✓	15	✓	✓	✓			✓	✓			L1			✓	✓	✓	✓	✓	✓														✓	✓	✓		1.16	PDIP (P), SOIC (SO), SSOP (SS), 5 × 5 QFN (MQ)
PIC24 F08KL302	16	8	1	20–28			✓	✓		✓			✓			✓	15	✓	✓	✓			✓	✓			L1			✓	✓	✓	✓	✓	✓														✓	✓	✓		1.01	SPDIP (SP), SOIC (SO), SSOP (SS), 5 × 5 QFN (MQ), 6 × 6 QFN (ML)
PIC24 F16KL402	16	8–16	1	20–28	10		✓	✓		✓			✓			✓	15	✓	✓	✓			✓	✓			L1			✓	✓	✓	✓	✓	✓														✓	✓	✓		1.36	SPDIP (SP), SOIC (SO), SSOP (SS), 5 × 5 QFN (MQ), 6 × 6 QFN (ML)
PIC24 F16KA102	16	8–16	1.5	20–28	10		✓	✓					✓			✓	62		✓	✓			✓	✓		✓	L2			✓	✓	✓	✓	✓	✓			✓										✓	✓	✓		1.44	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL)
PIC24 F16KM104	16	8–16	1	20–44	12		✓	✓			✓	✓	✓			✓	62		✓	✓			✓	✓		✓	L2			✓	✓	✓	✓	✓	✓			✓					✓					✓	✓	✓		1.68	PDIP (P), SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MQL)
PIC24 F16KM204	16	8–16	2	20–44	12	8	✓	✓	✓		✓	✓	✓			✓	62		✓	✓			✓	✓		✓	L2			✓	✓	✓	✓	✓	✓			✓					✓					✓	✓	✓		1.79	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MQL), TQFP (PT), QFN (ML), UQFN (MV)
PIC24 F32KA304	16	16–32	2	20–44	12		✓	✓					✓			✓	15		✓	✓			✓	✓		✓	L2			✓	✓	✓	✓	✓	✓			✓										✓	✓	✓		1.86	TQFP (PT), QFN (ML), UQFN (MV)
PIC24 FJ64GA004	16	16–64	4-8	28–44	10			✓					✓			✓	62		✓	✓			✓	✓		✓	L2			✓	✓	✓	✓	✓	✓		✓							✓				✓	✓			1.62	TQFP (PT), QFN (ML)
PIC24 FJ32MC104	16	16–32	1–2	20–44	10	4		✓					✓	✓	✓	✓	31		✓	✓	✓			✓			L1			✓	✓	✓	✓	✓	✓			✓							✓			✓	✓			1.57	PDIP (P), SOIC (SO), SSOP (SS), QFN (MQL),TQFP (PT), TLA, QFN (ML)
PIC24 EP512GP206	70	32–512	4-48	28–64	12	4		✓	✓				✓			✓	14		✓	✓				✓		✓	L2			✓	✓	✓	✓	✓	✓			✓										✓	✓			1.37	QFN (MR), TQFP (PT)
PIC24 EP512MC206	70	32–512	4-48	28–64	12	4		✓	✓				✓	✓	✓	✓	7		✓	✓		✓		✓		✓	L2			✓	✓	✓	✓	✓	✓			✓							✓	✓	✓	✓	✓			1.37	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM),QFN (ML), TQFP (PT)
PIC24 FJ64GA104	16	32–64	8	28–44	10			✓					✓			✓	15		✓	✓			✓	✓		✓	L2			✓	✓	✓	✓	✓	✓		✓	✓										✓	✓	✓		1.99	TQFP (PT), QFN (ML)
PIC24 FJ64GB004	16	32–64	8	28–44	10			✓					✓			✓	15		✓	✓			✓	✓		✓	L2	✓		✓	✓	✓	✓	✓	✓		✓	✓							✓			✓	✓	✓		2.20	TQFP (PT), QFN (ML)
PIC24 FJ128GA010	16	64–128	8	64–100	10			✓					✓			✓	62		✓	✓				✓		✓	L2			✓	✓	✓	✓	✓	✓		✓											✓	✓			2.18	TQFP (PT), QFN (ML)
PIC24 FJ256GA110	16	64–256	16	64–100	10			✓					✓			✓	15		✓	✓			✓	✓		✓	L2			✓	✓	✓	✓	✓	✓		✓	✓							✓			✓	✓			3.11	TQFP (PT), QFN (MR)
PIC24 FJ256GB110	16	64–256	16	64–100	10			✓					✓			✓	15		✓	✓			✓	✓		✓	L2	✓		✓	✓	✓	✓	✓	✓		✓	✓							✓			✓	✓			3.29	TQFP (PT), QFN (MR)
PIC24 FJ128GA204	16	64–128	8	28–44	12			✓					✓			✓	15		✓	✓	✓		✓	✓						✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓				✓		✓	✓	✓	✓	✓	2.39	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM),TQFP (PT), QFN (ML)
PIC24 FJ128GB204	16	64–128	8	28–44	12			✓					✓			✓	15		✓	✓	✓		✓	✓				✓		✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓				✓		✓	✓	✓	✓	✓	2.53	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM),TQFP (PT), QFN (ML)
PIC24 FJ128GA310	16	64–128	8	64–100	12		✓	✓					✓			✓	15		✓	✓	✓		✓	✓		✓	L2			✓	✓	✓	✓	✓	✓			✓		up to 480								✓		✓	✓	✓	✓	2.31	TQFP (PT), QFN (MR)
PIC24 FJ128GC010	16	64–128	8	64–100	16	10	✓	✓					✓			✓	15		✓	✓	✓		✓	✓		✓	L2	✓		✓	✓	✓	✓	✓	✓		✓	✓		up to 472								✓		✓	✓	✓	✓	3.36	TQFP (PT), QFN (MR)
PIC24 FJ256DA210	16	128–256	24-96	64–100	10			✓					✓			✓	15		✓	✓			✓	✓		✓	L2	✓		✓	✓	✓	✓	✓	✓		✓	✓			✓							✓		✓	✓			4.34	TQFP (PT), QFN (MR)
PIC24 FJ256GB210	16	128–256	96	64–100	10			✓					✓			✓	62		✓	✓			✓	✓		✓	L2	✓		✓	✓	✓	✓	✓	✓		✓	✓										✓		✓	✓			4.30	TQFP (PT), QFN (MR)

1: 16-bit PIC® MCU offers SAR ADC, high-speed ADC and Delta-Sigma ADC **2:** 16-bit PIC MCU offers general-purpose DAC and audio DAC **3:** Class B Safety Features: L1: Includes WDT, oscillator fail-safe, illegal opcode detect, TRAP, reset trace, register lock, frequency check, CodeGuard™ security, PWM lock* L2: Includes features of L1 + CRC L3: Includes features of L1 + Flash ECC + DMT *PWM lock available in devices with MC PWM/SMPS PWM peripheral **4:** 5V operating voltage

16-bit Microcontrollers and dsPIC® Digital Signal Controllers

Product Family	Maximum MIPS	Program Flash Memory (KB)	RAM (KB)	Pin Count	Integrated Analog				Waveform Control								Clocks and Timers					Safety and Monitoring					Communication										User Interface			Secure Data			System Flexibility									Pricing ($) (5 ku)	Packages
					ADC (resolution)(1)	DAC (resolution)(2)	CVREF	HS Comp	OPA/PGA	CCP/ECCP	SCCP	MCCP	PWM	MC PWM	SMPS PWM	IC and OC	PWM Resolution (ns)	8-bit Timer	16-bit Timer	32-bit Timer	RTCC	QEI	LVD	WDT	DMT	CRC	Class B Safety(3)	USB	CAN	UART	LIN	IrDA®	I²C	SPI	I²S™	SENT	Parallel Port	CTMU and mTouch® Sensing	LCD (Segments)	GFX	Cryptographic Engine	Secure Key Storage	RNG	Dual Partition Flash	CLC	PPS	PTG	DMA	IDLE, SLEEP and PMD	DOZE	XLP	VBAT		
PIC24FJ 256GA412	16	64–256	8-16	64–121	12	10	✓	✓			✓	✓	✓			✓	62		✓	✓	✓		✓	✓		✓	L2			✓			✓	✓	✓		✓	✓	up to 512		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	3.14	TQFP (PT), QFN (ML), XBGA (BG)
PIC24FJ 256GB412	16	64–256	8-16	64–121	12	10	✓	✓			✓	✓	✓			✓	62		✓	✓	✓		✓	✓		✓	L2	✓		✓			✓	✓	✓		✓	✓	up to 512		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	3.35	TQFP (PT), QFN (ML), XBGA (BG)
PIC24FJ 256GA705	16	64–256	16	24–48	12		✓	✓				✓	✓			✓	62		✓	✓	✓		✓	✓		✓	L2			✓	✓	✓	✓	✓	✓		✓	✓							✓	✓		✓	✓	✓			1.16	QFN (ML), UQFN (M6), SOIC (SO), SSOP (SS), SPDIP (SP), TQFP (PT), UQFN (M4)
PIC24EP 512GU814	60	256–512	28-52	100–144	12	4		✓					✓			✓	14		✓	✓				✓		✓	L2	✓	✓	✓	✓	✓	✓	✓	✓		✓							✓		✓		✓	✓	✓			5.49	TQFP (PT, PF, PH), LQPF (PL)
PIC24EP 512GP806	70	512	52	64	12	4		✓					✓			✓	14		✓	✓				✓		✓	L2		✓	✓	✓	✓	✓	✓	✓		✓							✓		✓		✓	✓	✓			5.39	QFN (MR), TQFP (PT, PH), LQPF (PL)
PIC24FJ 1024GA610	16	128–1024	32	64–100	12		✓	✓			✓	✓	✓			✓	62		✓	✓	✓		✓	✓		✓	L2			✓			✓	✓	✓		✓	✓						✓	✓	✓			✓	✓			2.80	TQFP (PT), QFN (ML) ,TFBGA (BG)
PIC24FJ 1024GB610	16	128–1024	32	64–100	12		✓	✓			✓	✓	✓			✓	62		✓	✓	✓		✓	✓		✓	L2	✓		✓			✓	✓	✓		✓	✓						✓	✓	✓			✓	✓			2.94	TQFP (PT), QFN (ML), TFBGA (BG)
dsPIC33F Family																																																						
dsPIC33 FJ06GS001	40	6	0.25	18	10	10	✓	✓						✓	✓		1		✓					✓			L1			✓	✓	✓	✓	✓												✓			✓	✓			1.61	PDIP (P), SOIC (SO), SSOP (SS)
dsPIC33FJ 06GS102/1/A	40	6	0.25	18–28	10		✓						✓	✓	✓		1		✓					✓			L1			✓	✓	✓	✓	✓												✓			✓	✓			1.75	SDIP (P, SP), SOIC (SO), SSOP (SS), QFN (MM)
dsPIC33FJ 06GS202/ A/302	40	6–9	1	28	10	10	✓	✓					✓	✓	✓	✓	1		✓					✓			L1			✓	✓	✓	✓	✓												✓			✓	✓			2.06	SDIP (SP), SOIC (SO), SSOP (SS), QFN (MM)
dsPIC33FJ 16GS404	50	16	16-64	28–44	10		✓						✓	✓	✓	✓	1		✓	✓				✓			L1			✓	✓	✓	✓	✓												✓			✓	✓			2.52	SPDIP (SP), SOIC (SO), QFN (MM, ML, MR),TQFP (PT)
dsPIC33FJ 16GS504	50	16	2	28–44	10	10	✓	✓					✓	✓	✓	✓	1		✓	✓				✓			L1			✓	✓	✓	✓	✓												✓			✓	✓			3.04	SPDIP (SP), SOIC (SO), QFN (MM, ML), TQFP (PT)
dsPIC33FJ 32GP104	16	32	1-2	20–44	10	4		✓					✓			✓	62		✓	✓	✓			✓			L1			✓	✓	✓	✓	✓				✓								✓			✓	✓			1.68	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MQL, ML), TQFP (PT), TLA,
dsPIC33FJ 32MC104	16	16–32	1-2	20–44	10	4		✓					✓	✓	✓	✓	12		✓	✓	✓			✓			L1			✓	✓	✓	✓	✓				✓								✓			✓	✓			1.68	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MQL,ML),TQFP (PT), TLA
dsPIC33FJ 32GP204	40	32	2	28–44	12								✓			✓	25		✓	✓				✓			L1			✓	✓	✓	✓	✓												✓			✓	✓			2.53	SPDIP (SP), SOIC (SO), QFN-S (MM, ML), TQFP (PT)
dsPIC33FJ 16GP304	40	16	2	28–44	12	4		✓					✓			✓	25		✓	✓				✓		✓	L2			✓	✓	✓	✓	✓			✓									✓		✓	✓	✓			2.76	SPDIP (SP), SOIC (SO), QFN-S (MM, ML), TQFP (PT)
dsPIC33FJ 128GP804	40	64–128	16	28–44	12	16		✓					✓			✓	25		✓	✓				✓		✓	L2		✓	✓	✓	✓	✓	✓			✓									✓		✓	✓	✓			3.42	SPDIP (SP), SOIC (SO), QFN-S (MM, ML), TQFP (PT)
dsPIC33FJ 64GS406	50	32–64	2-8	64	10		✓						✓	✓	✓	✓	1		✓	✓		✓		✓			L1			✓	✓	✓	✓	✓															✓	✓			2.52	SPDIP (SP), SOIC (SO), QFN-S (MM,ML), TQFP (PT)
dsPIC33FJ 32GS610	50	32	4	64–100	10	10	✓	✓					✓	✓	✓	✓	1		✓	✓		✓		✓			L1			✓	✓	✓	✓	✓															✓	✓			3.36	TQFP (PF, PT), QFN(MR)
dsPIC33FJ 64GS610	50	64	8	64–100	10	10	✓	✓					✓	✓	✓	✓	1		✓	✓		✓		✓			L1		✓	✓	✓	✓	✓	✓														✓	✓	✓			3.81	TQFP (PF, PT), QFN (MR)
dsPIC33FJ 32MC204	70	32	2-4	28–44	12								✓	✓	✓	✓	12		✓	✓		✓		✓			L1			✓	✓	✓	✓	✓												✓			✓	✓			2.60	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM, ML), TQFP (PT)

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16-bit Microcontrollers and dsPIC® Digital Signal Controllers

Product Family	Maximum MIPS	Program Flash Memory (KB)	RAM (KB)	Pin Count	Integrated Analog: ADC (resolution)[1]	Integrated Analog: DAC (resolution)[2]	Integrated Analog: CVREF	Integrated Analog: HS Comp	Integrated Analog: OPA/PGA	Waveform Control: CCP/ECCP	Waveform Control: SCCP	Waveform Control: MCCP	Waveform Control: PWM	Waveform Control: MC PWM	Waveform Control: SMPS PWM	Waveform Control: IC and OC	Waveform Control: PWM Resolution (ns)	Clocks and Timers: 8-bit Timer	Clocks and Timers: 16-bit Timer	Clocks and Timers: 32-bit Timer	Clocks and Timers: RTCC	Clocks and Timers: QEI	Safety and Monitoring: LVD	Safety and Monitoring: WDT	Safety and Monitoring: DMT	Safety and Monitoring: CRC	Safety and Monitoring: Class B Safety[3]	Communication: USB	Communication: CAN	Communication: UART	Communication: LIN	Communication: IrDA®	Communication: I²C	Communication: SPI	Communication: PPS™	Communication: SENT	Communication: Parallel Port	User Interface: CTMU and mTouch® Sensing	User Interface: LCD (Segments)	User Interface: GFX	Secure Data: Cryptographic Engine	Secure Data: Secure Key Storage	Secure Data: RNG	System Flexibility: Dual Partition Flash	System Flexibility: CLC	System Flexibility: PPS	System Flexibility: PTG	System Flexibility: DMA	System Flexibility: IDLE, SLEEP and PMD	System Flexibility: DOZE	System Flexibility: XLP	System Flexibility: VBAT	Pricing ($) (5 ku)	Packages
dsPIC33F Family																																																						
dsPIC33FJ 32MC304	70	32	4	28–44	12	4		✓					✓	✓	✓	✓	12		✓	✓		✓		✓		✓	L2			✓	✓	✓	✓	✓		✓									✓			✓	✓			2.87	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM, ML), TQFP (PT)
dsPIC33FJ 128MC204	70	64–128	8	28–44	12	4		✓					✓	✓	✓	✓	12		✓	✓		✓		✓		✓	L2			✓	✓	✓	✓	✓		✓									✓		✓	✓	✓			3.29	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM, ML), TQFP (PT)
dsPIC33FJ 128MC804	70	64–128	16	28–44	12	4 to 16		✓					✓	✓	✓	✓	12		✓	✓		✓		✓		✓	L2		✓	✓	✓	✓	✓	✓		✓									✓		✓	✓	✓			3.50	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM, ML), TQFP (PT)
dsPIC33FJ 128MC5/710A	70	128	8-16	64–100	12								✓	✓	✓	✓	12		✓	✓		✓		✓			L1		✓	✓	✓	✓	✓	✓												✓	✓	✓			4.10	TQFP (PT, PF), QFN (MR)
dsPIC33FJ 128GP2/310A	40	128	8-16	64–100	12								✓			✓	25		✓	✓				✓			L1			✓	✓	✓	✓	✓	✓												✓	✓	✓			3.63	TQFP (PT, PF), QFN (MR)
dsPIC33FJ 256GP5/710A	70	256	16-32	64–100	12								✓			✓	25		✓	✓				✓			L1		✓	✓	✓	✓	✓	✓	✓												✓	✓	✓			4.20	TQFP (PT, PF), QFN (MR)
dsPIC33FJ 256MC5/710A	70	64-256	8-32	64-100	12								✓	✓	✓	✓	12		✓	✓		✓		✓			L1		✓	✓	✓	✓	✓	✓												✓	✓	✓			3.84	TQFP (PT, PF), QFN (MR)
dsPIC33EV Family																																																					
dsPIC33EV 256GM006	70	32–256	4-16	28–64	12	7		✓	✓				✓	✓		✓	8		✓	✓					✓	✓		L3			✓	✓	✓	✓	✓		✓		✓							✓		✓	✓	✓			1.79	SPDIP (SP), SOIC (SO), QFN (MM, ML), TQFP (PT)
dsPIC33EV 256GM106	70	32–256	4-16	28–64	12	7		✓	✓				✓	✓		✓	8		✓	✓					✓	✓		L3		✓	✓	✓	✓	✓	✓		✓		✓							✓		✓	✓	✓			2.00	SPDIP (SP), SOIC (SO), QFN (MM, ML), TQFP (PT)
dsPIC33EP Family																																																					
dsPIC33EP 64GS2/506	70	16–64	2-8	28–64	12	12	✓	✓	✓				✓		✓	✓	1		✓	✓					✓			L1			✓			✓	✓	✓									✓		✓			✓	✓			1.99	SOIC (SO), SSOP (SS), UQFN (M6, MX, 2N), QFN (MM, ML), TQFP (PT)
dsPIC33 EP128GS808	70	64–128	8	28–80	12	12	✓	✓	✓				✓		✓	✓	1		✓	✓	✓				✓			L1		✓	✓	✓	✓	✓	✓	✓									✓	✓	✓	✓	✓	✓	✓			3.47	SOIC (SO), UQFN (2N), QFN (MM, ML), TQFP (PT)
dsPIC33 EP512GP506	70	32–512	4-48	28–64	12	4		✓	✓				✓			✓	14		✓	✓				✓		✓	L2		✓	✓	✓	✓	✓	✓				✓								✓	✓	✓	✓	✓			1.58	SPDIP (SP), SOIC (SO), QFN (MM, ML, MR), TQFP (PT)
dsPIC33EP 512MC206	70	32–512	4-48	28–64	12	4		✓	✓				✓	✓	✓	✓	7		✓	✓		✓		✓		✓	L2			✓	✓	✓	✓	✓				✓									✓	✓	✓	✓	✓			2.10	TQFP (PT), QFN (MR)
dsPIC33EP 512MC506	70	32–512	4-48	28–64	12	4		✓	✓				✓	✓	✓	✓	7		✓	✓		✓		✓		✓	L2		✓	✓	✓	✓	✓	✓				✓									✓	✓	✓	✓	✓			2.31	TQFP (PT), QFN (MR)
dsPIC33EP 512GM310	70	128–512	16-48	44–100	12	4		✓	✓				✓	✓	✓	✓	7		✓	✓		✓		✓		✓	L2			✓	✓	✓	✓	✓	✓			✓	✓								✓	✓	✓	✓	✓			3.68	QFN (ML, MR), TQFP (PT, PF), TFBGA (BG)
dsPIC33EP 512GM6/710	70	128–512	16-48	44–100	12	4		✓	✓				✓	✓	✓	✓	7		✓	✓		✓		✓		✓	L2		✓	✓	✓	✓	✓	✓	✓			✓	✓								✓	✓	✓	✓	✓			3.89	QFN (ML, MR), TQFP (PT, PF), TFBGA (BG)
dsPIC33EP 512MU814	70	256–512	28-52	64–144	12	4		✓					✓	✓	✓	✓	7		✓	✓		✓		✓		✓	L2	✓	✓	✓	✓	✓	✓	✓	✓	✓									✓		✓		✓	✓	✓			5.01	TQFP (PT,PF), QFN (MR), LQFP (PL)
dsPIC33EP 512GP806	70	512	52	64	12	4		✓					✓			✓	14		✓	✓				✓		✓	L2		✓	✓	✓	✓	✓	✓	✓		✓									✓		✓		✓	✓	✓			5.39	TQFP (PT), QFN (MR)
dsPIC33CH Family - Dual Core (M – Master Core, S – Slave Core)																																																					
dsPIC33CH 128MP508	M:90 S:100	M: 64–128 S: 24	M: 16 S: 4	28–80	12	4		✓	✓	✓		✓		✓	✓	✓	.25		✓			✓		✓	✓	✓	L3		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓	✓	✓	✓	✓	✓	2.73	SSOP (SS), UQFN (2N, M5, M4), TQFP (PT), QFN (MR)

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16-bit MCUs and DSCs Terminology

Integrated Analog: Sensor Interfacing and Signal Conditioning	
ADC: Analog-to-Digital Converter	General-purpose ADC with up to 10-/12-/16-bit resolution
HS ADC: High-Speed Analog-to-Digital Converter	High-speed SAR ADC with 12-bit resolution and sampling speed of 10 Msps
ΔΣ ADC: Delta-Sigma Analog-to-Digital Converter	Bipolar differential inputs configurable gain integrated PGA Delta-Sigma ADC
DAC: Digital-to-Analog Converter	General-purpose DAC with resolution up 16-bit resolution
ΔΣ DAC: Delta-Sigma Digital-to-Analog Converter	Second-order digital bipolar, two output channel Delta-Sigma DAC with stereo operation support
CVREF: Internal Voltage Reference	Programmable voltage reference with multiple internal and external connections
HS Comp: High-Speed Comparator	General-purpose rail-to-rail comparator with <1 ns response time
OPA: Operational Amplifier	General-purpose op amp for internal and external signal source conditioning
Waveform Control: PWM Drive and Waveform Generation	
CCP/ECCP: (Enhanced) Capture/Compare/PWM	Multi-purpose timers with functionality of the comparable input capture, output compare and PWM with four outputs
SCCP: Single Capture/Compare/PWM	Multi-purpose 16-/32-bit input capture, output compare and PWM
MCCP: Multiple Capture/Compare/PWM	Multi-purpose 16-/32-bit input capture, output compare and PWM with up to six outputs and an extended range of output control features
PWM: Pulse Width Modulation	16-bit PWM with up to nine independent time bases
MC PWM: Motor Control Pulse-Width Modulation	Motor control 16-bit PWM with multiple synchronized pulse-width modulation, up to six outputs with four duty cycle generators and resolution up to 1 ns
SMPS PWM: Power Supply Pulse-Width Modulation	Power supply 16-bit PWM with multiple synchronized pulse-width modulation, up to eight outputs with four independent time bases and resolution up to 1 ns
IC: Input Capture	Input capture with an independent timer base to capture an external event
OC: Output Compare	Output compare with an independent time base to compare value with compare registers and generate a single output pulse, or a train of output pulses on a compare match event
Clocks and Timers: Signal Measurement with Timing and Counter Control	
8-/16-/32-bit Timer	General-purpose 8-/16-/32-bit timer/counter with compare capability
RTCC: Real-Time Clock/Calendar	Real-time clock and calendar with a Binary-Coded Decimal (BCD) clock calendar to maintain accurate timing with external 32.768 kHz crystal
QEI: Quadrature Encoder Interface	Quadrature encoder interface to increment encoders for obtaining mechanical position data
Safety and Monitoring: Hardware Monitoring and Fault Detection	
LVD: Low-Voltage Detection	LVD detects drops in system operating voltage using an internal reference voltage for comparison, especially in battery-powered applications
WDT: Watchdog Timer	System supervisory circuit that generates a reset when software timing anomalies are detected within a configurable critical window
DMT: Dead Man Timer	System supervisory circuit that generates a reset when instruction sequence anomalies are detected within a configurable critical window
CRC: Cyclical Redundancy Check with Memory Scan	Automatically calculates CRC checksum of Program/DataEE memory for NVM integrity and a general-purpose 16-bit CRC for use with memory and communications data
Class B Safety	Hardware Class B support with Flash error correction, backup system oscillator, WDT, DMT, CRC scan, etc.

Communications: General, Industrial, Lighting and Automotive	
USB OTG: Universal Serial Bus	USB 2.0 full-speed (host and device), low-speed (host) and On-The-Go (OTG) support
CAN: Controller Area Network	Industrial- and automotive-centric communication bus
UART: Universal Asynchronous Receiver Transmitter	General-purpose full-duplex, 8-bit or 9-bit data serial communications with optional ISO 7816 Smart Card support
LIN: Local Interconnect Network	1. Industrial- and automotive-centric communication bus 2. Support for LIN when using the EUSART
IrDA®: Infrared Data Association	IrDA encoder and decoder logic support through UART
I²C: Inter-Integrated Circuit	General purpose 2-wire inter IC serial interface for communicating with other peripherals or microcontroller devices
SPI: Serial Peripheral Interface	General-purpose 4-wire synchronous serial interface for communicating with other peripherals or microcontroller devices
I²S: Data Converter Interface	3-wire synchronous half duplex serial interface to handle the stereo data
SENT: Single-Edge Nibble Transmission	SENT is an unidirectional, single-wire serial communications protocol designed for point-to-point transmission of signal values
Parallel Port	General-purpose parallel communication interface
User Interface: Capacitive Touch Sensing and LCD Control	
CTMU and mTouch® Sensing: Microchip Proprietary Capacitive Touch Technology Using Charge Time Measurement Unit	Capacitive sensing for touch buttons, sliders and system measurements and detection (e.g. water level, intrusion detection, etc.) using an analog CTMU that provides accurate differential time measurement between pulse sources and asynchronous pulse generation
LCD: Liquid Crystal Display	Highly integrated segmented LCD controller
GFX: Graphics Controller	Highly integrated graphics controller supporting direct interface with display glasses with built-in analog drive for individual pixel control
Secure Data: Hardware-Integrated Cryptographic Engine	
Cryptographic Engine	Independent NIST-standard encryption and decryption engine
Secure Key Storage	Multiple option for key storage, selection and management
RNG: Random Number Generator	Hardware true random number generation
System Flexibility: System Peripherals and Interconnects	
Dual Partition Flash	Dual partition Flash operation, allowing the support of robust bootloader systems and fail-safe storage of application code, with options designed to enhance code security
CLC: Configurable Logic Cell	Integrated combinational and sequential logic with custom interconnection and re-routing of digital peripherals
PPS: Peripheral Pin Select	I/O pin remapping of digital peripherals for greater design flexibility and improved EMI board layout
PTG: Peripheral Trigger Generator	User-programmable sequencer, capable of generating complex trigger signal sequences to coordinate the operation of other peripherals
DMA: Direct Memory Access	Direct memory access for transfer of data between the CPU and its peripherals without CPU assistance
IDLE, SLEEP and PMD	Low-power saving modes
DOZE	Ability to run the CPU core slower than the system clock used by the internal peripherals
XLP: eXtreme Low Power Technology	XLP technology devices with extreme low-power operation modes for battery/low-power applications
VBAT	Hardware-based power mode that maintains only the most critical operations when a power loss occurs on VDD

32-bit Microcontrollers

Product Family	Core	Max. Operation Freq. (MHz)	Program Flash Memory (KB)	RAM (KB)	Pin Count	Intelligent Analog: ADC (channels/bits)	Intelligent Analog: ADC Speed (sps)	Intelligent Analog: DAC (channels/bits)	Intelligent Analog: Analog Comparator (+Op Amp)	Waveform Control: Output Compare Channels	Waveform Control: Input Capture Channels	Waveform Control: PWM Channels	Timing and Measurements: 16-bit/32-bit Timer	Timing and Measurements: TCC (24-bit Control Timer) (4)	Timing and Measurements: Motor Interface (QEI/QDEC) (4)	Safety and Monitoring: Watchdog Timer DMT (Dead Man Timer) (4)	Safety and Monitoring: Class B Safety/DSU/Touch Safety	Communication: USB (FS/HS) + PHY (Transceiver)	Communication: CAN (2.0B or FD)	Communication: Ethernet (10/100)	Communication: SERCOM/FLEXCOM (4)	Communication: USART/UART	Communication: I²C	Communication: SPI (1)	Communication: SDIO/SD/eMMC	Communication: CMOS Camera Interface	Communication: SQI/QSPI	Communication: Audio CODEC (I²S) (4)	Communication: Peripheral Bus Interface PMP/EBI (bus width, bit) (4)	User Interface: Touch (PTC/CTMU, channels) (4)	User Interface: Segment/Graphics LCD Controller	User Interface: LCD/GFX Interface (PMP/EBI)	Security: Crypto Engine (AES, SHA, ECC, RSA/DSA, TRNG)	Security: Tamper Detection	System Flexibility: Dual Panel/Bank Flash (4)	System Flexibility: Intelligent Low-Power Peripheral Event System (channels) (4)	System Flexibility: DMA (channels)	System Flexibility: Low Active Power (µA/MHz)/V_{BAT}	System Flexibility: 5V Support	System Flexibility: CLC/CCL (4)	System Flexibility: Ultra Small Package (WLCSP)	Pricing ($) (5 ku)	Packages
PIC32																																										
PIC32MM GPL	microAptiv	25	16-64	4-8	20-36	14/12	200k	1/5	2	3	3	8	7/3			✓W						2		2				2											✓		0.80	SSOP, SOIC, SPDIP, QFN, UQFN, VQFN
PIC32MM GPM	microAptiv	25	64-256	16-32	28-64	24/12	200k	1/5	3	9	9	24	21/9			✓W		1F+P*				3	3	3				3								4			✓		0.80	SSOP, SOIC, SPDIP, QFN, UQFN, VQFN
PIC32MX 1/2*/5*+	M4K	50	16-512	4-64	28-100	48/10	1M		3	5	5	5	5/2			✓W	✓B	1F+P*	1+			5	2	4				4	P16	C13		P				4					1.40	SOIC, SSOP, SPDIP, QFN, VTLA, TQFP, TFBGA*
PIC32MX 1/2* XLP	M4K	72	128-256	32-64	28-44	13/10	1M		3	5	5	5	5/2			✓W+D	✓B	1F+P				2	2	2				2	P12	C13		P				4	✓				2.77	SOIC, QFN, TQFP
PIC32MX 3/4*	M4K	120	32-512	16-128	64-124	16/10	1M		2	5	5	5	5/2			✓W	✓B	1F+P*				5	2	2				2	P16	C13		P				4					2.45	TQFP, QFN, TFBGA, VTLA
PIC32MX 5/6/7	M4K	80	64-512	16-128	64-100	16/10	1M		2	5	5	5	5/2			✓W	✓B	1F+P	2	1		6	5	4					P16			P				8					2.94	QFN, TQFP, TFBGA, VTLA
PIC32MK GP/MC	microAptiv	120	512-1024	128-256	64-100	42/12	16M	3/12	504	12	16	16	14/16		E	✓W+D	✓B	2F+P	4			6		6				6	P24			P		✓		13					4.51	QFN, TQFP
PIC32MZ EF(3)	M-Class	252	512-2048	128-512	64-144	48/12	18M		2	9	9	9	9/4			✓W+D	✓B	1H+P	2	1		6	5	6			✓	6	P/E24			P+E	A,S,T	✓		18					5.71	QFN, TQFP, TFBGA, VTLA, LQFP
PIC32MZ DA(2)	microAptiv	200	1024-2048	256-640	169-288	45/12	18M		2	9	9	9	9/4			✓W+D	✓B	1H+P	2	1		6	5	6	1		✓	6	P/E24	C35	G	P+E	A,S,T	✓		26					8.10	LFBGA, LQFP
SAM																																										
SAMD09	CM0+	48	8-16	4	14-24	10/12	350k	1/10	2	6	3	4	2/1			✓W	✓B				2	2	2	2										6	6	✓				0.68	QFN, SOIC
SAMD10	CM0+	48	8-16	4	14-24	10/12	350k	1/10	2	6	3	12	2/1	1		✓W	✓B+T				3	3	3	3					P72					6	6	✓			✓	0.72	QFN, SOIC, WLCSP
SAMD11	CM0+	48	16	4	14-24	10/12	350k	1/10	2	6	3	12	2/1	1		✓W	✓B+T	1F+P			3	3	3	3					P72					6	6	✓			✓	0.83	QFN, SOIC, WLCSP
SAMD20	CM0+	48	16-256	2-32	32-64	20/12	350k	1/10	2	16	8	16	5/2			✓W	✓B+T				6	6	6	6					P256					8		✓			✓	1.10	TQFP, QFN, WLCSP, UFBGA
SAMD21	CM0+	48	32-256	4-32	32-64	20/12	350k	1/10	2	18	8	24	5/2	3		✓W	✓B+T	1F+P			6	6	6	6				1	P256					12	12	✓			✓	1.18	TQFP, QFN, WLCSP, UFBGA
SAMD21L	CM0+	48	32-64	4-8	32-48	18/12	350k		4	18	13	24	5/2	3		✓W	✓B+T				5	5	5	5										12	12	✓				1.29	TQFP, QFN
SAMDA1(3)	CM0+	48	16-64	4-8	32-64	20/12	350k	1/10	2	18	8	24	5/2	3		✓W	✓B+T	1F+P			6	6	6	6				1	P256					12	8	✓				1.63	TQFP, QFN
SAML21	CM0+	48	32-256	4-32	32-64	20/12	1M	2/12	203	24	8	24	5/2	2		✓W	✓B+T	1F+P			6	6	6	6					P169			A,T		12	16	✓VBAT		✓	✓	1.75	TQFP, QFN, WLCSP

Note 1: USARTs with SPI mode are taken into account Note 2: DRAM Memory Support: PIC32MZ DA with DDR2 (32 MB embedded or 128 MB external); SAM S7x/E7x/V7x with SDRAM (external) Note 3: Automotive Grade Devices Note 4: Terminology in following table
Note 5: SAM C20/C21 are true 5V devices; SAM C21 also comes with 3x 16-bit Delta-Sigma ADC *: Variants with USB function +: Variants with CAN function

32-bit Microcontrollers																																											
Product Family						Intelligent Analog				Waveform Control			Timing and Measurements			Safety and Monitoring		Communication												User Interface			Security		System Flexibility								
	Core	Max. Operation Freq. (MHz)	Program Flash Memory (KB)	RAM (KB)	Pin Count	ADC (channels/bits)	ADC Speed (sps)	DAC (channels/bits)	Analog Comparator (+Op Amp)	Output Compare Channels	Input Capture Channels	PWM Channels	16-bit/32-bit Timer	TCC (24-bit Control Timer) (4)	Motor Interface (QEI/QDEC) (4)	Watchdog Timer DMT (Dead Man Timer) (4)	Class B Safety/DSU/Touch Safety	USB (FS/HS) + PHY (Transceiver)	CAN (2.0B or FD)	Ethernet (10/100)	SERCOM/FLEXCOM (4)	USART/UART	I²C	SPI (1)	SDIO/SD/eMMC	CMOS Camera Interface	SQI/QSPI	Audio CODEC (I²S™) (4)	Peripheral Bus Interface PMP/EBI (bus width, bit) (4)	Touch (PTC/CTMU, channels) (4)	Segment/Graphics LCD Controller	LCD/GFX Interface (PMP/EBI)	Crypto Engine (AES. SHA, ECC, RSA/DSA, TRNG)	Tamper Detection	Dual Panel/Bank Flash (4)	Intelligent Low-Power Peripheral Event System (channels) (4)	DMA (channels)	Low Active Power (µA/MHz)/VBAT	5V Support	CLC/CCL (4)	Ultra Small Package (WLCSP)	Pricing ($) (5 ku)	Packages
SAM																																											
SAML22	CM0+	32	64-256	8-32	48-100	20/12	1M		2	12	8	12	4/2	1		✓^{W}	✓$^{B+T}$	1^{F+P}			6	6	6	6						P^{256}	S^{320}		A,T	✓		8	16	✓^{VBAT}		✓	✓	2.11	TQFP, QFN, WLCSP, UFBGA
SAMC20	CM0+	48	32-256	4/32	32-100	12/12	1M		2	14	6	18	5/2	2		✓^{W}	✓$^{B+T}$				4	4	4	4						P^{256}						6	6	✓	✓	✓	✓	1.42	TQFP, QFN, WLCSP
SAMC21[5]	CM0+	48	32-256	4-32	32-100	20/12	1M	1/10	4	18	8	24	5/2	2		✓^{W}	✓$^{B+T}$		2^{FD}		8	8	8	8						P^{256}						12	12	✓	✓	✓	✓	1.49	TQFP, QFN, WLCSP
SAM4N	CM4	100	512-1024	64-80	48-100	16/10	510k	1/10		18	12	4	2/-		D	✓^{W}						3/4	3	4													23	✓				2.51	LQFP, TFBGA, VFBGA, QFN
SAM4S	CM4	120	128-2048	64-160	48-100	16/12	1M	2/12	1	18	12	4	2/-		D	✓^{W}		1^{F+P}				2/2	2	3	1	✓		1	E^{24}			E			✓	14	22	✓			✓	2.15	LQFP, TFBGA, VFBGA, QFN, WLCSP
SAM4E	CM4F	120	512-1024	128	100-144	24/12	300k	2/12	1	24	18	4	-/3		D	✓^{W}		1^{F+P}	2	1		2/2	2	3	1	✓			E^{24}			E	A	✓			33	✓				4.41	LFBGA, TFBGA, LQFP
SAM4L	CM4	48	128-512	32-64	48-100	16/12	300k	1/10	4	18	12	5	2/-			✓^{W}		1^{F+P}				4/1	4	5		✓		1			S^{160}		A,T			4	16	✓			✓	3.25	LQFP, WLCSP
SAMG	CM4F	120	256-512	64-176	49-100	8/12	500k			6	6	6	2/-			✓^{W}		1^{F+P}			8	8	8	8				2						✓		6	30	✓			✓	2.21	LQFP, QFN, WLCSP
SAMD5x	CM4F	120	256-1024	128-256	64-128	32/12	1M	2/12	2	25	16	24	8/4	2	D	✓^{W}	✓	1^{F+P}			8	8	8	8	2	✓	✓	1		P^{256}			A,S,E, R,T	✓	✓	32	32	✓		✓	✓	2.55	TQFP, QFN, WLCSP
SAME5x	CM4F	120	256-1024	128-256	64-128	32/12	1M	2/12	2	25	16	24	8/4	2	D	✓^{W}	✓	1^{F+P}	2^{FD}	1	8	8	8	8	2	✓	✓	1		P^{256}			A,S,E, R,T	✓	✓	32	32	✓		✓		2.97	TQFP, QFN
SAMS7x[2]	CM7	300	512-2048	256-384	64-144	24/12	2M	2/12	1	44	24	8	4/-		D	✓^{W}		1^{H+P}				3/5	3	5	1	✓	✓	2	E^{24}			E	A,S,T	✓		12	24	✓				5.57	LQFP, LFBGA, TFBGA, UFBGA, VFBGA, QFN
SAME7x[2]	CM7	300	512-2048	256-384	64-144	24/12	2M	2/12	1	44	24	8	4/-		D	✓^{W}		1^{H+P}	2^{FD}	1		3/5	3	5	1	✓	✓	2	E^{24}			E	A,S,T	✓		12	24	✓				6.12	LQFP, LFBGA, TFBGA, UFBGA
SAMV7x[2] [3]	CM7	300	512-2048	256-384	64-144	24/12	2M	2/12	1	44	24	8	4/-		D	✓^{W}		1^{H+P}	2^{FD}	1		3/5	3	5	1	✓	✓	2	E^{24}			E	A,S,T	✓		12	24	✓				–	LQFP, TFBGA, LFBGA

Note 1: USARTs with SPI mode are taken into account Note 2: DRAM Memory Support: PIC32MZ DA with DDR2 (32 MB embedded or 128 MB external); SAM S7x/E7x/V7x with SDRAM (external) Note 3: Automotive Grade Devices Note 4: Terminology in following table Note 5: SAM C20/C21 are true 5V devices; SAM C21 also comes with 3x 16-bit Delta-Sigma ADC *: Variants with USB function +: Variants with CAN function

32-bit MCUs Terminology

Timing and Measurements: Signal Measurement with Timing and Counter Control	
TCC: Timer/Counters for Control	Select SAM products have TCCs for applications like Switch Mode Power Supplies (SMPS), lighting and motor control. The TCCs support up to 96 MHz and 24-bit resolution.
QEI: Quadrature Encoder Interface **QDEC:** Quadrature Decoder	QEI to increment encoders for obtaining mechanical position data typical for automation or motor control applications. QDEC performs the input lines filtering, decoding of quadrature signals and connects to the timers/counters in order to read the position and speed of the motor through the user interface.
Safety and Monitoring: Hardware Monitoring and Fault Detection	
DMT: Dead Man Timer	The primary function of the DMT is to reset the processor in the event of a software malfunction. A DMT is typically used in mission-critical and safety-critical applications, where any single failure of a software functionality and sequencing must be detected.
Communications: General, Industrial, Lighting and Automotive	
SERCOM: Serial Communication Module	The SERCOM is software that is configurable to operate as I²C, SPI or USART, giving you extended flexibility to mix serial interfaces and greater freedom in PCB layout. Each SERCOM instance can be assigned to different I/O pins through I/O multiplexing, further increasing versatility.
I²S™: Inter-IC Sound Controller	The Inter-IC Sound Controller provides a bidirectional, synchronous digital audio link with external audio devices.
PMP: Parallel Master Port **EBI:** External Bus Interface	PMP/EBI provide a high-speed and convenient interface to external parallel memory devices, graphic LCDs and camera sensors.

