MICROCHIP

Focus Product Selector Guide

Microchip: A Partner in Your Success

Microchip is a leading provider of semiconductor supplier of smart, connected and secure embedded control solutions, 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 125,000 customers across the industrial, automotive, consumer, aerospace and defense, communications and computing 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, eXtreme Low Power (XLP) family of MCUs, featuring devices with dual partition memory up to 1024 KB of Flash and a rich set of Core Independent Peripherals (CIPs). Our portfolio offers an upgrade in features 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 hardware safety features. For more information visit: www.microchip.com/16bit.

dsPIC® Digital Signal Controllers

The dsPIC family of Digital Signal Controllers (DSCs) features a 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-level analog integration and capable of operating up to 150°, the dsPIC33 family is ideal for PMSM, ACIM and BLDC motor control in industrial, medical, automotive and consumer applications.

Many dsPIC33 DSCs are "Functional Safety Ready" with integrated safety features and offer safety manuals, FMEDA reports and diagnostic software. For more information visit: www.microchip.com/16bitfunctionalsafety.

32-bit Microcontrollers

From simple embedded control to advanced graphics, secure Internet of Things (IoT) and functional safety 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 System-in-Package options with integrated DDR2 or LPDDR2 memory and System-on-Modules. 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, I²S 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. Microchip extends power solutions with a broad portfolio of Silicon diodes, MOSFETs and IGBTs and Silicon Carbine (SiC) MOSFETs and Schottky Barrier Diodes (SBDs). For more information visit: www.microchip.com/analog.

Security and Authentication Products

Microchip offers a series for secure key storage products with the CryptoAuthentication devices, CryptoAutomotive devices and TPM. For applications such as disposables, accessories and nodes used in home automation, industrial networking, medical and other applications, these devices employ secure, hardware-based cryptographic key storage and cryptographic countermeasures such as active anti-tamper protection, side channel attack protections, which offer higher security than software-based solutions. To further reduce complexity and cost of your supply chain, Microchip also offer a secure key provisioning service integrated as part of the Trust Platform program. For more information visit: www.microchip.com/SecureElements.

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.

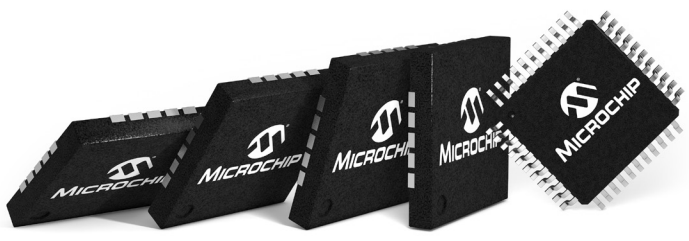
Wireless Products

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. The Timberwolf™ platform is the latest-generation audio processor. The hardware architecture is ideal for today's growing need for hands-free communications and Human To Machine (H2M) voice interfaces. This field-upgradable platform is designed for multiple end-market applications. 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 up to 10 Gigabit-speed communications in harsh environments. For high-speed telecommunications networks deployed by service providers and hyperscalers, 400 Gigabit PHYs enable application ranging including data center and edge routers, switches and optical transport platforms.

The USB offering spans low cost to SuperSpeed Plus and incorporates value-rich solutions such as USB SmartHub 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, touchscreens and free-space 3D gesture control. Turnkey solutions (maXTouch® technology) as well as MCU/MPU solutions (PIC, AVR, PIC32 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.

Power over Ethernet (PoE) Systems and ICs

Microchip offers a comprehensive end-to-end portfolio of PoE solutions comprised of PoE ICs and PoE Injectors/Systems. Microchip's PoE ICs product line is the broadest in the market with PSE ICs featuring 1 to 8 ports, presenting the highest integration level and lowest total BOM cost. The PD ICs line provides solutions with and without integrated PWM controllers and is used as a compact way to convert PoE input power to one or more output voltages. The PoE Injectors/Systems line includes stand-alone PoE Injectors/Midspans and Switches ranging from single-port to multi-port solutions. These off-the-shelf products can be added by customers to their portfolio while saving the development efforts on their side. The PoE Injectors support best-of-breed PoE deployments making it easier than ever to install PoE-enabled Ethernet-based devices in both indoor, outdoor and industrial environments. The PoE multi-port injectors increase the flexibility and longevity of Ethernet networks.