User Interface: Capacitive Touch Sensing and LCD Control	
PTC: Peripheral Touch Controller	An embedded peripheral touch controller makes it easy to add capacitive touch sensing to your project with buttons, sliders, wheels and proximity. By offering superb sensitivity and noise and moisture tolerance as well as self-calibration, the PTC eliminates the need for external components and minimizes CPU overhead. The PTC supports up to 256 channels on 64-pin devices, 120 channels on 48-pin devices and 60 channels on 32-pin devices.
System Flexibility: System Peripherals and Interconnects	
CLC/CCL: Configurable Custom Logic	The CCL is a programmable logic peripheral which can be connected to the device pins, events or to other internal peripherals. This allows you to eliminate logic gates for simple glue logic function on the PCB.
EVSYS: Event System	The Event System allows autonomous, low-latency and configurable communication between peripherals. Several peripherals can be configured to generate and/or respond to signals known as events. Communication is made without CPU intervention and without consuming system resources such as bus or RAM bandwidth. This reduces the load on the CPU and other system resources as compared to a traditional interrupt-based system.
Dual Panel/Bank Flash	Dual Bank Flash allows live field firmware/program update on one bank while the CPU can continue executing code from another Flash bank.

Development Tools

MIPS-Based PIC32 Products

Tool	Description
MPLAB® X IDE	MPLAB X Integrated Development Environment (IDE) is for developing and debugging MIPS-based PIC32 MCU applications, in addition to Microchip's 8- and 16-bit PIC® microcontrollers. It is based on the open-source NetBeans IDE from Oracle, runs under Windows®, Mac OS® and Linux®, and connects seamlessly to a range of debuggers, programmers and development kits.
MPLAB Harmony Configurator	MPLAB Harmony Configurator (MHC) is a time-saving hardware configuration utility for MPLAB Harmony, Microchip's award-winning software framework. You can use MHC to get visual understanding and control of the configuration of your target device and application. MHC is a fully integrated tool within MPLAB X IDE.
MPLAB Harmony Software Framework	MPLAB Harmony is a flexible, abstracted, fully integrated firmware development platform for PIC32 microcontrollers. It takes key elements of modular and object-oriented design, and provides the option of adding in the flexibility of a Real-Time Operating System (RTOS). MPLAB Harmony provides a framework of software modules that are easy to use, configurable for your specific needs and in a format that allows for maximum reuse to reduce your time to market.
MPLAB Harmony Graphics Composer	MPLAB Harmony Graphics Composer (MHGC) is Microchip's industry-leading Graphical User Interface (GUI) design tool for PIC32 microcontrollers. Providing a fully integrated, easy-to-use WYSIWYG editor, graphics asset management and code generator within the MPLAB Harmony framework, the MHGC allows you to go from concept to glass in minutes without writing a single line of code. Additionally the integrated Display Manager plug-in enables quick support for new and unsupported displays in MPLAB Harmony.
Touch Interface	Capacitive and resistive touch screen support is an integrated part of the MPLAB Harmony Graphics Composer (MHGC). With automatic generation and configuration of event handlers for touch events, the MHGC allows quick development of touch enabled graphics solutions.

Arm® Cortex®-M Based SAM Products

Tool	Description
Atmel Studio 7	Atmel Studio 7 is the Integrated Development Platform (IDP) for developing and debugging AVR® and Arm®-based SAM MCU applications. Atmel Studio 7 provides you with an easy-to-use environment to develop and debug applications written in C/C++ or assembly code. It connects seamlessly to a range of debuggers, programmers and development kits.
Atmel START	Atmel START is an innovative online tool for intuitive, graphical configuration and deployment of embedded software. It lets you select and configure software components, drivers and middleware, as well as deploy complete example projects tailored to the needs of your application. It is completely platform independent, and able to generate project files for a number of IDEs. The configuration engine lets you review dependencies between software components and available hardware resources in the selected MCU and automatically suggests solutions to any conflicts in your chosen setup.
ASF Software Framework for SAM	ASF provides software drivers and libraries to build applications for AVR and SAM devices. It is architected for readability and performance and contains a number of advanced middleware components for 32-bit SAM devices such as USB device, TCP/IP, Wi-Fi®, RTOS kernel (FreeRTOS), Bluetooth®, file system and more.
Data Visualizer	Track and profile your applications, run-time behavior using the powerful Data Visualizer. It provides an oscilloscope view of signals such as GPIO, SPI, UART, etc. The Data Visualizer also provides live power measurements when used together with a supported probe or board, such as the power debugger. Profiling your applications power usage has never been easier.
QTouch® Composer	The QTouch Composer allows you to seamlessly develop capacitive touch functionality for your application. This simplifies the design process by tying together the tools required to edit the code in Atmel Studio 7 and tune the touch design in QTouch Composer.

32-bit Microprocessors

Product	Core Sub-System: Core	VFPU/NEON/Trustzone	Clock Speed (MHz)*	Core Operating Voltage	Memory: SRAM (KB)	L1 Cache Memory (KB) (Instruction/Data)	L2 Cache (KB)	LPSDR/SDRAM	QSPI Interface	DDR2/LPDDR/LPDDR2	DDR3/DDR3L/LPDDR3	DDR Bus Width 16/32	NAND: SLC ECC (bit)	NAND: MLC ECC (bit)	Connectivity: UART	SPI	TWI (I²C)	SSC (and I²S™)	CAN	USB: Device Only	USB: Device and Host	USB: Host Only	Ethernet: 10/100 Ethernet MAC	Ethernet: 10/100/1000 MAC	Ethernet: IEEE 1588 Support	SD/eMMC	Class D/PDM/Audio PLL	Max I/O Pins	User Interface: Graphic LCD	LCD Overlay	Resistive (R) and/or PCAP (P) Touchscreen	Hardware Video Decoder	Camera Interface	Security: Security Level	Secure Boot	Anti-Tamper Pins	Environmental Monitors	Control: 32-bit Timers	PWM Channels	10-bit ADC Channels	12-bit ADC Channels	Extended Temperature Range (–40 to 105°C Ambient)	Packages
ATSAMA5																																											
ATSAMA5D21	Cortex®-A5	1/1/1	500	1.2V	128	2 × 32	128	–	2	1/1/1	1/1/1	16	32	32	9	6	6	4	–	–	1 HS	1 HS	1	–	Y	1	1/1/1	72	1	Y	R	–	1	Adv.	Y	6	–	5	4	–	12	–	BGA 196, 11 × 11, 0.75 mm pitch
ATSAMA5D22	Cortex-A5	1/1/1	500	1.2V	128	2 × 32	128	–	2	1/1/1	1/1/1	16	32	32	9	6	6	4	1	–	1 HS	1 HS	1	–	Y	1	1/1/1	72	1	Y	R, P	–	1	Adv.	Y	6	–	5	4	–	12	Y	BGA 196, 11 × 11, 0.75 mm pitch
ATSAMA5D23	Cortex-A5	1/1/1	500	1.2V	128	2 × 32	128	–	2	1/1/1	1/1/1	16	32	32	9	6	6	4	1	–	1 HS	1 HS	1	–	Y	1	1/1/1	72	1	Y	R, P	–	1	PCI Pre-certified	Y	6	Y	5	4	–	12	Y	BGA 196, 11 × 11, 0.75 mm pitch
ATSAMA5D24	Cortex-A5	1/1/1	500	1.2V	128	2 × 32	128	–	2	1/1/1	1/1/1	32	32	32	10	7	7	4	–	–	1 HS	1 HS, 1 HSIC	1	–	Y	2	1/1/1	105	1	Y	R, P	–	1	Med.	Y	2	–	6	4	–	12	–	BGA 256, 8 × 8, 0.4 mm pitch
ATSAMA5D26	Cortex-A5	1/1/1	500	1.2V	128	2 × 32	128	–	2	1/1/1	1/1/1	32	32	32	10	7	7	4	–	–	1 HS	1 HS	1	–	Y	2	1/1/1	128	1	Y	R	–	1	Adv.	Y	8	–	6	4	–	12	Y	BGA 289, 14 × 14, 0.8 mm pitch
ATSAMA5D27	Cortex-A5	1/1/1	500	1.2V	128	2 × 32	128	–	2	1/1/1	1/1/1	32	32	32	10	7	7	4	2	–	1 HS	1 HS, 1 HSIC	1	–	Y	2	1/1/1	128	1	Y	R, P	–	1	Adv.	Y	8	–	6	4	–	12	Y	BGA 289, 14 × 14, 0.8 mm pitch
ATSAMA5D28	Cortex-A5	1/1/1	500	1.2V	128	2 × 32	128	–	2	1/1/1	1/1/1	32	32	32	10	7	7	4	2	–	1 HS	1 HS, 1 HSIC	1	–	Y	2	1/1/1	128	1	Y	R, P	–	1	PCI Pre-certified	Y	8	Y	6	4	–	12	Y	BGA 289, 14 × 14, 0.8 mm pitch
ATSAMA5D31	Cortex-A5	1/–/–	536	1.2V	128	2 × 32	–	–	–	1/1/1	–	32	24	24	7	6	3	2	–	–	1 HS	2 HS	1	–	Y	3	–	160	1	Y	R	–	1	Med.	Y	–	–	5	4	–	12	–	BGA 324, 15 × 15, 0.8 mm pitch, BGA 324, 12 × 12, 0.5 mm pitch
ATSAMA5D33	Cortex-A5	1/–/–	536	1.2V	128	2 × 32	–	–	–	1/1/1	–	32	24	24	5	6	3	2	–	–	1 HS	2 HS	–	1	Y	2	–	160	1	Y	R	–	1	Med.	Y	–	–	5	4	–	12	–	BGA 324, 15 × 15, 0.8 mm pitch
ATSAMA5D34	Cortex-A5	1/–/–	536	1.2V	128	2 × 32	–	–	–	1/1/1	–	32	24	24	5	6	3	2	2	–	1 HS	2 HS	–	1	Y	3	–	160	1	Y	R	–	1	Med.	Y	–	–	5	4	–	12	–	BGA 324, 15 × 15, 0.8 mm pitch
ATSAMA5D35	Cortex-A5	1/–/–	536	1.2V	128	2 × 32	–	–	–	1/1/1	–	32	24	24	7	6	3	2	2	–	1 HS	2 HS	1	1	Y	3	–	160	–	–	R	–	1	Med.	Y	–	–	6	4	–	12	Y	BGA 324, 15 × 15, 0.8 mm pitch
ATSAMA5D36	Cortex-A5	1/1/1	536	1.2V	128	2 × 32	–	–	–	1/1/1	–	32	24	24	7	6	3	2	2	–	1 HS	2 HS	1	1	Y	3	–	160	1	Y	R	–	1	Med.	Y	–	–	6	4	–	12	Y	BGA 324, 15 × 15, 0.8 mm pitch
ATSAMA5D41	Cortex-A5	1/1/1	600	1.8V	128	2 × 32	128	–	–	1/1/1	–	32	24	24	8	8	4	2	–	–	1 HS	2 HS	2	–	Y	2	–	152	1	Y	R	–	1	Adv.	Y	8	–	9	4	5	–	–	BGA 289, 14 × 14, 0.8 mm pitch
ATSAMA5D42	Cortex-A5	1/1/1	600	1.8V	128	2 × 32	128	–	–	1/1/1	–	32	24	24	8	8	4	2	–	–	1 HS	2 HS	2	–	Y	2	–	152	1	Y	R	–	1	Adv.	Y	8	–	9	4	5	–	–	BGA 361, 16 × 16, 0.8 mm pitch
ATSAMA5D43	Cortex-A5	1/1/1	600	1.8V	128	2 × 32	128	–	–	1/1/1	–	32	24	24	8	8	4	2	–	–	1 HS	2 HS	2	–	Y	2	–	152	1	Y	R	30 fps, 720p	1	Adv.	Y	8	–	9	4	5	–	–	BGA 289, 14 × 14, 0.8 mm pitch
ATSAMA5D44	Cortex-A5	1/1/1	600	1.8V	128	2 × 32	128	–	–	1/1/1	–	32	24	24	8	8	4	2	–	–	1 HS	2 HS	2	–	Y	2	–	152	1	Y	R	30 fps, 720p	1	Adv.	Y	8	–	9	4	5	–	–	BGA 361, 16 × 16, 0.8 mm pitch
ATSAMA5D27 C-D1G	Cortex-A5	1/1/1	500	1.1V–1.32V	128	32/32	128	–	2	128	–	2	32	32	10	7	7	2/2	2	–	1 HS	1 HS, 1 HSIC	1	–	Y	2	1/1/1	128	1	Y	Y	–	1	Adv.	Y	8	–	6	4	–	12	–	BGA 289, 14 × 14, 0.8 mm pitch
ATSAMA5D27 C-D5M	Cortex-A5	1/1/1	500	1.1V–1.32V	128	32/32	128	–	2	64	–	2	32	32	10	7	7	2/2	2	–	1 HS	1 HS, 1 HSIC	1	–	Y	2	1/1/1	128	1	Y	Y	–	1	Adv.	Y	8	–	6	4	–	12	–	BGA 289, 14 × 14, 0.8 mm pitch
ATSAMA5D28 C-D1G	Cortex-A5	1/1/1	500	1.1V–1.32V	128	32/32	128	–	2	128	–	2	32	32	10	7	7	2/2	2	–	1 HS	1 HS, 1 HSIC	1	–	Y	2	1/1/1	128	1	Y	Y	–	1	PCI Pre-certified	Y	8	–	6	4	–	12	–	BGA 289, 14 × 14, 0.8 mm pitch
ATSAMA5D225 C-D1M	Cortex-A5	1/1/1	500	1.1V–1.32V	128	32/32	128	–	2	16	–	2	32	32	9	7	7	2/2	1	–	1 HS	1 HS	1	–	Y	2	1/1/1	90	1	Y	Y	–	1	Adv.	Y	6	–	5	4	–	12	–	BGA 196, 11 × 11, 0.75 mm pitch
ATSAMA5 D27-SOM1	Cortex-A5	1/1/1	500	3.3V	128	32/32	128	–	1	128	–	–			8	6	5	1/1	2	–	1 HS	1 HS, 1 HSIC	1	–	Y	2	1/1/1	103	1	Y	Y	–	1	Adv.	Y	7	–	5	4	–	4	–	Module 176, 40 × 38, 0.8 mm pitch

* Clock speed: Max. clock speed @ +85°C. Notes: 1. Temperature Range: –40°C to +85°C (ambient) 2. UART: Support for RS485, ISO7816, IrDA®, LIN, modem control lines and SPI on selected UARTs. 3. TWI: Two-Wire Interface; interconnects components on a two-wire bus. 4. SSC: Serial Synchronous Controller, supports many serial synchronous communications protocols used in audio and telecom applications such as I²S, short or long frame sync. 5. 16-bit and 32-bit Timers: Capture/compare, waveform generation and PWM modes. 6. ECC: Error Correction Code controller. 7. Security level: Adv. = hardware encryption engine + on the fly DDR encryption/decryption + secure storage + tamper pins; Med. = hardware encryption engine only. 8. Y = Yes 9. Camera Interface: For CMOS-type image sensor, ITU-R BT, 601/656 external interface, programmable frame capture rate, up to 12-bit data interface, SAV and EAV synchronization, preview path with scaling, output is in YCbCr format; Bayer RAW is supported on the ATSAMA5D2 series. 10. Graphics LCD: 24-bit parallel interface; supports STN and TFT displays, up to 16-bits per pixel in STN color mode, up to 16M colors in TFT mode. 11. Video Decoder: Hardware video decoding and image post processing: H.264, MPEG4, H.263, MPEG2, JPEG, VP8. 12. eMMC™: V4.3 – MLC NAND Flash supported through eMMC interface; V4.5 support for the ATSAMA5D2 series. 13. USB: High speed (HS), Full Speed (FS), High Speed Inter-Chip (HSIC) 14. Peripheral implementation varies among products. Consult individual product datasheets for a detailed description.

32-bit Microprocessors																																						
Product	Core Sub-System			Memory					NAND		Connectivity					USB							User Interface					Security		Control				Packages
	Core	Clock Speed (MHz)*	Core Operating Voltage	SRAM (KB)	L1 Cache Memory (KB) (Instruction/Data)	LPSDR/SDRAM	External Bus Interface	DDR2/LPDDR/LPDDR2	SLC ECC (bit)	MLC ECC (bit)	UART	SPI	TWI (I^2C)	SSC (I^2S)	CAN	Device Only	Device and Host	Host Only	Ethernet 10/100 Ethernet MAC	SD/eMMC	Soft Modem	Max I/O Pins	Graphic LCD	LCD Overlay	Resistive Touchscreen	Hardware Video Decoder	Camera Interface	Security Level	Secure Boot	16-bit Timers	32-bit Timers	PWM Channels	10-bit ADC Channels	
ATSAM9																																						
ATSAM9M10/ M11	ARM926EJ-S	400	1.0V	64	2 × 32	1/1	2	1/1/-	1	–	5	6	2	2	–	–	1 HS	2 HS	1	2	–	160	1	Y	Y	30fps, D1	1	Med. (M11)	–	6	–	4	8	BGA 324, 15 × 15, 0.8 mm pitch
ATSAM9G45/ G46	ARM926EJ-S	400	1.0V	64	2 × 32	1/1	2	1/1/-	1	–	5	6	2	2	–	–	1 HS	2 HS	1	2	–	160	1	–	Y	–	1	Med. (G46)	–	6	–	4	8	BGA 324, 15 × 15, 0.8 mm pitch
ATSAM9X35	ARM926EJ-S	400	1.0V	32	2 × 16	1/1	1	1/1/-	24	24	7	5	3	1	2	–	1 HS	1 HS, 1 FS	1	2	Y	105	1	Y	Y	–	–	–	–	–	6	4	12	BGA 217, 15 × 15, 0.8 mm pitch
ATSAM9X25	ARM926EJ-S	400	1.0V	32	2 × 16	1/1	1	1/1/-	24	24	7	6	3	1	2	–	1 HS	1 HS, 1 FS	2	2	Y	105	–	–	–	–	–	–	–	–	6	4	12	BGA 217, 15 × 15, 0.8 mm pitch
ATSAM9G35	ARM926EJ-S	400	1.0V	32	2 × 16	1/1	1	1/1/-	24	24	6	5	3	1	–	–	1 HS	1 HS, 1 FS	1	2	Y	105	1	Y	Y	–	–	–	–	–	6	4	12	BGA 217, 15 × 15, 0.8 mm pitch
ATSAM9G25	ARM926EJ-S	400	1.0V	32	2 × 16	1/1	1	1/1/-	24	24	7	6	3	1	–	–	1 HS	1 HS, 1 FS	1	2	Y	105	–	–	–	–	1	–	–	–	6	4	12	BGA 217, 15 × 15, 0.8 mm pitch, BGA 247, 10 × 10, 0.5 mm pitch
ATSAM9G15	ARM926EJ-S	400	1.0V	32	2 × 16	1/1	1	1/1/-	24	24	5	5	3	1	–	–	1 HS	1 HS, 1 FS	–	2	Y	105	1	Y	Y	–	–	–	–	–	6	4	12	BGA 217, 15 × 15, 0.8 mm pitch
ATSAM9CN12	ARM926EJ-S	400	1.0V	32	2 × 16	1/1	1	1/1/-	24	24	7	6	2	1	–	1 FS	–	1 FS	–	1	–	105	1	–	Y	–	–	Med.	Y	6	–	4	12	BGA 217, 15 × 15, 0.8 mm pitch, BGA 247, 10 × 10, 0.5 mm pitch
ATSAM9CN11	ARM926EJ-S	400	1.0V	32	2 × 16	1/1	1	1/1/-	24	24	7	6	2	1	–	1 FS	–	1 FS	–	1	–	105	1	–	Y	–	–	–	–	6	–	4	12	BGA 217, 15 × 15, 0.8 mm pitch, BGA 247, 10 × 10, 0.5 mm pitch
ATSAM9N12	ARM926EJ-S	400	1.0V	32	2 × 16	1/1	1	1/1/-	24	24	7	6	2	1	–	1 FS	–	1 FS	–	1	–	105	1	–	Y	–	–	–	–	6	–	4	12	BGA 217, 15 × 15, 0.8 mm pitch, BGA 247, 10 × 10, 0.5 mm pitch
ATSAM9G20	ARM926EJ-S	400	1.0V	32	2 × 32	–/1	1	–	1	–	7	6	1	1	–	1 FS	–	2 FS	1	1	–	96	–	–	–	–	Y	–	–	6	–	–	4	BGA 217, 15 × 15, 0.8 mm pitch
ATSAM9G10	ARM926EJ-S	266	1.2V	16	2 × 16	–/1	1	–	1	–	4	5	1	3	–	1 FS	–	2 FS	–	1	–	96	1	–	–	–	–	–	–	3	–	–	–	BGA 217, 15 × 15, 0.8 mm pitch
ATSAM9263	ARM926EJ-S	240	1.3V	96	2 × 16	–/1	2	–	1	–	4	5	1	2	1	1 FS	–	2 FS	1	2	–	160	1	–	–	–	Y	–	–	3	–	4	–	BGA 324, 15 × 15, 0.8mm pitch
ATSAM9261	ARM926EJ-S	190	1.2V	160	2 × 16	–/1	1	–	1	–	4	5	1	3	–	1 FS	–	2 FS	–	1	–	96	1	–	–	–	–	–	–	3	–	–	–	BGA 217, 15 × 15, 0.8 mm pitch
ATSAM9260	ARM926EJ-S	190	1.2V	8	2 × 8	–/1	1	–	1	–	7	6	1	1	–	1 FS	–	2 FS	1	1	–	96	–	–	–	–	Y	–	–	6	–	–	4	BGA 217, 15 × 15, 0.8 mm pitch, QFP 208, 28 × 28, 0.5 mm pitch

* Clock speed: Max. clock speed @ +85°C. Notes: 1. Temperature Range: –40°C to +85°C (ambient) 2. UART: Support for RS485, ISO7816, IrDA, LIN, modem control lines and SPI on selected UARTs. 3. TWI: Two-Wire Interface; interconnects components on a two-wire bus. 4. SSC: Serial Synchronous Controller, supports many serial synchronous communications protocols used in audio and telecom applications such as I^2S, short or long frame sync. 5. 16-bit and 32-bit Timers: Capture/compare, waveform generation and PWM modes. 6. ECC: Error Correction Code controller. 7. Security level: Adv. = hardware encryption engine + on the fly DDR encryption/decryption + secure storage + tamper pins; Med. = hardware encryption engine only. 8.Y = Yes 9. Camera Interface: For CMOS-type image sensor, ITU-R BT, 601/656 external interface, programmable frame capture rate, up to 12-bit data interface, SAV and EAV synchronization, preview path with scaling, output is in YCbCr format; Raw Bayer is supported on the ATSAMA5D2 series. 10. Graphics LCD: 24-bit parallel interface; supports STN and TFT displays, up to 16-bits per pixel in STN color mode, up to 16M colors in TFT mode. 11. Video Decoder: Hardware video decoding and image post processing: H.264, MPEG4, H.263, MPEG2, JPEG, VP8. 12. eMMC™: V4.3 – MLC NAND Flash supported through eMMC interface; V4.5 support for the ATSAMA5D2 series. 13. USB: High speed (HS), Full Speed (FS), High Speed Inter-Chip (HSIC) 14. Peripheral implementation varies among products. Consult individual product datasheets for a detailed description.

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 MAX6501/2/3/4	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/I²C Temperature Sensor	1	0.5/1.0	–55 to +125	+2.7 to +5.5	200	1	–	–	5-pin SOT-23
MCP9804	SMBus/I²C 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/I²C Temperature Sensor	1	0.25/0.5	–40 to +125	+2.7 to +5.5	200	1	–	–	8-pin DFN, 8-pin MSOP
MCP98244	SMBus/I²C Temperature Sensor with EEPROM	1	0.5/3.0	–40 to +125	+2.2 to +3.6	100	1	–	–	8-pin TDFN
MCP9902/3/4	Lower Temperature Multi-Temperature Sensors	2/3/4	0.25/1.0	–40 to +125	+3.0 to +3.6	200	1	✓	Automatic	8-pin WDFN, 10-pin VDFN
TCN75A	SMBus/I²C Temperature Sensor	1	0.5/3.0	–40 to +125	+2.7 to +5.5	200	1	–	–	8-pin MSOP, 8-pin SOIC
AT30TS74	SMBus/I²C Temperature Sensor	1	1.0/2.0	–55 to +125	+1.7 to +5.5	160	–	–	–	4/5 ball WLCSP
AT30TS750A	SMBus/I²C Temperature Sensor with NVM	1	0.5/1.0	–55 to +125	+1.7 to +5.5	150	–	–	–	8-pin SOIC, 8-pin MSOP, 8-pin UDFN
AT30TS752A/4A/8A	SMBus/I²C Temperature Sensor with NVM, 2/4/8 KB Serial EEPROM	1	0.5/1.0	–55 to +125	+1.7 to +5.5	150	–	–	–	8-pin SOIC, 8-pin MSOP, 8-pin UDFN
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/I²C Multi-Temperature Sensor	3	1.0/3.0	–40 to +125	+3.0 to +3.6	50	2	✓	–	8-pin MSOP
EMC1043	SMBus/I²C Multi-Temperature Sensor	3	0.5/1.0	–40 to +125	+3.0 to +3.6	105	–	✓	Configurable	8-pin MSOP
EMC1046/7	SMBus/I²C Multi-Temperature Sensor with Hottest of Zones	6/7	0.25/1.0	–40 to +125	+3.0 to +3.6	395	–	✓	Automatic	10-pin MSOP
EMC1412/3/4	SMBus/I²C Multi-Temperature Sensor	2/3/4	0.25/1.0	–40 to +125	+3.0 to +3.6	430	2	✓	Automatic	8-pin TDFN, 8-pin MSOP, 10-pin DFN, 10-pin MSOP
EMC1422/3/4	SMBus/I²C Multi-Temperature 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
EMC1438	SMBus/I²C Multi-Temperature 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: Sensor Conditioning ICs							
Product	Typical Tc Accuracy (°)	Typical TH Accuracy (°)	Operating Temp. Range (°C)	Vcc Range Max (V)	Max Supply Current (µA)	Features	Packages
MCP9600	1	1	–40 to +125	2.7 to 5.5	500	Fully integrated thermocouple EMF to temperature converter. Supports thermocouple types K, J, T, N, S, E B and R.	5 × 5 MQFN

Thermal Management: Fan Controllers											
Product	Description	# Fan Drivers	PWM/Linear Control	# External Temp. Inputs	Typical Accuracy (°)	Max. Accuracy (°)	Vcc Range (V)	Interface	Alerts	Fan Speed Lookup Table	Packages
EMC2101	Programmable Fan Controller with Thermal Management	1	PWM	2	0.5	1.0	+3.0 to +3.6	SMBus/I²C	✓	✓	8-pin MSOP, 8-pin SOIC
EMC2103-1	Programmable Fan Controller with Thermal Management	1	PWM	1	0.5	1.0	+3.0 to +3.6	SMBus/I²C	✓	✓	12-pin QFN
EMC2104	Programmable Multi-Fan Controller with Thermal Management	2	PWM	4	0.25	1.0	+3.0 to +3.6	SMBus/I²C	✓	✓	20-pin QFN
EMC2301/2/3/5	Programmable Fan Controller	1/2/3/5	PWM	–	–	–	+3.0 to +3.6	SMBus/I²C	✓	–	8-pin MSOP, 10-pin MSOP, 12-pin QFN, 16-pin QFN

Power Management: Switching Regulators							
Product	Input Voltage Range (V)	Output Voltage (V)	Operating Temp. Range (°C)	Switching Frequency (kHz)	Output Current (mA)	Features	Packages
Single Output Switching Regulator - Step Down Regulator							
MCP1601/3	2.7 to 5.5	0.9V to VIN	–40 to +85	750	500	UVLO, Auto-Switching, LDO/Overtemperature and Overcurrent Protection	8-pin MSOP
MCP1612	2.7 to 5.5	0.8 to 5.5	–40 to +85	1400	1000	Overall Efficiency > 94%, Soft Start, Overtemperature and Overcurrent Protection	8-pin MSOP, 8-pin (3 × 3) DFN
MIC23030/1	2.7 to 5.5	1.0, 1.2, 1.5, 1.8, Adj	–40 to +125	8000/4000	400	HyperLight Load® Mode	6-pin 1.6 x 1.6 MLF

Power Management: Switching Regulators							
Product	**Input Voltage Range (V)**	**Output Voltage (V)**	**Operating Temp. Range (°C)**	**Switching Frequency (kHz)**	**Output Current (mA)**	**Features**	**Packages**
Single Output Switching Regulator - Step Down Regulator							
MIC23050/1	2.7 to 5.5	1.0, 1.2, 1.8, 3.3/1-1.2, 1-1.8, 1.15-1.4, 0.95-1.25	–40 to +125	4000	600	HyperLight Load Mode	8-pin 2 x 2 MLF
MIC23150/3	2.7 to 5.5	1.0, 1.2, 1.35, 1.8, 3.3/1.8, Adj	–40 to +125	4000	2000	HyperLight Load Mode	8-pin 2 x 2 MLF
MIC23155	2.7 to 5.5	1.8, Adj	–40 to +125	3000	2000	Power Good, HyperLight Load Mode	10-pin 2.5 x 2.5 MFL
MIC23303	2.7 to 5.5	Adj	–40 to +125	4000	3000	Power Good, HyperLight Load Mode	12-pin 3 x 3 MLF
MCP16311/12	4.4 to 30.0	2.0 to 24.0	–40 to +125	500	1000	PFM/PWM Operation, Enable Function	8-pin MSOP, 8-pin (2 × 3) TDFN
MCP16301	4.0 to 30	2.0 to 15	–40 to +85	500	600	Integrated N-channel, UVLO, Soft Start, Overtemperature Protection	6-pin SOT-23
MIC24045	4.5 to 19	0.7 to 3.3	–40 to +125	400–790	6000	I²C Programmable, 4.5V-19V Input	20-pin (3 × 3) QFN
MIC24046	4.5 to 19	0.7 to 3.3	–40 to +125	400–790	6000	Pin Selectable, 4.5V-19V Input	20-pin (3 × 3) QFN
MIC24051/53/55	4.5 to 19	Adj.	–40 to +125	600	600/9000/1200	Power Good, Soft Start, COT Regulation Scheme	28-pin (5 × 6) QFN
MIC24052/54/56	4.5 to 19	Adj.	–40 to +125	600	600/9000/1200	Power Good, Soft Start, HyperLight Load Mode	28-pin (5 × 6) QFN
MIC26601/ MIC26901/ MIC26950	4.5 to 28	Adj.	–40 to +125	600	6000/9000/12000	Power Good, Soft Start, Hyper Speed Control® Architecture	28-pin (5 × 6) QFN
MIC26603/ MIC26903	4.5 to 28	Adj.	–40 to +125	600	6000	Power Good, Soft Start, HyperLight Load Mode	28-pin (5 × 6) QFN
MIC27600	4.5 to 36	Adj.	–40 to +125	300	7000	Soft Start, COT Regulation scheme - Hyper Speed Control Architecture, Thermal Shutdown	28-pin (5 × 6) QFN
MIC28510	4.5 to 75	Adj.	–40 to +125	100–500	4000	Soft Start, COT Regulation scheme - Hyper Speed Control Architecture, Thermal Shutdown	28-pin (5 × 6) QFN
MIC28511/12/13 (-1/2)	4.6 to 60/70/45	Adj.	–40 to +125	200–680	3000/2000/4000	Power Good, Soft Start, HyperLight Load Mode, Hyper Speed Control	24-pin (3 × 4) FCQFN
MIC28514/15	4.5 to 75	Adj.	–40 to +125	270–800	5000	Power Good, Adjustable Soft Start (MIC28514), Hyper Speed Control Architecture, Selectable HyperLight Load/CCM mode (MIC28515)	6 X 6 mm PQFN
MCP1623/4	0.65 to 5.5	2.0 to 5.5	–40 to +85	500	425	Integrated synchronous boost regulator, 0.65V start-up voltage, soft start, true load disconnect	6-pin SOT-23, 8-pin (2 × 3) DFN
MCP16251/2	0.82 to 5.5	1.8 to 5.5	–40 to +85	500	650	True load disconnect shutdown (MCP16251)/ Input to output bypass shutdown (MCP16252)	6-pin SOT-23, 8-pin (2 × 3) DFN
MCP1640/B/ C/D	0.65 to 5.5	2.0 to 5.5	–40 to +85	500	800	Integrated synchronous boost regulator, 0.65V start-up voltage, soft start, true load disconnect or input-to-output bypass option	6-pin SOT-23, 8-pin (2 × 3) DFN
MCP1642B/D	0.65 to 5.5	1.8 to 5.5	–40 to +85	1000	1800	Integrated synchronous boost regulator, 0.65V start-up voltage, soft start, enable, power good output, true load disconnect or input-to-output bypass option	8-pin MSOP, 8-pin (2 × 3) DFN
MIC2877	2.5 to 5.5	Up to V_{IN}	–40 to +125	6500	4800	6.5A ISW, Synchronous Boost Regulator with Bidirectional Load Disconnect and Bypass Mode	8-pin 2 × 2 mm FTQFN
MIC2145	2.4 to 16	Up to 16	–40 to +85	450	900	High-Efficiency 2.5W Boost Converter	8-pin MSOP, 3 × 3 MLF
MIC2253	2.5 to 10	Up to 30	–40 to +125	1000	3500	3.5A, 1 MHz High-Efficiency Boost Regulator with OVP and Soft Start	12-pin 3 × 3 MLF
MIC2290	2.5 to 10	Up to 34	–40 to +125	1200	750	PWM Boost Regulator with Internal Schottky Diode	8-pin 2 × 2 MLF
MIC2295/96	2.5 to 10	Up to 34	–40 to +125	1200/600	1700	High Power Density 1.2A Boost Regulator	5-pin SOT23, 2 × 2 MLF
MCP1663/4	2.4 to 5.5	Up to 32	–40 to +85	500	1800	High-efficiency (up to 92%), fixed-frequency, non-synchronous, 300 mV feedback for LED driving (MCP1664)	5-pin SOT-23, 8-pin (2 × 3) TDFN
MCP1665	2.7 to 5	Up to 32	–40 to +85	500	3600	3.6A Integrated Switch PFM/PWM Boost Regulator	10-pin 2 x 2 VQFN
MIC2601/02	4.5 to 20	Up to 40	–40 to +125	1200/2000	1700	1.2A, 1.2 MHz/2 MHz Wide Input Range Integrated Switch Boost Regulator	8-pin 2 × 2 MLF
MIC2171/72	3 to 40	Up to 65	–40 to +85	100	2500/1250	100 kHz 2.5A/1.25A Switching Regulator	5-pin TO220, TO263/ 8-pin SOIC, 8-pin DIP

Power Management: Switching Regulators							
Product	**Input Voltage Range (V)**	**Output Voltage (V)**	**Operating Temp. Range (°C)**	**Switching Frequency (kHz)**	**Output Current (mA)**	**Features**	**Packages**
Multiple Output Switching Regulators							
MIC2800/10	2.9 to 5.5	Adj./Adj.	–40 to +125	2.0 MHz	600/300/300	600 mA Buck Regulator, 2 × 300 mA LDO, LowQ Mode (MIC2810)	16-pin (3 × 3) MLF
MIC2238/30	2.5 to 5.5	1.28/1.65, 1.8/1.2, 1.8/1.545, 1.8/1.575, 1.8/3.3, 1.8/1.6, 2.5/1.2, 3.3/1.2, 3.3/3.3, Adj./Adj.	–40 to +125	2.5 MHz	800/800	Power Good, Soft Start, Current Limit Protection, Dual Output Voltages	12-pin (3 × 3) MLF
MIC23250	2.7 to 5.5	0.9/1.1, 1.2/1.0, 1.2/1.6, 1.2/1.8, 1.2/2.8, 1.2/3.3, 1.575/1.8, 2.6/3.3, Adj./Adj.	–40 to +125	4.0 MHz	400/400	20 mVpp in HyperLight Load® Mode, Soft Start, Ultra-Fast Transient Response	10-pin (2 × 2) MLF, 12-pin (2.5 × 2.5) MLF
MIC23254	2.5 to 5.5	1.0/1.8	–40 to +125	4.0 MHz	400/400	20 mVpp in HyperLight Load Mode, Soft Start, Ultra-Fast Transient Response	10-pin (2 × 2) Thin MLF
MIC23450	2.7 to 5.5	Adj./Adj./Adj.	–40 to +125	3.0 MHz	2000/2000/2000	Power Good, Soft Start, HyperLight Load Mode	32-pin (5 × 5) QFN
MIC24420	4.5 to 15	Adj./Adj.	–40 to +125	1 MHz	2500/2500	Power Good, Soft Start	24-pin (4 × 4) MLF
MIC24421	4.5 to 15	Adj./Adj.	–40 to +125	500 kHz	2500/2500	Power Good, Soft Start	24-pin (4 × 4) MLF
MIC23158	2.7 to 5.5	Adj./Adj.	–40 to +125	3.0 MHz	2000/2000	Power Good, Soft Start, HyperLight Load Mode	20-pin (3 × 4) MLF
MIC23159	2.7 to 5.5	Adj./Adj.	–40 to +125	3.0 MHz	2000/2000	Power Good, Soft Start, HyperLight Load Mode	20-pin (3 × 4) MLF
MIC23451	2.7 to 5.5	Adj./Adj./Adj.	–40 to +125	3.0 MHz	2000/2000/2000	Power Good, Soft Start, HyperLight Load Mode	26-pin (4 × 4) QFN
MIC7400/1	2.4 to 5.5	1.8V, 1.1V, 1.8V, 1.05V, 1.25V, 12V or Configurable	–40 to +125	2 MHz Boost, 1.3 MHz Bucks	DC to DC Bucks: 3,000, DC/DC Boost 200	Highly integrated-configurable, featuring five buck regulators, one boost regulator and global Power Good indicator/enable pin	36-pin 4.5 × 4.5 QFN

Power Management: Inductorless Offline Switches						
Product	**V_{IN} (V_{AC})**	**Adjustable V_{OUT} (V)**	**Fixed V_{OUT} (V)**	**I_{OUT} Max. (mA)**	**Load Regulation (%/mA)**	**Packages**
SR086	80–285	9.0–50	3.3	100	0.025	8-Lead SOIC with Heat Slug
SR10	80–285	6.0–28	6.0, 12, 24	60	–	8-Lead SOIC

Power Management: PWM Controllers								
Product	**Supported Topologies**	**Supported Outputs**	**Input Voltage Range (V)**	**Output Voltage (V)**	**Operating Frequency (Hz)**	**Operating Temperature Range (°C)**	**Features**	**Packages**
MIC2103/4	Sync. Buck	1	4.5–75	0.8–24	200–600 kHz	–40 to +125	HyperLight Load® Mode, External Clock Sync, Power Good, Soft Start, Internal Compensation and Voltage Bias	16-pin 3 × 3 MLF
MIC2124	Sync. Buck	1	3.0–18	0.8–12	300 kHz	–40 to +125	Soft Start, Internal Voltage Bias	10-pin MSOP
MIC2130/1	Sync. Buck	1	8.0–40	0.7–24	150 or 400 kHz	–40 to +125	Power Good, Soft Start, Internal Voltage Bias	16-pin e-TSSOP, 16-pin 4 × 4 MLF
MIC2150/1	Sync. Buck	2	4.5–14.5	0.7–5.5	500 kHz	–40 to +125	Power Good, Soft Start, Internal Voltage Bias	24-pin 4 × 4 MLF
MIC2183	Sync. Buck	1	2.9–14	1.3–12	200/400 kHz	–40 to +125	External Clock Sync, Soft Start, Internal Voltage Bias	16-pin SOP, 16-pin QSOP
MIC2184	Async. Buck	1	2.9–14	1.3–12	200/400 kHz	–40 to +125	External Clock Sync, Soft Start, Internal Voltage Bias	16-pin SOP, 16-pin QSOP
MIC2185/86	Boost, SEPIC, Ćuk	1	2.9–14	3.3–14	100/200/400 kHz	–40 to +125	Skip Mode, External Clock Sync, Soft Start, Internal Voltage Bias	16-pin SOIC, 16-pin QSOP
MIC38HC42/3/4/5	Forward, Flyback	1	9.0 up to 20	–	Adj. to 500 kHz	–40 to +85	Forward, Flyback Supported Topologies	8-pin PDIP, 14-pin PDIP, 8-pin SOIC, 14-pin SOIC
MIC9130/1	Forward, Flyback	1	9.0–180	–	Adj. up to 1.5 MHz	–40 to +125	Forward, Flyback Supported Topologies, External Clock Sync	16-pin SOIC, 16-pin QSOP
MCP1630/1/2	Flyback, Boost, SEPIC, Ćuk	1	3.0–5.5	–	Sync. up to 2 MHz	–40 to +125	External Clock Sync, Current Limit/Short Circuit Protection, Soft Start, Internal Voltage Bias, UVLO, Peak Current Control Mode	20-pin TSSOP, 20-pin SSOP, 20 pin 4 × 4 QFN
MCP1631HV	Flyback, Boost, SEPIC, Ćuk	1	3.5–16	–	Sync. to 2 MHz	–40 to +125	External Clock Sync, Current Limit/Short Circuit Protection	20-pin TSSOP, 20-pin SSOP
MCP19035	Sync. Buck	1	4.5–30	–	300/600 kHz	–40 to +125	Power Good, Soft Start, Internal Voltage Bias, UVLO, Current Limit/Short Circuit Protection	10-pin 3 × 3 DFN
MIC2128/27A	Sync. Buck	1	4.5–75	0.6–32	270–800kHz	–40 to +125	Internal and External soft start, Internal LDO, Short Circuit Protection, Current limit	16-pin 3 × 3 DFN

Power Management: Hybrid PWM Controllers										
Part #	Input Voltage Range (V)	Output Voltage (V)	Topologies Supported	Channels	Integrated MCU	Program Memory (KWords)	RAM (bytes)	GPIO	Product Features Integrated MCU, LDO, MOSFET Drivers, 10b A/D Converter, Temp Sensor, User-Configurable Operation and:	Packages
MCP19110 MCP19111	4.5–32	0.5 to 90% of V_{IN}	Sync. Buck	1	✓	4	256	11 14	Configurable and dynamically changeable internal analog compensation network	24-pin 4×4 QFN 28-pin 5×5 QFN
MCP19114 MCP19115	4.5–42	Topology Dependent	Boost, Flyback, SEPIC, Ćuk	1	✓	4	256	8 12	Excellent regulation for constant current applications	24-pin 4×4 QFN 28-pin 5×5 QFN
MCP19116 MCP19117	4.5–42	Topology Dependent	Boost, Flyback, SEPIC, Ćuk	1	✓	8	336	8 12	Improved current regulation accuracy, additional code space (compared to MCP19114 or MCP19115)	24-pin 4×4 QFN 28-pin 5×5 QFN
MCP19118 MCP19119	4.5–40	0.5 to 90% of V_{IN}	Sync. Buck	1	✓	4	256	11 14	Configurable and dynamically changeable internal analog compensation network	24-pin 4×4 QFN 28-pin 5×5 QFN
MCP19122 MCP19123	4.5–40	0.3–16	Sync. Buck	1	✓	4	256	12 16	Emulated average current mode control, progammable gain feedback amplifier, multiphase operation, improved regulation accuracy and current measurement accuracy (compared to MCP19110/1/8/9)	24-pin 4×4 QFN 28-pin 5×5 QFN
MCP19124 MCP19125	4.5–42	Topology Dependent	Boost, Flyback, SEPIC, Ćuk	1	✓	4	256	8 12	Dual independent voltage and current control loops allow seamless transitions from constant voltage to constant current regulation	24-pin 4×4 QFN 28-pin 5×5 QFN
MCP19214 MCP19215	4.5–42	Topology Dependent	Boost, Flyback, SEPIC, Ćuk	2	✓	8	336	8 12	Dual channels, which can be configured to control two outputs, or one bidirectional system	28-pin 5×5 QFN 32-pin 5×5 QFN

Power Management: Power Modules									
Product	Input Voltage Range (V)	Output Voltage (V)	Operating Temp. Range (°C)	Control Scheme	Switching Frequency (kHz)	V_{OUT} Max. (V)	Output Current (A)	Features	Packages
MIC28304-1/-2	4.5 to 70	Adj.	–40 to +125	COT	600	24	3	HyperLight Load® Mode, Hyper Speed Control® Architecture, Power Good, Soft Start	64-pin (12 × 12) QFN
MIC45205-1/-2	4.5 to 26	Adj.	–40 to +125	COT	200–600	5.5	6	HyperLight Load Mode, Hyper Speed Control Architecture, Power Good, Soft Start	52-pin (8 × 8) QFN
MIC45208-1/-2	4.5 to 26	Adj.	–40 to +125	COT	200–600	5.5	10	HyperLight Load Mode, Hyper Speed Control Architecture, Power Good, Soft Start	52-pin (10 × 10) QFN
MIC45212-1/-2	4.5 to 26	Adj.	–40 to +125	COT	200–600	5.5	14	HyperLight Load Mode, Hyper Speed Control Architecture, Power Good, Soft Start	64-pin (12 × 12) QFN
MIC33030	2.7 to 5.5	1.2, 1.8, Adj.	–40 to +125	PWM	8,000	3.6	0.4	HyperLight Load Mode	10-pin (2.5 × 2.0) MLF®
MIC33050	2.7 to 5.5	1.0, 1.2, 1.8, 3.3, Adj.	–40 to +125	PWM	4,000	3.3	0.6	HyperLight Load Mode	12-pin (3 × 3) MLF
MIC33153	2.7 to 5.5	1.2, Adj.	–40 to +125	PWM	4,000	3.6	1.2	HyperLight Load Mode, Power Good, Soft Start	14-pin (3 × 3.5) MLF
MIC3385	2.7 to 5.5	1.5, Adj.	–40 to +125	PWM	8,000	5.5	0.6	LowQ	14-pin (3 × 3.5) MLF
MIC28303-1/-2	4.5 to 50	Adj.	–40 to +125	COT	600	24	3	HyperLight Load Mode, Hyper Speed Control Architecture, Power Good, Soft Start	64-pin (12 × 12) QFN
MIC45116-1/-2	4.5 to 20	Adj.	–40 to +125	COT	600	17	6	HyperLight Load Mode, Hyper Speed Control Architecture, Power Good, Soft Start	52-pin (8 × 8) QFN
MIC45404	4.5 to 19	Selectable	–40 to +125	Fixed	400–790	3.3	5	Power Good, Soft Start	64-pin (6 × 10) QFN

Power Management: Linear Regulators							
Part #	±V_{IN} Min (V)	±V_{IN} Max (V)	Output Voltage (V)	Max Output Current (mA)	Typical Line Regulation (%/V)	Typical Load Regulation (%/mA)	Packages
LR8	12	450	1.2–440	10	0.003	0.15	3-Lead TO-252, 3-Lead TO-92, 3-Lead SOT-89
LR12	12	100	1.2–88	50	0.003	0.06	3-Lead TO-252, 8-Lead SOIC, 3-Lead TO-92

Power Management: DDR Termination Regulators											
Product	**I_{OUT}**	**V_{IN} Min. (V)**	**V_{IN} Max. (V)**	**V_{OUT} (V)**	**PWR Good**	**VTT Accuracy**	**External Transistor**	**Sync Buck**	**Frequency**	**Features**	**Packages**
MIC5166	±3A	0.9	3.6	1/2 of V_{IN}	Y	±40 mV	–	–	–	Integrated FETs	3 x 3 DFN
MIC5167	±6A	2.6	5.5	Adj. down to 0.35V	Y	±12 mV	–	Y	1 MHz	Integrated Sync-Buck	4 x 4 DFN

Power Management: Charge Pump DC-to-DC Converters										
Product	**Configuration**	**Input Voltage Range (V)**	**Output Voltage (V)**	**Typical Output Current (mA)**	**Switching Frequency (kHz)**	**Supply Current (Is, floating output, µA, 25°C)**	**Output Resistance (Ω, at typical output current, 25°C)**	**Power Conversion Efficiency (%)**	**Features**	**Packages**
Inverting or Doubling Charge Pumps										
TC7660S/H	Inverting or doubling	1.5–12	–V_{IN} or 2* V_{IN}	20	10, 45, or 120	80 or 1000	55 or 60	98% at 1 mA, 85% at 10 mA	Boost pin increases switching frequency, high-voltage oscillator	8-pin SOIC and 8-pin PDIP
TC7662A/B	Inverting or doubling	1.5–15	–V_{IN} or 2* V_{IN}	20 or 40	10, 12 or 35	80 or 190	50 or 65	96% at 1 mA, 97% at 7.5 mA	Boost pin increases switching frequency, no low-voltage terminal required	8-pin SOIC and 8-pin PDIP
Regulated Charge Pumps										
MCP1252/3	Regulated	2.0–5.5	3.3, 5.0, or Adjustable	150	650, 1000	60	N/A	81% at 10 mA	Shutdown, power good, regulated output, adjustable version	8-pin MSOP

Power Management: Power MOSFET Drivers								
Product	**Drivers**	**Configuration**	**Peak Output Current (source/sink, A)**	**Max Supply Voltage (V)**	**Output Resistance (source/sink, Ω)**	**Propagation Delay (T_{D1}/T_{D2}, ns)**	**Rise/Fall Time (Tr, Tf, ns)**	**Packages**
Low-Side Power MOSFET Drivers								
MCP14A0051/2	Single	Inverting/Non-Inverting	0.5/0.5	18	6.5/4.5	40/31	51/39	6-pin SOT-23, 6-pin 2 x 2 DFN
MIC4416/7	Single	Non-Inverting/Inverting/Complimentary	1.2/1.2	18	3.5/3.5	42/42	3.5/3.5	SOT-143
MIC4467/8/9	Quad	Inverting/Non-Inverting/Complimentary	1.2/1.2	18	5/5	35/55	5/5	16-pin WSOIC, 14-pin PDIP
MCP14A0151/2	Single	Inverting/Non-Inverting	1.5/1.5	18	17/10	41/32	18.5/17	6-pin SOT-23, 6-pin 2 x 2 DFN
MCP14A0153/4/5	Dual	Inverting/Non-Inverting/Complimentary	1.5/1.5	18	4.5/3	32/24	11/10	8-pin SOIC, 8-pin MSOP, 8-pin 2 x 3 DFN
MCP14E6/7/8	Dual	Inverting/Non-Inverting/Complimentary	2.0/2.0	18	5/5	45/45	12/15	8-pin SOIC, 8-pin PDIP, 8-pin 6 x 5 DFN
MIC4478/9/80	Dual	Non-Inverting/Inverting/Complimentary	2.5/2.5	32	6/3	160/70	120/45	8-pin SOIC, 8-pin ePAD SOIC
MCP14E9/10/11	Dual	Inverting/Non-Inverting/Complimentary	3.0/3.0	18	4/4	45/45	14/17	8-pin SOIC, 8-pin PDIP, 8-pin 6 x 5 DFN
MAQ4123/4/5	Dual	Inverting/Non-Inverting/Complimentary	3.0/3.0	20	5/5	40/60	11/11	8-pin ePAD SOIC
MIC4123/4/5	Dual	Inverting/Non-Inverting/Complimentary	3.0/3.0	20	5/5	44/59	11/11	8-pin ePAD SOIC
MCP14E3/4/5	Dual	Inverting/Non-Inverting/Complimentary	4.0/4.0	18	2.5/2.5	46/50	15/18	8-pin SOIC, 8-pin PDIP, 8-pin 6 x 5 DFN
MCP14A0451/2	Single	Non-Inverting/Inverting	4.5/4.5	18	1.6/1.2	16/19.5	9/9.5	8-pin MSOP, 8-pin SOIC 8 pin 2 x 2 WDFN
MCP14A0601/2	Single	Non-Inverting/Inverting	6.0/6.0	18	1.2/0.9	22/22	10/10	8-pin MSOP, 8-pin SOIC 8 pin 2 x 3 WDFN
MCP14A031/2	Single	Non-Inverting/Inverting	3.0/3.0	18	2.2/1.5	15/18	18/17	8-pin MSOP, 8-pin SOIC, 8-pin, 2 x 2 DFN
MIC4120/29	Single	Non-Inverting/Inverting	6.0/6.0	20	5/5	45/50	12/13	8-pin ePAD SOIC, 8-pin 3 x 3 MLF
MIC4421A/22A	Single	Inverting/Non-Inverting	9.0/9.0	18	0.8/0.6	15/35	20/24	8-pin PDIP, 8-pin SOIC, 5-pin TO-220
MIC4451/2	Single	Inverting/Non-Inverting	12.0/12.0	18	0.8/0.6	25/40	20/24	8-pin SOIC, 8-pin PDIP, 5-pin TO-220
High-Side Power MOSFET Drivers								
MIC5011/13	High-Side or Low-Side Single	Non-Inverting	950 µA*/225 µA*	32	N/A	N/A	25 µs/4 µs	8-pin SOIC, 8-pin PDIP
MIC5014/15	High-Side or Low-Side Single	Non-Inverting/Inverting	800 µA*	30	N/A	N/A	90 µs/6 µs	8-pin SOIC, 8-pin PDIP
MIC5018/19	High-Side or Low-Side Single	Non-Inverting	10 µA*	9	N/A	N/A	750 µs/10 µs	4-pin SOT-143
High-Side Power MOSFET Drivers								
MIC5021	High-Side or Low-Side Single	Non-Inverting	5600 µA*	36	N/A	500/800	400 ns/400 ns	8-pin SOIC, 8-pin PDIP
MIC5060	High-Side or Low-Side Single	Non-Inverting	800 µA*	30	N/A	N/A	90 µs/6 µs	8-pin 3 x 3 MLF
Synchronous Drivers								
MCP14628/MCP14700	Half Bridge Driver	Dual Inputs	2.0/3.5	5.5 (36V Boot Pin)	1/1 (0.5 on low side)	15/22	10/10	8-pin SOIC, 8-pin 3 x 3 DFN
MIC4100/1	Half Bridge Driver	Dual Inputs	2.0/2.0	16 (100V Boot Pin)	2.5/2.0	27/27	10/10	8-pin SOIC

Power Management: Power MOSFET Drivers								
Product	**Drivers**	**Configuration**	**Peak Output Current (source/sink, A)**	**Max Supply Voltage (V)**	**Output Resistance (source/sink, Ω)**	**Propagation Delay (T_{D1}/T_{D2}, ns)**	**Rise/Fall Time (Tr, Tf, ns)**	**Packages**
MIC4102	Half Bridge Driver	Single PWM	3.0/2.0	16 (100V Boot Pin)	1.5/2.0	60/75	10/6	8-pin SOIC
MIC4103/4	Half Bridge Driver	Dual Inputs	3.0/2.0	16 (100V Boot Pin)	1.5/2.0	24/24	10/6	8-pin SOIC
MIC4600	Half Bridge Driver	Dual Inputs, Single PWM	1.0/1.0	28	2.0/1.5	26/55	15/13.5	16-pin 3 × 3 QFN
MIC4604	Half Bridge Driver	Dual Inputs	1.0/1.0	16 (85V Boot Pin)	4.4/4.0	33/34	20/20	8-pin SOIC, 10-pin 2.5 x 2.5 TDFN
MIC4605	Half Bridge Driver	Dual Inputs, Single PWM	1.0/1.0	16 (85V Boot Pin)	10/6	35/35	20/20	8-pin SOIC, 10-pin 2.5 x 2.5 TDFN
MIC4606	Full Bridge Driver	Dual Inputs, Single PWM	1.0/1.0	16 (85V Boot Pin)	10/6	35/35	20/20	16-pin 4 x 4 QFN
MIC4607	3 Phase Driver	Dual Inputs, Single PWM	1.0/1.0	16 (85V Boot Pin)	10/6	35/35	20/20	28-pin TSSOP, 28-pin 4 x 5 QFN
MIC4608	Half Bridge Driver	Dual Inputs, Single PWM	1.0/1.0	20 (600V Boot Pin)	8/9.2	450/450	31/31	14-pin SOIC
MIC4609	3 Phase Driver	Dual Inputs	1.0/1.0	20 (600V Boot Pin)	8/9.2	450/450	31/31	28-pin SOIC

Power Management: Power Switches											
Part #	**Description**	**USB Port Power Switch (55 mΩ)**	**High-Speed USB 2.0 Switch**	**Battery Charger Emulation Profiles**	**8 Resistor Set Current Limits**	**Charging Indicator Output**	**Attach Detection Output**	**Current Measurement**	**Power Allocation**	**Interface**	**Packages**
USB Port Power Controllers											
UCS1001-3/4	USB Port Power Controller with Charger Emulation	1	1	9	Up to 2.4A	–3 option	–4 option	–	–	Discrete I/O	20-pin 4 x 4 QFN
UCS1002-2	Programmable USB Port Power Controller with Charger Emulation	1	1	9 + 1 Programmable	Up to 2.4A	Y	–	Y	Y	I²C/SMBus	20-pin 4 x 4 QFN
UCS1003-1	Programmable USB Port Power Controller with Charger Emulation	1	1	9 + 1 Programmable	Up to 3A	–	Y	Y	Y	I²C/SMBus	20-pin 4 x 4 QFN
UCS81003	Programmable USB Port Power Controller - Automotive	1	1	9 + 1 Programmable	Up to 3A	–	Y	Y	Y	I²C/SMBus	28-pin 5 x 5 QFN

Power Management: Power Switches												
Part #	**Channels**	**V_{IN} Range (V)**	**Fixed Current Limit Min.**	**Adj. Current Limit Max.**	**$R_{DS(ON)}$ (mΩ)**	**Reverse Blocking**	**Enable Logic**	**UVLO**	**Thermal Protection**	**Fault Flag**	**Current Measurement**	**Packages**
Current Limit USB Protection Switches												
MIC200x/201x	Single	2.5–5.5	500 mA, 800 mA, 1.2A	Up to 2A	70/100/170	–	Active Low, Active High	Y	Y	–/Y	–	5-pin SOT23, 6-pin SOT23, 2 × 2
MIC2025/75	Single	2.7–5.5	500 mA	–	90	Y	Active Low, Active High	Y	Y	Y	–	8-pin SOIC, 8-pin MSOP
MIC2033/39	Single	2.5–5.5	475 mA, 517 mA, 760 mA, 950 mA, 1.14A	2.5A	75	–	Active Low, Active High	Y	Y	Y	–	6-pin SOT-23, 2 x 2 TDFN
MIC2042/43	Single	0.8–5.5	–	3.0A	60	Y	Active Low, Active High	Y	Y	Y	–	8-pin SOIC, 14-pin TSSOP
MIC2044/45	Single	0.8–5.5	–	6.0A	30	Y	Active Low, Active High	Y	Y	Y	–	16-pin TSSOP
MIC2544/48	Single	2.7–5.5	–	1.5A	80	Y	Active Low, Active High	–	Y	Y	–	8-pin SOIC, 8-pin MSOP
MIC2545A/49A	Single	2.7–5.5	–	3.0A	35	Y	Active Low, Active High	–	Y	Y	–	8-pin SOIC, 8-pin PDIP, 14-pin TSSOP
MIC2026/76	Dual	2.7–5.5	500 mA	–	90	Y	Active Low, Active High	Y	Y	Y	–	8-pin SOIC, 8-pin PDIP
MIC2506	Dual	2.7–7.5	1.0A	–	75	Y	Active Low, Active High	–	Y	Y	–	8-pin SOIC, 8-pin PDIP
MIC2546/47	Dual	2.7–5.5	–	1.5A	80	Y	Active Low, Active High	–	Y	Y	–	16-pin SOIC, 16-pin TSSOP
UCS2113/2114	Dual	2.9–5.5	–	3.4A	40/18	Y	Active Low, Active High	Y	Y	Y	Y	20-pin 4 × 4 QFN, 20-pin 3 x 3 QFN

Power Management: Power Switches									
Part #	**Channels**	**V_{IN} Range (V)**	**Max. Switch Current (A)**	**$R_{DS(ON)}$ (mΩ)**	**Soft Start (µs)**	**Load Discharge (Ω)**	**Enable Logic**	**Reverse Blocking**	**Packages**
Load Switches									
MIC94040/1/2/3/4/5	Single	1.7–5.5	3.0	28	100 (94042), 900 (94044/5)	250 (94041/3), 200 (94045)	Active High	–	1.2 × 1.2
MIC94070/1/2/3	Single	1.7–5.5	1.2	120	800 (94072/3)	200 (94071/3)	Active High	–	6-pin SC70, 1.2 × 1.6*
MIC94080/1/2/3/4/5	Single	1.7–5.5	2.0	67	800 (94082/3), 120 (94084/5)	250 (94081/3/5)	Active High	–	0.85 × 0.85
MIC94161/2/3/4/5	Single	1.7–5.5	3.0	15.5	2700 (94161/4/5), 60 (94162/3)	200 (94162/4)	Active High	Y	1.5 × 1 WLCSP
MIC95410	Single	0.5–5.5	7.0	6.6	1100	2300	Active High	–	1.2 × 2
MIC94066/7/8/9	Dual	1.7–5.5	2	85	800 (94068/9)	200 (94067/9)	Active High	–	2 × 2

Power Management: LDO Single Output										
Product	Output Current (mA)	V_{IN} Min. (V)	V_{IN} Max. (V)	V_{OUT} (V)	Voltage Drop Typ. (mV)	IGND Typ. (µA)	Output Accuracy (%)	PSRR 1 kHz (dB)	Features	Packages
MIC5280/1/2/3	25/50/100/150	4.5	120	3.3, 5.0, Adj.	1100	31 µA/6 µA	±2/±3	80/90	High Input Voltage, Load Dump, Reverse Battery Protection	8-pin SOIC
MCP1790/1	70	6	30	3.0, 3.3, 5.0	700	70 µA	±0.2	90	High Input	3-pin SOT-223, 3-pin DDPAK, 5-pin DDPAK, 5-pin SOT-223
MIC5233	100	2.3	36	1.8, 2.5, 3.0, 3.3, 5.0, Adj	270	18 µA	±1	50	High Input Voltage, Reverse Battery and Current Protection	3-pin SOT-223, 5-pin SOT-23
MCP1810	150	2.5	5.5	1.2, 1.8, 2.5, 3.0, 3.3, 4.2	380	0.02 uA	±1	40	Ultra Low Quiescent Current	2x2 DFN
MIC5365	150	2.5	5.5	1.0, 1.2, 1.3, 1.5, 1.8, 2.0, 2.5, 2.6, 2.7, 2.8, 2.85, 2.9, 3.0, 3.3	155	32 µA	±2	80	High PSRR	5-pin SC70, 5-pin TSOT, 4-pin UDFN
MCP1711	150	1.4	6	1.2 - 5.0	500	0.6 µA	±1	20	Ultra Low Iq, Capless	4-pin UQFN, 5-pin SOT-23
MCP1703A	250	2.7	16	1.2 - 5.5	625	2 µA	±0.4	35	High Input, Low Iq	3-pin SOT-89, 3-pin SOT-23A, 3-pin SOT-223, 8-pin DFN
MIC5501/2/3/4	300	2.5	5.5	1.2, 1.8, 2.8, 3.0, 3.3	160	38 µA	±2	60	Low Dropout	4-pin UDFN, 5-pin SOT-23
MIC5239	500	2.3	30	1.5, 1.8, 2.5, 3.0, 3.3, 5.0, Adj	350	23 µA	±1	50	Reverse Battery and Current Protection	8-pin MSOP, 8-pin SOIC, 3-pin SOT-223
MIC5524	500	2.5	5.5	1.2, 1.8, 2.8,3.0, 3.3	260	38 µA	±2	65	Low Noise	4-pin UDFN
MIC39100	1000	2.25	16	1.8, 2.5, 3.3, 5.0	410	6.5 mA	±1	55	Reverse Battery and Current Protection	3-pin SOT-223
MIC29151	1500	2.25	26	3.3, 5.0, 12	350	22 mA	±1		Load Dump, Reverse Current Protection	5-pin TO-220, 5-pin DDPAK
MIC29301	3000	2.25	26	3.3, 5.0, 12	370	37 mA	±1	–	Load Dump, Reverse Current Protection	5-pin TO-220, 5-pin DDPAK
MIC29751	7500	2.5	26	3.3, 5.0	425	120 mA	±1	–	Load Dump, Reverse Current Protection	5-pin TO-247

Display and LED Drivers: Electroluminescent Backlight Drivers								
Part #	Type	Input Voltage Min. (V)	Input Voltage Max. (V)	Nominal Output Voltage (V)	Max. Switch Resistance (Ω)	Output Regulation	Max. Lamp Size Per Device (in2)	Packages
16-Segment Drivers								
HV509	16-Segment Drivers	2	5.5	±50 to ±200	–	–	6.5	32-pin VQFN
Single Lamp Drivers								
HV833	Single Lamp Driver	1.8	6.5	±90	4	Y	12	8-pin MSOP
HV852	Single Inductorless Lamp Driver	2.4	5	±80	–	Y	1.5	10-pin WDFN, 8-pin MSOP
HV859	Single Lamp Driver	1.8	5	±105	6	Y	5	8-pin WDFN, 8-pin MSOP
Dual Lamp Drivers								
HV861	Dual Lamp Drivers	2.5	4.5	±90	7	Y	5	16-pin WQFN

Display and LED Drivers: LED Drivers										
Part #	Topology	Input Voltage (V)	Dimming	I_Q Typ. (mA)	Switching Frequency (Hz)	Switching MOSFET	Dithered	ILED Accuracy	V_{FB} (V)	Packages
General Purpose LED Drivers										
HV9801A	Buck	15–450	4-Level Switch	1.0	100k	External FET	–	N/A	0.25	16-pin SOIC 150 mil, 8-pin SOIC 150 mil
HV9803B	Buck	7–13.2	PWM/Linear	1.5	100k	External FET	–	±2%	0.28	8-pin SOIC 150 mil
HV9805	2-Stage	102–265	–	2.5	370k	0.7A FET	–	N/A	1.25	10-pin MSOP
HV98100/HV98101	Buck - Boost	9.5-17.5	–	0.2	320k	External FET	–	±5%	0.2	6-pin SOT23
HV9910B/HV9910C	Buck	8–450/15–450	PWM/Linear	1.0	100k	External FET	–	±5%	0.25	16-pin SOIC 150 mil, 8-pin SOIC 150 mil
HV9918/HV9919B	Buck	4.5–40	PWM	1.5	2M	0.7A FET/Ext. FET	–	±5%	0.23	8-pin WDFN
HV9930	Ćuk	8–200	PWM	1.0	Variable	External FET	–	N/A	0.12	8-pin SOIC 150 mil
HV9961/HV9861A	Buck	8-450/15–450	PWM/Linear	1.5	100k	External FET	–	±3%	0.27	16-pin SOIC 150 mil, 8-pin SOIC 150 mil
MIC3202	Buck	6–37	PWM	1.2	Hyst to 1.0M	1A FET	Y	±5%	2	8-pin SOIC
MIC3230/1/2	Boost	6–45	PWM	3.2	Programmable	External FET	Optional	±3%	0.25	10-pin MSOP, 12-pin VDFN, 16-pin TSSOP EP

Display and LED Drivers: LED Drivers							
Part #	V_{IN} (V)	V_{OUT} (V)	Ouput Current (mA)	Dimming	Parallelable	Features	Packages
Linear Regulators							
CL2	5.0–90	5.0–90	20	External FET	Yes	–	TO-252-3, TO-92-3, SOT-89-3
CL220	Buck	5.0–220	20	External FET	Yes	–	TO-252-3, TO-220-3
CL320	6.5–90	4.0–90	20	PWM	Yes	OTP, Separate ENABLE Pin	SOIC-8 with Heat Slug

Display and LED Drivers: LED Drivers											
Part #	V_{IN} (V)	# of White LEDs	Dimming	I_Q (mA)	$V_{DROPOUTLED}$ @ 20 mA	ILED Matching	Ext LDOs	$V_{DROPOUT}$	IQLDO	Comments	Packages
Linear LED Drivers											
MIC2860-2D	3-5.5	2 @ 30.2 mA	1-Wire, 32-Steps	0.7	52 mV	±0.5%	–	–	–		6-pin SC70, 6-pin SOT-23
MIC2860-2P	Buck	2 @ 30.2 mA	PWM down to 250 Hz	0.7	52 mV	±0.5%	–	–	–		6-pin SC70, 6-pin SOT-23
MIC4811	3-5.5	6 @ 50 mA	PWM (200 Hz–500 kHz)	1.7	100 mV @ 50 mA	±1.0%	–	–	–	DAM	10-pin MSOP
MIC4812	3-5.5	6 @ 100 mA	PWM (200 Hz–500 kHz)	3.2	190 mV @ 100 mA	±1.0%	–	–	–	DAM	10-pin eMSOP

Display and LED Drivers: LED Drivers							
Part #	V_{IN} (VAC)	V_{OUT} (V)	Ouput Current (Peak mA)	Dimming	Parallelable	Features	Packages
Sequential LED Drivers							
CL8800	90–275	70–350	115	External Dimmer	Yes	6-Stage	QFN-33
CL8801	90–275	70–350	200	External Dimmer	Yes	4-Stage	QFN-33
CL88020	90–135	70–190	115	External Dimmer	Yes	4-Tap	SOIC-8 EP

High-Voltage Interface: Driver Arrays								
Part #	Output Channels	V_{OUT} Operating (V) - Transient	V_{OUT} Operating (V) - Sustained	Input Structure	Output Structure	I_{OUT} per Channel (mA)	Min. Data Clock (MHz)	Packages
Source								
HV57009	64	95	85	Serial	P-Ch Open Drain	–2 (Programmable)	16	80-pin PQFP
MIC2981/82	8	50	50	Parallel	Darlington Open Emitter	–500	–	18-pin PDIP, 18-pin SOIC 300 mil
Sink								
HV5222	32	250	225	Serial	N-Ch Open Drain	100	8	44-pin CERQUAD, 44-pin PLCC, 44-pin PQFP
HV5630	32	315	300	Serial	N-Ch Open Drain	100	8	44-pin PLCC
MIC58P01	8	80	80	Parallel	Darlington Open Collector	400	–	24-pin SOIC 300 mil, 28-pin PLCC
Source-Sink								
HV507	64	320	300	Serial	Half-Bridge	±1.0	8	80-pin PQFP
HV508	2	60	45	Parallel	Half-Bridge	–2.8, +0.38	–	8-pin SOIC 150 mil
HV513	8	275	250	Serial	Half-Bridge	±20	8	24-pin SOIC 300 mil, 32-pin WQFN
HV57908	64	90	80	Serial	Half-Bridge	–1.25	8	80-pin PQFP
HV582	96	85	80	Serial	Half-Bridge	± 75	30	169-pin TFBGA
HV583	128	90	80	Serial	Half-Bridge	±30	40	169-pin TFBGA
HV6810	10	90	80	Serial	Half-Bridge	–250	5	20-pin SOIC 300 mil
HV7224	40	260	240	Serial	Half-Bridge	±70	3	64-pin PQFP
HV7620	32	225	200	Serial	Half-Bridge	±50	10	64-pin PQFP

High-Voltage Interface: Amplifiers and MEMS Drivers								
Part #	Output Channels	Slew Rate (V/µs)	Closed Loop Gain (V/V)	Feedback Resistance (MΩ)	Source Current Max. (µA)	Sink Current Max. (µA)	Output Capacitive Load Max. (pF)	Packages
HV256	32	2	72	12	715	715	3000	100-pin MQFP
HV264	4	9	66.7	5.3	3000	3000	15	24-pin TSSOP

High-Voltage Interface: MOSFETs - Interface					
Part #	BV_{DSX} Min. (V)	$R_{DS\ (ON)}$ Max. (Ω)	$V_{GS\ (OFF)}$ Min. (V)	$V_{GS\ (OFF)}$ Max. (V)	Packages
Depletion-Mode N-Channel					
LND01	9	1.4	–0.8	–3	5-pin SOT-23
DN1509	90	6	–1.8	–3.5	3-pin SOT-89, 5-pin SOT-23
DN2625	250	3.5	–1.5	–2.1	8-pin VDFN, 3-pin DPAK
DN2530	300	12	–1	–3.5	3-pin TO-92, 3-pin SOT-89
DN2450	500	10	–1.5	–3.5	3-pin DPAK, 3-pin SOT-89
LND150	500	1000	–1	–3	3-pin TO-92, 3-pin SOT-89, 3-pin SOT-23
DN2470	700	42	–1.5	–3.5	3-pin DPAK

High-Voltage Interface: MOSFETS Interface					
Part #	**BV_{DSS} Min. (V)**	**$R_{DS\ (ON)}$ Max. (Ω)**	**Ciss Max. (pF)**	**$V_{GS\ (TH)}$ Max. (V)**	**Packages**
Enhancement-Mode N-Channel					
TN0702	20	1.3	200	1.0	3-pin TO-92
TN0104	40	2.0	70	1.6	3-pin TO-92, 3-pin SOT-89
VN0808	80	4.0	50	2.0	3-pin TO-92
VN2210	100	0.4	500	2.4	3-pin TO-92, 3-pin TO-39
TN0620	200	6.0	150	1.6	3-pin TO-92
TN2640	400	5.0	225	2.0	3-pin DPAK, 3-pin TO-92, 8-pin SOIC 150 mil
VN2450	500	13.0	150	4.0	3-pin TO-92, 3-pin SOT-89
VN2460	600	20.0	150	4.0	3-pin TO-92, 3-pin SOT-89
Enhancement-Mode P-Channel					
TP2502	–20	2.0	125	–2.4	3-pin SOT-89
TP0604	–40	2.0	150	–2.4	3-pin TO-92
VP0808	–80	5.0	150	–4.5	3-pin TO-92
TP2510	–100	3.5	125	–2.4	3-pin SOT-89
TP2520	–200	12.0	125	–2.0	3-pin SOT-89
TP2640	–400	15.0	300	–2.0	3-pin TO-92, 8-pin SOIC 150 mil
VP2450	–500	30.0	190	–3.5	3-pin TO-92, 3-pin SOT-89

High-Voltage Interface: MOSFETs Interface							
Part #	**BV_{DSS} N-Channel (V)**	**BV_{DSS} P-Channel (V)**	**$R_{DS(ON)}$ N-Channel Max. (Ω)**	**$R_{DS(ON)}$ P-Channel Max. (Ω)**	**$V_{GS(TH)}$ Max. (V)**	**Details**	**Packages**
Complimentary (Enhancement Mode MOSFET Arrays)							
TC6320	200	–200	7.0	8.0	2.0	N- and P-Channel Pair	8-pin SOIC, 8-pin VDFN
TC6321	200	–200	7.0	8.0	2.0	N- and P-Channel Pair	8-pin SOIC, 8-pin VDFN
TC8220	200	–200	5.3	6.5	2.0	2 N- and P-Channel Pairs	12-pin VDFN

High-Voltage Interface: Application Specific								
Part #	**DC/DC**	**Input Voltage Min. (V)**	**Input Voltage Max. (V)**	**Output Voltage Min. (V_{RMS})**	**Output Voltage Max. (V_{RMS})**	**Load Min. (pF)**	**Load Max. (pF)**	**Packages**
Liquid Lens Driver								
HV892	Internal Charge Pump	2.65	5.5	10	60	100	200	10-pin WDFN

High-Voltage Interface: Application Specific							
Part #	**# of Channels**	**Input Voltage Min. (V)**	**Input Voltage Max. (V)**	**Output Voltage Min. (V)**	**Output Voltage Max. (V)**	**Input to Output Isolation (V)**	**Packages**
Complimentary MOSFET LEVEL Translator Driver							
HT0440	2	3.15	5.5	6	10	±400	10-pin VDFN, 8-pin SOIC 150 mil
HT0740	1	3.15	5.5	4.5	8.5	±400	8-pin SOIC 150 mil

High-Voltage Interface: Application Specific						
Part #	**V_{IN} (V)**	**Gain**	**Rise and Fall Time (µs)**	**V_{SENSE} Max. (mV)**	**Quiescent Current Max. (µA)**	**Packages**
High-Side Current Monitor						
HV7800	8.0–450	Fixed, 1	0.7–2.0	500	50	5-pin SOT-23
HV7801	8.0–450	Fixed, 5	0.7–2.0	500	50	5-pin SOT-23
HV7802	8.0–450	Adjustable	0.7–1.4	500	50	8-pin MSOP

High-Voltage Interface: Application Specific												
Part #	V_{IN} Min. (V)	V_{IN} Max. (V)	I_{IN} Max. (mA)	Oscillator Frequency Min. (kHz)	Oscillator Frequency Max. (kHz)	Oscillator Frequency F_{SYNC} Max. (kHz)	Max. Output Duty Cycle (%)	Typical Current Sense Pull-In (V)	Typical Current Sense Hold	External Adjustable Regulator Output Voltage (V)	External Adjustable Regulator Output Current (mA)	Packages
Relay Driver and Controller												
HV9901	10	450	2	20	140	150	99.5	0.883	Adjustable	2.0–5.5	0–1.0	14-pin SOIC

Linear: Op Amps												
Product	# Per Package	GBWP (MHz)	I_Q Typical (µA)	V_{OS} Max (mV)	Operating Voltage (V)	Packages	Product	# Per Package	GBWP (MHz)	I_Q Typical (µA)	V_{OS} 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	**MCP6V01/2/3**	1/2/1	1.3	300	0.002	1.8 to 5.5	SOIC, DFN, TDFN
MCP651/1S/2/3/4/5/9	1/1/2/1/4/2/4	50	6000	0.2	2.5 to 5.5	SOIC, MSOP, DFN, TSSOP, QFN, SOT	**MCP6V06/7/8**	1/2/1	1.3	300	0.003	1.8 to 5.5	SOIC, DFN, TDFN
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	**MCP6071/2/4**	1/2/4	1.2	110	0.15	1.8 to 6.0	SOIC, TSSOP, DFN, SOT
MCP621/1S/2/3/4/5/9	1/1/2/1/4/2/4	20	2500	0.2	2.5 to 5.5	SOIC, MSOP, DFN, TSSOP, QFN, SOT	**MCP6H01/2/4**	1/2/4	1.2	135	4.5	3.5 to 16	SOIC, TSSOP, TDFN, SOT, SC70
MCP6H91/2/4	1/2/4	10	2000	4	3.5 to 12.0	DFN, SOIC, TSSOP	**MCP6001/2/4**	1/2/4	1	100	4.5	1.8 to 6.0	PDIP, SOIC, MSOP, TSSOP, TDFN, SOT, SC70
MCP6V91/2/4	1/2/4	10	1100	0.009	2.4 to 5.5	TSSOP, MSOP, TDFN, SOT, SC70	**MCP6401/2/4**	1/2/4	1	45	4.5	1.8 to 6.0	SOIC, TSSOP, TDFN, SOT, SC70
MCP6021/2/3/4	1/2/1/4	10	1000	0.5	2.5 to 5.5	PDIP, SOIC, MSOP, TSSOP, SOT	**MCP6411**	1	1	47	1	1.7 to 5.5	SOT, SC70
MCP6291/2/3/4/5	1/2/1/4/2	10	1000	3	2.4 to 6.0	PDIP, SOIC, MSOP, TSSOP, SOT	**MCP6V61/2/4**	1/2/4	1	80	0.008	1.8 to 5.5	TSSOP, MSOP, TDFN, SOT, SC70
MCP6491/2/4	1/2/4	7.5	530	1.5	2.4 to 5.5	SOT, SC70, MSOP, TDFN, SOIC, TSSOP	**MCP6061/2/4**	1/2/4	0.73	60	0.15	1.8 to 6.0	SOIC, TSSOP, DFN, SOT
MCP6H81/2/4	1/2/4	5.5	700	4	3.5 to 12.0	DFN, SOIC, TSSOP	**MCP6241/2/4**	1/2/4	0.55	50	5	1.8 to 5.5	PDIP, SOIC, MSOP, TSSOP, TDFN, SOT, SC70
MCP6V81/2/4	1/2/4	5	500	0.009	2.2 to 5.5	TSSOP, MSOP, TDFN, SOT, SC70	**MCP6051/2/4**	1/2/4	0.385	30	0.15	1.8 to 6.0	SOIC, TSSOP, DFN, SOT
MCP6281/2/3/4/5	1/2/1/4/2	5	445	3	2.2 to 6.0	PDIP, SOIC, MSOP, TSSOP, SOT	**MCP6V31/2/4**	1/2/4	0.3	23	0.008	1.8 to 5.5	TSSOP, MSOP, TDFN, SOT, SC70
MCP6481/2/4	1/2/4	4	240	1.5	2.2 to 5.5	SOT, SC70, MSOP, TDFN, SOIC, TSSOP	**MCP6231/2/4**	1/2/4	0.3	20	5	1.8 to 6.0	PDIP, SOIC, MSOP, TSSOP, TDFN, SOT, SC70
MCP6286	1	3.5	540	1.5	2.2 to 5.5	SOT	**MCP616/7/8/9**	1/2/1/4	0.19	19	0.15	2.3 to 5.5	PDIP, SOIC, MSOP, TSSOP
MCP601/2/3/4	1/2/1/4	2.8	230	2	2.7 to 6.0	PDIP, SOIC, TSSOP, SOT	**MCP606/7/8/9**	1/2/1/4	0.155	19	0.25	2.5 to 6.0	PDIP, SOIC, TSSOP, SOT
MCP6H71/2/4	1/2/4	2.7	480	4	3.5 to 12.0	DFN, SOIC, TSSOP	**MCP6141/2/3/4**	1/2/1/4	0.1	0.6	3	1.4 to 6.0	PDIP, SOIC, MSOP, TSSOP, SOT
MCP6271/2/3/4/5	1/2/1/4/2	2	170	3	2.0 to 6.0	PDIP, SOIC, MSOP, TSSOP, SOT	**MCP6421/2/4**	1/2/4	0.09	4.4	1	1.8 to 5.5	SOT, SC70, MSOP, SOIC, TSSOP
MCP6471/2/4	1/2/4	2	100	1.5	2 to 5.5	SOT, SC70, MSOP, TDFN, SOIC, TSSOP	**MCP6V11/2/4**	1/2/4	0.08	7.5	0.008	1.6 to 5.5	TSSOP, MSOP, TDFN, SOT, SC70
MCP6V26/7/8	1/2/1	2	620	0.002	2.3 to 5.5	SOIC, MSOP, DFN	**MCP6041/2/3/4**	1/2/1/4	0.014	0.6	3	1.4 to 6.0	PDIP, SOIC, MSOP, TSSOP, SOT
MCP6V71/2/4	1/2/4	2	170	0.008	2.0 to 5.5	TSSOP, MSOP, TDFN, SOT, SC70	**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: Instrumentation Amps						
Product	Bandwidth (kHz)	I_Q Typical (µA)	V_{OS} Max (µV)	Operating Voltage (V)	Features	Packages
MCP6N11	500	800	350	1.8 to 5.5	Rail-to-rail input/output, enable pin, mCal technology	SOIC, TDFN
MCP6N16	500	1100	17	1.8 to 5.5	Rail-to-rail input/output, enable pin, enhanced EMI rejection	MSOP, DFN