Optical Networking Solutions

Microchip OTN processors and OTN PHYs offer leading innovation, integration and power for Data Center Interconnect (DCI) and metro and regional optical transport networks. They deliver the quickest time to market and lowest R&D expense for the OEM and minimize the total cost of ownership for the service provider. We also offer a comprehensive portfolio of optical networking solutions for Synchronous Optical Networking/Synchronous Digital Hierarchy (SONET/SDH), T1/E1 and Fiber-to-the-Home/Passive Optical Network (FTTH/PON) protocols. For more information visit: www.microchip.com/design-centers/high-speed-communications/optical-networking

FPGAs

Our unique, low-power, non-volatile technology sets Microchip's Field Programmable Gate Arrays (FPGAs) apart from traditional SRAM-based devices. With an extensive heritage of reliability, Microchip's FPGAs and SoCs meet demands for low power, and security in a variety of applications.

In wired and wireless communications, defense and aviation, and industrial embedded applications, Microchip FPGAs deliver ample resources at the lowest power, highest reliability and greatest security. Microchip FPGAs demonstrate value in applications such as hardware acceleration, artificial intelligence, image processing and edge computing with robust DSP and memory resources.

Storage Adapters

Microchip's Smart Storage stack delivers one of the industry's broadest portfolios of trusted storage solutions that reliably move, manage, and store critical data and digital content. Adaptec® SmartRAID RAID adapters and SmartHBA and HBA Host Bus Adapters deliver the security and performance needed by critical applications, lower your power footprint and scale for future growth. Our high quality, reliable solutions are backed by decades of experience and technical support to guide you from purchase to implementation of your design. For more information visit: www.microchip.com/smartstorage

PCIe Solutions

Microchip's Switchtec PCIe switches are the industry's highest-density, lowest-power PCIe switches, enabling solutions for a wide variety of systems from data center equipment, GPU workstations/servers, GPU arrays, pooled storage/compute/networking, multi-host architectures, Just a Bunch Of Flash (JBOF), PCIe SSD enclosures, flash arrays, high-density servers, communications, and any applications requiring low-power and high-reliability PCIe switching.

The Switchtec PFX Gen 3 and Gen 4 Fanout PCIe switches are high-reliability, low-power PCIe switches supporting up to 100 PCIe lanes, advanced error containment, comprehensive diagnostics and debug capabilities, and a wide breadth of I/O interfaces. For more information visit: www.microchip.com/PCIeSwitches