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

Mixed Signal: Digital-to-Analog Converters												
Product	Resolution (Bits)	DAC Channels	Memory	DNL (±LSb)	INL (±LSb)	Packages	Product	Resolution (Bits)	DAC Channels	Memory	DNL (±LSb)	INL (±LSb)	Packages
MCP48FEB01/11/21	8/10/12	1	EEPROM	0.25/0.5/1	0.5/1.5/6	MSOP-8	**MCP47DA1**	6	1	Volatile	0.35	0.7	SOT23-6, SC70-6
MCP48FEB02/12/22	8/10/12	2	EEPROM	0.25/0.5/1	0.5/1.5/6	MSOP-8	**MCP4706/16/26**	8/10/12	1	EEPROM	0.05/0.188/0.75	0.907/3.625/14.5	SOT23-6, 2 × 2 DFN-6
MCP48FVB01/11/21	8/10/12	1	Volatile	0.25/0.5/1	0.5/1.5/6	MSOP-8	**MCP4725**	12	1	EEPROM	0.75	14.5	SOT23-6
MCP48FVB02/12/22	8/10/12	2	Volatile	0.25/0.5/1	0.5/1.5/6	MSOP-8	**MCP4728**	12	4	EEPROM	0.75	13	MSOP-10
MCP47FEB01/11/21	8/10/12	1	EEPROM	0.25/0.5/1	0.5/1.5/6	MSOP-8	**MCP4801/11/21**	8/10/12	1	Volatile	0.5/0.5/0.75	1/3.5/12	MSOP-8, 2 × 3 DFN-8, SOIC-8, PDIP-8
MCP47FEB02/12/22	8/10/12	2	EEPROM	0.25/0.5/1	0.5/1.5/6	MSOP-8	**MCP4802/12/22**	8/10/12	2	Volatile	0.5/0.5/0.75	1/3.5/12	MSOP-8, 2 × 3 DFN-8, SOIC-8, PDIP-8
MCP47FVB01/11/21	8/10/12	1	Volatile	0.25/0.5/1	0.5/1.5/6	MSOP-8	**MCP4901/11/21**	8/10/12	1	Volatile	0.5/0.5/0.75	1/3.5/12	MSOP-8, 2 × 3 DFN-8, SOIC-8, PDIP-8
MCP47FVB02/12/22	8/10/12	2	Volatile	0.25/0.5/1	0.5/1.5/6	MSOP-8	**MCP4902/12/22**	8/10/12	2	Volatile	0.5/0.5/0.75	1/3.5/12	MSOP-8, 2 × 3 DFN-8, SOIC-8, PDIP-8

Mixed Signal: Energy Meter and Power Monitoring ICs

Product	Dynamic Range	Typical Accuracy	Input Channels	ADC Resolution	Gain Selection	Event Monitoring	Zero-Cross Detection Pin	Output Type	V_{DD} (V)	Temperature Range (°C)	Features	Packages
MCP39F511	4000:1	0.1%	I, V, Temp.	24-bit	Up to 32	5	Yes	UART/Single-wire	2.7 to 3.6	–40 to +125	Power monitoring IC with active, reactive and apparent power, active and reactive energy, PF, RMS current/voltage, frequency, event notifications, EEPROM, PWM output	QFN
MCP39F521	4000:1	0.1%	I, V, Temp.	24-bit	Up to 32	4	Yes	I²C	2.7 to 3.6	–40 to +125	Power monitoring IC with active, reactive and apparent power, active and reactive energy, PF, RMS current/voltage, frequency, event notifications, EEPROM	QFN
MCP39F511N	4000:1	0.5%	I1, I2, V	24-bit	Up to 32	6	Yes	UART	2.7 to 3.6	–40 to +125	Dual-channel power monitoring IC with active, reactive and apparent power, active and reactive energy, PF, RMS current/voltage, frequency, event notifications, EEPROM, PWM output	QFN
MCP3905A/06A	500:1/1000:1	0.10%	I, V	16-bit	Up to 32	–	–	Active Power Pulse	4.5 to 5.5	–40 to +125	Active power calculation	SSOP

Mixed Signal: Energy Measurement AFEs

Product	Dynamic Range	Typical Accuracy	ADC Channels	ADC Resolution	SINAD	Gain Selection	Output Type	V_{DD} (V)	Temperature Range (°C)	Features	Packages
MCP3918/10	10000:1	0.1%	1/2	24-bit	93.5	Up to 32	SPI/2-wire	2.7 to 3.6	–40 to +125	AFE with phase correction, programmable data rate, 16-bit CRC, register map lock, 2-wire interface	SSOP, QFN
MCP3919	10000:1	0.1%	3	24-bit	93.5	Up to 32	SPI/2-wire	2.7 to 3.6	–40 to +125	AFE with phase correction, programmable data rate, 16-bit CRC, register map lock, 2-wire interface	SSOP, QFN
MCP3912	10000:1	0.1%	4	24-bit	93.5	Up to 32	SPI	2.7 to 3.6	–40 to +125	AFE with phase correction, programmable data rate, 16-bit CRC, register map lock	SSOP, QFN
MCP3913/14	10000:1	0.1%	6/8	24-bit	94.5	Up to 32	SPI	2.7 to 3.6	–40 to +125	AFE with phase correction, programmable data rate, 16-bit CRC, register map lock	SSOP, UQFN

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
PAC1710/20	1/2	Current/DC Power Sensor	10, 20, 40, 80	±1	2.5 to 2600	0 to +40	N/A	N/A	1	–	SMBus/I²C	10-pin DFN
PAC1921	1	SMBus/I²C Current/Power Sensor with Analog Output	100	±1	2.5 to 2900	0 to +32	N/A	N/A	–	–	SMBus/I²C	10-pin DFN
PAC1934	4	SMBus/I²C Current/Power Sensor with Accumulator	100	±0.9	0.98 to 125	0 to +32	N/A	N/A	1	–	SMBus/I²C	WLCSP
EMC1701/2/4	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	Y	SMBus/I²C	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	Product	# of Taps	Memory	Channels	Interface	Resistance (kΩ)	Temperature Range (°C)	Packages
MCP4011/12/13/14	64	Volatile	1	Up/Down	2.1, 5, 10, 50	–40 to +125	DFN, SOT-23	MCP4331/32	129	Volatile	4	SPI	5,10,50,100	–40 to +125	TSSOP, QFN
MCP4017/18/19	128	Volatile	1	I²C	5, 10, 50, 100	–40 to +125	SC70	MCP4351/52	257	Volatile	4	SPI	5,10,50,100	–40 to +125	TSSOP, QFN
MCP40D17/D18/D19	128	Volatile	1	I²C	5, 10, 50, 100	–40 to +125	SC70	MCP4431/32	129	Volatile	4	I²C	5, 10, 50, 100	–40 to +125	TSSOP, QFN
MCP4021/22/23/24	64	Nonvolatile	1	Up/Down	2.1, 5, 10, 50	–40 to +125	DFN, SOT-23	MCP4441/42	129	Nonvolatile	4	I²C	5, 10, 50, 100	–40 to +125	TSSOP, QFN
MCP4141/42	128	Nonvolatile	1	SPI	5, 10, 50, 100	–40 to +125	MSOP, QFN, DFN	MCP4451/52	257	Volatile	4	I²C	5, 10, 50, 100	–40 to +125	TSSOP, QFN
MCP4241/42	128	Nonvolatile	2	SPI	5, 10, 50, 100	–40 to +125	MSOP, QFN, DFN	MCP4461/62	257	Nonvolatile	4	I²C	5, 10, 50, 102	–40 to +125	TSSOP, QFN
MCP4131/32	128	Volatile	1	SPI	5, 10, 50, 100	–40 to +125	QFN, DFN	MCP4531/32	128	Volatile	1	I²C	5, 10, 50, 100	–40 to +125	MSOP, DFN
MCP4231/32	128	Volatile	2	SPI	5, 10, 50, 100	–40 to +125	MSOP, QFN, DFN	MCP4631/32	128	Volatile	2	I²C	5, 10, 50, 100	–40 to +125	MSOP, DFN
MCP4151/52	256	Volatile	1	SPI	5, 10, 50, 100	–40 to +125	MSOP, QFN, DFN	MCP4541/42	128	Nonvolatile	1	I²C	5, 10, 50, 100	–40 to +125	MSOP, DFN
MCP41HV31	128	Volatile	1	SPI	5, 10, 50, 100	–40 to +125	TSSOP, QFN	MCP56HV31	128	Volatile	1	I²C	5, 10, 50, 100	–40 to +125	TSSOP, QFN
MCP41HV51	256	Volatile	1	SPI	5, 10, 50, 100	–40 to +125	TSSOP, QFN	MCP45HV51	256	Volatile	1	I²C	5, 10, 50, 100	–40 to +125	TSSOP, QFN
MCP4161/62	256	Nonvolatile	1	SPI	5, 10, 50, 100	–40 to +125	MSOP, QFN, DFN	MCP4641/42	128	Nonvolatile	2	I²C	5, 10, 50, 100	–40 to +125	MSOP, DFN
MCP4251/52	256	Volatile	2	SPI	5, 10, 50, 100	–40 to +125	MSOP, QFN, DFN	MCP4551/52	256	Volatile	1	I²C	5, 10, 50, 100	–40 to +125	MSOP, DFN
MCP4261/62	256	Nonvolatile	2	SPI	5, 10, 50, 100	–40 to +125	MSOP, QFN, DFN	MCP4651/52	256	Volatile	2	I²C	5, 10, 50, 100	–40 to +125	MSOP, DFN
MCP4341/42	129	Nonvolatile	4	SPI	5, 10, 50, 100	–40 to +125	TSSOP, QFN	MCP4561/62	256	Nonvolatile	1	I²C	5, 10, 50, 100	–40 to +125	MSOP, DFN
MCP4361/62	257	Nonvolatile	4	SPI	5, 10, 50, 100	–40 to +125	TSSOP, QFN	MCP4661/62	256	Nonvolatile	2	I²C	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**
MCP3421/2/3/4	18 to 12	4 to 240	1/2/2/4 Diff	I²C	155	–40 to +125	PGA, VREF	SOIC, TSSOP, MSOP, DFN, SOT
MCP3425/6/7/8	16 to 12	15 to 240	1/2/2/4 Diff	I²C	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 and 60 Hz Rejection	SOIC, MSOP

Mixed Signal: Successive Approximation Register (SAR) Analog-to-Digital Converters										
Product	**Resolution (bits)**	**Maximum Sampling Rate (samples/sec)**	**# of Input Channels**	**Input Type**	**Interface**	**Input Voltage Range (V)**	**Max Supply Current (µA)**	**Max INL**	**Temperature Range (°C)**	**Packages**
MCP33111D	12	1M	1	Differential	SPI	2.5 to 5.1	2250	±0.35	–40 to +85	10-pin MSOP, 10-pin TDFN
MCP33121D	14	1M	1	Differential	SPI	2.5 to 5.1	2250	±1.5	–40 to +85	10-pin MSOP, 10-pin TDFN
MCP33131D	16	1M	1	Differential	SPI	2.5 to 5.1	2250	±6	–40 to +85	10-pin MSOP, 10-pin TDFN

Mixed Signal: Pipelined Analog-to-Digital Converters											
Product	**Resolution (bits)**	**Maximum Sampling Rate (Msamples/sec)**	**# of Input Channels**	**Power Dissipation (mW)**	**Interface**	**Input Channel BW (MHz)**	**SNR (dB)**	**SFDR (dB)**	**Temperature Range (°C)**	**Features**	**Packages**
MCP37D10-200	12	200	1	338	Serial DDR LVDS or Parallel CMOS	650	67	96	–40 to +85	Digital down-converter, decimation filters, noise-shaping requantizer	124-pin VTLA, 121-pin TFBGA
MCP37210-200	12	200	1	338	Serial DDR LVDS or Parallel CMOS	650	67	96	–40 to +85	Decimation filters, noise-shaping requantizer	124-pin VTLA, 121-pin TFBGA
MCP37D11-200	12	200	8-mux, Diff	468	Serial DDR LVDS or Parallel CMOS	1.2, 1.8	71.3	90	–40 to +85	Decimation filters, digital down-converter, noise-shaping requantizer	124-pin VTLA, 121-pin TFBGA
MCP37211-200	12	200	8-mux, Diff	468	Serial DDR LVDS or Parallel CMOS	1.2, 1.8	71.3	90	–40 to +85	Decimation filters, noise-shaping requantizer	124-pin VTLA, 121-pin TFBGA
MCP37D20-200	14	200	1	348	Serial DDR LVDS or Parallel CMOS	650	67.8	96	–40 to +85	Digital down-converter, decimation filters	124-pin VTLA, 121-pin TFBGA
MCP37220-200	14	200	1	348	Serial DDR LVDS or Parallel CMOS	650	67.8	96	–40 to +85	Decimation filters, noise-shaping requanizer	124-pin VTLA, 121-pin TFBGA
MCP37D21-200	14	200	8-mux, Diff	490	Serial DDR LVDS or Parallel CMOS	1.2, 1.8	74.2	90	–40 to +85	Decimation filters, digital down-converter	124-pin VTLA, 121-pin TFBGA
MCP37221-200	14	200	8-mux, Diff	490	Serial DDR LVDS or Parallel CMOS	1.2, 1.8	74.2	90	–40 to +85	Decimation filters	124-pin VTLA, 121-pin TFBGA
MCP37D31-200	16	200	8-mux, Diff	490	Serial DDR LVDS or Parallel CMOS	500	74	90	–40 to +85	Decimation filters	124-pin VTLA, 121-pin TFBGA
MCP37231-200	16	200	8-mux, Diff	490	Serial DDR LVDS or Parallel CMOS	500	74	90	–40 to +85	Digital down-contverter, decimation filters	124-pin VTLA, 121-pin TFBGA

Interface: CAN Products				
Product	**Description and Features**	**Operating Voltage (V)**	**Operating Temperature Range (°C)**	**Packages**
ATA6560	CAN Transceiver with stand-by and silent mode, 5V I/O, CAN FD ready, 5 Mbps, AECQ100 Grade 1	4.5–5.5	–40 to +125	VDFN8, SOIC8
ATA6561	CAN Transceiver with stand-by mode, compatible with 3.3V and 5V microcontroller, CAN FD ready, 5 Mbps, AECQ100 Grade 1	4.5–5.5	–40 to +125	VDFN8, SOIC8
ATA6562	CAN Transceiver with stand-by and silent mode, 5V I/O, wake-up pattern, CAN FD ready, 5 Mbps, AECQ100 Grade 0, 1	4.5–5.5	–40 to +125/150	VDFN8, SOIC8
ATA6563	CAN Transceiver with stand-by mode, compatible with 3.3V and 5V microcontroller, wake-up pattern, CAN FD ready, 5 Mbps, AECQ100 Grade 0, 1	4.5–5.5	–40 to +1+25/150	VDFN8, SOIC8
ATA6564	CAN Transceiver with silent mode, compatible with 3.3V and 5V microcontroller, CAN FD ready, 5 Mbps, AECQ100 Grade 0, 1	4.5–5.5	–40 to +125/150	VDFN8, SOIC8
ATA6565	Dual CAN Transceiver with stand-by mode, 5V I/O, wake up pattern, CAN FD ready, 5 Mbps, AECQ100 Grade 0, 1	4.5–5.5	–40 to +125/150	VDFN14, SO14
ATA6566	CAN Transceiver with stand-by mode, compatible with 3.3V and 5V microcontroller, wake-up pattern, CAN FD ready, 2 Mbps, AECQ100 Grade 0, 1, suitable for the Japanese market	4.5–5.5	–40 to +125/150	VDFN8, SOIC8
ATA6570	CAN Partial Networking Transceiver with Wake pin and Window Watchdog, compatible with 3.3V and 5V microcontroller, wake-up pattern or wake-up frame, CAN FD ready, 5 Mbps, AECQ100 Grade 1	4.55–28	–40 to +125	SOIC14
MCP2515	Stand-Alone CAN 2.0B Controller with SPI Interface	2.7–5.5	–40 to +125	18-pin PDIP, 18-pin SOIC, 20-pin TSSOP
MCP2517FD	External CAN FD Controller with SPI Interface, ISO 11898-1:2015 Compliant, 32-bit Time Stamp, Supports CAN 2.0B and CAN FD, Highly Configurable 31 FIFOs and 32 Filters	2.7–5.5	–40 to +150	14-pin SOIC, 14-pin VDFN
MCP25625	Integrated High-Speed CAN Transceiver and CAN 2.0B Controller	2.7–5.5	–40 to +125	28-pin SSOP, 28-pin 6 × 6 QFN

Interface: LIN Products								
Product	Description	V_{REG} Output Voltage (V)	Operating Temperature Range (°C)	V_{REG} Output Current (mA)	Supply Voltage Range (V)	Max. Baud Rate	LIN Specification Supported	Packages
ATA663211	LIN Transceiver	–	–40 to +125	–	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	VDFN8, SOIC8
ATA663201	LDO, pin compatible with ATA663231 LIN SBC	3.3	–40 to +125	85	5–28	–	–	VDFN8
ATA663203	LDO, pin compatible with ATA663254 LIN SBC	5.0	–40 to +125	85	5–28	–	–	VDFN8
ATA663231	LIN Transceiver with integrated V_{REG}, pinout acc. to OEM hardware recommendation	3.3	–40 to +125	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	VDFN8
ATA663254	LIN Transceiver with integrated V_{REG}, pinout acc. to OEM hardware recommendation	5.0	–40 to +125	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	VDFN8, SOIC8
ATA663232	LIN Transceiver with integrated V_{REG} and Wake Pin, pinout acc. to OEM hardware recommendation	3.3	–40 to +125	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	VDFN8
ATA663255	LIN Transceiver with integrated V_{REG} and Wake Pin, pinout acc. to OEM hardware recommendation	5.0	–40 to +125	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	VDFN8
ATA6625	LIN Transceiver with integrated V_{REG}, classic pinout	5.0	–40 to +125	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	VDFN8, SOIC8
ATA663331	LIN Transceiver with integrated V_{REG} and 2 relay driver	3.3	–40 to +125	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	VDFN16
ATA663354	LIN Transceiver with integrated V_{REG} and 2 relay driver	5.0	–40 to +125	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	VDFN16
ATA663431	LIN Transceiver with integrated V_{REG} and WWDT	3.3	–40 to +125	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	VDFN16
ATA663454	LIN Transceiver with integrated V_{REG} and WWDT	5.0	–40 to +125	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	VDFN16
ATSAMHA1G14A	LIN System-in-Package (SiP) Solution incl. Arm® Cortex® M0+ MCU, 16 KB Flash memory	3.3	–40 to +85	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	QFN48
ATSAMHA1G15A	LIN System-in-Package (SiP) Solution incl. Arm Cortex M0+ MCU, 32 KB Flash memory	3.3	–40 to +85	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	QFN48
ATSAMHA1G16A	LIN System-in-Package (SiP) Solution incl. Arm Cortex M0+ MCU, 64 KB Flash memory	3.3	–40 to +85	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	QFN48
ATSAMHA1E14A	LIN System-in-Package (SiP) Solution incl. Arm Cortex M0+ MCU, 16 KB Flash memory	3.3	–40 to +85	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	QFN32
ATSAMHA1E15A	LIN System-in-Package (SiP) Solution incl. Arm Cortex M0+ MCU, 32 KB Flash memory	3.3	–40 to +85	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	QFN32
ATSAMHA1E16A	LIN System-in-Package (SiP) Solution incl. Arm Cortex M0+ MCU, 64 KB Flash memory	3.3	–40 to +85	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	QFN32
ATSAMHA0E14A	LIN System-in-Package (SiP) Solution incl. Arm Cortex M0+ MCU, 16 KB Flash memory	3.3	–40 to +105	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	QFN32
ATSAMHA0E15A	LIN System-in-Package (SiP) Solution incl. Arm Cortex M0+ MCU, 32 KB Flash memory	3.3	–40 to +105	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	QFN32
ATSAMHA0E16A	LIN System-in-Package (SiP) Solution incl. Arm Cortex M0+ MCU, 64 KB Flash memory	3.3	–40 to +105	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	QFN32
ATSAMHA0G14A	LIN System-in-Package (SiP) Solution incl. Arm Cortex M0+ MCU, 16 KB Flash memory	3.3	–40 to +105	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	QFN48
ATSAMHA0G15A	LIN System-in-Package (SiP) Solution incl. Arm Cortex M0+ MCU, 32 KB Flash memory	3.3	–40 to +105	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	QFN48
ATSAMHA0G16A	LIN System-in-Package (SiP) Solution incl. Arm Cortex M0+ MCU, 64 KB Flash memory	3.3	–40 to +105	85	5–28	20 kBaud	2.0, 2.1, 2.2, 2.2A, SAEJ2602-2	QFN48

Ultrasound: T/R Switch ICs							
Product	Number of Channels	Voltage (V)	RSW	Diode Clamps	VTRIP (V)	BW (MHz)	Packages
MD0100	1 or 2	±100	15	No	±2.0	100	3-pin SOT-89, 8-pin VDFN
MD101	4	±100	15	Yes	±2.0	100	18-pin VDFN
MD0105	4	±100	15	Yes	±2.0	100	18-pin VDFN

Ultrasound: Arbitrary Waveform Generator							
Product	Resolution	Amplitude Control	Apodization	Input Voltage (V)	Typical Delay Time (ns)	Output Current (A)	Packages
MD2131	7.5° Phase	PWM	8-bit SPI	2.5	4	0–3.0	40-pin WQFN
MD2134	±127 steps	PWM	8-bit SPI	2.5	4	0–3.0	40-pin WQFN

Ultrasound: High-Voltage Analog Switches/MUXes								
Product	Number of Channels	Config.	Supply Voltage (V)	Analog Signal Voltage (V)	Switch Current (A)	Switch on Resistance (Ω)	Output Resistors	Packages
HV2201	8	8-SPST	200	180	±2	16	No	28-pin PLCC, 48-pin LQFP

Ultrasound: High-Voltage Analog Switches/MUXes								
Product	Number of Channels	Config.	Supply Voltage (V)	Analog Signal Voltage (V)	Switch Current (A)	Switch on Resistance (Ω)	Output Resistors	Packages
HV2301	8	8-SPST	200	180	±2	16	Yes	28-pin PLCC, 48-pin LQFP
HV209	12	6X2:1 MUX	200	180	±2	16	Yes	48-pin LQFP
HV2631	16	16-SPST	220	200	±2	18	No	48-pin LQFP
HV2601	16	16-SPST	200	180	±2	16	No	48-pin LQFP, 0/CSP
HV2605	16	16-SPST	200	180	±2	16	No	48-pin LQFP, 0/CSP
HV2701	16	16-SPST	200	180	±2	16	Yes	48-pin LQFP, 0/CSP
HV2705	16	16-SPST	200	180	±2	16	Yes	48-pin LQFP, 0/CSP
HV2762	24	24-SPST	200	180	±2	18	Yes	64-pin VFBGA
HV2901	32	16x2:1 MUX	200	180	±2	18	Yes	64-pin QFN

Ultrasound: MOSFET Driver						
Product	Number of Drivers	Input Voltage Min. (V)	Input Voltage Max. (V)	Output Voltage Bipolar (V)	Output Voltage Unipolar (V)	Packages
MD1210	2	1.2	5	–	0–12	12-pin QFN
MD1711	12	1.8	5.5	–	0–12	48-pin LQFP, 48-pin VQFN
MD1712	12	1.8	5.5	–	0–12	48-pin LQFP, 48-pin VQFN
MD1715	2	1.8	3.6	–	0–12	40-pin VQFN
MD1810	4	1.2	5	±5.0	0–12	16-pin QFN
MD1811	4	1.2	5	±5.0	0–12	16-pin QFN
MD1820	4	1.7	5.25	±5.0	0–12	16-pin VQFN
MD1822	4	1.7	5.25	±5.0	0–12	16-pin VQFN

Ultrasound: High-Voltage Ultrasound Transmitters							
Product	Number of Channels	Output Voltage (V)	Number Output Levels	HD2 (dB)	Output Current (A)	Features	Packages
HV7321	4	±80	5	–44	±2.5	Built-in T/R switches, output protection diodes and clamp diodes	64-pin VQFN (9 x 9 mm)
HV7350	8	±60	3	–40	±1.0	Built-in floating power supplies	56-pin VQFN
HV7351	8	±70	3	–40	±3.0	Programmable launch delay, 4 transmit waveforms, clock up to 200 MHz	80-pin VQFN
HV7360	1	±100	3	–	±2.5	Built-in coupling capacitors	22-pin CABGA
HV7361	1	±100	3	–	±2.5	Built-in T/R switch, 8 capacitors	22-pin CABGA
HV748	4	±75	2	–40	±1.25	Built-in coupling, 4 current modes	48-pin VQFN

Ultrasound: MOSFET Array							
Product	BVdss/BVdss N-Channel (V)	BVdss/BVdss P-Channel (V)	Rds(on) N-Channel max (Ω)	Rds(on) P-Channel max (Ω)	Vgs(th) max (V)	Note	Package
TC6320	200	–200	7	8	2	N- and P-Channel pair	8-pin SOIC, 8-pin VDFN
TC8020	200	–200	8	9.5	3	Six N- and P-Channel pairs	56-pin VQFN
TC8220	200	–200	5.3	6.5	2	Two N- and P-Channel Pairs	12-pin VDFN

CO and Smoke Detector ICs								
Product	Horn Driver	Detection Method	Low Battery Detection	Alarm Memory	Alarm Interconnect	Hush/Sensitivity Timer	Operating Temperature Range (°C)	Packages
RE46C191	Yes	Photo	Yes	Yes	Yes	Yes	–10 to +60	16-pin SOIC
RE46C317/8	Yes	Just Driver	No	No	No	No	–10 to +60	PDIP, SOIC
RE46C803	Yes	CO	No	No	No	No	–10 to +60	20-pin SSOP

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	Operating Temp. Range (°C)	Features	Packages
ATA6826C	DC Motor	7 to 40	Internal	1000	SPI	N/A	Short Circuit, Overtemperature, Power Supply Fail	–40 to 125	3 half bridge outputs, No shoot-through, Very low quiescent current <2 µA	SO14
ATA6831C(2C)	DC Motor	7 to 40	Internal	1000	SPI	N/A	Short Circuit, Overtemperature, Power Supply Fail	–40 to 125 (150)	3 half bridge outputs, No shoot through, Very low quiescent current <2 µA, PWM input	18-pin 4 x 4 QFN
ATA6836C(8C)	DC Motor	7 to 40	Internal	650 (950)	SPI	N/A	Short Circuit, Overtemperature, Power Supply Fail	–40 to 125	6 half bridge outputs, No shoot through, Very low quiescent current <2 µA	24-pin 5 x 5 QFN, SO28
ATA6823C(4C)	DC Motor	7 to 20	Internal	100	PWM, DIR	N/A	Short Circuit, Overtemperature, Over/Under Voltage, Chargepump Fail	–40 to 125 (150)	Dead time adjust, Charge pump supply for external battery reverse protection NMOS, LDO 3.3V/5V, Window Watchdog, LIN TRX (HV interface)	32-pin 7 x 7 QFN, 32-pin 7 x 7 TQFP
MCP8026	3-Phase Brushless Motors	6 to 28	External	500	Direct PWM	N/A	Overcurrent, Overvoltage, Undervoltage, Overtemperature, 48V Load Dump Protection, Short Circuit, Shoot Through	–40 to +150	3 Op Amps, Adj. Buck Regulator, 5V LDO, 12V LDO, Thermal Warning, Dead Time, Blanking Time, Level Translator, Motor Enable, Sleep Mode (MCP8026)	40-pin 5 × 5 QFN, 48-pin 7 × 7 TQFP
MCP8025A	3-Phase Brushless Motor	6 to 19	External	500	Direct PWM	N/A	Overcurrent, Overvoltage, Undervoltage, Overtemperature, 48V Load Dump Protection, Short Circuit, Shoot Through	–40 to +150	Sleep Mode, LIN Transceiver, AZ Output, Adj. Buck Regulator, LDO, Op Amp, Overcurrent Comparator, Fault Output, Thermal Warning, Selectable Dead Time and Blanking Time	40-pin 5 × 5 QFN, 48-pin 7 × 7 TQFP
MTS62C19A/ MTS2916A	One Bipolar Stepper Motor or Two DC Motors	10 to 40	Internal	750	Direct PWM Input, Current Limit Control, Microstepping	No	Overtemperature, Under Voltage	–40 to +105	Dual Full-Bridge Motor Driver for Stepper Motors, Pin Compatible with Allegro 6219	24-pin SOIC
MCP8063	3-Phase Brushless Motor	2 to 14	Internal	750	Sensorless Sinusoidal	Frequency Generator	Overtemperature, Motor Lock-up, Overcurrent, Overvoltage	–40 to +125	3-Phase BLDC 180° Sinusoidal Sensorless Fan Motor Driver, Overcurrent limitation, Output Switching Frequency at 23 kHz	Thermally Enhanced 8-pin 4 × 4 DFN
MTD650X	3-Phase Brushless Motor	2 to 14 (5,5)	Internal	500-800	Sensorless Sinusoidal	Frequency Generator	Overtemperature, Motor Lock-up, Overcurrent, Overvoltage	–30 (–40) to +95 (125)	3-Phase BLDC 180° Sinusoidal Sensorless Drive, Direction Control, Programmable BEMF Coefficient Range, 20 kHz+ Output Switching Frequency, Programmable Start-up RPM and Slew Rate, Selectable Start-up Strength and Phase Target Regulation	SOP, DFN, QFN

Oscillators: Ultra-Low-Power MEMS									
Product	Output Frequency (MHz)	Output Logic	Pin-1 function	Frequency Stability (ppm)	Temperature Range (°C)	Supply Voltage (V)	Current (mA)	Period Jitter (ps RMS)	Package
DSC6001	1–80	LVCMOS	Output Enable	±25, ±50	–40 to 85	1.71 to 3.63	1.3	10	1.6 x 1.2 mm 4-pin 2.0 x 1.6 mm 4-pin 2.5 x 2.0 mm 4-pin 3.2 x 2.5 mm 4-pin
DSC6003	1–80	LVCMOS	Output Enable	±25, ±50	–40 to 85	1.71 to 3.63	1.3	10	
DSC6011	1–80	LVCMOS	Standby	±25, ±50	–40 to 85	1.71 to 3.63	1.3	10	
DSC6013	1–80	LVCMOS	Standby	±25, ±50	–40 to 85	1.71 to 3.63	1.3	10	
DSC6021	1–80	LVCMOS	Frequency Select	±25, ±50	–40 to 85	1.71 to 3.63	1.3	10	
DSC6023	1–80	LVCMOS	Frequency Select	±25, ±50	–40 to 85	1.71 to 3.63	1.3	10	
DSC6101	1–100	LVCMOS	Output Enable	±25, ±50	–40 to 85	1.71 to 3.63	3.0	7.0	
DSC6102	1–100	LVCMOS	Output Enable	±25, ±50	–40 to 85	1.71 to 3.63	3.0	7.0	
DSC6111	1–100	LVCMOS	Standby	±25, ±50	–40 to 85	1.71 to 3.63	3.0	7.0	
DSC6112	1–100	LVCMOS	Standby	±25, ±50	–40 to 85	1.71 to 3.63	3.0	7.0	
DSC6121	1–100	LVCMOS	Frequency Select	±25, ±50	–40 to 85	1.71 to 3.63	3.0	7.0	
DSC6122	1–100	LVCMOS	Frequency Select	±25, ±50	–40 to 85	1.71 to 3.63	3.0	7.0	
DSC6081	0.002–1	LVCMOS	kHz Clock Output	±25, ±50	–40 to 85	1.71 to 3.63	1.2	–	
DSC6083	0.002–2	LVCMOS	kHz Clock Output	±25, ±50	–40 to 85	1.71 to 3.63	1.2	–	

Oscillators: Low-Power MEMS									
Product	Output Frequency (MHz)	Output Logic	Pin-1 Function	Frequency Stability (ppm)	Temperature Range (°C)	Supply Voltage (V)	Current (mA)	Period Jitter (ps RMS)	Package
DSC1001	1–170	LVCMOS	Standby	±10; ±25; ±50	–40 to 105	1.62 to 3.63	5.0	6.0	2.5 x 2.0 mm 4-pin 3.2 x 2.5 mm 4-pin 5.0 x 3.2 mm 4-pin 7.0 x 5.0 mm 4-pin
DSC1003	1–170	LVCMOS	Standby	±10; ±25; ±50	–40 to 105	1.62 to 3.63	6.0	5.0	
DSC1004	1–170	LVCMOS	Standby	±10; ±25; ±50	–40 to 105	1.62 to 3.63	7.0	5.0	
DSC1018	1–150	LVCMOS	Standby	±25; ±50	–40 to 85	1.8 ±10%	3.0	12.5	
DSC1025	1–150	LVCMOS	Standby	±25; ±50	–40 to 85	2.5 ±10%	3.0	12.5	
DSC1028	1–150	LVCMOS	Standby	±25; ±50	–40 to 85	2.8 ±10%	3.0	12.5	
DSC1030	1–150	LVCMOS	Standby	±25; ±50	–40 to 85	3.0 ±10%	3.0	12.5	
DSC1033	1–150	LVCMOS	Standby	±25; ±50	–40 to 85	3.3 ±10%	3.0	12.5	

Oscillators: Low Jitter MEMS							
Product	Output Frequency (MHz)	Output Logic	Frequency Stability (ppm)	Temperature Range (°C)	Supply Voltage (V)	Phase Noise (ps RMS)	Package
DSC1101	2.3–170	LVCMOS	±10; ±25; ±50	–55 to +125	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	
DSC1102	2.3–460	LVPECL	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	
DSC1103	2.3–460	LVDS	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	2.5 x 2.0 mm 6-pin
DSC1104	2.3–460	HCSL	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	3.2 x 2.5 mm 6-pin
DSC1121	2.3–170	LVCMOS	±10; ±25; ±50	–55 to +125	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	5.0 x 3.2 mm 6-pin
DSC1122	2.3–460	LVPECL	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	7.0 x 5.0 mm 6-pin
DSC1123	2.3–460	LVDS	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	
DSC1124	2.3–460	HCSL	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	
DSC2010	2.3–170	LVCMOS	±10; ±25; ±50	–55 to +125	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	3.2 x 2.5 mm 14-pin
DSC2020	2.3–460	LVPECL	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	3.2 x 2.5 mm 14-pin
DSC2030	2.3–460	LVDS	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	3.2 x 2.5 mm 14-pin
DSC2040	2.3–460	HCSL	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	3.2 x 2.5 mm 14-pin
DSC2110	2.3–170	LVCMOS	±10; ±25; ±50	–55 to +125	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	3.2 x 2.5 mm 14-pin
DSC2120	2.3–460	LVPECL	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	3.2 x 2.5 mm 14-pin
DSC2130	2.3–460	LVDS	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	3.2 x 2.5 mm 14-pin
DSC2140	2.3–460	HCSL	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	3.2 x 2.5 mm 14-pin
DSC2210	2.3–170	LVCMOS	±10; ±25; ±50	–55 to +125	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	3.2 x 2.5 mm 14-pin
DSC2220	2.3–460	LVPECL	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	3.2 x 2.5 mm 14-pin
DSC2230	2.3–460	LVDS	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	3.2 x 2.5 mm 14-pin
DSC2240	2.3–460	HCSL	±10; ±25; ±50	–40 to +105	2.25–3.63	0.3 (200k-20M)/1.7 (12k to 20M)	3.2 x 2.5 mm 14-pin

Oscillators: Ultra-Low Jitter								
Product	Output Frequency (MHz)	Output Logic	Input Function	Frequency Stability (ppm)	Temperature Range (°C)	Supply Voltage (V)	Phase Noise (ps RMS)	Package
MX57	10 to 860	LVCMOS, LVPECL, LVDS, HCSL	OE on Pin1 or OE on pin2	±50	–40 to 85	2.375 to 3.63	0.16 (12k–20M)	7.0 x 5.0 mm 6-pin
MX55	10 to 860	LVCMOS, LVPECL, LVDS, HCSL	OE on Pin1 or OE on pin3	±50	–40 to 85	2.375 to 3.63	0.16 (12k–20M)	5.0 x 3.2 mm 6-pin
MX574BBD322M265	322.265625	HCSL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.143/0.098	7.0 x 5.0 mm 6-pin
MX555ANR133M333	133.3333	LVPECL	OE on pin2	±50	–40 to 85	2.375 to 3.63	0.143/0.092	5.0 x 3.2 mm 6-pin
MX553BBA156M250	156.25	LVPECL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.165/0.11	5.0 x 3.2 mm 6-pin
MX553BBB156M250	156.25	LVDS	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.162/0.093	5.0 x 3.2 mm 6-pin
MX573BBA156M250	156.25	LVPECL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.165/0.11	7.0 x 5.0 mm 6-pin
MX553BBA312M500	312.5	LVPECL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.155/0.108	5.0 x 3.2 mm 6-pin
MX575ABA25M0000	25	LVPECL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.152/0.088	7.0 x 5.0 mm 6-pin
MX573LBB148M500	148.5	LVDS	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.149/0.096	7.0 x 5.0 mm 6-pin
MX555ABD100M000	100	HCSL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.22/0.1	5.0 x 3.2 mm 6-pin
MX573NBA622M080	622.08	LVPECL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.148/0.103	7.0 x 5.0 mm 6-pin
MX573BBB156M250	156.25	LVDS	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.162/0.093	5.0 x 3.2 mm 6-pin
MX554BBD322M265	322.265625	HCSL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.154/0.1	5.0 x 3.2 mm 6-pin
MX574BBD322M265	322.265625	HCSL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.154/0.1	7.0 x 5.0 mm 6-pin
MX573BBA312M500	312.5	LVPECL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.148/0.103	7.0 x 5.0 mm 6-pin
MX573BBB312M500	312.5	LVDS	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.175/0.08	7.0 x 5.0 mm 6-pin
MX555ABA25M0000	25	LVPECL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.152/0.08	5.0 x 3.2 mm 6-pin
MX575ABB200M000	200	LVDS	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.22/0.1	7.0 x 5.0 mm 6-pin
MX555ABB200M000	200	LVDS	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.22/0.1	5.0 x 3.2 mm 6-pin
MX575ABC200M000	200	LVCMOS	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.128/0.089	7.0 x 5.0 mm 6-pin
MX575ABC125M000	125	LVCMOS	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.128/0.089	7.0 x 5.0 mm 6-pin
MX553ABB212M500	212.5	LVDS	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.175/0.08	5.0 x 3.2 mm 6-pin
MX573ABA212M500	212.5	LVPECL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.175/0.08	7.0 x 5.0 mm 6-pin
MX555ABA150M000	150	LVPECL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.143/0.098	5.0 x 3.2 mm 6-pin
MX575ABD100M000	100	HCSL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.22/0.1	7.0 x 5.0 mm 6-pin
MX555ABD100M000	100	HCSL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.22/0.1	5.0 x 3.2 mm 6-pin

Oscillators: Ultra-Low Jitter								
Product	Output Frequency (MHz)	Output Logic	Input Function	Frequency Stability (ppm)	Temperature Range (°C)	Supply Voltage (V)	Phase Noise (ps RMS)	Package
MX575ABA100M000	100	LVPECL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.152, 0.112	7.0 x 5.0 mm 6-pin
MX555ABC50M0000	50	LVCMOS	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.142, 0.1	5.0 x 3.2 mm 6-pin
MX575ABC50M0000	50	LVCMOS	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.142, 0.1	7.0 x 5.0 mm 6-pin
MX555ABA50M0000	50	LVPECL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.142, 0.101	5.0 x 3.2 mm 6-pin
MX575ABA50M0000	50	LVPECL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.142, 0.101	7.0 x 5.0 mm 6-pin
MX555ABC25M0000	25	LVCMOS	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.131, 0.077	5.0 x 3.2 mm 6-pin
MX575ABC25M0000	25	LVCMOS	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.131, 0.077	7.0 x 5.0 mm 6-pin
MX574BBF644M531	644.53125	LVPECL	OE on pin1	±50	–40 to 85	2.375 to 3.63	0.139, 0.101	7.0 x 5.0 mm 6-pin

Oscillators: High-Frequency TCXO							
Product	Output Frequency (MHz)	Output Logic	Frequency Stability (ppm)	Temperature Range (°C)	Supply Voltage (V)	Phase Noise (ps RMS)	Package
MXT57	10 to 860	LVCMOS, LVPECL, LVDS, HCSL	±2.5/±5.0	–40 to 85	2.375 to 3.63	0.5	7.0 x 5.0 mm 6-pin
MXT573ABA200M000	200	LVPECL	±2.5	–40 to 85	2.375 to 3.63	0.5	7.0 x 5.0 mm 6-pin
MXT573ABC250M000	250	LVCMOS	±2.5	–40 to 85	2.375 to 3.63	0.5	7.0 x 5.0 mm 6-pin
MXT573ABA250M000	250	LVPECL	±2.5	–40 to 85	2.375 to 3.63	0.5	7.0 x 5.0 mm 6-pin
MXT573ABB156M250	156.25	LVDS	±2.5	–40 to 85	2.375 to 3.63	0.5	7.0 x 5.0 mm 6-pin
MXT573ABC200M000	200	LVCMOS	±2.5	–40 to 85	2.375 to 3.63	0.5	7.0 x 5.0 mm 6-pin

Oscillators: Multi-Output OSC							
Product	Output Frequency (MHz)	Output	Frequency Stability (ppm)	Temperature Range (°C)	Supply Voltage (V)	Phase Noise (ps RMS)	Package
DSC2311	2.3 to 170	LVCMOS x2	±25 ppm/±50 ppm	–55 to 125	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	2.5 x 2.0 mm 6-pin
DSC2011	2.3 to 170	LVCMOS x2	±25 ppm/±50 ppm	–55 to 125	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2021	2.3 to 460	LVPECL + LVCMOS	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2031	2.3 to 460	LVDS + LVCMOS	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2041	2.3 to 460	HCSL + LVCMOS	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2022	2.3 to 460	LVPECL x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2032	2.3 to 460	LVDS + LVPECL	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2042	2.3 to 460	HCSL + LVPECL	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2033	2.3 to 460	LVDS x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2043	2.3 to 460	HSCL + LVDS	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2044	2.3 to 460	HCSL x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2111	2.3 to 460	LVCMOS x2	±25 ppm/±50 ppm	–55 to 125	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2122	2.3 to 460	LVPECL x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2133	2.3 to 460	LVDS x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2144	2.3 to 460	HCSL x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2211	2.3 to 460	LVCMOS x2	±25 ppm/±50 ppm	–55 to 125	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2222	2.3 to 460	LVPECL x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2233	2.3 to 460	LVDS x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC2244	2.3 to 460	HCSL x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	3.2 x 2.5 mm 14-pin
DSC400-1111	2.3 to 460	LVCMOS x4	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	5.0 x 3.2 mm 20-pin
DSC400-2222	2.3 to 460	LVPECL x4	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	5.0 x 3.2 mm 20-pin
DSC400-3333	2.3 to 460	LVDS x4	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	5.0 x 3.2 mm 20-pin
DSC400-4444	2.3 to 460	HCSL x4	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k–20M), 1.7 (12k–20M)	5.0 x 3.2 mm 20-pin
MX852	2.3 to 460	LVPECL, LVDS, HCSL x5 or LVCMOS x10	±25 ppm/±50 ppm	–40 to 85	2.25 to 3.63	0.2 (12k–20M)	5.0 x 7.0 mm 38-pin
MX852BB0030	156.25	HCSL x5	±25 ppm/±50 ppm	–40 to 85	2.25 to 3.63	0.162 (12k–20M), 0.087 (1.875M–20M)	5.0 x 7.0 mm 38-pin
MX852EB0027	100	HCSL x5	±25 ppm/±50 ppm	–40 to 85	2.25 to 3.63	0.2 (12k–20M), 0.1 (1.875M–20M)	5.0 x 7.0 mm 38-pin
MX852EH0140	156.25/25	LVPECL x5	±25 ppm/±50 ppm	–40 to 85	2.25 to 3.63	0.263 (12k–20M)	5.0 x 7.0 mm 38-pin
MX852BB0141	156.25	HCSL x4	±25 ppm/±50 ppm	–40 to 85	2.25 to 3.63	0.162 (12k–20M), 0.073 (1.875M–20M)	5.0 x 7.0 mm 38-pin
MX852EB0102	25	LVCMOS x4	±25 ppm/±50 ppm	–40 to 85	2.25 to 3.63	0.219 (12k–20M), 0.08 (1.875M–20M)	5.0 x 7.0 mm 38-pin
MX852BB0084	156.25	LVPECL x3, LVCMOS x2	±25 ppm/±50 ppm	–40 to 85	2.25 to 3.63	0.2 (12k–20M), 0.1 (1.875M–20M)	5.0 x 7.0 mm 38-pin
MX852AB0070	155.52	LVPECL x5	±25 ppm/±50 ppm	–40 to 85	2.25 to 3.63	0.2 (12k–20M), 0.1 (1.875M–20M)	5.0 x 7.0 mm 38-pin

Oscillators: Programmable OSC						
Product	**Output Frequency (MHz)**	**Output Logic**	**Temperature Range (°C)**	**Supply Voltage (V)**	**Current (mA)**	**Package**
DSC8001	1–170	LVCMOS	–40 to 105	1.62 to 3.63	5.0	2.5 x 2.0 mm 4-pin
DSC8002	1–150	LVCMOS	–40 to 85	1.62 to 3.63	3.0	3.2 x 2.5 mm 4-pin
DSC8003	1–170	LVCMOS	–40 to 105	1.62 to 3.63	6.0	5.0 x 3.2 mm 4-pin
DSC8004	1–170	LVCMOS	–40 to 105	1.62 to 3.63	7.0	7.0 x 5.0 mm 4-pin
DSC8101	2.3–170	LVCMOS	–55 to 125	2.25 to 3.63	25	
DSC8102	2.3–460	LVPECL	–40 to 105	2.25 to 3.63	51	
DSC8103	2.3–460	LVDS	–40 to 105	2.25 to 3.63	29	2.5 x 2.0 mm 6-pin
DSC8104	2.3–460	HCSL	–40 to 105	2.25 to 3.63	30	3.2 x 2.5 mm 6-pin
DSC8121	2.3–170	LVCMOS	–55 to 125	2.25 to 3.63	25	5.0 x 3.2 mm 6-pin
DSC8122	2.3–460	LVPECL	–40 to 105	2.25 to 3.63	51	7.0 x 5.0 mm 6-pin
DSC8123	2.3–460	LVDS	–40 to 105	2.25 to 3.63	29	
DSC8124	2.3–460	HCSL	–40 to 105	2.25 to 3.63	30	
DSC6001-000.0000	1–80	LVCMOS	–40 to 85	1.71 to 3.63	1.3	
DSC6003-000.0000	1–80	LVCMOS	–40 to 85	1.71 to 3.63	1.3	
DSC6011-000.0000	1–80	LVCMOS	–40 to 85	1.71 to 3.63	1.3	
DSC6013-000.0000	1–80	LVCMOS	–40 to 85	1.71 to 3.63	1.3	
DSC6021-000.0000	1–80	LVCMOS	–40 to 85	1.71 to 3.63	1.3	
DSC6023-000.0000	1–80	LVCMOS	–40 to 85	1.71 to 3.63	1.3	1.6 x 1.2 mm 4-pin
DSC6101-000.0000	1–100	LVCMOS	–40 to 85	1.71 to 3.63	3.0	2.0 x 1.6 mm 4-pin
DSC6102-000.0000	1–100	LVCMOS	–40 to 85	1.71 to 3.63	3.0	2.5 x 2.0 mm 4-pin
DSC6111-000.0000	1–100	LVCMOS	–40 to 85	1.71 to 3.63	3.0	3.2 x 2.5 mm 4-pin
DSC6112-000.0000	1–100	LVCMOS	–40 to 85	1.71 to 3.63	3.0	
DSC6121-000.0000	1–100	LVCMOS	–40 to 85	1.71 to 3.63	3.0	
DSC6122-000.0000	1–100	LVCMOS	–40 to 85	1.71 to 3.63	3.0	
DSC6081-000.0000	0.002–1	LVCMOS	–40 to 85	1.71 to 3.63	1.2	
DSC6083-000.0000	0.002–1	LVCMOS	–40 to 85	1.71 to 3.63	1.2	

Oscillators: Oscillator Die						
Product	**Function**	**Input Frequency Range (MHz)**	**Output Frequency Range (MHz)**	**Pull Range (±PPM)**	**Output Logic**	**Package**
PL500-15	VCXO, Non-Multiplier	16–36	1–4	150	LVCMOS	Die, SOT23-6L, SOP-8L
PL500-16	VCXO, Non-Multiplier	16–36	4–18	150	LVCMOS	Die, SOT23-6L, SOP-8L
PL500-17	VCXO, Non-Multiplier	17–36	17–36	150	LVCMOS	Die, SOT23-6L, SOP-8L
PL500-37	VCXO, Non-Multiplier	36–130	36–130	150	LVCMOS	Die, SOT23-6L, SOP-8L
PL520-20	VCXO, Non-Multiplier	100–200	100	100	LVCMOS, LVPECL, LVDS	Die
PL520-30	VCXO, Non-Multiplier	65–130	65	100	LVPECL, LVDS	Die
PL520-80	VCXO, Non-Multiplier	19–65	9.5	100	LVPECL, LVDS	Die
PL502-00	VCXO Multiplier	12–25	12–200	250	LVCMOS	Die
PL502-30	VCXO Multiplier	12–25	0.75–800	150	LVCMOS, LVPECL, LVDS	Die
PL520-00	VCXO Multiplier	100–200	100–1000	100	LVCMOS, LVPECL, LVDS	Die
PL565-08	VCXO Multiplier	150–200	600–800	120	LVPECL	Die
PL560-08	VCXO Multiplier	62.5–150	250–600	120	LVPECL	Die
PL565-68	VCXO Multiplier	62.5–160	250–320	120	LVPECL	Die
PL565-37	VCXO Multiplier	30–62.5	120–250	120	LVCMOS	Die
PL565-38	VCXO Multiplier	30–62.5	120–250	120	LVPECL	Die
PL560-47	VCXO Multiplier	30–80	60–160	120	LVCMOS	Die
PL560-48	VCXO Multiplier	30–80	60–160	120	LVPECL	Die
PL663-18	XO Multiplier (x2)	75–140	150–280		LVPECL	Die, QFN-16L, TSSOP-16L
PL663-28	XO Multiplier (x2)	140–160	280–320		LVPECL	Die, QFN-16L, TSSOP-16L
PL663-29	XO Multiplier (x2)	100–160	200–320		LVDS	Die, QFN-16L, TSSOP-16L

Oscillators: Oscillator Die						
Product	**Function**	**Input Frequency Range (MHz)**	**Output Frequency Range (MHz)**	**Pull Range (±PPM)**	**Output Logic**	**Package**
PL620-20	XO Non-Multiplier	100–200	100–200		LVPECL, LVDS	Die
PL620-21	XO Non-Multiplier	100–200	100–200		LVPECL, LVDS	Die
PL620-30	XO Multiplier	32.5–130	32.5–130		LVPECL, LVDS	Die
PL620-80	XO Multiplier	19–65	9.5–65		LVCMOS, LVPECL, LVDS	Die
PL602-00	XO Multiplier	12–25	12–200		LVCMOS	Die
PL620-00	XO Multiplier	100–200	100–800		LVCMOS, LVPECL, LVDS	Die
PL610 Series	XO	10–60	0.02–60		LVCMOS	Die
PL610-01	Programmable	10–130	10–13		LVCMOS	
PL610-32	XO 32 kHz, with 516 Divider	16.777216	0.032768		LVCMOS	Die
PL610-32A	XO 32 kHz, with 516 Divider	16.777216	0.032768		LVCMOS	Die
PL610-33	XO 32 kHz, with 794 Divider	26.017792	0.032768		LVCMOS	Die
PL611s-02	Programmable	10–50	2–200		LVCMOS	Die
PL611s-03	Programmable		2–200		LVCMOS	Die
PL611s-04	Programmable	10–50	2–200		LVCMOS	Die

Clock Generators: Ultra-Low Jitter MEMS								
Product	**Functionality**	**Typ Phase Jitter 12 kHz to 20 MHz**	**Input Frequency Crystal (MHz)**	**Input Frequency Reference (MHz)**	**Output Frequency Range (MHz)**	**# of Outputs**	**Output Logic**	**Package Size**
SM802xxx	8 programmable ouptuts	220 fs	11–30	11–80	11–840	up to 8	PECL, LVDS, HCSL, CMOS	16-44-pin QFN
SM803xxx	12 programmable ouptuts	180 fs	12–50	12–850	12–850	up to 12	PECL, LVDS, HCSL, CMOS	48-pin, 76-pin QFN
SM813xxx	12 programmable ouptuts	115 fs	31.25–156.250	12–850	12–850	up to 12	PECL, LVDS, HCSL, CMOS	48-pin, 76-pin QFN
SM802283UMG	8 outputs 100 MHz for PCIe Gen 1, 2, 3, and 4	245 fs	25	25	100	8	HCSL	44-pin QFN
SM802355UMG	2 outputs 156.25 MHz	262 fs	25		156.25	2		16-pin QFN
SM802272UMG	8 outputs 156.25 MHz	262 fs	25	25	156.25	8		44-pin QFN
SM813005UMG	8 outputs 156.25 MHz 150 fs Max Phase Jitter 12 kHz to 20 MHz	105 fs	31.25		156.25	12	PECL	48-pin QFN
SM803285UMG	5–100 MHz 5-156.25 MHz outputs	180 fs	31.25		100–156.25	10	HCSL	48-pin QFN
MX85XXXX	Integrated crystal, 5 programmable outputs	220 fs	Internal	Internal	11-840	up to 5	PECL, LVDS, HCSL, CMOS	5 × 7
MX852BB0030	Integrated crystal, 5 HCSL outputs at 156.25 MHz	220 fs	Internal	Internal	156.25	5	HCSL	5 × 7
MX852EB0027	Integrated crystal, 5 HCSL outputs at 100 MHz	220 fs	Internal	Internal	100	5	HCSL	5 × 7
MX852BB0020	Integrated crystal, 5 PECL outputs at 156.25 MHz	200 fs	Internal	Internal	156.25	5	HCSL	5 × 7
SM843256KA	Pin-selectable frequencies for Gigabit, SAS/SATA, SONET	251 fs	19.44–25		156.25, 150, 625, 125, 312.5, 125, 311.04, 622.08	6	PECL	24-pin TSSOP
SM844256KA	Pin-selectable frequencies for Gigabit, SAS/SATA, SONET	251 fs	19.44–25		156.25, 150, 625, 125, 312.5, 125, 311.04, 622.08	6	PECL	24-pin TSSOP
PL602-03	XO Multiplier	3 ps	12	25	48–100	1	LVCMOS	SOP-8L, TSSOP-8L
PL602-04	XO Multiplier	3 ps	12	25	96–200	1	LVCMOS	SOP-8L, TSSOP-8L
PL602-37	XO Multiplier	2.4 ps	12	25	0.75–800	1	LVCMOS	QFN-16L, TSSOP-16L
PL602-38	XO Multiplier	2.4 ps	12	25	0.75–800	1	LVPECL	QFN-16L, TSSOP-16L
PL602-39	XO Multiplier	2.4 ps	12	25	0.75–800	1	LVDS	QFN-16L, TSSOP-16L

Clock Generators: Low-Jitter MEMS							
Product	**Output Frequency (MHz)**	**Output**	**Frequency Stability (ppm)**	**Temperature Range (°C)**	**Supply Voltage (V)**	**Phase Noise (ps RMS)**	**Package**
DSC2311	2.3 to 170	LVCMOS x2	±25 ppm/±50 ppm	–55 to 125	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	2.5 x 2.0 mm 6-pin
DSC2011	2.3 to 170	LVCMOS x2	±25 ppm/±50 ppm	–55 to 125	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2021	2.3 to 460	LVPECL + LVCMOS	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2031	2.3 to 460	LVDS + LVCMOS	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2041	2.3 to 460	HCSL + LVCMOS	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2022	2.3 to 460	LVPECL x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2032	2.3 to 460	LVDS + LVPECL	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2042	2.3 to 460	HCSL + LVPECL	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2033	2.3 to 460	LVDS x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2043	2.3 to 460	HSCL + LVDS	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2044	2.3 to 460	HCSL x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin

Clock Generators: Low-Jitter MEMS							
Product	**Output Frequency (MHz)**	**Output**	**Frequency Stability (ppm)**	**Temperature Range (°C)**	**Supply Voltage (V)**	**Phase Noise (ps RMS)**	**Package**
DSC2111	2.3 to 460	LVCMOS x2	±25 ppm/±50 ppm	–55 to 125	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2122	2.3 to 460	LVPECL x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2133	2.3 to 460	LVDS x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2144	2.3 to 460	HCSL x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2211	2.3 to 460	LVCMOS x2	±25 ppm/±50 ppm	–55 to 125	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2222	2.3 to 460	LVPECL x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2233	2.3 to 460	LVDS x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC2244	2.3 to 460	HCSL x2	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	3.2 x 2.5 mm 14-pin
DSC400-1111	2.3 to 460	LVCMOS x4	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	5.0 x 3.2 mm 20-pin
DSC400-2222	2.3 to 460	LVPECL x4	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	5.0 x 3.2 mm 20-pin
DSC400-3333	2.3 to 460	LVDS x4	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	5.0 x 3.2 mm 20-pin
DSC400-4444	2.3 to 460	HCSL x4	±25 ppm/±50 ppm	–40 to 105	2.25 to 3.63	0.3 (200k-20M), 1.7 (12k-20M)	5.0 x 3.2 mm 20-pin

Clock Generation: Low Power								
Product	**Function**	**Input Frequency Crystal (MHz)**	**Input Frequency Reference (MHz)**	**Output Frequency Range (MHz)**	**# of Outputs**	**Current**	**Voltage**	**Package**
PL610-01	XO, Programmable 6-bit Odd/Even Divider	10–130	1–130	0.16–130	≤2	V_{DD} = 1.8V, 26 MHz, Load = 15 pF, 1.2 mA	1.8V ~ 3.3V	DFN-6L, SOT23-6L
PL610-32	XO 32 kHz, with 512 Divider	10–40	32.768 kHz	0.0195–0.0781	1	V_{DD} = 1.8V, 32.768 kHz output, CL = 15 pF, 0.2 mA	1.8V ~ 3.3V	DFN-6L, SOT23-6L
PL611-01	Programmable, OE, or FSEL, or CLK2	10–30	1–200	1–200	≤3	At CLK0 = CLK1, 10 MHz, load = 15 pF on each clock, 15 mA	2.5V, 3.3V	SOP-8L, SOT23-6L
PL611-30	Programmable, SE or Diff	10–30	1–200	5–400	≤3	At CLK0 = CLK1, 10 MHz, load = 15 pF on each clock, 15 mA	2.5V, 3.3V	SOP-8L, SOT23-6L
PL611-31	Programmable, SE or Diff with Long Divider	10–30	1–200	5–200	≤3	At CLK0 = CLK1, 10 MHz, load = 15 pF on each clock, 15 mA	2.5V, 3.3V	SOP-8L
PL611s-02	Programmable, OE, PDB, FSEL, or CLK2	10–50	1–200	2–200	≤2	V_{DD} = 1.8V, 30 MHz, Load = 15 pF, 2.1 mA	1.8V ~ 3.3V	DFN-6L, SOT23-6L
PL611s-18	Programmable, Very Low-Power	10–50	1–125	0.5–125	≤2	V_{DD} = 1.8V, 27 MHz, CLK = 032.768 kHz, CLK1 = 27 MHz, Load = 5 pF, 0.9 mA	1.8V ~ 3.3V	DFN-6L, SOT23-6L
PL611s-19	Programmable, Ultra Low-Power, Reference Input		1–125	0.5–125	≤2	V_{DD} = 1.8V, 32 kHz, load = 15 pF	1.8V ~ 3.3V	DFN-6L, SOT23-6L
PL613-01	Programmable, OE, PDB, FSEL, or CLK2	10–40	10–200	1–200	≤8	V_{DD} = 1.8V, all 8 outputs @ 20 MHz, No load, 9.5mA	1.8V ~ 3.3V	QFN-16L, TSSOP-16L
PL613-21	Programmable, PDB, Varying Voltage on Outputs	10–40	10–200	0.032–125	≤4	V_{DD} = 1.8V, CLK2,3,4 outputs at 40 MHz, CLK1 output at 32.768 kHz, No Load., 4.7 mA	1.8V ~ 3.3V	QFN-16L, TSSOP-16L
PL611-01	Programmable, OE, or FSEL, or CLK2	10–30	1–200	1–200	≤3	V_{DD} = 3.3V, 10 MHz, load = 15 pF	2.5V, 3.3V	SOP-8L, SOT23-6L
PL611-30	Programmable, SE or Diff	10–30	1–200	5–400	≤3	V_{DD} = 3.3V, 10 MHz, load = 15 pF	2.5V, 3.3V	SOP-8L, SOT23-6L
PL611-31	Programmable, SE or Diff with Long Divider	10–30	1–200	5–200	≤3	V_{DD} = 3.3V, 10 MHz, load = 15 pF	2.5V, 3.3V	SOP-8L

Clock Generation: PCIe Clocks								
Product	**Description**	**Input Type**	**Input Freq (MHz)**	**Multiplier**	**Output Freq (MHz)**	**# of Outputs**	**Voltage**	**Spread Spectrum (EMI Reduction)**	**Package**
PL602-21	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	4	100	1	2.5V, 3.3V		SOP-8L, SOT23-6L
PL602-22	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	5	125	1	2.5V, 3.3V		SOP-8L, SOT23-6L
PL602-23	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	8	200	1	2.5V, 3.3V		SOP-8L, SOT23-6L
PL602-26	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	1	25	1	2.5V, 3.3V		SOP-8L, SOT23-6L
PL602-27	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	10	250	1	2.5V, 3.3V		SOP-8L, SOT23-6L
PL602-15	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	6.25	156.25	1	2.5V, 3.3V		SOP-8L, SOT23-6L
PL602031	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	1	25	2	2.5V, 3.3V		QFN-16 3 x 3
PL602032	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	4	100	2	2.5V, 3.3V		QFN-16 3 x 3
PL602033	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	5	125	2	2.5V, 3.3V		QFN-16 3 x 3
PL602034	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	8	200	2	2.5V, 3.3V		QFN-16 3 x 3
PL602041	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	1, 4, 5, 8	25, 100, 125, 200	4	2.5V, 3.3V		QFN-24 4 x 4
PL607041	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	1, 4, 5, 8	25, 100, 125, 200	4	2.5V, 3.3V	Yes	QFN-24 4 x 4
PL602081	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	1, 4, 8	25, 100, 200	8	2.5V, 3.3V		QFN-44 7 x 7
PL602082	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	1, 5, 10	25, 125, 250	8	2.5V, 3.3V		QFN-44 7 x 7
PL607081	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	1, 4, 8	25, 100, 200	8	2.5V, 3.3V	Yes	QFN-44 7 x 7
PL607082	PCIe CLK Gen1/2/3	XTAL or Ref Input	25	1, 5, 10	25, 125, 250	8	2.5V, 3.3V	Yes	QFN-44 7 x 7
DSC557-03	PCIe CLK Gen1/2/3	Integrated MEMS Resonator	–	–	100-460	2	2.5V, 3.3V		TSSOP-20 5.1 x 6.8
DSC557-04	PCIe CLK Gen1/2/3	Integrated MEMS Resonator	–	–	100-460	3	2.5V, 3.3V		QFN-20, 5 x 3.2
DSC557-05	PCIe CLK Gen1/2/3	Integrated MEMS Resonator	–	–	100-460	4	2.5V, 3.3V		QFN-20, 5 x 3.2

Clock Generation: Clock Conditioning

							Programmable Pin(s)					
Product	Description	PLLs	Input Frequency (MHz) Crystal	Input Frequency (MHz) Reference	Output Frequency (MHz)	# of Outputs	Voltage	PDB	OE	CSEL	CLK	Output Logic	Package
PL671-01	EMI Reduction	1	10–40	1–200	1–200	≤3	2.5V, 3.3V	✓		✓	✓	LVCMOS	SOP-8L, SOT23-6L
PL671-02	EMI Reduction	1		1–200	1–200	≤3	2.5V, 3.3V	✓		✓	✓	LVCMOS	SOT23-6L
PL671-25	EMI Reduction	1	10–40	1–200	1–200	2	2.5V, 3.3V	✓		✓		LVCMOS	SOP-8L
PL671-29	EMI Reduction	1	10–40	1–200	1–200	1	2.5V, 3.3V			✓		LVCMOS	SOP-8L
PL671-30	EMI Reduction	1		1–200	1–200	1	2.5V, 3.3V			✓		LVCMOS	SOP-8L
PL671-33	EMI Reduction	1	10–40	1–200	1–200	≤2	2.5V, 3.3V	✓			✓	LVCMOS	SOP-8L
PL902XXX	JitterBlocker	1	10–200	1–200	1.25–200	≤3	2.5V, 3.3V	✓		✓		LVCMOS	SOT23-6L
PL903XXX	JitterBlocker	1		12–840	12–840	1	2.5V, 3.3V		✓			LVPECL, LVDS, HCSL, LVCMOS	QFN-24
PL904XXX	JitterBlocker	1		12–850	12–850	2	2.5V, 3.3V		✓			LVPECL, LVDS, HCSL, LVCMOS	QFN-32

Clock Generation: Clock Synthesizers

Product	Fuctionality	# of Outputs	Output Logic	Frequency Range	Input Type	Voltage	Temp Range	Package	OE	CSEL
SY87729LHY	Configruable any rate CLK	1	PECL	10–365 MHz	27 MHz ref	3.3V	–45°C to +85°C	32-pin TQFP	Yes	Yes
SY87739LHY	Configruable any rate CLK	1	PECL	10–792 MHz	27 MHz ref	3.3V	–45°C to +85°C	32-pin TQFP	Yes	Yes
SY89421VZH	Configruable any rate CLK	1	PECL	30–1120 MHz	30–560 MHz ref	3.3V, 5V	–45°C to +85°C	32-pin TQFP	Yes	Yes
SY89537LHY	Configruable any rate CLK	7	PECL, LVDS	87–700 MHz	14–18 MHz crystal	3.3V	–45°C to +85°C	44-pin QFN	Yes	Yes

Clock Generation: VCXOs

Product	Function	Input Frequency Range (MHz)	Output Frequency Range (MHz)	Linearity	Pull Range (±PPM)	Output Logic	Voltage	Package
PL500-15	VCXO, Non-Multiplier	16–36	1–4	<5%	150	LVCMOS	2.5V, 3.3V	Die, SOT23-6L, SOP-8L
PL500-16	VCXO, Non-Multiplier	16–36	4–18	<5%	150	LVCMOS	2.5V, 3.3V	Die, SOT23-6L, SOP-8L
PL500-17	VCXO, Non-Multiplier	17–36	17–36	<5%	150	LVCMOS	2.5V, 3.3V	Die, SOT23-6L, SOP-8L
PL500-37	VCXO, Non-Multiplier	36–130	36–130	<5%	150	LVCMOS	2.5V, 3.3V	Die, SOT23-6L, SOP-8L
PL520-20	VCXO, Non-Multiplier	100–200	100	<5%	100	LVCMOS, LVPECL, LVDS	2.5V, 3.3V	Die
PL520-30	VCXO, Non-Multiplier	65–130	65	<5%	100	LVPECL, LVDS	2.5V, 3.3V	Die
PL520-80	VCXO, Non-Multiplier	19–65	9.5	<5%	100	LVPECL, LVDS	2.5V, 3.3V	Die
PL502-00	VCXO Multiplier	12–25	12–200	<10%	250	LVCMOS	3.3V	Die
PL502-02	VCXO Multiplier	12–25	24–50	<10%	250	LVCMOS	3.3V	SOP-8L
PL502-03	VCXO Multiplier	12–25	48–100	<10%	250	LVCMOS	3.3V	SOP-8L
PL502-04	VCXO Multiplier	12–25	96–200	<10%	250	LVCMOS	3.3V	SOP-8L
PL502-30	VCXO Multiplier	12–25	0.75–800	<10%	150	LVCMOS, LVPECL, LVDS	3.3V	Die
PL502-35	VCXO Multiplier	12–25	0.75–800	<10%	150	LVPECL	3.3V	QFN-16L, TSSOP-16L
PL502-37/38/39	VCXO Multiplier	12–25	0.75–800	<10%	150	LVCMOS, LVPECL, LVDS	3.3V	QFN-16L, TSSOP-16L
PL520-00	VCXO Multiplier	100–200	100–1000	<10%	100	LVCMOS, LVPECL, LVDS	3.3V	Die
PL565-08	VCXO Multiplier	150–200	600–800	<5%	120	LVPECL	3.3V	Die, QFN-16L
PL560-08	VCXO Multiplier	62.5–150	250–600	<5%	120	LVPECL	3.3V	Die, QFN-16L
PL565-68	VCXO Multiplier	62.5–160	250–320	<5%	120	LVPECL	3.3V	Die, QFN-16L
PL565-37	VCXO Multiplier	30–62.5	120–250	<5%	120	LVCMOS	3.3V	Die, QFN-16L, TSSOP-16L
PL565-38	VCXO Multiplier	30–62.5	120–250	<5%	120	LVPECL	3.3V	Die, QFN-16L, TSSOP-16L
PL560-47	VCXO Multiplier	30–80	60–160	<5%	120	LVCMOS	3.3V	Die, QFN-16L, TSSOP-16L
PL560-48	VCXO Multiplier	30–80	60–160	<5%	120	LVPECL	3.3V	Die, QFN-16L, TSSOP-16L

Clock Generation: Timers

Product	Description	Frequency Range	V_{CC} (Min) (V)	V_{CC} (Max) (V)	Supply Current (Max) (µA)	Package
MIC1555Y	IttyBitty® RC Astable and One-Shot Timer/Oscillator	0.1 Hz to 5 MHz	2.7	18	420	5-Pin Thin SOT-23, 5-Pin SOT-23, 10-Pin UTDFN
MIC1557Y	IttyBitty RC Astable Timer/Oscillator	0.1 Hz to 5 MHz	2.7	18	420	5-Pin Thin SOT-23, 5-Pin SOT-23

Clock and Data Distribution: Fanout							
Product	**Input/Output**	**Input Type**	**Output Type**	**Supply Voltage (V)**	**Output Frequency (Max) (GHz)**	**Fail-Safe Input (FSI)**	**Package**
PL123-02N	1:2	LVCMOS	LVCMOS	1.8/2.5/3.3	0.2	–	DFN-6L
PL123-05N	1:5	LVCMOS	LVCMOS	1.8/2.5/3.3	0.134	–	SOP-8L
PL123-09N	1:9	LVCMOS	LVCMOS	1.8/2.5/3.3	0.134	–	SOP-16L
PL133-27	1:2	LVCMOS	LVCMOS	1.8/2.5/3.3	0.15	–	DFN-6L
PL133-37	1:3	LVCMOS	LVCMOS	1.8/2.5/3.3	0.15	–	SOT23-6L
PL133-47	1:4	LVCMOS	LVCMOS	2.5/3.3	0.15	–	SOP-8L
PL133-67	1:6	LVCMOS	LVCMOS	2.5/3.3	0.15	–	TSSOP-16L
PL133-97	1:9	LVCMOS	LVCMOS	2.5/3.3	0.15	–	QFN-16L
PL135-27	1:2	XTAL	LVCMOS	1.8/2.5/3.3	0.04	–	DFN-6L
PL135-37	1:3	XTAL	LVCMOS	1.8/2.5/3.3	0.04	–	SOP-8L
PL135-47	1:4	XTAL	LVCMOS	1.8/2.5/3.3	0.04	–	QFN-16L/TSSOP-16L
PL135-67	1:6	XTAL	LVCMOS	1.8/2.5/3.3	0.04	–	QFN-16L/TSSOP-16L
PL138-48	1:4	LVDS/LVPECL/LVHSTL/SSTL/HCSL/CML/LVCMOS	LVPECL	2.5/3.3	0.8	–	TSSOP-20L/QFN-16L
SY58608U	1:2	ANY	LVDS	2.5	3 (typ)	yes	QFN-16L
SY58606U	1:2	ANY	CML	2.5/3.3	3 (typ)	yes	QFN-16L
SY58607U	1:2	ANY	LVPECL	2.5/3.3	3 (typ)	yes	QFN-16L
SY89311U	1:2	PECL/LVPECL/ECL	PECL/LVPECL/ECL	2.5/3.3/5	3 (min)	–	MLF-8L
SY89851U	1:2	ANY	LVPECL	2.5/3.3	4 (typ)	–	QFN-16L
SY54011R	1:2	ANY	CML	2.5	3.2 (min)	–	MLF-16L
SY54020AR	1:4	ANY	CML	2.5	3.2 (min)	–	MLF-16L
SY54020R	1:4	ANY	CML	2.5	2.5 (min)	yes	MLF-16L
SY56011R	1:2	ANY	CML	2.5	4.5 (min)	–	QFN-16L
SY58012U	1:2	ANY	LVPECL	2.5/3.3	5 (min)	–	MLF-16L
SY58013U	1:2	ANY	RS-LVPECL	2.5/3.3	6 (min)	–	QFN-16L
SY58011U	1:2	ANY	CML	2.5/3.3	8 (typ)	–	QFN-16L
SY89843U	2:1:2	ANY	LVPECL	2.5/3.3	2 (typ)	yes	QFN-24L
SY89844U	2:1:2	ANY	LVDS	2.5	2 (typ)	yes	QFN-24L
SY89473U	2:1:2	ANY	LVPECL	2.5/3.3	3 (typ)	–	QFN-24L
SY89474U	2:1:2	ANY	LVDS	2.5	4 (typ)	–	QFN-24L
SY89645L	1:4	LVCMOS/LVTTL	LVDS	3.3	0.65 (min)	–	TSSOP-20L
SY89831U	1:4	ANY	LVPECL	2.5/3.3	2.5 (typ)	–	MLF-16L
SY89832U	1:4	ANY	LVDS	2.5	2.5 (typ)	–	QFN-16L
SY89833AL	1:4	ANY	LVDS	3.3	2 (typ)	–	QFN-16L
SY89833L	1:4	ANY	LVDS	3.3	2 (typ)	–	QFN-16L
SY89854U	1:4	ANY	LVPECL	2.5/3.3	3.5 (typ)	–	QFN-16L
SY58021U	1:4	ANY	LVPECL	2.5/3.3	4 (min)	–	QFN-16L
SY56020R	1:4	ANY	CML	2.5	4.5 (min)	–	QFN-16L
SY58022U	1:4	ANY	RS-LVPECL	2.5/3.3	5.5 (min)	–	QFN-16L
SY58020U	1:4	ANY	CML	2.5/3.3	6 (min)	–	QFN-16L
SY898535XL	2:1:4	XTAL/LVCMOS/LVTTL	LVPECL	3.3	0.24	–	TSSOP-20L
SY898533L	2:1:4	LVDS/LVPECL/CML/LVHSTL/SSTL/HCSL	LVPECL	3.3	0.65 (min)	–	TSSOP-20L
SY89834U	2:1:4	LVTTL/CMOS	LVPECL	2.5/3.3	1 (min)	–	MLF-16L
SY89830U	2:1:4	LVECL/PECL/LVPECL/HSTL	ECL/PECL/LVPECL/LVECL	2.5/3.3/5	2.5 (min)	–	TSSOP-16L
SY89846U	2:1:5	ANY	LVPECL	2.5/3.3	2 (typ)	yes	QFN-32L
SY89847U	2:1:5	ANY	LVDS	2.5	2 (typ)	yes	QFN-32L
SY89856U	2:1:6	ANY	LVPECL	2.5/3.3	3 (typ)	–	QFN-32L
SY58035U	2:1:6	ANY	LVPECL	2.5/3.3	5.5 (typ)	–	MLF-32L
SY58034U	2:1:6	ANY	CML	2.5/3.3	7.5 (typ)	–	QFN-32L
SY58036U	2:1:6	ANY	RS-LVPECL	2.5/3.3	7 (typ)	–	MLF-32L
SY89200U	1:8	ANY	LVDS	2.5	1.5 (min)	–	QFN-32L

Clock and Data Distribution: Fanout							
Product	**Input/Output**	**Input Type**	**Output Type**	**Supply Voltage (V)**	**Output Frequency (Max) (GHz)**	**Fail-Safe Input (FSI)**	**Package**
SY89202U	1:8	ANY	LVPECL	2.5/3.3	1.5 (min)	–	QFN-32L
SY89858U	1:8	ANY	LVPECL	2.5/3.3	3 (typ)	–	QFN-32L
SY58032U	1:8	ANY	LVPECL	2.5/3.3	4 (min)	–	MLF-32L
SY58031U	1:8	ANY	CML	2.5/3.3	6 (min)	–	QFN-32L
SY58033U	1:8	ANY	RS-LVPECL	2.5/3.3	5.5 (min)	–	QFN-32L
SY89837U	2:1:8	ANY	LVPECL	2.5/3.3	2 (typ)	–	QFN-32L
SY89838U	2:1:8	ANY	LVDS	2.5	2 (typ)	–	QFN-32L
SY89809AL	2:1:9	LVPECL/HSTL	LVPECL/HSTL	1.8/3.3	0.75	–	TQFP-32L
SY89828L	Dual 2:1:10	LVPECL/LVDS	LVDS	3.3	1 (min)	–	TQFP-64L
SY89829U	Dual 2:1:10	LVPECL/LVDS	LVPECL	2.5/3.3	2 (min)	–	TQFP-64L
SY89464U	2:1:10	ANY	LVPECL	2.5/3.3	2 (typ)	Yes	QFN-44L
SY89465U	2:1:10	ANY	LVDS	2.5	2 (typ)	Yes	QFN-44L
SY89112U	2:1:12	ANY	LVPECL	2.5/3.3	3 (typ)	–	QFN-44L
SY89113U	2:1:12	ANY	LVDS	2.5	1 (min)	–	QFN-44L
SY898530U	1:16	LVDS/LVPECL/LVHSTL/SSTL/HCSL	LVPECL	2.5/3.3	0.5 (min)	–	TQFP-48L
SY89467U	2:1:20	ANY	LVPECL	2.5/3.3	2 (typ)	Yes	TQFP-64L
SY89468U	2:1:20	ANY	LVDS	2.5	1.5 (typ)	Yes	TQFP-64L
SY89825U	2:1:22	LVPECL/LVDS	LVPECL	2.5/3.3	2 (min)	–	TQFP-64L
SY89826L	2:1:22	LVPECL/LVDS	LVDS	3.3	1 (min)	–	TQFP-64L
SY897132L	-	ANY	LVPECL	3.3	–	–	TSSOP-28L
SY10/100EL11V	1:2	PECL	PECL	3.3/5	0.75 (min)	–	SOIC-8L
SY100EP14U	2:1:5	PECL/LVPECL/ECL/HSTL	PECL/LVPECL/ECL	2.5/3.3/5	2 (min)	–	TSSOP-20L
SY100EL14V	2:1:5	PECL	PECL	3.3/5	–	–	TSSOP-20L
SY100EP15V	2:1:4	PECL/LVPECL/ECL/HSTL	PECL/LVPECL/ECL	3.3/5	2.5 (min)	–	TSSOP-16L
SY100EL15L	2:1:4	ECL/PECL	ECL/PECL	3.3	–	–	SOIC-16L
SY10/100H641L	1:9	LVPECL	TTL	3.3	–	–	PLCC-28L
SY100EP111U	2:1:10	LVPECL/LVECL/HSTL	LVPECL/LVECL	2.5/3.3	3 (min)	–	TQFP-32L
SY10/100EP11U	1:2	LVPECL/PECL/ECL/LVECL	PECL/LVPECL/ECL/LVECL	2.5/3.3/5	3 (min)	–	SOIC-8L, MSOP-8L
SY100E310L	2:1:8	LVPECL/ECL	LVPECL/ECL	3.3	0.8 (typ)	–	PLCC-28L

Clock and Data Distribution: Zero Delay Buffers						
Product	**No. of Outputs**	**Output Frequency (Max) (MHz)**	**Output Type**	**Supply Voltage (V)**	**Within Device Skew (Max) (ps)**	**Package Options**
PL102-10	3	170	LVCMOS	2.5/3.3	200	SOP-8L, SOT23-6L
PL123-05	5	134	LVCMOS	3.3	250	SOP-8L
PL123-09	9	134	LVCMOS	3.3	250	TSSOP-16L, SOP-16L
PL123E-05	5	220	LVCMOS	2.5/3.3	100	SOP-8L
PL123E-09	9	220	LVCMOS	2.5/3.3	100	TSSOP-16L, SOP-16L
PL123S-05	5	134	LVCMOS	3.3	250	SOP-8L
PL123S-09	9	134	LVCMOS	3.3	250	TSSOP-16L, SOP-16L
MDB1900ZB	19	250	HCSL	2.5/3.3	35	QFN-72L
MDB1900ZC	19	250	HCSL	2.5/3.3	35	QFN-72L

Clock and Data Distribution: PCI Buffers						
Product	**Input/Output Ratio**	**Input Type**	**Output Type**	**Supply Voltage (V)**	**Output Frequency (Max) (GHz)**	**Package Options**
SY75572L	1:2	HCSL/LVDS	HCSL/LVDS	3.3	0.267	QFN-16L
SY75576L	1:4	HCSL/LVDS	HCSL/LVDS	3.3	0.267	TSSOP-20L
SY75578L	1:8	HCSL-LVDS	HCSL	3.3	0.267	QFN-32L