Table of Contents

8-bit PIC® Microcontrollers

Product Family	Pin Count	Program Flash Memory (KB)	RAM (KB)	Data EE (B)	Intelligent Analog							Waveform Control												Logic and Math			Safety and Monitoring			Communications					User Interface			Low Power and System Flexibility				Packages
					ADC (# of bits)	Comp	HSComp	DAC (# of bits)	OPA	SlopeComp / PRG	ZCD	CCP/ECCP	10-bit PWM	16-bit PWM	COG	CWG	NCO	DSM	HLT (8-bit)	Universal Timer	NCO (20-bit)	SMT (24-bit)	RTCC	TEMP/TS	CLC	MULT	MathACC	CRC/SCAN	HLT	WWDT	USART	UART with Protocols	I²C/SPI	USB with ACT	LIN Capable	mTouch® Sensing	HCVD	LCD w/ charge pump	PPS	IDLE/DOZE/PMD	DMA/VI	DIA/MAP	
PIC10(L)F3XX	6	384–896 B	0.064	HEF	8								✓			✓	✓				✓			✓	✓											✓							SOT-23, DFN, PDIP
PIC16F152XX	8-40	3.5-28	0.5-2	–	10							✓	✓			✓	✓	✓	✓					✓							1		✓		✓				✓	✓		✓	DFN, SOIC, SSOP, TSSOP, VQFN, PDIP, TQFP
PIC12/16 LF155X/6X	14–20	7–14	1.024	HEF	10[2]								✓											✓							✓		✓		✓	✓	✓						PDIP, SOIC 150mil, TSSOP, QFN, SSOP 208mil, UQFN, SOIC 300mil, SPDIP, TQFP
PIC16(L)F145X	14–20	14	1.024	HEF	10	✓							✓			✓								✓							✓		✓	✓	✓	✓						PDIP, SOIC 150mil, TSSOP, QFN, UQFN, SOIC 300mil, SSOP 208mil
PIC1X(L)F157X	8–20	1.75–14	1.024	HEF	10	✓		5						✓		✓				✓				✓							✓				✓	✓			✓				DFN, MSOP, PDIP, SOIC 150mil, UDFN, TSSOP, UQFN, PDIP, SOIC 300mil, SSOP 208mil
PIC16(L)F153XX	8–48	3.5–28	2.048	HEF	10	✓		5			✓	✓	✓			✓	✓		✓		✓			✓	✓				✓	✓	2		✓		✓	✓			✓	✓		✓	PDIP, SOIC 150mil, TSSOP, UQFN, SOIC 300mil, SSOP 208mil, QFN, SPDIP, TQFP
PIC1X(HV)F752/53	8–14	1.75–3.5	0.128	–	10		✓	5/9	✓	SC		✓			✓				✓										✓						✓							DFN, PDIP, SOIC 150mil, TSSOP, QFN
PIC1X(L)F161X	8–14	3.5	0.256	HEF	10	✓		8			✓	✓				✓			✓			✓		✓		✓	✓	✓	✓						✓							DFN, PDIP, SOIC 150mil, TSSOP, QFN
PIC16(L)F161X[3]	14–20	7–14	1.024	HEF	10	✓		8			✓	✓	✓			✓			✓			✓		✓	✓	✓	✓	✓	✓	✓			✓		✓	✓			✓				PDIP, SOIC 150mil, TSSOP, QFN, SOIC 300mil, SSOP 208mil, UQFN, TQFP
PIC18-Q40/1	14-20	16-32	1-4	512	12[4]	✓		8	✓[5]		✓	✓		✓		✓	✓	✓	✓			✓		✓	✓	✓		✓	✓	✓	2	1	✓		✓	✓	✓		✓	✓	✓	✓	SOIC, TSSOP, QFN, PDIP
PIC16(L)F170X/71X	14–40	3.5–28	2.048	HEF	10		✓	5/8	✓		✓	✓	✓		✓		✓				✓			✓	✓						✓		✓		✓	✓	✓		✓				PDIP, SOIC 150mil, TSSOP, QFN, SOIC 150mil, UQFN, SOIC 300mil, SSOP 208mil
PIC16(L)F176X/7X	14–40	7–28	2.048	HEF	10		✓	5/10	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓				✓	✓				✓		✓		✓		✓	✓			✓				PDIP, SOIC 150mil, TSSOP, QFN, SOIC 300mil, SSOP 208mil, SPDIP, UQFN, TQFP
PIC16(L)F183XX	8–20	3.5–14	2.048	256	10	✓		5				✓	✓			✓	✓	✓			✓			✓	✓						✓		✓		✓	✓			✓	✓			PDIP, SOIC 150mil, UDFN, TSSOP, UQFN, SOIC 300mil, SSOP 208mil
PIC16(L)F184XX	14-28	7-28	2.048	256	12[4]	✓		5			✓	✓	✓			✓	✓		✓		✓	✓		✓	✓					✓	✓		✓			✓	✓		✓	✓		✓	UQFN, PDIP, SOIC, TSSOP, SSOP, VQFN, SPDIP
PIC16(L)F188XX	28–40	7–56	4.096	256	10[4]	✓		5				✓	✓	✓			✓	✓	✓		✓	✓		✓	✓			✓	✓	✓	✓		✓		✓	✓	✓		✓	✓			QFN, SOIC 300mil, SPDIP, SSOP 208mil, UQFN, PDIP, TQFP
PIC18-Q10	28-40	16-128	1-3.6	256-1K	10[4]	✓		5			✓	✓	✓			✓		✓	✓					✓	✓	✓		✓	✓	✓	2		✓		✓	✓	✓		✓	✓			QFN, SOIC, SPDIP, SSOP, VQFN, PDIP, TQFP
PIC18-Q43	28-48	32-128	2-8	1024	12[4]	✓		8				✓	✓		✓	✓	✓	✓	✓			✓		✓	✓	✓		✓	✓	✓	4	1	✓		✓	✓	✓		✓	✓	✓	✓	QFN, SOIC, SPDIP, SSOP, VQFN, PDIP, TQFP
PIC18-Q84[6]	28-48	64-128	8-13	1024	12[7]	✓		8				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓			✓	✓	✓	3	2	✓		✓		✓		✓	✓	✓	✓	VQFN, PDIP, SOIC, SSOP,TQFP
PIC16(L)F191XX	28–64	14–56	4.096	256	12[4]	✓		5				✓	✓	✓		✓			✓			✓	✓	✓	✓				✓	✓	✓		✓		✓	✓	✓	✓	✓	✓		✓	QFN, TQFP
PIC18-K40	28–64	16–128	3.728	256–1K	10[4]	✓		5				✓	✓	✓		✓		✓	✓					✓		✓		✓	✓	✓	5		✓		✓	✓	✓		✓	✓			QFN, SOIC 300mil, SPDIP, SSOP 208mil, UQFN, PDIP, TQFP
PIC18-K42	28–48	16–128	8.192	256–1K	12[4]	✓		5				✓	✓	✓		✓	✓	✓	✓		✓	✓		✓	✓	✓		✓	✓	✓	1	1	✓		✓	✓	✓		✓	✓	✓	✓	QFN, SOIC 300mil, SPDIP, SSOP 208mil, UQFN
PIC18-J94	64–100	32–128	4.096	–	12	✓						✓											✓		✓						4		✓	✓	✓	✓		✓	✓	✓			QFN, TQFP