Clock and Data Distribution: Clock Dividers							
Product	**Divider Value**	**Input Type**	**Output Type**	**Supply Voltage (V)**	**# of Outputs**	**Output Frequency (Max) (GHz)**	**Package**
SY89200U	1, 2, 4	ANY	LVDS	2.5	8	1.5	QFN-32L
SY89202U	1, 2, 4	ANY	LVPECL	2.5/3.3	8	1.5	QFN-32L
SY89228U	3, 5	ANY	LVPECL	2.5/3.3	1	1	QFN-16L
SY89230U	3, 5	ANY	LVPECL	2.5/3.3	1	3.2	QFN-16L
SY89312V	2	ECL/PECL	ECL/PECL	3.3/5	1	4	QFN-8L
SY89313V	4	ECL/PECL	ECL/PECL	3.3/5	1	4	MLF-8L
SY89871U	2, 4, 8, 16	ANY	LVPECL	2.5/3.3	1	2.5	QFN-16L
SY89872U	2, 4, 8, 16	ANY	LVDS	2.5	1	2	QFN-16L
SY89873L	2, 4, 8, 16	ANY	LVDS	3.3	1	2	QFN-16L
SY89874AU	1, 2, 4, 8, 16	ANY	LVPECL	2.5/3.3	1	2.5	QFN-16L
SY89874U	1, 2, 4, 8, 16	ANY	LVPECL	2.5/3.3	1	2.5	QFN-16L
SY89875U	2, 4, 8, 16	ANY	LVDS	2.5	1	2	MLF-16L
SY89876L	1, 2, 4, 8, 16	ANY	LVDS	3.3	1	2	MLF-16L
SY100S834L	1, 2, 4, 8	ECL/PECL/LVPECL	ECL/PECL	3.3/5	3	—	SOIC-16L
SY100EL32V	2	ECL	ECL	3.3/5	1	3	SOIC-8L
SY100EL33L	4	ECL	ECL	3.3/5	1	4	SOIC-8L
SY100EL34L	2, 4, 8	ECL	ECL	3.3/5	3	—	SOIC-16L
SY100E222L	1, 2	LVECL/LVPECL	LVPECL	3.3	15	1.5	LQFP-52L

Clock and Data Distribution: Drivers and Receivers							
Product	**Input Type**	**Output Type**	**Supply Voltage (V)**	**Output Frequency (Max) (GHz)**	**Output Data Rate (Max) (Gbps)**	**Fail-Safe Input (FSI)**	**Package**
SY89207L	LVECL/LVPECL	LVPECL	3.3	0.8	—	—	MSOP-10L
SY89250V	PECL/LVPECL	PECL/LVPECL	3.3/5	—	—	—	MLF-8L
SY58605U	ANY	LVDS	2.5	3	3.2	Yes	DFN-8L
SY89835U	ANY	LVDS	2.5	3	3.2	Yes	MLF-8L
SY58604U	ANY	LVPECL	2.5/3.3	3	4.25	Yes	DFN-8L
SY89850U	ANY	LVPECL	2.5/3.3	4	3.2	—	DFN-8L
SY58603U	ANY	CML	2.5/3.3	3	4.25	Yes	DFN-8L
SY58601U	ANY	LVPECL	2.5/3.3	5	5	—	MLF-8L
SY56016R	ANY	CML	2.5	5	6.4	—	MLF-10L
SY58016L	CML/PECL	CML	3.3	7	10.7	—	MLF-16L
SY58600U	ANY	CML	2.5/3.3	7	10.7	—	MLF-8L
SY89251V	PECL/LVPECL	PECL/LVPECL	3.3/5	—	—	—	DFN-8L
SY897132L	LVPECL/CML	LVPECL	3.3	—	1.25	—	TSSOP-28L
SY100EL16VS	ECL/LVPECL	ECL/LVPECL	3.3/5	—	—	—	MSOP-8L
SY100EL17V	ECL/LVPECL	ECL/LVPECL	3.3/5	—	—	—	SOIC-20L
SY100S313	ECL/PECL	ECL/PECL	5	—	—	—	PLCC-28L
SY10/100E416	ECL/PECL	ECL/PECL	5	2	—	—	PLCC-28L
SY10EP89V	ECL/PECL	ECL/PECL	3.3/5	3	—	—	SOIC-8L/MSOP-8L

Clock and Data Distribution: Translators						
Product	**# of Channels**	**Input Type**	**Output Type**	**Output Voltage (V)**	**Output Frequency (Max) (GHz)**	**Package**
PL130-05	Single	Multiple	LVPECL	2.5/3.3	1	QFN-16L
PL130-07	Single	Multiple	LVCMOS	2.5/3.3	0.2	SOP-8L, TSSOP-8L
PL130-09	Single	Multiple	LVDS	2.5/3.3	1	SOP-8L, QFN-8L
PL130-58	Single	Multiple	LVPECL	2.5/3.3	0.26	SOP-8L
SY55851A	Single	PECL/LVPECL/CML	CML	2.5/3.3	3	MSOP-10
SY55855V	Dual	PECL/LVPECL/CML	LVDS	3.3/5	0.75	MSOP-10L
SY55857L	Dual	ANY	LVPECL	3.3	2.5	MSOP-10L
SY89222L	Dual	TTL	PECL	3.3	0.40	MLF-8L
SY89321L	Single	LVPECL/CML/LLVDS	LVTTL	3.3	0.28	MLF-8L

Clock and Data Distribution: Translators						
Product	# of Channels	Input Type	Output Type	Output Voltage (V)	Output Frequency (Max) (GHz)	Package
SY89322V	Dual	LVTTL	LVPECL	3.3/5	0.80	MLF-8L
SY89323L	Dual	LVPECL	LVTTL	3.3	0.28	MLF-8L
SY89327L	Single	ANY	LVPECL	3.3	2.5	QFN-8L
SY89328L	Single	LVPECL/LVTTL	LVTTL/LVPECL	3.3	0.28	MLF-8L
SY89329V	Single	LVTTL	LVPECL	3.3/5	0.80	MLF-8L
SY100ELT21L	Single	LVPECL	LVTTL	3.3	0.28	SOIC-8L
SY10/100ELT22	Dual	TTL	PECL	5	0.75	SOIC-8L
SY100ELT22L	Dual	TTL	PECL	3.3	0.25	SOIC-8L
SY100ELT23	Dual	PECL	TTL	5	0.16	SOIC-8L
SY100ELT23L	Dual	LVPECL	LVTTL	3.3	0.16	SOIC-8L
SY100EPT20V	—	TTL/CMOS	PECL	3.3/5	0.85	SOIC-8L/MSOP-8L
SY100EPT21L	—	LVPECL	LVTTL	3.3	0.275	SOIC-8L/MSOP-8L
SY100EPT22V	Dual	TTL/CMOS	PECL	3.3/5	0.8	SOIC-8L/MSOP-8L
SY100EPT23L	Dual	LVPECL	LVTTL	3.3	0.275	SOIC-8L/MSOP-8L

Clock and Data Distribution: Multiplexers						
Product	Input/Output Ratio	Input Type	Output Type	Supply Voltage (V)	Output Frequency (Max) (GHz)	Package
SY54017AR	2:1	ANY	CML	2.5	2.5	3 x 3
SY56017R	2:1	ANY	CML	2.5	3.2	5 x 5
SY56034AR	2:6	ANY	CML	2.5	6.4	
SY56572XR	4:1	ANY	CML	2.5	4.5	3 x 3
SY58017U	2:1	ANY	CML	2.5/3.3	7	3 x 3
SY58018U	2:1	ANY	LVPECL	2.5/3.3	4	3 x 3
SY58019U	2:1	ANY	RS-LVPECL	2.5/3.3	7	3 x 3
SY58026U	Dual 2:1	ANY	LVPECL	2.5/3.3	6	5 x 5
SY58028U	4:02	ANY	CML	2.5/3.3	7	5 x 5
SY58029U	4:02	ANY	LVPECL	2.5/3.3	4	5 x 5
SY58038U	8:01	ANY	LVPECL	2.5/3.3	5	7 x 7
SY58609U	2:01	ANY	CML	2.5/3.3	2.5	3 x 3
SY58610U	2:01	ANY	LVPECL	2.5/3.3	2.5	3 x 3
SY58611U	2:01	ANY	LVDS	2.5	2.5	3 x 3
SY89464U	2:10	ANY	LVPECL	2.5/3.3	2	7 x 7
SY89465U	2:10	ANY	LVDS	2.5	2	7 x 7
SY89473U	2:02	ANY	LVPECL	2.5/3.3	2.5	4 x 4
SY89474U	2:02	ANY	LVDS	2.5	2.5	4 x 4
SY89543L	Dual 2:1	ANY	LVDS	3.3	3	5 x 5
SY89544U	4:01	ANY	LVDS	2.5	4	5 x 5
SY89545L	4:01	ANY	LVDS	3.3	3	5 x 5
SY89547L	4:02	ANY	LVDS	3.3	4	5 x 5
SY89840U	2:01	ANY	LVPECL	2.5/3.3	2	3 x 3
SY89841U	2:01	ANY	LVDS	2.5	1.5	3 x 3
SY89843U	2:02	ANY	LVPECL	2.5/3.3	2	4 x 4
SY89844U	2:02	ANY	LVDS	2.5	2	4 x 4
SY89853U	Dual 2:1	ANY	LVPECL	2.5/3.3	2.5	5 x 5
SY89855U	4:02	ANY	LVPECL	2.5/3.3	2.5	5 x 5
SY897132L	2:01	LVPECL	LVPECL	3.3	0.8	TSSOP-28
SY100EL56V	Dual 2:1	ECL	ECL	3.3/5	0	SOIC-20
SY100S355	4:01	ECL	ECL	5	0	PLCC-28
SY100S371	Triple 4:1	ECL	ECL	5	0	PLCC-28
SY100EP56V	2:01	PECL/ECL	PECL/ECL	3.3/5	3	TSSOP-20
SY100EP57V	4:01	PECL/ECL	PECL/ECL	3.3/5	3	TSSOP-20
SY100EL56V	Multiplexer		ECL/PECL	3.3		SOIC-8

Clock and Data Distribution: CrossPoint Switches						
Product	**Input/Output Ratio**	**Input Type**	**Output Type**	**Supply Voltage**	**Output Data Rate (Max) (Gbps)**	**Package**
SY58023U	2 x 2	ANY	CML	2.5/3.3	10.7	3 x 3
SY55859L	Dual 2 x 2	CML	CML	3.3	2.7	5 x 5
SY55858U	Dual 2 x 2	CML/PECL/LVPECL	CML	2.5/3.3	3.0	TQFP-32
SY58024U	Dual 2 x 2	ANY	CML	2.5/3.3	10.7	5 x 5
SY56034AR	2 x 2 with 6 Outputs	ANY	CML	2.5	6.4	5 x 5
SY89540U	4 x 4	ANY	LVDS	2.5	3.2	6 x 6
SY58040U	4 x 4	ANY	CML	2.5/3.3	5.0	6 x 6

Clock and Data Distribution: Backplane Cable Management								
Product	**Description**	**Pre-Emphasis**	**Equalization**	**Input Type**	**Output Type**	**Output Data Rate (Max) (Gbps)**	**Supply Voltage (V)**	**Package**
SY58626L	Transmit buffer with output pre-emphasis	✓	–	Any	CML	6.4	3.3	QFN-32L
SY58627L	Backplance receiver with EQ	–	✓	Any	CML	6.4	3.3	QFN-32L

Clock and Data Distribution: Skew Management							
Product	**Description**	**Input Type**	**Output Type**	**Propagation Delay Resolution (Typ) (ps/step)**	**Supply Voltage (V)**	**Output Frequency (Max) (GHz)**	**Package**
SY89295U	Programmable Delay	LVPECL/LVTTL	LVPECL	10	2.5/3.3	1.5	TQFP-32, 5 x 5
SY89296U	Delay with Fine Tune Control	LVPECL/LVTTL	LVPECL	10	2.5/3.3	1.5	TQFP-32, 5 x 5
SY89297U	Dual Channel Programmable Delay	Any	CML	5	2.5	1.6	QFN-24, 4 x 4
SY55856U	Dual Channel Programmable Delay	CML	CML	10	2.5/3.3	2.5	eTQFP-32
SY100E196	Programmable Delay Chip with Analog Input	ECL	ECL	20	5	1	PLCC-28
SY100EP195V	Programmable Delay	Any	ECL		3.3/5	2.5	TQFP-32, 5 x 5
SY100E195	–	–	–	–	–	–	–
SY10E196	–	–	–	–	–	–	–

Clock and Data Distribution: Registers and Flip Flops					
Product	**Description**	**Type**	**Bits**	**Supply Voltage (V)**	**Package**
SY100S341	8-bit Shift Register	Single	8	5	PLCC-28
SY100EL29V	Data and Clock D Flip Flop with Set and Reset	Dual	Dual	3.3/5	SOIC-20
SY55852U	D Flip Flop	Single	Single	2.5/3.3/5	MSOP-10
SY10EP51V	D Flip-Flop with Reset and Differential Clock	Single	Single	3.3/5	SOIC-8
SY10/100E212	3-bit Scannable Register	ECL/PECL	ECL/PECL	5	
SY10/100E336	3-bit Register Bus Transceiver	ECL/PECL	ECL/PECL	5	
SY10/100E337	3-bit Scannable Register Bus Transceiver	ECL/PECL	ECL/PECL	5	
SY100S891	5-bit Registered Transceiver	ECL/PECL	ECL/PECL	5	

High-Speed Communication: Limiting Amplifiers							
Product	**Product Type**	**Data Rate Capability**	**Power Supply (V)**	**Data Input Type**	**Data Output Type**	**LOS/SD**	**Packages**
SY84113BU	Fiber Optic Post Amplifiers	1.25 Gbps	2.5	PECL	CML	LOS (TTL)	16-pin VQFN
SY88053CL	Limiting Amplifiers - Burst Mode and Limiting Amplifiers - Continuous Mode	12.5 Gbps	3.3	CML/PECL	CML	SD/LOS (TTL)	16-pin VQFN
SY88063CL	Limiting Amplifiers - Burst Mode and Limiting Amplifiers - Continuous Mode	12.5 Gbps	3.3	CML/PECL	CML	SD/LOS (TTL)	16-pin VQFN
SY88073L	Limiting Amplifiers - Continuous Mode	12.5 Gbps	3.3	CML/PECL	CML	SD/LOS (TTL)	16-pin VQFN
SY88083L	Limiting Amplifiers - Continuous Mode	12.5 Gbps	3.3	CML/PECL	CML	SD/LOS (TTL)	16-pin VQFN
SY88147DL	Limiting Amplifiers - Continuous Mode	1.25 Gbps	3.3	PECL	PECL	LOS (TTL)	10-pin MSOP
SY88149CL	Limiting Amplifiers - Continuous Mode	1.25 Gbps	3.3	PECL	PECL	LOS (TTL)	10-pin MSOP
SY88149HAL	Limiting Amplifiers - Burst Mode	1.25 Gbps	3.3	CML/PECL	PECL	SD/LOS (TTL)	16-pin VQFN
SY88149NDL	Limiting Amplifiers - Burst Mode	1.25 Gbps	3.3	CML/PECL	PECL	SD/LOS (TTL)	Please call for package information
SY88303BL	Limiting Amplifiers - Continuous Mode	3.2 Gbps	3.3	PECL	CML	LOS (TTL)	10-pin MSOP, 16-pin VQFN
SY88343BL	Limiting Amplifiers - Continuous Mode	3.2 Gbps	3.3	PECL	CML	LOS (TTL)	10-pin MSOP, 16-pin VQFN
SY88349NDL	Limiting Amplifiers - Burst Mode	2.5 Gbps	3.3	CML/PECL	PECL	SD/LOS (TTL)	Please call for package information
SY88353BL	Limiting Amplifiers - Continuous Mode	3.2 Gbps	3.3	PECL with Internal 50O to V REF	CML	LOS (TTL)	16-pin VQFN
SY88403BL	Limiting Amplifiers - Continuous Mode	4.25 Gbps	3.3	PECL	CML	LOS (TTL)	10-pin MSOP, 16-pin VQFN
SY88773V	Limiting Amplifiers - Continuous Mode	3.2 Gbps	3.3, 5.0	PECL	CML	LOS (TTL)	16-pin VQFN
SY88803V	Limiting Amplifiers - Continuous Mode	0.16 Gbps	3.3, 5.0	PECL	PECL	LOS (TTL)	10-pin MSOP
SY88813V	Limiting Amplifiers - Continuous Mode	0.16 Gbps	3.3, 5.0	PECL	PECL	SD (PECL)	10-pin MSOP
SY88843V	Limiting Amplifiers - Continuous Mode	3.2 Gbps	3.3, 5.0	PECL	CML	SD (TTL)	Please call for package information
SY88893V	Fiber Optic Post Amplifiers	0.155 Gbps		PECL	PECL	SD (TTL)	10-pin MSOP
SY88903AL	Limiting Amplifiers - Continuous Mode	1.25 Gbps	3.3	PECL	PECL	LOS (TTL)	10-pin MSOP
SY88903V	Limiting Amplifiers - Continuous Mode	1.25 Gbps	3.3, 5.0	PECL	PECL	LOS (TTL)	10-pin MSOP
SY88923AV	Fiber Optic Post Amplifiers	3.2 Gbps	3.3, 5	PECL	PECL	LOS (TTL)	10-pin MSOP
SY88933AL	Limiting Amplifiers - Continuous Mode	1.25 Gbps	3.3	PECL	PECL	SD (TTL)	10-pin MSOP
SY88073L	Limiting Amplifiers - Continuous Mode	12.5 Gbps	3.3	CML/PECL	CML	SD/LOS (TTL)	16-pin VQFN
SY88063CL	Limiting Amplifiers - Burst Mode and Limiting Amplifiers - Continuous Mode	12.5 Gbps	3.3	CM/PECL	CML	SD/LOS (TTL)	16-pin VQFN
SY88053CL	Limiting Amplifiers - Burst Mode and Limiting Amplifiers - Continuous Mode	12.5 Gbps	3.3	CML/PECL	CML	SD/LOS (TTL)	16-pin VQFN
SY84403BL	Limiting Amplifiers - Continuous Mode	4.25 Gbps	3.3	PECL with Internal 50O to V REF	CML	LOS (TTL)	Please call for package information
SY84113BU	Fiber Optic Post Amplifiers	1.25 Gbps	2.5	PECL	CML	LOS (TTL)	16-pin VQFN

High-Speed Communication: Laser Diode Drivers							
Product	**Product Type**	**Data Rate Capability**	**Power Supply (V)**	**Data Input Type**	**Modulation Current**	**Bias Current**	**Packages**
SY84782U	DFB/FP Laser Drivers	1.25 Gbps	2.5	CML	90		16-pin VQFN
SY88022AL	DFB/FP Laser Drivers	11.3 Gbps	3.3		60	80	Please call for package information
SY88024L	VCSEL Drivers	11.3 Gbps	3.3		20	20	Please call for package information
SY88422L	DFB/FP Laser Drivers	4.25 Gbps	3.3		90		16-pin VQFN
SY88822V	DFB/FP Laser Drivers	0.155 Gbps	3.3, 5.0				10-pin MSOP
SY88922V	DFB/FP Laser Drivers	2.5 Gbps	3.3, 5.0		25		10-pin MSOP
SY88932L	DFB/FP Laser Drivers	4.25 Gbps	3.3	CML	60		16-pin VQFN
SY88982L	DFB/FP Laser Drivers	2.7 Gbps	3.3		90		16-pin VQFN
SY88992L	VCSEL Drivers	4.25 Gbps	3.3		25		16-pin VQFN

High-Speed Communication: Laser Diode Drivers									
Product	**Product Type**	**Data Rate Capability**	**Power Supply (V)**	**LA Data Input Type**	**LA Data Output Type**	**LDD Data Input Type**	**LDD Modulation Current (mA)**	**LDD Bias Current (mA)**	**Packages**
SY88432L	Transceivers	4.25 Gbps	3.3	CML	CML	CML	60		24-pin VQFN

High-Speed Communication: Fiber Optic Module Controllers				
Product	**Product Type**	**Power Supply (V)**	**Serial Interface**	**Packages**
MIC3001GML	FOM Controllers	3.3	I²C SMBus Compliant	Please call for package information
MIC3003GFL	FOM Controllers	3.3	I²C SMBus Compliant	Please call for package information
MIC3003GML	FOM Controllers	3.3	I²C SMBus Compliant	Please call for package information

High-Speed Communication: Clock and Data Recovery						
Product	**Product Type**	**Data Rate Capability**	**Power Supply (V)**	**Data Input Type**	**Data Output Type**	**Packages**
SY69753AL	Clock and Data Recovery	125–155 Mbps	3.3		PECL	32/TQFP
SY87700AL	Clock and Data Recovery	32–208 Mbps	3.3		PECL	Please call for package information
SY87701AL	Clock and Data Recovery	28–1300 Mbps	3.3		PECL	Please call for package information

Memory Products: Serial Flash														
Product	**Bus**	**Density**	**Organization**	**Max. Clock Frequency**	**Operating Voltage**	**Temperature Range**	**E/W Endurance (Minimum)**	**Data Retention (Minimum)**	**Write Speed (Typical)**	**Max. Standby Current**	**Hard Pin Protect**	**Software Protect**	**Protected Array Size**	**Packages**
SST25VF512A	× 1	512 KB	× 8	33 MHz	2.7–3.6V	–40°C to +85°C	100k	100 Years	14 µs (Byte Program)	8 µA	Y	Y	Various	8L-SOIC, 8C-WSON
SST25VF010A	× 1	1 MB	× 8	33 MHz	2.7–3.6V	–40°C to +85°C	100k	100 Years	14 µs (Byte Program)	8 µA	Y	Y	Various	8L-SOIC, 8C-WSON
SST25VF020B	× 1	2 MB	× 8	80 MHz	2.7–3.6V	–40°C to +85°C	100k	100 Years	7 µs (Word Program)	5 µA	Y	Y	Various	8L-SOIC, 8C-WSON
SST25WF020A	× 1	2 MB	× 8	40 MHz	1.65–1.95V	–40°C to +85°C	100k	20 Years	3 ms (Page Program)	10 µA	Y	Y	Various	8L-SOIC, 8C-WSON, 8C-USON, 9B-WLCSP
SST25VF040B	× 1	4 MB	× 8	40 MHz	2.7–3.6V	–40°C to +85°C	100k	100 Years	7 µs (Word Program)	5 µA	Y	Y	Various	8L-SOIC, 8C-WSON
SST25WF040B	× 1, x 2	4 MB	× 8	40 MHz	1.65–1.95V	–40°C to +85°C	100k	20 Years	1 ms (Page Program)	10 µA	Y	Y	Various	8L-SOIC, 8C-USON, 9B-WLCSP
SST26WF040B/BA	× 1, x 2, x 4	4 MB	× 8	104 MHz	1.65–1.95V	–40°C to +85°C	100k	100 Years	1 ms (Page Program)	40 µA	Y	Y	Various	8L-SOIC, 8C-WSON, 8C-USON, 8B-WLCSP
SST25VF080B	× 1	8 MB	× 8	40 MHz	2.7–3.6V	–40°C to +85°C	100k	100 Years	7 µs (Word Program)	5 µA	Y	Y	Various	8L-SOIC, 8C-WSON, 8B-XFBGA
SST25WF080B	× 1, x 2	8 MB	× 8	40 MHz	1.65–1.95V	–40°C to +85°C	100k	20 Years	1 ms (Page Program)	10 µA	Y	Y	Various	8L-SOIC, 8C-USON, 9B-WLCSP
SST26WF080B/BA	× 1, x 2, x 4	8 MB	× 8	104 MHz	1.65–1.95V	–40°C to +85°C	100k	100 Years	1 ms (Page Program)	40 µA	Y	Y	Various	8L-SOIC, 8C-WSON, 8C-USON, 8B-WLCSP
SST25VF016B	× 1	16 MB	× 8	50 MHz	2.7–3.6V	–40°C to +85°C	100k	100 Years	7 µs (Word Program)	5 µA	Y	Y	Various	8L-SOIC, 8C-WSON
SST26VF016	× 4	16 MB	× 8	80 MHz	2.7–3.6V	–40°C to +85°C	100k	100 Years	1 ms (Page Program)	15 µA	Y	Y	Various	8L-SOIJ, 8C-WSON
SST26WF016B/BA	× 1, x 2, x 4	16 MB	× 8	104 MHz	1.65–1.95V	–40°C to +85°C	100k	100 Years	1 ms (Page Program)	40 µA	Y	Y	Various	8L-SOIC, 8C-WSON, 8B-WLCSP
SST26VF016B	× 1, x 2, x 4	16 MB	× 8	104 MHz	2.3–3.6V	–40°C to +105°C	100k	100 Years	1 ms (Page Program)	45 µA	Y	Y	Various	8L-SOIC, 8L-SOIJ, 8C-WSON
SST26VF032	× 4	32 MB	× 8	80 MHz	2.7–3.6V	–40°C to +85°C	100k	100 Years	1 ms (Page Program)	15 µA	Y	Y	Various	8L-SOIJ, 8C-WSON
SST26VF032B/BA	× 1, x 2, x 4	32 MB	× 8	104 MHz	2.3–3.6V	–40°C to +105°C	100k	100 Years	1 ms (Page Program)	45 µA	Y	Y	Various	8L-SOIJ, 8C-WSON, 24B-TBGA
SST26VF064B/BA	× 1, x 2, x 4	64 MB	× 8	104 MHz	2.3–3.6V	–40°C to +105°C	100k	100 Years	1 ms (Page Program)	45 µA	Y	Y	Various	8L-SOIJ, 16L-SOIC, 8C-WSON, 8C-TDFN-S, 24B-TBGA
SST26WF064C	× 1, x 2, x 4	64 MB	× 8	104 MHz	1.65–1.95V	–40°C to +85°C	100k	100 years	1.5 ms (Page Program)	40 µA	Y	Y	Various	8L-SOIJ, 16L-SOIC, 8C-WSON, 24B-TBGA

Memory Products: LPC Firmware Flash															
Product	**Density**	**Bus**	**Organization**	**Max. Clock Frequency**	**Operating Voltage**	**Temperature Range**	**E/W Endurance (Minimum)**	**Data Retention (Minimum)**	**Write Spped (Typical)**	**Max. Standby Current**	**Hard Pin Protect**	**Software Protect**	**Protected Array Size**	**Special/ Unique Features**	**Packages**
SST49LF008A	8 MB	× 4	× 8	33 MHz	3.0–3.6V	0°C to 70°C	100K	100 Years	14 µs (Byte Program)	14 µA	Y	Y	Various	Firmware Hub (FWH) device for PC-BIOS application, provide protection for the storage and update of code and data	32L-PLCC, 32L-TSOP
SST49LF080A	8 MB	× 4	× 8	33 MHz	3.0–3.6V	0°C to 70°C	100K	100 Years	14 µs (Byte Program)	14 µA	Y	Y	Various	LPC Flash devices comply with the standard Intel Low Pin Count (LPC) Interface Specification 1.1, provide protection for the storage and update of code and data	32L-PLCC, 32L-TSOP

Memory Products: Parallel Flash														
Product	Density	Bus	Organization	Access Time (ns)	Operating Voltage	Temperature Range (°C)	E/W Endurance (Minimum)	Data Retention (Minimum)	Write Speed (Typical)	Typ. Standby Current	Hard Pin Protect	Software Protect	Protected Array Size (KB)	Special/ Unique Features	Packages
SST39SF010A	1 MB	× 8	× 8	70	4.5–5.5V	–40 to +85	100K	100 Years	14 µs (Byte Program)	30 µA	–	–	N/A	Fast read, program and erase; Low power; Small erase sector	32L-PLCC, 32L-PDIP, 32L-TSOP
SST39LF010	1 MB	× 8	× 8	55	3.0–3.6V	0 to 70	100K	100 Years	14 µs (Byte Program)	1 µA	–	–	N/A	Fast read, program and erase; Low power; Small erase sector	48B-TFBGA, 32L-TSOP, 32L-PLCC
SST39VF010	1 MB	× 8	× 8	70	2.7–3.6V	–40 to +85	100K	100 Years	14 µs (Byte Program)	1 µA	–	–	N/A	Fast read, program and erase; Low power; Small erase sector	48B-TFBGA, 32L-TSOP, 32L-PLCC
SST39LF020	2 MB	× 8	× 8	55	3.0–3.6V	0 to 70	100K	100 Years	14 µs (Byte Program)	1 µA	–	–	N/A	Fast read, program and erase; Low power; Small erase sector	48B-TFBGA, 32L-TSOP, 32L-PLCC
SST39SF020A	2 MB	× 8	× 8	55, 70	4.5–5.5V	–40 to +85	100K	100 Years	14 µs (Byte Program)	30 µA	–	–	N/A	Fast read, program and erase; Low power; Small erase sector	32L-PLCC, 32L-PDIP, 32L-TSOP
SST39VF020	2 MB	× 8	× 8	70	2.7–3.6V	–40 to +85	100K	100 Years	14 µs (Byte Program)	1 µA	–	–	N/A	Fast read, program and erase; Low power; Small erase sector	48B-TFBGA, 32L-TSOP, 32L-PLCC
SST39LF200A	2 MB	× 16	× 16	55	3.0–3.6V	0 to 70	100K	100 Years	14 µs (Word Program)	3 µA	–	–	N/A	Fast read, program and erase; Low power; Small erase sector	48B-TFBGA, 48L-TSOP
SST39VF200A	2 MB	× 16	× 16	70	2.7–3.6V	–40 to +85	100K	100 Years	14 µs (Word Program)	3 µA	–	–	N/A	Fast read, program and erase; Low power; Small erase sector	48B-TFBGA, 48L-TSOP, 48B-WFBGA
SST39SF040	4 MB	× 8	× 8	70	4.5–5.5V	–40 to +85	100K	100 Years	14 µs (Byte Program)	30 µA	–	–	N/A	Fast read, program and erase; Low power; Small erase sector	32L-PLCC, 32L-PDIP, 32L-TSOP
SST39LF040	4 MB	× 8	× 8	55	3.0–3.6V	0 to 70	100K	100 Years	14 µs (Byte Program)	1 µA	–	–	N/A	Fast read, program and erase; Low power; Small erase sector	48B-TFBGA, 32L-TSOP, 32L-PLCC
SST39VF040	4 MB	× 8	× 8	70	2.7–3.6V	–40 to +85	100K	100 Years	14 µs (Byte Program)	1 µA	–	–	N/A	Fast read, program and erase; Low power; Small erase sector	48B-TFBGA, 32L-TSOP, 32L-PLCC
SST39LF40XC	4 MB	× 16	× 16	55	3.0–3.6V	0 to 70	100K	100 Years	7 µs (Word Program)	3 µA	Y	–	8	Fast read, program and erase; Low power; Small erase sector; Industry-standard command set and boot block structure	48B-TFBGA, 48L-TSOP, 48B-WFBGA
SST39WF400B	4 MB	× 16	× 16	70	1.65–1.95V	–40 to +85	100K	100 Years	28 µs (Word Program)	40 µA	–	–	N/A	Fast read, program and erase; Low power; Small erase sector	48B-TFBGA, 48B-WFBGA, 48B-XFBGA
SST39VF40xC	4 MB	× 16	× 16	70	2.7–3.6V	–40 to +85	100K	100 Years	7 µs (Word Program)	3 µA	Y	–	8	Fast read, program and erase; Low power; Small erase sector; Industry-standard command set and boot block structure	48B-TFBGA, 48L-TSOP, 48B-WFBGA
SST39WF800B	8 MB	× 16	× 16	70	1.65–1.95V	–40 to +85	100K	100 Years	28 µs (Word Program)	40 µA	–	–	N/A	Fast read, program and erase; Low power; Small erase sector	48B-TFBGA, 48B-WFBGA, 48B-XFBGA
SST39LF80xC	8 MB	× 16	× 16	55	3.0–3.6V	0 to 70	100K	100 Years	7 µs (Word Program)	3 µA	Y	–	N/A	Fast read, program and erase; Low power; Small erase sector; Industry-standard command set and boot block structure	48B-TFBGA, 48L-TSOP, 48B-WFBGA
SST39VF80xC	8 MB	× 16	× 16	70	2.7–3.6V	–40 to +85	100K	100 Years	7 µs (Word Program)	3 µA	Y	–	N/A	Fast read, program and erase; Low power; Small erase sector; Industry-standard command set and boot block structure	48B-TFBGA, 48L-TSOP, 48B-WFBGA
SST39VF168x	16 MB	× 8	× 8	70	2.7–3.6V	–40 to +85	100K	100 Years	7 µs (Byte Program)	3 µA	Y		64	Fast read, program and erase; Low power; Small erase sector	48B-TFBGA, 48L-TSOP
SST39WF160x	16 MB	× 16	× 16	70	1.65–1.95V	–40 to +85	100K	100 Years	28 µs (Word Program)	40 µA	Y	–	64	Fast read, program and erase; Low power; Small erase sector	48B-TFBGA, 48B-WFBGA, 48B-XFBGA
SST39VF160xC	16 MB	× 16	× 16	70	2.7–3.6V	–40 to +85	100K	100 Years	7 µs (Word Program)	3 µA	Y	–	8	Fast read, program and erase; Low power; Small erase sector; Industry-standard command set and boot block structure	48B-TFBGA, 48L-TSOP, 48B-WFBGA
SST39VF160x	16 MB	× 16	× 8	70	2.7–3.6V	–40 to +85	100K	100 Years	7 µs (Byte Program)	3 µA	Y	–	64	Fast read, program and erase; Low power; Small erase sector	48B-TFBGA, 48L-TSOP
SST39VF320xB	32 MB	× 16	× 16	70	2.7–3.6V	–40 to +85	100K	100 Years	7 µs (Word Program)	4 µA	Y	–	32	Fast read, program and erase; Low power; Small erase sector	48B-TFBGA, 48L-TSOP
SST39VF320xC	32 MB	× 16	× 16	70	2.7–3.6V	–40 to +85	100K	100 Years	7 µs (Word Program)	4 µA	Y	–	8	Fast read, program and erase; Low power; Small erase sector; Industry-standard command set and boot block structure	48B-TFBGA, 48L-TSOP
SST38VF640x	64 MB	× 16	× 16	70	2.7–3.6V	–40 to +85	100K	100 Years	7 µs/1.75 µs (Write Buffer Program)	3 µA	Y	Y	32, 8	Fast read, program and erase; Low power; Small erase sector Industry-standard command set and boot block structure, Security features	48B-TFBGA, 48L-TSOP
SST38VF640xB	64 MB	× 16	× 16	70	2.7–3.6V	–40 to +85	100K	100 Years	7 µs/1.75 µs (Write Buffer Program)	3 µA	Y	Y	32, 8	Fast read, program and erase; Low power; Industry-standard command set and boot block structure, Security features	48B-TFBGA, 48L-TSOP

Memory Products: Serial EEPROM

Bus	Product	Density	Organization	Max. Clock Frequency	Operating Voltage (V)	Temperature Range	E/W Endurance (Minimum)	Data Retention (Minimum)	Factory Programmed Serial Number	Max. Standby Current (@ 5.5V, 85°C)	Hard Pin Protect	Software Protect	Protected Array Size	5 ku Pricing ($)	Special/Unique Features	Packages
UNI/O® Bus	11xx010	1 KB	× 8	100 kHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	–	Y	W, ½, ¼	0.15	Single I/O for all clock, data, control and write protection	PDIP (P), SOIC (SN), MSOP (MS), DFN (MNY), TO-92 (TO), 3-SOT-23 (TT), WLCSP (CS)
	11xx020	2 KB	× 8	100 kHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	–	Y	W, ½, ¼	0.16	Single I/O for all clock, data, control and write protection	PDIP (P), SOIC (SN), MSOP (MS), DFN (MNY), TO-92 (TO), 3-SOT-23 (TT), WLCSP (CS)
	11xx020E48/ E64/UID	2 KB	× 8	100 kHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	Y	1 µA	–	Y	W, ½, ¼	0.25	Single I/O for all clock, data, control and write protection, Unique EUI-48™/EUI-64™ MAC address and unique ID options available	PDIP (P), SOIC (SN), MSOP (MS), DFN (MNY), TO-92 (TO), 3-SOT-23 (TT), WLCSP (CS)
	11xx040	4 KB	× 8	100 kHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	–	Y	W, ½, ¼	0.17	Single I/O for all clock, data, control and write protection	PDIP (P), SOIC (SN), MSOP (MS), DFN (MNY), TO-92 (TO), 3-SOT-23 (TT), WLCSP (CS)
	11xx080	8 KB	× 8	100 kHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	–	Y	W, ½, ¼	0.19	Single I/O for all clock, data, control and write protection	PDIP (P), SOIC (SN), MSOP (MS), DFN (MNY), TO-92 (TO), 3-SOT-23 (TT), WLCSP (CS)
	11xx160	16 KB	× 8	100 kHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	–	Y	W, ½, ¼	0.20	Single I/O for all clock, data, control and write protection	PDIP (P), SOIC (SN), MSOP (MS), DFN (MNY), TO-92 (TO), 3-SOT-23 (TT), WLCSP (CS)
Single Wire	AT21CS01	1 KB	× 8	125 kbps	1.7V–3.6V	–40°C to +85°C	1M	100 Years	Y	2.5 uA	–	Y	W, ¾, ½, ¼	0.42	Two pins only: SI/O and GND. 256-bit security register with 64-bit serial number	SOIC (SS), SOT-23 (ST), UDFN (MA), WLCSP (U), XSFN (MS)
	AT21CS11	1 KB	× 8	125 kbps	2.7V to 4.5V	–40°C to +85°C	1M	100 Years	Y	2.5 uA	–	Y	W, ¾, ½, ¼	0.42	Two pins only: SI/O and GND. 256-bit security register with 64-bit serial number	SOIC (SS), SOT-23 (ST), UDFN (MA), WLCSP (U), XSFN (MS)
I²C	24xx00	128 b	× 8	400 kHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	–	–	–	0.14	No address pins - single slave address	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MNY), 5-SOT-23 (OT)
	24xx01/014	1 KB	× 8	400 kHz	1.7V–5.5V	–40°C to +150°C	1M	200 Years	N	1 µA	Y	–	W, ½	0.14	Three address pins - cascade up to eight devices to share a common 2-wire bus. 014 has page size = 16 Bytes	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 5-SOT-23 (OT), SC70 (LT)
	AT24C01C	1 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	0.09	Three address pins - cascade up to eight devices to share a common 2-wire bus	PDIP (P), SOIC (SS), SOT-23 (ST), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C)
	AT24C01D	1 KB	x 8	1 MHz	1.7V–3.6V	–40°C to +125°C	1M	100 Years	N	0.8 uA	Y	–	W	0.07	Three address pins - cascade up to eight devices to share a common 2-wire bus	PDIP (P), SOIC (SS), SOT-23 (ST), TSSOP (X), UDFN (MA), VFBGA (C)
	AT24CS01	1 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	Y	6 µA	Y	–	W	0.15	Unique 128-bit serial number separate from the main memory array	SOIC (SS), TSOT (ST), TSSOP (X), UDFN (MA)
	AT24CSW01	1 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	Y	0.8 uA	–	Y	W, ¾, ½, ¼	0.10	Software Slave Address, 256-bit security register separate from the main array (128-bit register factory-programmed, 128-bit user programmable and permanently lockable), write protect can also be permanently locked	WLCSP (U)
	24xx02/ 024/025	2 KB	× 8	400 kHz	1.7V–5.5V 1.5V–3.6V	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W, ½	0.16	Three address pins - cascade up to eight devices to share a common 2-wire bus. 024 and 025 has page size = 16 Bytes; 025 has no write protect	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 5-SOT-23 (OT), SC70 (LT)
	24xx02E48/ E64/UID	2 KB	× 8	400 kHz	1.7V–5.5V 1.5V–3.6V	–40°C to +125°C	1M	200 Years	Y	1 µA	Y	–	W, ½	0.18	Three address pins - cascade up to eight devices to share a common 2-wire bus, unique EUI-48/EUI-64 MAC address and unique ID options available	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 5-SOT-23 (OT), SC70 (LT)
	AT24C02C	2 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	0.08	Three address pins - cascade up to eight devices to share a common 2-wire bus	PDIP (P), SOIC (SS), SOT-23 (ST), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C)
	AT24C02D	2 KB	x 8	1 MHz	1.7V–3.6V	–40°C to +125°C	1M	100 Years	N	0.8 uA	Y	–	W	0.07	Three address pins - cascade up to eight devices to share a common 2-wire bus	PDIP (P), SOIC (SS), SOT-23 (ST), TSSOP (X), UDFN (MA), VFBGA (C)
	AT24CS02	2 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	Y	6 µA	Y	–	W	0.16	Unique 128-bit serial number separate from the main memory array	SOIC (SS), TSOT (ST), TSSOP (X), UDFN (MA)
	AT24CSW02	2 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	Y	0.8 uA	–	Y	W, ¾, ½, ¼	0.11	Software Slave Address, 256-bit security register separate from the main array (128-bit register factory-programmed, 128-bit user programmable and permanently lockable), write protect can also be permanently locked	WLCSP (U)
	AT24HC02C	2 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	½	0.11	Three address pins - cascade up to eight devices to share a common 2-wire bus, half array write protect	PDIP (P), SOIC (SS), TSSOP (X)
	AT24MAC402	2 KB	x 8	1 MHz	1.7–5.5V	–40°C to +85°C	1M	100 Years	Y	6 µA	Y	Y	W, ½	0.22	Unique IEEE-provided 48-bit pre-programmed MAC/EUI address, unique read-only 128-bit serial number	SOIC (SS), TSOT (ST), TSSOP (X), UDFN (MA)
	AT24MAC602	2 KB	x 8	1 MHz	1.7–5.5V	–40°C to +85°C	1M	100 Years	Y	6 µA	Y	Y	W, ½	0.22	Unique IEEE-provided 64-bit pre-programmed MAC/EUI address, unique read-only 128-bit serial number	SOIC (SS), TSOT (ST), TSSOP (X), UDFN (MA)

Memory Products: Serial EEPROM																
Bus	Product	Density	Organization	Max. Clock Frequency	Operating Voltage (V)	Temperature Range	E/W Endurance (Minimum)	Data Retention (Minimum)	Factory Programmed Serial Number	Max. Standby Current (@ 5.5V, 85°C)	Hard Pin Protect	Software Protect	Protected Array Size	5 ku Pricing ($)	Special/Unique Features	Packages
I²C	**34xx02**	2 KB	x 8	1 MHz	1.7V–5.5V 1.5V–3.6V	–40°C to +125°C	1M	200 Years	N	1 µA	Y	Y	W, ½	0.17	1 MHz @ 2.5V, permanent and resettable software WP – DIMM-DDR2/3	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	AT34C02D	2 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	N	6 µA	Y	Y	W, lower 128 b	0.11	JEDEC EE1002 and EE1002A Serial Presence Detect (SPD) compliant EEPROM for use in DDR, DDR2, and DDR3 DIMM modules	SOIC (SS), TSSOP (X), UDFN (MA), VFBGA (C)
	24xx04/44	4 KB	x 8	400 kHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W, ½	0.17	04 has three address pins - cascade up to eight devices, 044 has two address pins - cascade up to four devices, 044 has lower current specs	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 5-SOT-23 (OT), WLCSP (CS)
	AT24C04C	4 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	0.12	Two address pins - cascade up to four devices to share a common 2-wire bus.	PDIP (P), SOIC (SS), SOT-23 (ST), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C)
	AT24C04D	4 KB	x 8	1 MHz	1.7V–3.6V	–40°C to +125°C	1M	100 Years	N	0.8 uA	Y	–	W	0.07	Two address pins - cascade up to four devices to share a common 2-wire bus.	PDIP (P), SOIC (SS), SOT-23 (ST), TSSOP (X), UDFN (MA), VFBGA (C)
	AT24CS04	4 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	Y	6 µA	Y	–	W	0.18	Unique 128-bit serial number separate from the main memory array	SOIC (SS), TSOT (ST), TSSOP (X), UDFN (MA)
	AT24CSW04	4 KB	x 8	1 MHz	1.7–5.5V	–40°C to +85°C	1M	100 Years	Y	0.8 µA	–	Y	W, ¾, ½, ¼	0.13	Software Slave Address, 256-bit security register separate from the main array (128-bit register factory-programmed, 128-bit user programmable and permanently lockable), write protect can also be permanently locked	WLCSP (U)
	AT24HC04B	4 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	N	0.8 µA	Y	–	½	0.13	Two address pins - cascade up to four devices to share a common 2-wire bus, half array write protect	PDIP (PU), SOIC (S), TSSOP (T)
	34xx04	4 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	Y	Y	W, ½	0.21	SPD for DRAM (DDR4) modules, SMBus compatible bus time out	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MUY, MNY)
	AT34C04	4 KB	x 8	1 MHz	1.7V–3.6V	–20°C to +125°C	1M	100 Years	N	4 µA	Y	Y	W, lower 128 b	0.17	JEDEC JC42.4 (EE1004-v) Serial Presence Detect (SPD) compliant	SOIC (SS), TSSOP (X), UDFN (MA)
	24xx08	8 KB	x 8	400 kHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W, ½	0.19	Three address pins - cascade up to eight devices to share a common 2-wire bus, 16 byte page write buffer	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 5-SOT-23 (OT),
	AT24C08C	8 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	0.12	One address pin - cascade up to two devices to share a common 2-wire bus	PDIP (P), SOIC (SS), SOT-23 (ST), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C)
	AT24C08D	8 KB	x 8	1 MHz	1.7V–3.6V	–40°C to +125°C	1M	100 Years	N	0.8 uA	Y	–	W	0.07	One address pin - cascade up to two devices to share a common 2-wire bus	PDIP (P), SOIC (SS), SOT-23 (ST), TSSOP (X), UDFN (MA), VFBGA (C), WLCSP (U)
	AT24CS08	8 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	Y	6 µA	Y	–	W	0.20	Unique 128-bit serial number separate from the main memory array	SOIC (SS), TSOT (ST), TSSOP (X), UDFN (MA)
	AT24CSW08	8 KB	x 8	1 MHz	1.7–5.5V	–40°C to +85°C	1M	100 Years	Y	0.8 µA	–	Y	W, ¾, ½, ¼	0.21	Software Slave Address, 256-bit security register separate from the main array (128-bit register factory-programmed, 128-bit user programmable and permanently lockable), write protect can also be permanently locked	WLCSP (U)
	24xx16	16 KB	x 8	400 kHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W, ½	0.20	Three address pins - cascade up to eight devices to share a common 2-wire bus, 16 byte page write buffer	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 5-SOT-23 (OT), WLCSP (CS)
	AT24C16C	16 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	N	6.0 µA	Y	–	W	0.12	No address pins - single slave address	PDIP (P), SOIC (SS), SOT-23 (ST), TSSOP (X), UDFN (MA), VFBGA (C), XDFN (ME)
	AT24C16D	16 KB	x 8	1 MHz	1.7V–3.6V	–40°C to +125°C	1M	100 Years	N	0.8 uA	Y	–	W	0.08	No address pins - single slave address	PDIP (P), SOIC (SS), SOT-23 (ST), TSSOP (X), UDFN (MA), VFBGA (C), WLCSP (U)
	AT24CS16	16 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	Y	6 µA	Y	–	W	0.23	Unique 128-bit serial number separate from the main memory array	SOIC (SS), TSOT (ST), TSSOP (X), UDFN (MA)
	24xx32A	32 KB	x 8	400 kHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W, ¼	0.25	Three address pins - cascade up to eight devices to share a common 2-wire bus, 32 byte page write buffer	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 5-SOT-23 (OT), WLCSP (CS)
	AT24C32D	32 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	N	0.8 uA	Y	–	W	0.13	Three address pins - cascade up to eight devices to share a common 2-wire bus	SOIC (SS), SOT-23 (ST), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C), XDFN (ME)
	AT24C32E	32 KB	x 8	1 MHz	1.7V–3.6V	–40°C to +125°C	1M	100 Years	N	0.8 uA	Y	–	W	0.10	Three address pins - cascade up to eight devices to share a common 2-wire bus	PDIP (P), SOIC (SS), SOT-23 (ST), TSSOP (X), UDFN (MA), VFBGA (C), WLCSP (U)
	AT24CS32	32 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	Y	6 µA	Y	–	W	0.27	Unique 128-bit serial number separate from the main memory array	SOIC (SS), TSOT (ST), TSSOP (X), UDFN (MA)
	24xx64	64 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M, 10M	200 Years	N	1 µA	Y	–	W, ¼	0.28	Three address pins - cascade up to eight devices to share a common 2-wire bus, 32 byte page write buffer	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 5-SOT-23 (OT), WLCSP (CS)

Memory Products: Serial EEPROM

Bus	Product	Density	Organization	Max. Clock Frequency	Operating Voltage (V)	Temperature Range	E/W Endurance (Minimum)	Data Retention (Minimum)	Factory Programmed Serial Number	Max. Standby Current (@ 5.5V, 85°C)	Hard Pin Protect	Software Protect	Protected Array Size	5 ku Pricing ($)	Special/Unique Features	Packages
I²C	**24xx65**	64 KB	× 8	1 MHz	1.8V-6V	–40°C to +125°C	1M, 10M	200 Years	N	1 µA	–	Y	up to 15 4 KB blks	0.28	Three address pins, software WP, high endurance block, page size up to 64 Bytes	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 5-SOT-23 (OT), WLCSP (CS)
	AT24C64D	64 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	0.15	Three address pins - cascade up to eight devices to share a common 2-wire bus	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C), WLCSP (U), XDFN (ME)
	AT24CS64	64 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	Y	6 µA	Y	–	W	0.32	Unique 128-bit serial number separate from the main memory array	SOIC (SS), TSSOP (X), UDFN (MA)
	24xx128	128 KB	× 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W	0.40	Three address pins - cascade up to eight devices to share a common 2-wire bus	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), WLCSP (CS)
	AT24C128C	128 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	0.22	Three address pins - cascade up to eight devices to share a common 2-wire bus	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C), WLCSP (U), XDFN (ME)
	24xx256	256 KB	× 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W	0.59	Three address pins - cascade up to eight devices to share a common 2-wire bus	PDIP (P), SOIC (SN), TSSOP (ST), SOIJ (SM), MSOP (MS), DFN (MF), WLCSP (CS), TDFN (MNY)
	24xx256UID	256 KB	× 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	Y	1 µA	Y	–	W	0.68	Three address pins - cascade up to eight devices to share a common 2-wire bus, EUI-48, EUI-64 and unique ID options available	PDIP (P), SOIC (SN), TSSOP (ST), SOIJ (SM), MSOP (MS), DFN (MF), WLCSP (CS), TDFN (MNY)
	AT24C256C	256 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	0.34	Three address pins - cascade up to eight devices to share a common 2-wire bus	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C)
	24xx512	512 KB	× 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W	0.90	Three address pins - cascade up to eight devices to share a common 2-wire bus	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MF), SOIJ (SM), WLCSP (CS)
	AT24C512C	512 KB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	40 Years	N	6 µA	Y	–	W	0.65	Three address pins - cascade up to eight devices to share a common 2-wire bus	SOIC (SS), SOIJ (S), TSSOP (X), UDFN (MA), VFBGA (C), WLCSP (U)
	24xx1025/26	1 MB	× 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	200 Years	N	5 µA	Y	–	W	2.22	Two address pins - cascade up to four devices to share a common 2-wire bus, 25 and 26 difference is address pins	PDIP (P), SOIC (SN), SOIJ (SM)
	AT24CM01	1 MB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	40 Years	N	6 µA	Y	–	W	0.99	Two address pins - cascade up to four devices to share a common 2-wire bus.	SOIC (SS), SOIJ (S), TSSOP (X), WLCSP (U)
	AT24CM02	1 MB	x 8	1 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	1.16	Two address pins - cascade up to four devices to share a common 2-wire bus.	SOIC (SS), WLCSP (U)
Microwire	**93xx46A/B/C**	1 KB	× 8, × 16	3 MHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	–	–	–	0.16	ORG pin to select word size on 46C version; EUI-48 option available	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	93xx46AE48	1 KB	× 8, × 16	3 MHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	–	–	–	0.18	ORG pin to select word size on 46C version; EUI-48 option available	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	AT93C46D	1 KB	× 8, × 16	2 MHz	1.7V–5.5V	–40°C to +125°C	1M	100 Years	N	15 µA	–	–	–	0.09	User-selectable x 8 or x 16 Internal Organization	PDIP (P), PDIP (PU), SOIC (S), TSSOP (T), UDFN (Y), VFBGA (U)
	AT93C46E	1 KB	x 16	2 MHz	1.8V–5.5V	–40°C to +85°C	1M	100 Years	N	15 µA	–	–	–	0.11	x 16 organization only	PDIP (BP), PDIP (PU), SOIC (S), TSSOP (T)
	93xx56A/B/C	2 KB	× 8, × 16	3 MHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	–	–	–	0.17	ORG pin to select word size in 56C version	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	AT93C56B	2 KB	× 8, × 16	2 MHz	1.8V–5.5V	–40°C to +125°C	1M	100 Years	N	15 µA	–	–	–	0.12	User-selectable x 8 or x 16 Internal Organization	SOIC (SS), TSSOP (X), UDFN (MA), VFBGA (C), XDFN (ME)
	93xx66A/B/C	4 KB	× 8, × 16	3 MHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	–	–	–	0.19	ORG pin to select word size in 66C version	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	AT93C66B	4 KB	× 8, × 16	2 MHz	1.8V–5.5V	–40°C to +125°C	1M	100 Years	N	15 µA	–	–	–	0.11	User-selectable x 8 or x 16 Internal Organization	SOIC (SS), TSSOP (X), UDFN (MA), VFBGA (C), XDFN (ME)
	93xx76A/B/C	8 KB	× 8, × 16	3 MHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W	0.25	ORG pin to select word size in 76C version	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	93xx86A/B/C	16 KB	× 8, × 16	3 MHz	1.8V–5.5V	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W	0.28	ORG pin to select word size in 86C version	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	AT93C86A	16 KB	× 8, × 16	2 MHz	1.8V–5.5V	–40°C to +125°C	1M	100 Years	N	15 µA	–	–	–	0.18	User-selectable x 8 or x 16 Internal Organization	PDIP (PU), SOIC (S), TSSOP (T), UDFN (Y)

Memory Products: Serial EEPROM																
Bus	Product	Density	Organization	Max. Clock Frequency	Operating Voltage (V)	Temperature Range	E/W Endurance (Minimum)	Data Retention (Minimum)	Factory Programmed Serial Number	Max. Standby Current (@ 5.5V, 85°C)	Hard Pin Protect	Software Protect	Protected Array Size	5 ku Pricing ($)	Special/Unique Features	Packages
SPI	**25xx010A**	1 KB	× 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	0.28	5 MHz @ 2.5V, Status register, 16 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	AT25010B	1 KB	× 8	20 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	3.5 µA	Y	Y	W, ½, ¼	0.12	Supports SPI Modes 0 (0, 0) and 3 (1, 1)	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C)
	25xx020A	2 KB	× 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	0.29	5 MHz @ 2.5V, Status register, 16 byte page, Unique EUI-48/EUI-64 MAC address and unique ID options available	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	25xx020E48/ E64/UID	2 KB	× 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	Y	1 µA	Y	Y	W, ½, ¼	0.30	5 MHz @ 2.5V, Status register, 16 byte page, Unique EUI-48/EUI-64 MAC address and unique ID options available	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	AT25020B	2 KB	× 8	20 MHz	1.7–5.5	-40°C to +125°C	1M	100 Years	N	3.5 µA	Y	Y	W, ½, ¼	0.15	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP)
	25xx040A	4 KB	× 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	0.31	5 MHz @ 2.5V, Status register, 16 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	AT25040B	4 KB	× 8	20 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	3.5 µA	Y	Y	W, ½, ¼	0.13	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C)
	25xx080C/D	8 KB	× 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	0.37	16/32 byte page, 5 MHz @ 2.5V, Status register	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY)
	AT25080B	8 KB	× 8	5 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	13 µA	Y	Y	W, ½, ¼	0.16	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C), WLCSP (U), XDFN (ME)
	25xx160C/D	16 KB	× 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	0.39	16/32 byte page, 5 MHz @ 2.5V, Status register	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY)
	AT25160B	16 KB	× 8	5 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	13 µA	Y	Y	W, ½, ¼	0.17	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C), XDFN (ME)
	25xx320A	32 KB	× 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	0.42	5 MHz @ 2.5V, Status register, 32 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY)
	AT25320B	32 KB	× 8	5 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	13 µA	Y	Y	W, ½, ¼	0.22	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C), XDFN (ME)
	25xx640A	64 KB	× 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	0.43	5 MHz @ 2.5V, Status register, 32 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY, MF)
	AT25640B	64 KB	× 8	5 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	13 µA	Y	Y	W, ½, ¼	0.32	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C), XDFN (ME)
	25xx128	128 KB	× 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	0.65	5 MHz @ 2.5V, Status register, 64 byte page	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MF)
	AT25128B	128 KB	× 8	20 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	5.0 µA	Y	Y	W, ½, ¼	0.41	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C)
	25xx256	256 KB	× 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	0.87	5 MHz @ 2.5V, Status register, 64 byte page	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MF), SOIJ (SM)
	AT25256B	256 KB	× 8	20 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	5.0 µA	Y	Y	W, ½, ¼	0.75	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (SS), SOIJ (S), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C)
	25xx512	512 KB	× 8	20 MHz	1.8–5.5	–40°C to +125°C	1M	200 Years	N	10 µA	Y	Y	W, ½, ¼	1.21	10 MHz @ 2.5V, Deep power down, Status register, Page/sector/chip erase	PDIP (P), SOIC (SN), DFN (MF), SOIJ (SM)
	AT25512	512 KB	× 8	20 MHz	1.8–5.5	–40°C to +85°C	1M	40 Years	N	5.0 µA	Y	Y	W, ½, ¼	0.95	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (S), TSSOP (T), UDFN (Y)
	25xx1024	1 MB	× 8	20 MHz	1.8–5.5	–40°C to +125°C	1M	200 Years	N	12 µA	Y	Y	W, ½, ¼	2.28	10 MHz @ 2.5V, Deep power down, Status register, Page/sector/chip erase	PDIP (P), DFN (MF), SOIJ (SM)
	AT25M01	1 MB	× 8	20 MHz	1.7–5.5	–40°C to +85°C	1M	100 Years	N	5.0 µA	Y	Y	W, ½, ¼	1.18	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (SS), SOIJ (S), UDFN (MF), WLCSP (U)
	AT25M02	2 MB	× 8	5 MHz	1.7–5.5	–40°C to +85°C	1M	40 Years	N	3.0 µA	Y	Y	W, ½, ¼	1.24	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (SS), WLCSP (U)

Memory Products: Serial RAM

Bus	Product	Density	Organization	Max. Clock Frequency	Operating Voltage (V)	Temperature Range (°C)	E/W Endurance (Minimum)	Data Retention (Minimum)	Max. Standby Current (@ 5.5V, 85°C)	Hard Pin Protect	Software Protect	Protected Array Size	5 ku Pricing ($)	Special/ Unique Features	Packages
Serial SRAM															
SPI	**23x640**	64 KB	× 8	20 MHz	1.5–1.95, 2.7–3.6	–40 to +125	∞	Volatile	4 µA	–	–	–	0.51	Zero write cycle time, Infinite endurance, Volatile RAM, Byte/page/sequential read-write modes	PDIP (P), SOIC (SN), TSSOP (ST)
SPI	**23x256**	256 KB	× 8	20 MHz	1.5–1.95, 2.7–3.6	–40 to +125	∞	Volatile	4 µA	–	–	–	0.87	Zero write cycle time, Infinite endurance, Volatile RAM, Byte/page/sequential read-write modes	PDIP (P), SOIC (SN), TSSOP (ST)
SPI	**23xx512**	512 KB	× 8	20 MHz	1.7–2.2, 2.5–5.5	–40 to +125	∞	Volatile	4 µA	–	–	–	1.24	Fast Speed: Quad SPI available (80 MHz), Infinite endurance, Zero write times, 5V capable	SOIC (SN), PDIP (P), TSSOP (ST)
SPI	**23xx1024**	1024 KB	× 8	20 MHz	1.7–2.2, 2.5–5.5	–40 to +125	∞	Volatile	4 µA	–	–	–	1.73	Fast Speed: Quad SPI available (80 MHz), Infinite endurance, Zero write times, 5V capable	SOIC (SN), PDIP (P), TSSOP (ST)
Serial NVSRAM															
SPI	**23LCV512**	512 KB	× 8	20 MHz	2.5–5.5	–40 to +85	∞	20 Years via battery	4 µA	–	–	–	1.4	Battery-backed non-volatile SRAM, Infinite endurance, Zero write times	SOIC (SN), PDIP (P), TSSOP (ST)
SPI	**23LCV1024**	1024 KB	× 8	20 MHz	2.5–5.5	–40 to +85	∞	20 Years via battery	4 µA	–	–	–	1.98	Battery backed non-volatile SRAM, Infinite endurance, Zero write times	SOIC (SN), PDIP (P), TSSOP (ST)
Serial EERAM															
I²C	**47x04**	4 KB	× 8	1 MHz	2.7–3.6, 4.5–5.5	–40 to +125	∞	200 Years	40 µA	–	Y	W to 1/64	0.47	Unlimited endurance to SRAM, Data automatically backed up to EEPROM and power down (with small external capacitor)	SOIC (SN), PDIP (P), TSSOP (ST)
I²C	**47x16**	16 KB	× 8	1 MHz	2.7–3.6, 4.5–5.5	–40 to +125	∞	200 Years	40 µA	–	Y	W to 1/64	0.54	Unlimited endurance to SRAM, Data automatically backed up to EEPROM and at power down (with small extenal capacitor)	SOIC (SN), PDIP (P), TSSOP (ST)

Memory Products: Parallel EEPROM

Product	Data Retention (Minimum)	Write Speed (Typical)	Typ. Standby Current	Hard Pin Protect	Software Protect	Protected Array Size	5 ku Pricing ($)	Packages
AT28xx64B	10 Years	10 ms	100 µA CMOS, 2 mA TTL	Y	Y	W	2.57	PLCC (32J), SOIC (28S), TSOP (28T), PDIP (28P)
AT28xx256/E/F	10 Years	10 ms	Ind. 200 µA CMOS, Mil. 300 µA CMOS, 3 mA TTL	Y	Y	W	Ind. 5.35, Mil. 87.45	PLCC (32J), SOIC (28S), TSOP (28T), PDIP (28P), CERDIP (28D), CLCC (32L), FLATPACK (28F)
AT28xx010/E	10 Years	10 ms	Ind. 200 µA CMOS, Mil. 300 µA CMOS, 3 mA TTL	Y	Y	W	Ind. 23.70, Mil. 219.58	PLCC (32J), SOIC (28S), TSOP (32T), CERDIP (32D), CLCC (32L), FLATPACK (32F)
AT28HC64B/F	10 Years	10 ms	100 µA CMOS, 2 mA TTL	Y	Y	W	3.93	PLCC (32J), SOIC (28S), TSOP (28T)
AT28HC256/E/F	10 Years	10 ms	300 µA CMOS, 3 mA TTL, 60 mA TTL for 70ns	Y	Y	W	Ind. 7.21, Mil. 96.91	PLCC (32J), SOIC (28S), TSOP (28T), CERDIP (28D), CLCC (32L), FLATPACK (28F)

Memory Products: One Time Programmable (OTP) EPROM

Product	Density	Organization	Access Time	Operating Voltage (V)	Temperature Range	E/W Endurance (Minimum)	Data Retention (Minimum)	Write Speed (Typical)	Typ. Standby Current	5 ku Pricing ($)	Packages
AT27xx256x	256 KB	× 8	45, 70, 90	BV - 2.7–3.6, C -, 4.5–5.5 LV - 3.0–3.6	–40°C to +85°C	–	10 Years	PGM program pulse width = 105 µs/byte	20µA max @ Vcc 3.6V 100 µA max @ 5.5V	1.21	PLCC (32J), PDIP (28P)
AT27xx512x	512 KB	× 8	45, 70, 90	C - 4.5–5.5 3.0–3.6	–40°C to +85°C	–	10 Years	PGM program pulse width = 105 µs/byte	20µA max @ Vcc 3.6V 100 µA max @ 5.5V	1.35	PLCC (32J), PDIP (28P)
AT27xx010x	1 MB	× 8	45, 70, 90	BV - 2.7–3.6 C - 4.5–5.5 LV - 3.0–3.6	–40°C to +85°C	–	10 Years	PGM program pulse width = 105 µs/byte	20µA max @ Vcc 3.6V 100 µA max @ 5.5V	1.68	PLCC (32J), PDIP (32P)
AT27xx1024	1 MB	× 16	45, 70, 90	BV - 2.7–3.6 C - 4.5–5.5	–40°C to +85°C	–	10 Years	PGM program pulse width = 105 µs/byte	20µA max @ Vcc 3.6V 100 µA max @ 5.5V	2.14	PLCC (44J), PDIP (40P)
AT27xx020x	1 MB	× 8	55, 90, 120	C - 4.5–5.5 LV - 3.0–3.6	–40°C to +85°C	–	10 Years	PGM program pulse width = 105 µs/byte	20µA max @ Vcc 3.6V 100 µA max @ 5.5V	2.10	PLCC (32J), PDIP (32P)
AT27C2048	1 MB	× 16	55, 90	C - 4.5–5.5	–40°C to +85°C	–	10 Years	PGM program pulse width = 52.5 µs/byte	100 µA max @ 5.5V	3.05	PLCC (44J)
AT27xx040x	1 MB	× 8	70, 90	C - 4.5–5.5 LV - 3.0–3.6	–40°C to +85°C	–	10 Years	PGM program pulse width = 105 µs/byte	20µA max @ Vcc 3.6V 100 µA max @ 5.5V	3.24	PLCC (32J), PDIP (32P)
AT27C4096	1 MB	× 16	55, 90	C - 4.5–5.5	–40°C to +85°C	–	10 Years	PGM program pulse width = 52.5 µs/byte	100 µA max @ 5.5V	4.55	PLCC (44J), PDIP (40P)
AT27C080	1 MB	× 8	90	C - 4.5–5.5	–40°C to +85°C	–	10 Years	PGM program pulse width = 52.5 µs/byte	100 µA max @ 5.5V	7.13	PLCC (32J), PDIP (32P)

Memory Products: Real-Time Clock/Calendar (RTCC)

Bus	Product	Pins	Timing Features				Memory			Power		Unique Features (2)	5 ku Pricing ($)	Packages
			Digital Trimming (Adj./Range)	Alarm Settings	WDT	Outputs	SRAM (Bytes)	EEPROM (KBits)	Protected EEPROM (bits)	Min Vcc	Min Ibat			
I²C	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	1.3	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)
SPI	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 (MN)
	MCP795W1x	14	±255 ppm	0.01 sec.	Y	IRQ/CLK/WDT RST	64	1	128	1.8	1.3	Power Fail Timestamp, Event Detects (× 2)	1.22	SOIC (SL), TSSOP (ST)
	MCP795W2x	14	±255 ppm	0.01 sec.	Y	IRQ/CLK/WDT RST	64	2	128	1.8	1.3	Power Fail Timestamp, Event Detects (× 2)	1.28	SOIC (SL), TSSOP (ST)

Wireless Products: Wi-Fi® Modules

Product	Radio	Pin Count	Antenna	Frequency Range (GHz)	Sensitivity (dBm)	Power Output (dBm)	Tx Power Consumption (mA)	Rx Power Consumption (mA)	Encryption/ Security	Interface	Packages (Dimensions)
ATSAMW25	802.11 b/g/n	51	Chip, PCB, U.FL	2.412–2.472	–98	17	264	61	WEP, WPA/WPA2 Personal and Enterprise, TLS	SPI	51/Module (33.9 x 14.9 mm)
ATWINC1500	802.11 b/g/n	28	Chip, PCB, U.FL	2.412–2.472	–89	17	264	61	WEP, WPA/WPA2 Personal and Enterprise, TLS	SPI	28/Module (21.7 x 14.7mm)
ATWINC3400-MR	802.11 b/g/n and BLE	36	Chip	2.412–2.484	–96	4 (BLE), 14 (Wi-Fi)	350 (Wi-Fi)	92 (Wi-Fi), 45 (BLE)	WEP, WPA/WPA2 Personal	SPI, UART	Module (22.4 x 14.7 mm)
ATWILC1000-MR	802.11 b/g/n	28	PCB	2.412–2.484	–96	15	289	52.5	WEP, WPA/WPA2 Personal and Enterprise, TLS (Linux) WEP, WPA/WPA2 Personal and Enterprise (RTOS)	SPI, SDIO	Module (21.5 x 14.5 mm)
ATWILC3000-MR	802.11 b/g/n and BLE	36	Chip	2.412–2.484	–96	4 (BLE), 14 (Wi-Fi)	295 (Wi-Fi), 110 (BLE)	86 (Wi-Fi), 45 (BLE)	WEP, WPA/WPA2 Personal and Enterprise, TLS (Linux) WEP, WPA/WPA2 Personal (RTOS)	SPI, SDIO, UART	Module (22.4 x 14.7 mm)

Wireless Products: IEEE 802.15.4 Transceivers/Modules

Product	Pin Count	Antenna	Frequency Range (GHz)	Sensitivity (dBm)	Power Output (dBm)	RSSI	Tx Power Consumption (mA)	Rx Power Consumption (mA)	Clock (MHz)	Sleep	MAC	MAC Features	Protocols	Encryption	Interface	Packages (Dimensions)
AT86RF215	48	–	.3895 –2.483	–123	+14.5	Yes	62	28	26	.03 mA	Yes	–	zigbee®, MiWi™ wireless networking protocol	–	I/Q	48 QFN
AT86RF233	32	–	2.4	–101	4	Yes	13.8	11.8	16	.02 mA	Yes	CSMA-CA	zigbee, MiWi wireless networking protocol	AES128	SPI	32 QFN
AT86RF212B	32	–	.769 –.930	–110	11	Yes	18	9.2	16	.2 mA	Yes	CSMA-CA	zigbee, MiWi wireless networking protocol	AES128	SPI	32 QFN
MR.F24J40	40	–	2.405–2.48	–95	0	Yes	23	19	20	2 µA	Yes	CSMA-CA	zigbee, MiWi wireless networking protocol	AES128	4-wire SPI	40/QFN
MRF24J40MA	12	PCB	2.405–2.48	–94	0	Yes	23	19	20	2 µA	Yes	CSMA-CA	zigbee, MiWi wireless networking protocol	AES128	4-wire SPI	12/Module (17.8 × 27.9 mm)
MRF24J40MD	12	PCB	2.405–2.48	–104	+19	Yes	140	32	20	10 µA	Yes	CSMA-CA	zigbee, MiWi wireless networking protocol	AES128	4-wire SPI	12/Module (17.8 × 27.9 mm)
MRF24J40ME	12	U.FL	2.405–2.48	–104	+19	Yes	140	32	20	10 µA	Yes	CSMA-CA	zigbee, MiWi wireless networking protocol	AES128	4-wire SPI	12/Module (17.8 × 27.9 mm)

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

Wireless Products: Bluetooth®									
Product	Functionality	No Shield Option	Rx Sensitivity (dBm)	Power Output (dBm) (typ.)	Sleep	Profiles	Interface	Pin Count	Packages (Dimensions)
RN4020	Data, Single-Mode BLE	No	–92.5	7	Dormant < 700 nA, deep sleep < 5.0 µA	GAP, GATT, SM, L2CAP, integrated public profiles	UART, PIO, AIO, SPI	24	11.5 × 19.5 mm Module
ATBTLC1000-ZR	Data, Single-Mode BLE	No	–93	–20 to +3.5	1.17 µA	L2CAP, SM, ATT, GATT, GAP, Integrated public profiles	UART	24	12.7 x 20 x 2.1 mm Module
ATSAMB11-ZR	Data, Single-Mode BLE	No	–95	–20 to +3.5	2 µA	L2CAP, SM, ATT, GATT, GAP, Integrated public profiles	UART	39	15.4 x 22.9 x 2.1 mm Module
BM70	Data, Single-Mode BLE	Yes	–90	0	Power Saving 1 µA	GAP, GATT, SM, L2CAP, Integrated public profiles	UART, I²C, SPI, ADC, PWM, GPIOs	33	22 × 12 × 2.4 mm 15 × 12 × 1.8 mm Module
BM71	Data, Single-Mode BLE	Yes	–90	0	Power Saving 1 µA	GAP, GATT, SM, L2CAP, Integrated public profiles	UART, I²C, SPI, ADC, PWM, GPIOs	17	9 × 11.5 × 2.1 mm 6 × 8 × 1.6 mm Module
BM78	Data, Dual-Mode	Yes	–90 (BR/EDR) –92 LE	2	Deep Power Down 130 µA	GAP, SPP, SDP, RFCOMM, L2CAP GAP, GATT, ATT, SMP, L2CAP	UART, I²C, GPIOs	33	22 × 12 × 2.4 mm 15 × 12 × 1.8 mm Module
RN4678	Data, Dual-Mode	Yes	–90 (BR/EDR) –92 LE	2	Deep Power Down 130 µA	GAP, SPP, SDP, RFCOMM, L2CAP GAP, GATT, ATT, SMP, L2CAP	UART, I²C, GPIOs	33	22 × 12 × 2.4 mm 15 × 12 × 1.8 mm Module
BM20	Audio	Yes	–91	4	System Off 2 µA	HFP, HSP, A2DP, AVRCP, SPP, PCAP	Analog audio out, mic in, line in, UART	40	29 × 15 × 2.5 mm Module
BM23	Audio	Yes	–91	4	System Off 2 µA	HFP, HSP, A2DP, AVRCP, SPP, PCAP	I²S Digital audio out, mic in, line in, UART	43	29 × 15 × 2.5 mm Module
BM62	Audio	Yes	–90	+2 (Class 2)	System < 10 µA	HFP, AVRCP, A2DP, HSP, SPP	UART	37	29 x 15 x 2.5 mm Module
BM64	Audio	Yes	–90	+15 (Class 1), +2 (Class 2)	System < 10 µA	HFP, AVRCP, A2DP, HSP, SPP	UART	43	32 x 15 x 2.5 mm Module
Wireless Products: Bluetooth ICs									
IS2062	Audio	Yes	–90	+2 (Class 2)	System < 20 µA	HFP, AVRCP, A2DP, HSP, SPP	UART	56	LGA (7 x 7 mm) Module
IS2064	Audio	Yes	–90	+15 (Class 1), +2 (Class 2)	System < 20 µA	HFP, AVRCP, A2DP, HSP, SPP	UART	68, 61	68 LGA (8 x 8 x 1.0), 68 QFN (8 x 8 x 0.9), 61 BGA (5 x 5 x 0.9) Module
IS2021S	Audio	No	–90	4	Showdown 1 µA	Audio: HFP, HSP, A2DP, AVRCP, SPP, PBAP	UART	48, 56, 68	5 × 6.5 mm 48 QFN package (IS2021S) 7 × 7 mm 56 QFN package (IS2020S, IS2023S) 8 × 8 mm 68 QFN package (IS2025S) Module

Wireless Products: 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	Packages
MRF89XAM8A	12	868	–113	12.5	Yes	25 mA @ +10 dBm	3	12.8 MHz	0.1 µA	4-wire SPI	12/Module (17.8 × 27.9 mm)
MRF89XAM9A	12	915	–113	12.5	Yes	25 mA @ +10 dBm	3	12.8 MHz	0.1 µA	4-wire SPI	12/Module (17.8 × 27.9 mm)
MRF89XA	32	868/915/950	–113	12.5	Yes	25 mA @ +10 dBm	3	12.8 MHz	0.1 µA	4-wire SPI	32-pin TQFN

Wireless Products: Sub-GHz Transmitters						
Product	Pin Count	Frequency Range (MHz)	Modulation	Data Rate (Kbps)	Tx Power (dBm)	Operating Voltage (V)	Packages
MICRF114	6	285–445	OOK	115.2 (NRZ), 57.6 (Manchester Encoded)	10	1.8–3.6	6-pin SOT-23
MICRF113	6	300–450	ASK	20	10	1.8–3.6	6-pin SOT-23
MICRF112	10	300–450	ASK/FSK	50 (ASK), 10 (FSK)	10	1.8–3.6	10-pin MSOP, 10-pin DFN

Wireless Products: Sub-GHz Receivers										
Product	Pin Count	Frequency Range (MHz)	Sensitivity (dBm)	Power Output (dBm)	RSSI	Modulation	RX Power Consumption (mA)	Sleep	Interface	Packages
MICRF219A	16	300–450	–110	–	Yes	ASK/OOK	4.3	–	–	16-pin QSOP
MICRF220	16	300–450	–110	–	Yes	ASK/OOK	4.3	–	–	16-pin QSOP
MICRF221	16	850–950	–109	–	Yes	ASK/OOK	9	–	–	16-pin QSOP
MICRF229	16	400–450	–112	–	Yes	ASK/OOK	6	–	–	16-pin QSOP
MICRF230	16	400–450	–112	–	Yes	ASK/OOK	6	–	–	16-pin QSOP

Wireless Products: LoRa® Technology Modems										
Product	Pin Count	Frequency Range (MHz)	Sensitivity (dBm)	Power Output (dBm)	RSSI	TX Power Consumption (mA)	RX Power Consumption (mA)	Sleep	Interface	Packages
RN2483	47	433/868	–148	14	N/A	40 mA @ +14 dBm (868 MHz)	14.2	1 µA	UART	47/Module (17.8 × 26.7 × 3 mm)
RN2903	47	915	–146	18.5	N/A	124 mA @ +18.5 dBm	13.5	2 µA	UART	47/Module (17.8 × 26.7 × 3 mm)
ATSAMR34	64	137–1020	–136	20	N/A	95 mA @ +17 dBm	20	1.5 µA	USB, UART, SPI, I²C	64-pin QFN

Wireless Products: rfPIC® Transmitters + PIC® MCUs														
Product	I/O Pins	Frequency Range (MHz)	Program Memory (Bytes)	EEPROM (bytes)	RAM (bytes)	Digital Timer	Watchdog Timer	Max. Speed (MHz)	ICSP™ Programming Capability	Modulation	Data Rate (kbps)	Output Power (dBm)	Operating Voltage	Packages
PIC12F529T39A	6	310–928	2.3K	64	201	1	1	8	Yes	OOK/FSK	100	10	2.0–3.7	14-pin TSSOP
PIC12LF1840T39A	6	310–928	7.1K	256	256	2	1	32	Yes	OOK/FSK	100	10	1.8–3.6	14-pin TSSOP
PIC16LF1824T39A	20	310–928	4K	256	256	1	1	32	Yes	OOK/FSK	100	10	1.8–3.6	20-pin TSSOP
rfPIC12F675F	6	380–450	1.7K	128	64	1	1	20	Yes	ASK/FSK	40	10	2.0–5.5	20-pin SSOP
rfPIC12F675H	6	850–930	1.7K	128	64	1	1	20	Yes	ASK/FSK	40	10	2.0–5.5	20-pin SSOP
rfPIC12F675K	6	290–350	1.7K	128	64	1	1	20	Yes	ASK/FSK	40	10	2.0–5.5	20-pin SSOP

USB Products						
Product	**Description**	**Processor Interface**	**# of Downstream Ports**	**Card Formats**	**Industrial Version**	**Packages**
USB 2.0 Hubs/Controllers						
USB2412	Hi-Speed USB 2.0 2-Port Hub	USB 2.0	2	–	–	28-pin QFN
USB2422	Small-footprint, 2-Port Value Hub, Commercial and Industrial Temperature with USB Battery Charging 1.1	USB 2.0	2	–	✓	24-pin QFN
USB251XB/ USB2517	Hi-Speed USB 2.0 Hub with Battery Charger Detection	USB 2.0	2, 3, 4, 7 port options	–	✓	36- or 64-pin QFN
USB2524	4-Port Hi-Speed USB 2.0 Multi-Switch Hub	USB 2.0 × 2	4	–	–	56-pin QFN
USB3503	3-Port Hi-Speed USB 2.0 HSIC Hub for Mobile Applications	HSIC	3	–	✓	25-ball WLCSP
USB3803	3-Port Hi-Speed USB 2.0 Hub for Mobile Applications	USB 2.0	3	–	✓	25-ball WLCSP
USB3X13	3-Port Hi-Speed USB 2.0 Smart Hub for Mobile Applications	USB 2.0 or HSIC	3 (USB 2.0 ×2/HSIC ×1)	–	✓	30-ball WLCSP
USB253X	USB2.0 Hi-Speed Smart Hub with Battery Charging Detection	USB 2.0	2, 3, 4 port options	–	✓	36-pin QFN
USB46X4	Hi-Speed USB 2.0 Controller Hub with USB and HSIC Interfaces	USB 2.0 or HSIC	4 (USB 2.0 ×4 or USB 2.0 ×2/HSIC ×2)	–	✓ Automotive	48-pin QFN
USB8460X	Automotive Smart Hub, Host/Device Switching, USB/HSIC interfaces	USB 2.0	2 or 4 ports	–	Automotive only	48-pin QFN
USB491X	Automotive Smart Hub, Multi-Host Endpoint Reflector	USB 2.0	3 or 5 ports	–	Automotive only	48- or 64-pin QFN
USB4715	Smart Hub, FlexConnect on all ports	USB 2.0	4 ports	–	✓ Automotive	48-pin QFN
USB492X	Automotive Smart Hub, Dual Upstream architecture	USB 2.0	3 or 5 ports	–	Automotive only	48- or 64-pin QFN
USB 3.x Hubs/Controllers						
USB5537B	SuperSpeed Hub with Battery Charger Detection	USB 3.0	2, 3, 4 or 7 port options	–	–	64- or 72-pin QFN
USB5734	SuperSpeed Smart Hub with I/O Bridging and FlexConnect	USB 3.1 Gen1	4	–	✓	64-pin QFN
USB574X	SuperSpeed Smart Hub with FlexConnect	USB 3.1 Gen1	2 or 4 port options	–	✓	56-pin QFN
USB58XX	SuperSpeed Smart Hub with I/O Bridging and FlexConnect with USB-C™ support downstream	USB 3.1 Gen1	6 or 7 port options	–	✓	100-pin QFN
USB59X	SuperSpeed Smart Hub with I/O Bridging and FlexConnect with USB-C support upstream and downstream	USB 3.1 Gen1	6	–	✓	100-pin QFN
USB553XB	SuperSpeed USB 3.0 Hub with Battery Charger Detection	USB 3.0	2, 3, 4 or 7 port options	–	✓	64- or 72-pin QFN
USB5734	SuperSpeed USB 3.1 Gen1 Smart Hub Controller with I/O Bridging and FlexConnect	USB 3.1 Gen1	4	–	✓ Automotive	64-pin QFN
USB5744	SuperSpeed USB 3.1 Gen1 Small Form Factor Hub Controller	USB 3.1 Gen1	4	–	✓	56-pin QFN

USB Products						
Product	**Description**	**Processor Interface**	**# of Downstream Ports**	**Card Formats**	**Industrial Version**	**Packages**
USB-C™ Power and Charging						
UTC200X	USB-C Controller	I/O	1 DFP or 1 UFP	–	✓ Automotive	16-pin QFN
USB Transceivers/Switches						
USB333X	Mobile Hi-Speed USB 2.0 Transceiver with Multi-frequency Support	ULPI	–	–	✓	25-ball WLCSP
USB334X	Hi-Speed USB 2.0 Transceiver with Multi-frequency Support	ULPI	–	–	Automotive	24- or 32-pin QFN
USB3300	Hi-Speed USB 2.0 Transceiver (24 MHz reference clock support)	ULPI	–	–	✓	32-pin QFN
USB3740B	Hi-Speed USB 2.0 Switch with Extremely Low Power	USB 2.0	–	–	✓	10-pin QFN
USB375XA-X	Hi-Speed USB 2.0 Port Protection with Switch and Charger Detection	USB 2.0	–	–	✓	16-pin QFN
USB Flash Media Controllers						
USB224X	Hi-Speed USB 2.0 Multi-Format Flash Media Controller	USB 2.0	–	SD™/MMC/eMMC™/MS/xD	✓	36-pin QFN
USB225X	Hi-Speed USB 2.0 Multi-Format Flash Media Controller	USB 2.0	–	SD/MMC/eMMC/MS/xD/CF	✓	128-pin VTQFP
USB264X	Hi-Speed USB 2.0 Multi-Format Flash Media Hub Controller	USB 2.0	2	SD/MMC/eMMC/MS/xD	✓ Automotive	48-pin QFN
USB2660	Hi-Speed USB 2.0 Multi-Format Flash Media Hub Controller	USB 2.0	2	SD/MMC/eMMC/MS/xD (×2)	✓	64-pin QFN
USB4640	USB 2.0 Hi-Speed Smart Hub with HSIC interface Option	HSIC	2	SD/MMC/eMMC/MS/xD	✓	48-pin QFN