Notes: (1) In addition to standard 8-bit and 16-bit timers (2) Independent Dual ADC Modules (3) PIC16F1615/9 include an angular timer. (4) ADCC: Analog-to-Digital Converter with Computation (5) PIC18-Q41 has an OPAMP (6) Device is CAN-FD capable (7) Analog-to-Digital Converter with Computation and Context Switching (6) CAN-FD & JTAG capable

8-bit AVR® Microcontrollers

Product Family	Pin Count	Program Flash Memory (KB)	SRAM (KB)	Supply Voltage	Speed (MHz) Single Cycle Instruction: MHz = MIPS	Intelligent Analog								Waveform Control				Timing and Measurements				Logic, Crypto and Math			Safety and Monitoring				Communications						User Interface			System Flexibility					
						ADC (# of bits)	ADC (# of channels)	Comparators	ADC Gain Stage	DAC (# of bits)	Temperature Sensor	Internal Voltage Reference	Zero Cross Detector (ZCD)	8-bit PWM	16-bit PWM	Quadrature Decoder	Waveform Extension (WeX)	Real-Time Counter	8-bit Timer/Counters	12-bit Timer Counter	16-bit Timer/Counter	CCL	MULT	Crypto (AES/DES)	CRC/SCAN	POR	BOD	WDT	USART	USB	I²C	SPI	IRCOM	Serial Number	QTouch® Technology	QTouch Technology with PTC[2]	LCD	External Bus Interface	DMA Channels	Event System	SleepWalking	Sleep Modes	picoPower® Technology
ATtiny4/5/9/10	6	0.5–1	0.032	1.8–5.5	12	10[3]	4[3]	✓							2						1						✓							✓							4	
ATtiny102/104	8/14	1	0.032	1.8–5.5	12	10	5/8	✓				✓			2						2						✓		1											4	
ATtiny13A	8–20	1	0.064	1.8–5.5	20	10	4	✓							2												✓	✓	✓						✓						3	✓
ATtiny20/40	12–20	2/4	0.128/0.256	1.8–5.5	12	10	8/12	✓			✓			2	2				1		1						✓	✓	✓			1	1			✓						4	
ATtiny24A/44A/84A	14–20	2–8	Up to 0.512	1.8–5.5	20	10	8	✓	✓		✓	✓		2	2				1		1						✓	✓	✓			1	1			✓						4	✓
ATtiny48/88	28–32	4/8	Up to 0.512	1.8–5.5	16	10	8	✓			✓	✓		1	1				1		1						✓	✓	✓			1	1									3	✓
ATtiny87/167	20–32	8/16	0.512	1.8–5.5	16	10	11	✓			✓	✓		1	2				1		1						✓	✓	✓	1[8]		1	2									4	
ATtiny261A/461A/861A	20–32	2–8	Up to 0.512	1.8–5.5	20	10	11	✓	✓		✓	✓							1		1						✓	✓	✓			1	1		✓						4	✓
ATtiny20x/40x/80x/160x	8–24	2–16	Up to 1	1.8–5.5	20	10	12	✓			✓	✓			2			✓			1	✓	✓		✓	✓	✓	✓	1[1]		1	1		✓				✓	✓	3	✓
ATtiny21x/41x/81x/ 161x/321x	8–24	2–32	Up to 2	1.8–5.5	20	10	12	✓		8	✓	✓			2			✓		1	1	✓	✓		✓	✓	✓	✓	1[1]		1	1		✓		✓[4]			✓	✓	3	✓