USB Products							
USB-C™/Power Delivery Controllers							
Product	**Description**	**PD Version**	**Interface**	**Port Power Controller**	**Industrial Version**	**# of Pins**	**Packages**
UPD360	PD 2.0 Compliant USB-C PD Controller with Integrated PPC	PD 2.0	I²C, SPI	Yes	No	44	BGA
UPD350	PD 3.0 Compliant USB-C PD Controller	PD 3.0	I²C, SPI	No	Yes + Auto	28, 40	QFN
UTC2000	USB-C Controller	Type-C	None	No	Yes + Auto	16	QFN

USB Security						
Product	**Description**	**Processor Interface**	**# of Downstream Ports**	**Card Formats**	**Industrial Version**	**Package**
SEC1110	Smart Card Controller	USB 2.0	–	Smart Card	✓	16-pin QFN
SEC1210	Smart Card Controller with Multi-Interface Support	USB, UART	–	Smart Card ×2	✓	24-pin QFN

Ethernet Products						
Product	**Description**	**Interface (Upstream)**	**Wake-on-LAN**	**EEE**	**Industrial Version**	**Packages**
Ethernet Controllers						
ENC28J60	10Base-T Ethernet Controller	SPI	–	–	✓	28-pin SPDIP, SSOP, SOIC, QFN
ENC624J600	10Base-T/100Base-TX Ethernet Controller with Security	SPI/Parallel	–	–	✓	24-pin TQFN, QFN, 64-pin TQFN
LAN9217	10Base-T/100Base-TX Ethernet Controller with 16-bit/MII interface	16-bit Host Bus/MII	–	–	–	100-pin TQFP
LAN9218	10Base-T/100Base-TX Ethernet Controller with 32-bit interface	32-bit Host Bus	–	–	✓	100-pin TQFP
LAN9221	10Base-T/100Base-TX Ethernet Controller with 16-bit interface	16-bit Host Bus	–	–	✓	56-pin QFN
LAN9250	10Base-T/100Base-TX	SPI, SQI™, HBI	✓	✓	–	64-pin QFN, 64-pin TQFP-EP
LAN9420	10Base-T/100Base-TX Ethernet Controller with 32-bit PCI interface	32-bit PCI 3.0	–	–	✓	128-pin VTQFP
LAN89218	TrueAuto, 10Base-T/100Base-TX Ethernet Controller with 32-bit interface	32-bit Host Bus	–	–	Automotive	100-pin TQFP
KSZ8851	10/100Base-TX Ethernet Controller	8-/16-/32-bit or SPI	✓	–	Automotive	32-pin QFN, 48-pin LQFP, 128-pin PQFP
KSZ8852	2-Port 10/100Base-TX Ethernet Controller	8-/16-/32-bit	✓	✓	✓	64-pin LQFP
KSZ8441	10/100Base-TX/FX Ethernet Controller with 1588v2 PTP and Clock Synchronization	8-/16-/32-bit or PCI	✓	✓	✓	64-pin LQFP

Ethernet Products						
Product	**Description**	**Interface (Upstream)**	**Wake-on-LAN**	**EEE**	**Industrial Version**	**Packages**
USB to Ethernet						
LAN9500A	USB 2.0 to 10/100 Ethernet Controllers	USB 2.0	✓	–	✓	56-pin QFN
LAN9730	USB HSIC 2.0 to 10/100 Ethernet Controllers	USB 2.0 (HSIC), MII	–	–	✓	56-pin QFN
LAN7500	USB 2.0 to 10/100/1000 Ethernet Controllers	USB 2.0	✓	–	✓	56-pin QFN
LAN7800/01/50	USB 3.1 Gen1 to 10/100/1000 Ethernet Controllers (Optional RGMII Output)	USB 3.1/2.0/HSIC	✓	✓	Automotive	48-pin SQFN/56-SQFN/64-SQFN
LAN9512	USB 2.0 to 10/100 Ethernet Controllers with 2-Port USB 2.0 Hub	USB 2.0	–	–	✓	64-pin QFN
LAN9513	USB 2.0 to 10/100 Ethernet Controllers with 3-Port USB 2.0 Hub	USB 2.0	–	–	✓	64-pin QFN
LAN9514	USB 2.0 to 10/100 Ethernet Controllers with 4-Port USB 2.0 Hub	USB 2.0	–	–	✓	64-pin QFN
LAN89730	USB 2.0 to 10/100 Ethernet Controllers	USB 2.0	✓	–	Automotive	56-pin QFN
LAN89530	USB 2.0 to 10/100 Ethernet Controllers	USB 2.0	✓	–	Automotive	56-pin QFN
Ethernet Transceivers (PHY)						
LAN8710	10/100	MII/RMII	–	–	–	32-pin QFN
LAN8720A	Small-Footprint, Low Power Consumption, Full-Featured 10/100 Ethernet Transceivers	RMII	–	–	✓	24-pin QFN
LAN8740A	Small-Footprint, 10/100 PHY Family Featuring Energy Efficient Ethernet and Wake-on-LAN	MII/RMII	✓	✓	✓	32-pin QFN
KSZ8051	Small-Footprint, 10/100 PHY Family Featuring Wake-on-LAN	MII/RMII	–	–	✓ Automotive	32-pin QFN
KSZ8061	Small-Footprint, 10/100 PHY Family Ultra-Deep Sleep Standby and Quiet-WIRE® Technology	MII/RMII	–	–	✓ Automotive	32-/48-pin QFN
KSZ8081	Small-Footprint, 10/100 PHY Family Featuring Wake-on-LAN and Low-Power Voltage Drive	MII/RMII	–	–	✓	24-/32-pin QFN, 48-pin LQFP
KSZ8091	Small-Footprint, 10/100 PHY Family Featuring Energy Efficient Ethernet, Wake-on-LAN and Low-Power Voltage Drive	MII/RMII	✓	✓	✓	24-/32-pin QFN, 48-pin LQFP
KSZ9031	MII/GMII/RGMII 10/100/1000 Ethernet Transceiver Family Featuring Energy Efficient Ethernet and Wake-on-LAN	MII/RMII/RGMII	✓	✓	✓ Automotive	48-/64-pin QFN
LAN88730	Small-Footprint, Full-Featured 10/100 Ethernet Transceivers	MII/RMII	–	–	Automotive	32-pin QFN

Ethernet Products						
Product	**Description**	**Interface (Upstream)**	**1588-2008**	**Cable Diagnostics**	**100 FX (Fiber Support)**	**Packages**
EtherCAT® Controllers						
LAN9252	2/3-Port 100 EtherCAT Slave Controller	SPI/SQI™/8/16/32 Host Bus	Clock Synchronization	✓	✓	64-pin QFN, 64-pin TQFP-EP
Ethernet Switches						
LAN9352	2-Port 10/100Base-TX	SPI/SQI/HBI	✓	✓	–	72-pin QFN, 80-pin TQFP-EP
LAN9303	3-Port 10/100 Managed Ethernet Switch	MII/RMII/Turbo MII	–	–	–	56-pin QFN
LAN9303M	3-Port 10/100 Managed Ethernet Switch with Dual MIL/KMLL/Turbo MIL	2x MII/RMII/Turbo MII	–	–	–	72-pin QFN
LAN9353	3-Port 10/100 Managed Ethernet Switch with Single MII/RMII/Turbo MII or Dual RMII	MII/RMII/Turbo MII	✓	✓	✓	64-pin QFN, 64-pin TQFP-EP
LAN9354	3-Port 10/100 Managed Ethernet Switch with Single RMII	RMII	✓	✓	✓	56-pin QFN
LAN9355	3-Port 10/100 Managed Ethernet Switch with Dual MII/RMII/Turbo MII	MII/RMII/Turbo MII	✓	✓	✓	88-pin QFN, 80-pin TQFP-EP
KSZ8863	3-Port 10/100Base-TX/FX Switch with MII/RMII Interface	MII/RMII	–	✓	✓	48-pin LQFP
KSZ8873	3-Port 10/100Base-TX/FX Switch with MII/RMII Interface (Automotive Qualified)	MII/RMII	–	✓	✓	64-pin VQFN
KSZ8463	3-Port 10/100Base-TX/FX 1588v2 Switch with MII/RMII Interface	MII/RMII	✓	✓	✓	64-pin LQFP
KSZ8864	4-Port Switch with 2× 10/100Base-TX + 2× MII/RMII Interface (Automotive Qualified)	MII/RMII	–	✓	–	64-pin VQFN
KSZ8794	4-Port Switch with 3× 10/100Base-TX + 1× RGMII/MII/RMII Interface	MII/GMII/RGMII	–	✓	–	64-pin VQFN
KSZ8795	5-Port Switch with 4× 10/100Base-TX + 1× GMII/RGMII/MII/RMII Interface	GMII/RGMII/MII/RMII	–	✓	–	80-pin LQFP
KSZ8775	5-Port Switch with 3× 10/100Base-TX + 2× RGMII/MII/RMII Interface	MII/GMII/RGMII	–	✓	–	80-pin LQFP
KSZ8765	5-Port Switch with 2× 10/100Base-TX + 2× 100Base-FX + 1× GMII/RGMII/MII/RMII Interface	MII/GMII/RGMII	–	✓	✓	64-pin QFN, 80-pin LQFP
KSZ8895	5-Port10/100Base-TX/FX Switch with MII/RMII Interface (Automotive Qualified)	MII/RMII	–	✓	–	128-pin PQFP
KSZ8567	9/7-Port 10/100 Switch with AVB, IEEE1588V2	SGMII/RGMII/MII/RMII	✓	✓	SSMII	128-pin TQFP
KSZ9897	6/7-Port Gigabit Switch	SGMII/RGMII/MII/RMII	–	✓	–	128-pin TQFP
KSZ9567	7-Port Gigabit Switch with AVB, 1IEEE 588V2	SGMII/RGMII/MII/RMII	✓	✓	–	128-pin TQFP
KSZ9477	7-Port Gigabit Switch with DLR, HSR, AVB, IEEE 1558V2	SGMII/RGMII/MII/RMII	✓	LinkMD® Technology With Signal Quality Indicator	–	128-pin TQFP

Automotive: Media Oriented Systems Transport (MOST®) Network Inferface Controllers Intelligent Network Interface Controller (INIC) for MOST Networks					
Product	**Features**	**Interface**	**Ambient Temperature Range**	**Pin**	**Package**
OS81110 INIC	Fully-encapsulated, single-chip, single MOST150 network port, embedded network management, supports MOST embedded Ethernet channel and isochronous channels (MOST150)	MOST150 FOT or external MOST150 coax transceiver, I²C, I²S/SPDIF, TSI, SPI, RMCK, JTAG, MediaLB® 3-Pin, MediaLB bus 6-Pin	–40°C to 105°C	48	QFN
OS81082 INIC	Fully-encapsulated, single-chip, embedded network management (MOST50)	MOST50 electrical (UTP), I²C, I²S®, MediaLB	–40°C to 95°C	64	ETQFP
OS81092 INIC	ROM version of OS81082 INIC (MOST50)	MOST50 electrical (UTP), I²C, I²S, MediaLB	–40°C to 105°C	48	QFN
OS81050 INIC	Fully-encapsulated, single-chip with embedded network management (MOST25)	MOST25 FOT, I²C, I²S, MediaLB	Standard range: –40 to 85 Extended range: –40 to 105	44	QFP, ETQFP
OS81060 INIC	ROM version of OS81050 INIC (MOST25)	MOST25 FOT, I²C, I²S, MediaLB	–40°C to 105°C (targeted))	40	QFN
OS81118AF INIC	Fully-encapsulated, single-chip, single MOST150 network port, embedded network management, integrated MOST150 coaxial transceiver, supports MOST embedded Ethernet channel, isochronous channels (MOST150), and USB 2.0 high-speed port	MOST150 FOT or MOST150 coaxial physical layer, USB 2.0 high-speed, GPIO, I²C, I²S, SPI, RMCK, JTAG, MediaLB 3-Pin, MediaLB bus 6-Pin	–40°C to +85°C	72	QFN
OS81118BF INIC	Fully-encapsulated, single-chip, single MOST150 network port, embedded network management, supports MOST embedded Ethernet channel, isochronous channels (MOST150), and USB 2.0 high-speed port	MOST150 FOT or external MOST150 coaxial transceiver, USB 2.0 high-speed, GPIO, I²C, I²S, SPI, RMCK, JTAG, MediaLB 3-Pin, MediaLB bus 6-Pin	–40°C to +85°C	72	QFN
OS81119AF INIC	Fully-encapsulated, single-chip, double MOST150 network ports, embedded network management, integrated MOST150 coaxial transceiver, supports MOST embedded Ethernet channel, isochronous channels (MOST150), and USB 2.0 high-speed port	MOST150 FOT or MOST150 coaxial physical layer, USB 2.0 high-speed, GPIO, I²C, I²S, SPI, RMCK, JTAG, MediaLB 3-Pin, MediaLB Bus 6-Pin	–40°C to +85°C	88	QFN
OS82150 (MOST150 Coaxial Transceiver)	MOST150 Coaxial Transceiver, integrates coaxial cable driver and coaxial cable receiver in a single package	MOST150 coaxial physical layer, interface to MOST150 INIC	–40°C to +105°C	16	QFN

Automotive: Power Management Companion For Diagnostics, Status Monitoring and Power Supply					
Product	**Features**	**Interface**	**Temperature Range (°C)**	**Pin**	**Packages**
MPM85000	Power management companion for diagnostics, status monitoring and power supply	LIN 2.0, I²C	–40 to 105	24	QFN

Automotive: Multimedia I/O Companion Multimedia I/O Port Expander					
Product	**Features**	**Interface**	**Temperature Range**	**Pin**	**Packages**
OS85650	Low-cost multimedia I/O port expander, DTCP co-processor	MediaLB® bus 3-pin and 6-pin, Host Bus Interface (HBI), 2 × multi-channel streaming ports, 2 × TSI, 2 × SPI, I²C	–40°C to 105°C	128	ETQFP
OS85652	Low-cost multimedia I/O port expander	MediaLB bus 3-pin and 6-pin, Host Bus Interface (HBI), 2 × multi-channel streaming ports, 2 × TSI, 2 × SPI, I²C	–40°C to 105°C	128	ETQFP
OS85656	Low-cost multimedia I/O port expander well-suited for streaming applications	MediaLB bus 3-pin, streaming port I²S (FSYN, FCLK, 4 × In, 4 × Out, @ 512 Fs), serial transport stream interface (TSI), I²C	–40°C to 105°C	48	QFN
OS85654	Low-cost multimedia I/O port expander well-suited for streaming applications, DTCP co-processor	MediaLB bus 3-pin, streaming port I²S (FSYN, FCLK, 4 × In, 4 × Out, @ 512 Fs), serial transport stream interface (TSI), I²C	–40°C to 105°C	48	QFN

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

Product	Features	Interface	Temperature Range (°C)	Pin	Packages
LAN89218	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	100	TQFP
LAN89530	Hi-Speed USB 2.0 to 10/100 Ethernet controller	USB 2.0	–40 to 85	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 (°C)	Ports	Pin	Packages
LAN89303	High performance, small-footprint, full-featured, single MII/RMII/Turbo MII support	MII/RMII, 2 × 10/100 PHYs, 3 × 10/100 MACs	–40 to 85	4	56	QFN

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

Product	Features	Interface	Temperature Range (°C)	Pin	Packages
LAN88730	Small footprint, low-power consumption, full featured	10Base-T/100Base-TX, MII/RMII	LAN88730AM: –40 to 85 LAN88730BM: –40 to 105	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 (°C)	Ports	Pin	Packages
USB82512	Versatile, cost effective, energy efficient, incorporating MultiTRAK, PortMap, PortSwap, PHYBoost technologies	SMBus/I²C	–40 to 85	2	36	QFN
USB82513	Versatile, cost effective, energy efficient, incorporating MultiTRAK, PortMap, PortSwap, PHYBoost technologies	SMBus/I²C	–40 to 85	3	36	QFN
USB82514	Versatile, cost effective, energy efficient, incorporating MultiTRAK, PortMap, PortSwap, PHYBoost technologies	SMBus/I²C	–40 to 85	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 (°C)	USB Ports	Pin	Packages
USB82640	USB Hub/Card Reader combo with PortMap, PortSwap and PHYBoost Technologies	Single	SD™/SD High Capacity™/MultiMediaCard™/Memory Stick®/MS PRO™, MS PRO-HG™	–40 to 85	2	48	QFN
USB82642	USB bridge/card reader combo with USB to SDIO and USB to I²C bridging functionality and PortMap, PortSwap and PHYBoost technologies	Single	SD/SD High Capacity/MultiMediaCard/Memory Stick/MS PRO, MS PRO-HG	–40 to 85	2	48	QFN
USX2730	USB Card Reader only	Single	SD/SD High Capacity/MultiMediaCard	–40 to 85	0	48	QFN

Automotive: Hi-Speed USB 2.0 Transceiver
USB 2.0 Transceiver with 1.8V ULPI Interface

Product	Features	Interface	Temperature Range (°C)	Ports	Pin	Packages
USB83340	Multi-frequency reference clock	1.8V to 3.3V ULPI	–40 to 105	1	32	QFN

Automotive: Hi-Speed USB 2.0 Battery Charger
Standalone USB Battery Charger

Product	Features	Temperature Range (°C)	Supports	Pin	Packages
UCS81001	USB battery charger supporting BC1.2, China charging, Apple® and RIM® charging profiles as well as programmable charging profiles for unforeseen peripherals	–40 to 85	USB, I²C, SMBus	28	QFN
UCS81002	USB battery charger supporting BC1.2, China charging, Apple and RIM charging profiles as well as programmable charging profiles for unforeseen peripherals	–40 to 85	USB, I²C, SMBus	28	QFN

Automotive: Hi-Speed USB 2.0 Charger Controllers and Port Protection

Product	Features	Temperature Range (°C)	Supports	Pin	Packages
UCS81003	USB port charger controller supporting BC1.2, China charging, Apple® and RIM® charging profiles as well as programmable charging profiles for unforeseen peripherals and integrated current monitoring	–40 to 85	USB, I²C, SMBus	28	QFN
UCS2113	Dual USB port power protection switch and current monitor	–40 to 105	I²C, SMBus	20	QFN

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

Automotive: Capacitive Touch Sensors							
Product	**Features**	**Input Channels**	**LED Drivers**	**Proximity Included**	**Interface**	**Pin**	**Packages**
CAP81188	Reset, wake and alert, automatic recalibration, base capacitance compensation	8	8	✓	I²C/SPI/BC-Link	24	QFN

Embedded Controllers and Super I/O: Embedded Controllers												
Product	**Description**	**Core**	**Code Storage**	**Data RAM**	**EEPROM**	**Crypto Engine**	**GPIO**	**Host Interface**	**Operating Temperature (°C)**	**UART**	**MAF/SAF**	**Package**
MEC1322-NU	High-performance 32-bit embedded microcontroller with 128 KB of SRAM and 32 KB of Boot ROM and Secure Boot	Arm® Cortex®-M4F	128 KB SRAM (Code + Data)	PO SRAM	N/A	Yes	116	LPC, I²C	0 to +70	Full	MAF	128 VTQFP, 16 x 16 mm
MEC1408-NU	High-performance 32-bit embedded microcontroller with 128 KB of SRAM and 32 KB of Boot ROM, LPC, I²C	MIPS	192 KB SRAM (Code + Data)	PO SRAM	N/A	No	106	LPC, I²C	0 to +70	Full	MAF	128 VTQFP, 16 x 16 mm
MEC1418-I/SZ	High-performance 32-bit embedded microcontroller with 128 KB of SRAM and 32 KB of Boot ROM, eSPI, LPC, I²C	MIPS	192 KB SRAM (Code + Data)	PO SRAM	N/A	No	106	eSPI, LPC, I²C	–40 to +85	Full	MAF	144 WFBGA, 9 x 9 mm
MEC1418-NU	High-performance 32-bit embedded microcontroller with 128 KB of SRAM and 32 KB of Boot ROM, eSPI, LPC, I²C	MIPS	192 KB SRAM (Code + Data)	PO SRAM	N/A	No	106	eSPI, LPC, I²C	0 to +70	Full	MAF	128 TQFP, 16 x 16 mm
MEC1428-I/NU-C0	High-performance 32-bit embedded microcontroller with 128 KB of SRAM and 32 KB of Boot ROM, eSPI, LPC, I²C	MIPS	192 KB SRAM (Code + Data)	PO SRAM	N/A	Yes	108	eSPI, LPC, I²C	–40 to +85	Full	MAF/SAF	128 VTQFP, 16 x 16 mm
MEC1428-SZ-C0	High-performance 32-bit embedded microcontroller with 224 KB of SRAM and 32 KB of Boot ROM, eSPI, LPC, I²C	MIPS	192 KB SRAM (Code + Data)	PO SRAM	N/A	Yes	65	eSPI, LPC, I²C	0 to +70	Full	MAF/SAF	144 WFBGA, 9 x 9 mm
MEC1701H-C1-SZ	High-performance 32-bit embedded microcontroller with 224 KB of SRAM and 32 KB of Boot ROM and Secure Boot, eSPI, LPC, I²C	Arm Cortex-M4F	224 KB	32 KB	N/A	Yes	123	eSPI, LPC, I²C	0 to +70	2	MAF	144 WFBGA, 9 x 9 mm
MEC1703H-C1-SZ	High-performance 32-bit embedded microcontroller with 224 KB of SRAM and 32 KB of Boot ROM and Secure Boot, eSPI, LPC, I²C	Arm Cortex-M4F	224 KB	32 KB	2 KB	Yes	148	eSPI, LPC, I²C	0 to +70	2	MAF	144 WFBGA, 9 x 9 mm
MEC1704Q-C1-I/SZ	High-performance 32-bit embedded microcontroller with 316 KB of SRAM and 64 KB of Boot ROM and Secure Boot, eSPI, LPC, I²C	Arm Cortex-M4F	316 KB	64 KB	N/A	Yes	123	eSPI, LPC, I²C	–40 to +85	2	MAF	144 WFBGA, 9 x 9 mm
MEC1705Q-C1-I/SZ	High-performance 32-bit embedded microcontroller with 316 KB of SRAM and 64 KB of Boot ROM and Secure Boot eSPI, LPC, I²C	Arm Cortex-M4F	316 KB	64 KB	2 KB	Yes	148	eSPI, LPC, I²C	–40 to +85	2	MAF	144 WFBGA, 9 x 9 mm

Embedded Controllers and Super I/O: Super I/O									
	Description	**Operating Temperature**	**GPIO**	**Security Key Register**	**PECI Support**	**SMBus Interface**	**Intruder Detection**	**Resume Reset**	**Package**
SCH3112	LPC IO with multiple serial ports, 8042 KBC, reset generation and HWM	–40°C to +85°C	40	Yes	No	No	No	No	128 VTQFP
SCH3114	LPC IO with multiple serial ports, 8042 KBC, reset generation and HWM	0°C to +70°C	40	Yes	No	No	No	No	128 VTQFP
SCH3116	LPC IO with multiple serial ports, 8042 KBC, reset generation and HWM	–40°C to +85°C	40	Yes	No	No	No	No	128 VTQFP
SCH3221	LPC IO with multiple serial ports, 8042 KBC, reset generation and HWM	–40°C to +85°C	33	No	No	No	No	No	64 WFBGA
SCH3222	LPC IO with multiple serial ports, 8042 KBC, reset generation and HWM	–40°C to +85°C	23	Yes	No	No	No	Yes	84 WFBGA
SCH3223	LPC IO with multiple serial ports, 8042 KBC, reset generation and HWM	–40°C to +85°C	19	Yes	No	No	No	Yes	64 WFBGA
SCH3224	LPC IO with multiple serial ports, 8042 KBC, reset generation and HWM	–40°C to +85°C	24	Yes	No	No	No	Yes	100 WFBGA
SCH3226	LPC IO with multiple serial ports, 8042 KBC, reset generation and HWM	–40°C to +85°C	40	Yes	No	No	No	Yes	100 WFBGA
SCH3227	LPC IO with multiple serial ports, 8042 KBC, reset generation and HWM	–40°C to +85°C	40	Yes	No	No	No	Yes	144 WFBGA
SCH5627	Desktop embedded controller with fan control, hardware monitoring and PECI	0°C to +70°C	60	No	PECI 1.1, x2 CPU, x4 domain, C3/C4	Y - 2, (Master or Slave)	Yes	Yes	128 QFP
SCH5636	Desktop embedded controller with fan control, hardware monitoring and PECI	0°C to +70°C	60	No	PECI 2.0, x2 CPU, x4 domain, C3/C4	Y - 2, (Master or Slave)	Yes	Yes	128 QFP

Security Products											
Product	Core	Max Speed	Ram (KB)	Operating Temperature	Package	RNG	Monotonic Counter	Crypto Algorithms	OTP - User Programmable	Memory Protection Unit	Debug Interface	Floating Point Unit
CEC1302	Arm® Cortex®-M4	48	128	0°C to +70°C	144-pin WFBGA	Yes	No	AES128, AES129, AES256, SHA-1, SHA-256, RSA-512 to RSA-2048	500-bits	No	5-pin	Yes
CEC1702	Arm Cortex-M4	96	480	0°C to +70°C	84-pin WFBGA	Yes	Yes	AES128, AES129, AES256, SHA-1, SHA-256, SHA-384, SHA-512, RSA-1024 to RSA-4096, ECDSA, EC-KCDSA, Support for Curve 25519, Ed25519	2500-bits	Yes	5-pin and SWD	Yes

Security Products																	
Product	Typical Sleep Current	Typical Application	Interface (Designator)	Tamper Detection Pin	Memory Density	Temp Range (°C)	Min V_{CC} Supply	Unique ID	RNG	Monotonic Counters	Crypto Algorithms	Key Size	Individual Slots	TLS Stack Support	Cloud Support	Pacakges (Designator)	Secure Provisioning Service
ECC508A	30 nA Typ 2 uA Max	Authentication for IP connected node and accessory authentication	I²C (DA) Single wire (CZ)	1	4.5 Kb	–40 to +85	2.0V	72-bit serial number	FIPS	2	FIPS186-3 ECDSA, NIST P256, NIST SHA256 with HMAC option, ECDH	256-bit keys	16	CycloneSSL, WolfSSL, OpenSSL, WINC TLS	AWS, Azure	SOIC (MAH), UDFN (SSH), 3 contacts (RBH)	Yes
ECC108A	30 nA Typ 2 uA Max	Accessory authentication	I²C (DA) Single wire (CZ)	1	4.5 Kb	–40 to +85	2.0V	72-bit serial number	FIPS	2	FIPS186-3 ECDSA, NIST P256, NIST B283, NIST K283, NIST SHA256 with HMAC option	256-bits and 283-bits keys	16	N/A	N/A	SOIC (MAH), UDFN (SSH), 3 contacts (RBH)	Yes
SHA204A	30 nA Typ 2uA Max	Disposable/accessory authentication	I²C (DA) Single wire (CZ)		4.5 Kb	–40 to +85	2.0V	72-bit serial number	FIPS	2	NIST SHA256 with HMAC Option	256-bit keys	16	N/A	N/A	SOIC (MAH), UDFN (SSH) 3 contacts, (RBH), SOT-23 (STU), TSSOP (XHD) XDFN (MXH)	Yes
AES132	100 µA @3.3V Vcc 250 µA @5.5V Vcc	Secure storage	SPI (Q) I²C (R)		16x 2 Kb	–40 to +85	2.0V	64-bit serial number	FIPS	16	AES-CCM for authentication, MAC Capability	Up to 16x 128-bit keys		N/A	N/A	SOIC (8S1), UDFN (8MA2)	No

Touch and 3D Gesture Control: Capacitive Touch Controllers								
Product	Buttons	LED Drivers	Additional Features	Proximity	Interface	Safety certified Touch VDE/UL 60730 class B	Voltage (V)	Pins	Packages
AT42QT1010	1	–	adjustable sensitivity, noise filtering	✓	GPIO		1.8–5.5	6/8	SOT-23, UDFN
AT42QT1011	1	–	adjustable sensitivity, noise filtering	✓	GPIO		1.8–5.5	6/8	SOT-23, UDFN
AT42QT1012	1	–	adjustable sensitivity, noise rejection filters, low-power mode	✓	GPIO		1.8–5.5	6/8	SOT-23, UDFN
AT42QT1040	4	–	adjustable sensitivity, noise rejection filters, low-power mode, Adjacent key suppression (AKS)		GPIO		1.8–5.5	20	VQFN
AT42QT1050	5	–	adjustable sensitivity, noise rejection filters, low-power mode, Adjacent key suppression (AKS)		I²C/GPIO		1.8–5.5	12/20	VQFN, WLCSP
AT42QT1060	6	–	adjustable sensitivity, noise rejection filters, low-power mode, Adjacent key suppression (AKS)		I²C/GPIO		1.8–5.5	28	VQFN
AT42QT1070	7	–	adjustable sensitivity, noise rejection filters, low-power mode, Adjacent key suppression (AKS)		I²C/GPIO		1.8–5.5	14/20	SOIC, VQFN
AT42QT2100	10	–	slider/wheel, adjustable sensitivity, noise rejection filters, low-power mode, Adjacent key suppression (AKS)		SPI/GPIO		2.0–5.5	32	VQFN
AT42QT1110	11	–	adjustable sensitivity, noise rejection filters, low-power mode, Adjacent key suppression (AKS)		SPI/GPIO		3.0–5.5	32	TQFP, VQFN
AT42QT2120	12	–	slider/wheel, adjustable sensitivity, noise rejection filters, low-power mode, Adjacent key suppression (AKS)	✓	I²C		1.8–5.5	20	SOIC, TSSOP, VQFN
AT42QT2160	16	–	slider/wheel, adjustable sensitivity, noise rejection filters, low-power mode, Adjacent key suppression (AKS)		I²C		1.8–5.5	28	VQFN
AT42QT1244	24	–	IEC/EN/UL60730 Class B safety, FMEA, adjustable sensitivity, noise rejection filters, Adjacent key suppression (AKS)		I²C	✓	3.0–5.5	32	TQFP, VQFN
AT42QT1245	24	–	IEC/EN/UL60730 Class B safety, FMEA, adjustable sensitivity, noise rejection filters, Adjacent key suppression (AKS)		SPI	✓	3.0–5.5	32	TQFP, VQFN
AT42QT1481	48	–	IEC/EN/UL60730 Class B safety, FMEA, adjustable sensitivity, noise rejection filters		SPI/UART	✓	4.8–5.3	44	TQFP
AT42QT2640	64	–	IEC/EN/UL60730 Class B safety, FMEA, adjustable sensitivity, noise rejection filters		SPI	✓	4.8–5.3	44	TQFP
CAP1133	3	3	alert, automatic calibration, base capacitance compensation	✓	I²C		3.0–3.6	10	QFN
CAP1106	6	–	alert, automatic calibration, base capacitance compensation	✓	I²C		3.0–3.6	10	QFN
CAP1126	6	2	slider, reset, alert, automatic calibration, base capacitance compensation	✓	I²C/SPI		3.0–3.6	16	QFN
CAP1166	6	6	slider, reset, alert, automatic calibration, base capacitance compensation	✓	I²C/SPI		3.0–3.6	20	QFN
CAP1128	8	2	slider, reset, alert, automatic calibration, base capacitance compensation	✓	I²C/SPI		3.0–3.6	20	QFN
CAP1188	8	8	slider, reset, alert, automatic calibration, base capacitance compensation	✓	I²C/SPI		3.0–3.6	24	QFN
CAP1114	14	11	slider, reset, alert, automatic calibration, base capacitance compensation	✓	I²C		3.0–3.6	32	QFN
CAP1203	3	–	alert, automatic calibration, base capacitance compensation		I²C		3.3–5.0	8	QFN
CAP1293	3	–	alert, automatic calibration, base capacitance compensation	✓	I²C				QFN

Touch and 3D Gesture Control: Capacitive Touch Controllers									
Product	Buttons	LED Drivers	Additional Features	Proximity	Interface	Safety certified Touch VDE/UL 60730 class B	Voltage (V)	Pins	Packages
CAP1206	6	–	alert, automatic calibration, base capacitance compensation		I²C				QFN
CAP1296	6	–	alert, automatic calibration, base capacitance compensation	✓	I²C				QFN
CAP1208	8	–	alert, automatic calibration, base capacitance compensation		I²C				QFN
CAP1298	8	–	alert, automatic calibration, base capacitance compensation	✓	I²C		3.3–5.0	16	QFN
CAP1214	14	11	slider, reset, alert, automatic calibration, base capacitance compensation, audio output	✓	I²C		3.0–3.6	32	QFN
MTCH101	1	–	optimized for button replacement, adjustable sensitivity, noise rejection filters, low-power mode		GPIO		2.0–5.5	6	SOT23
MTCH102	2	–	optimized for button replacement, adjustable sensitivity, noise rejection filters, active guard, low-power mode	✓	GPIO		2.1–3.6	8	MSOP, UDFN
MTCH105	5	–	optimized for button replacement, adjustable sensitivity, noise rejection filters, active guard, low-power mode	✓	GPIO		2.1–3.6	14/16	TSSOP, QFN
MTCH108	8	–	optimized for button replacement, adjustable sensitivity, noise rejection filters, active guard, low-power mode	✓	GPIO		2.1–3.6	20	SSOP, UQFN
MTCH112	2	–	adjustable sensitivity, noise rejection filters, low-power mode		I²C		1.8–3.3	8	SOIC, DFN

Touch and 3D Gesture Control: Capacitive Touchpads and Controllers								
Product	Channels	Surface Gestures	Additional Features	Low Power	Interface	Voltage	Pin	Package
MTCH6102	15	✓	Projected capacitive touch controller, single touch and gestures, self capacitance	✓	I²C	1.8–3.6V	28	SSOP, UQFN

Touch and 3D Gesture Control: Projected Capacitive Multi-touch Touchpad and Touchscreen Controllers (Turnkey Solutions)										
Product	Channels	Surface Gestures	Additional Features	Automotive	Temp Range (°C)	Low Power	Interface	Voltage	Pin	Package
ATMXT144U	144	Single and dual finger	Self and mutual capacitance, glove and thick lens, moisture support	–	–40 to +85	Y	I²C	1.8–3.3V	38	QFN
ATMXT225T	224	Single and dual finger	Self and mutual capacitance, glove and thick lens, moisture support	Y	–40 to +105	Y	I²C, SPI	3.1–3.3V	100	TQFP
ATMXT336U	336	Single and dual finger	Self and mutual capacitance, glove and thick lens, moisture support	–	–40 to +85	Y	I²C	1.8–3.3V	56	XQFN
ATMXT449T	448	Single and dual finger	Self and mutual capacitance, glove and thick lens, moisture support	Y	–40 to +105	Y	I²C, SPI	3.1–3.3V	100	TQFP
ATMXT640U	640	Single and dual finger	Self and mutual capacitance, glove and thick lens, moisture support	–	–40 to +85	Y	I²C	1.8–3.3V	88	UFBGA
ATMXT641T	640	Single and dual finger	Self and mutual capacitance, glove and thick lens, moisture support	Y	–40 to +105	Y	I²C, SPI	3.1–3.3V	100	TQFP
ATMXT799T	798	Single and dual finger	Self and mutual capacitance, glove and thick lens, moisture support	Y	–40 to +105	Y	I²C, SPI	3.1–3.3V	144	LQFP
MXT1066T2	1066	Single and dual finger	Self and mutual capacitance, glove and thick lens, moisture support	–	–40 to +85	Y		1.8–3.3V	114	UFBGA
MXT1189T	1188	Single and dual finger	Self and mutual capacitance, glove and thick lens, moisture support	Y	–40 to +105	Y	I²C, SPI	3.1–3.3V	144	LQFP
MXT1664T3	1664	Single and dual finger	Self and mutual capacitance, glove and thick lens, moisture support	–	–40 to +85	Y	I²C, USB	1.8–3.3V	136	UFBGA
MXT1665T	1664	Single and dual finger	Self and mutual capacitance, glove and thick lens, moisture support	Y	–40 to +105	Y	I²C, SPI	3.1–3.3V	144	LQFP
MXT2952T2	2912	Single and dual finger	Self and mutual capacitance, glove and thick lens, moisture support	–	–40 to +85	Y	I²C, USB	1.8–3.3V	162	UFBGA

Touch and 3D Gesture Control: 3D Gesture Controllers										
Product	Channels	Position Tracking	Additional Features	Automotive	Temperature Range	Low Power	Interface	Voltage	Pin	Package
MGC3030	5	–	Gesture port, auto wake/sleep, touch detection	–	–20°C to +85°C	Y	I²C, EDI (gesture port)	3.3V	28	SSOP
MGC3130	5	Y	Gesture port, auto wake/sleep, touch detection	–	–20°C to +85°C	Y	I²C, EDI (gesture port)	3.3V	28	QFN
MGC3140	5	Y	Gesture port, auto wake/sleep, touch detection	Y	–40°C to +125°C	Y	I²C, EDI (gesture port)	3.3V	48	UQFN

Terms and Definitions

1 KB.....1024 bytes

1 Kw ..... 1024 words

18F/PIC18 .... 16-bit instruction word: 75/83 instructions

ADC .....Analog to Digital Converter

ADC2/ADCC..... ADC with Computation

AngTMR ..... Angular Timer

AUSART ..... Addressable Universal Synchronous Asynchronous Receiver Transmitter

BL/Baseline .... 12-bit instruction word: 33 instructions

BOR/PBOR..... Brown Out Reset/ Programmable Brown Out Reset

BTLE..... Bluetooth® Low Energy

CAN.....Controller Area Network

CCP/ECCP .....Capture Compare PWM/ Enhanced Capture Compare PWM

CLC ..... Configurable Logic Cell

COG ..... Complementary Output Generator

Comp..... Capacitive Sensing Implemented via Comparator

CRC/SCAN.....Cyclical Redundancy Check with Memory Scanner

CTMU ..... mTouch® Sensing: Charge Time Measurement Unit

CVD .....Charge Voltage Divide (Capacitive Sensing Implemented via ADC)

CWG..... Complementary Waveform Generator

DAC .....Digital-to-Analog Converter

DOZE..... Low-Power Doze Mode

DSM.....Data Signal Modulator

dsPIC® DSC ..... 16-bit Core with DSP

EBL..... Enhanced Baseline

EEPROM .....Electrically Erasable Programmable Read Only Memory

EMR/Enhanced ..... 14-bit instruction word: 49 instructions

Mid-Range.....(Denoted as PIC1XF1XXX)

ESD .....Electrostatic Discharge

EUSART.....Enhanced Universal Synchronous Asynchronous Receiver Transmitter

EWDT/WDT ..... Extended Watchdog Timer/ Watchdog Timer

HC I/O ..... High-Current I/O

HEF.....High-Endurance Flash (128B of Nonvolatile Data Storage)

HLT .....Hardware Limit Timer

HV..... High Voltage

ICD .....In-Circuit Debug

ICE.....In-Circuit Emulation

ICSP™..... In-Circuit Serial Programming™

IDE.....Integrated Development Environment

IDLE.....Low-Power Idle Mode

Inst Amp .....Instrumentation Amplifier

LCD .....Liquid Crystal Display

LDO ..... Low Drop-Out Voltage Regulator

LF .....Low-Power Flash

LPBOR..... Low-Power Brown Out Reset

MI²C/I²C.....Master Inter-Integrated Circuit Bus/ Inter-Integrated Circuit Bus

MathACC.....Math Accelerator

MIPS..... Million Instructions Per Second

MR/Mid-Range..... 14-bit instruction word: 35 instructions

MSSP/SSP .....Master/Synchronous Serial Port (I²C and SPI Peripheral)

mTouch..... Proprietary Touch Sensing Technology

NCO.....Numerically Controlled Oscillator

Op Amp .....Operational Amplifier

PIC10/12/16/18..... 8-bit Core

PIC24..... 16-bit Core

PIC32..... 32-bit Core

PLVD..... Programmable Low Voltage Detect

PMD.....Low-Power Peripheral Module Disable

PMP.....Parallel Master Port

POR/POOR.... Power ON Reset/Power ON/OFF Reset

PPS..... Peripheral Pin Select

PRG ..... Programmable Ramp Generator

PSMC .....Programmable Switch Mode Controller (16-bit PWM)

PWM.....Pulse-Width Modulation

QEI..... Quadrature Encoder Interface

RAM.....Random Access Memory

RTCC..... Real-Time Clock Calendar

SlopeComp ..... Slope Compensation

SMT.....24-bit Signal Measurement Timer

Source/Sink Current..... All Products Support 25 mA per I/O

SR Latch..... Set Reset Latch

SRAM .....Static Random Access Memory

SPI .....Serial Peripheral Interface

TEMP..... Temperature Indicator

T1G.....Timer 1 Gate

USART.....Universal Synchronous Asynchronous Receiver Transmitter

USB ..... Universal Serial Bus

USB (Full Speed) ..... 12 MB Data Rate

USB OTG..... USB On-The-Go

WWDT .....Window Watchdog Timer

XLP .....eXtreme Low-Power Technology

ZCD .....Zero-Cross Detection

Packaging

For detailed dimensions, view our package drawings and dimensions specifications at: www.microchip.com/packaging.

Support

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