ATtiny441/841	14–20	4/8	Up to 0.512	1.7–5.5	16	10	12	✓	✓		✓			1	2				1		2						✓	✓	✓	2		1	1									4	✓
ATtiny2313A	20	2	0.128	1.8–5.5	20	–	–	✓				✓		2	2				1		1						✓	✓	✓	1		1	2									3	✓
ATmega8A/16A/32A	28–44	8–32	1–2	2.7–5.5	16	10	8	✓						2	1			✓	2		1		✓				✓	✓	✓	1		1	1			✓						5	
ATmega8U2/16U2/32U2	32	8–32	0.5–1	2.7–5.5	16	–	–	✓			✓	✓		4	6			✓	2		3		✓				✓	✓	✓	2	✓	2	2									6	
ATmega16U4/32U4	32	16/32	1/2	2.7–5.5	16	10	12	✓			✓	✓		5					1		1		✓				✓	✓	✓	1	✓		1									6	
ATmega48PB/88PB/ 168PB/328PB	32	4–32	0.5–2	1.8–5.5	20	10	8	✓			✓	✓		4	2/6[6]			✓	2		1/3[6]		✓				✓	✓	✓	1/2[6]		1/2[6]	1/2[6]			✓	✓[6]					6	
ATmega80x/160x/ 320x/480x	28–48	8–48	1–6	1.8–5.5	20	10	16	✓			✓	✓		4	3			✓			5	✓	✓		✓	✓	✓	✓	4		1	1		✓					✓	✓	3	✓
ATmega64A/128A	64	64–128	4	2.7–5.5	16	10	8	✓	✓			✓		2	6				2		2		✓				✓	✓	✓	2		1	1			✓						6	
ATmega164PA/324PA/ 644PA/1284P	44	16–128	1–16	1.8–5.5	20	10	8	✓	✓			✓		4	2/2/4			✓	2		1/1/2		✓				✓	✓	✓	2		1	1			✓						6	✓
ATmega165PA/325PA/645P	44	16–64	1–4	1.8–5.5	16	10	8	✓				✓		4	6			✓	2		3		✓				✓	✓	✓	3		2	2									6	✓
ATmega169PA/329PA/649P	64	16–64	1–4	1.8–5.5	16	10	8	✓				✓		2	2			✓	2		1		✓				✓	✓	✓	1		1	1			✓			✓			5	
ATmega324PB	44	32	2	1.8–5.5	20	10	8	✓				✓		2	2			✓	2		1		✓				✓	✓	✓	1		1	1			✓	✓					5	
ATmega640/1280/2560/ 1281/2561	64–100	64–256	8	1.8–5.5	16	10	8/16	✓	✓			✓		4	6/12			✓	2		4		✓				✓	✓	✓	2/4		1	1			✓			✓[5]			6	
ATmega3290PA/6490P	100	32–64	2–4	1.8–5.5	20	10	8	✓	✓			✓		2	2			✓	2		1		✓				✓	✓	✓	1		1	1			✓		✓				5	
ATmega3250PA/6450P	100	32–64	2–4	1.8–5.5	20	10	8	✓	✓			✓		2	2			✓	2		1		✓				✓	✓	✓	1		1	1			✓						5	
AVR DA Family	28-64	32-128	4–16	1.8–5.5	24	12	12	✓		10	✓	✓	1-3	9–17	3–6			✓		1	1–5	✓	✓		✓	✓	✓	✓	3–6		1–2	2	✓	✓		✓			✓	✓	3	✓
ATxmega A1U/A3U/A4U Family	44-100	16–128	2–8	1.6–3.6	32	12	12/16	✓	✓	12	✓	✓			5-8	✓	✓	✓			5-8		✓	✓	✓	✓	✓	✓	5-8	✓	2-4	2-4	✓		✓			✓	4	✓		5	✓
ATxmega B1/B3 Family	64–100	64–128	4–8	1.6–3.6	32	12	8	✓	✓		✓	✓			2/3	✓	✓	✓			2/3		✓	✓	✓	✓	✓	✓	1/2	✓	1	1	✓	✓	✓		✓		2	✓		5	✓
ATxmega C3/D3/C4/D4 Family	44-64	16–384	2–32	1.6–3.6	32	12	12/16	✓	✓		✓	✓			4/5	✓	✓	✓			4/5		✓	✓	✓	✓	✓	✓	2/3	✓[7]	2	2	✓	✓	✓					✓		5	✓
ATxmega32E5 Family	32	8–32	1–4	1.6–3.6	32	12	16	✓	✓	12	✓	✓			3	✓	✓	✓			3	✓	✓		✓	✓	✓	✓	2		1	1	✓	✓	✓				4	✓		5	✓

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:** UART only LIN Port also

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
ZCD: Zero Cross Detect	AC high-voltage zero-crossing detection for simplifying TRIAC control, synchronised switching control and timing
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
WeX: Waveform Extension	1. Module for more customised and advanced waveform generation 2. Optimised for various types of motor, ballast and power stage control
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. Custom 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
POR: Power-On Reset	Keeps the device in reset until the voltage is high enough. Ensures a safe start-up of logic and memories
BOD: Brownout Detector	Prevents code execution if voltage drops below a set threshold
WDT: Watchdog Timer	Monitors correct program operation. Constantly running timer with a configurable time-out period

COMMUNICATIONS: General, Industrial, Lighting and Automotive	
UART: Universal Synchronous/ Asynchronous Receiver Transmitter	1. General purpose serial communications 2. Support for LIN
USB: Universal Serial Bus	Support for Full-Speed USB 2.0 device profiles
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
Serial Number	Factory programmed unique ID useful in wired and wireless communications
USER INTERFACE: Capacitive Touch Sensing and LCD Control	
LCD: Liquid Crystal Display	Highly integrated segmented LCD controller
QTouch®: Microchip Proprietary Touch Technology	Provides a simple-to-use solution to realize touch-sensitive interfaces
QTouch with PTC: QTouch with Peripheral Touch Controller	Provides a simple-to-use solution to realize 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	Peripheral Function Focus: Intelligent Analog					Waveform Control						Timing and Measurements				Safety and Monitoring					Communication									User Interface		Secure Data			System Flexibility								Packages
					ADC resolution[1]	DAC resolution[2]	CV_{REF}	HS Comp	OPA/PGA	SCCP	MCCP	PWM	MC PWM	SMPS PWM	IC and OC	PWM Resolution (ns)	16-bit Timer	32-bit Timer	RTCC	QEI	LVD	WDT/WWDT	DMT	CRC	Class B Safety[3]	Functional Safety Ready	USB	CAN	UART	LIN	IrDA®	I²C	SPI	I²S™	SENT	Parallel Port	LCD (Segments)	GFX	Cryptographic Engine	Secure Key Storage	RNG	Dual Partition Flash	CLC	PPS	PTG	DMA	IDLE, SLEEP and PMD	DOZE	XLP	Vbat	
PIC24 Family																																															
PIC24FJ64GA004	16	16–64	4-8	28–44	10			✓				✓			✓	62	✓	✓			✓	✓		✓	L2				✓	✓	✓	✓	✓		✓								✓			✓	✓			TQFP (PT), QFN (ML)
PIC24FJ64GA104	16	32–64	8	28–44	10			✓				✓			✓	15	✓	✓			✓	✓		✓	L2				✓	✓	✓	✓	✓		✓								✓			✓	✓	✓		TQFP (PT), QFN (ML)
PIC24FJ64GB004	16	32–64	8	28–44	10			✓				✓			✓	15	✓	✓			✓	✓		✓	L2	✓			✓	✓	✓	✓	✓		✓								✓			✓	✓	✓		TQFP (PT), QFN (ML)
PIC24FJ128GA010	16	64–128	8	64–100	10			✓				✓			✓	62	✓	✓				✓		✓	L2				✓	✓	✓	✓	✓		✓											✓	✓			TQFP (PT), QFN (ML)
PIC24FJ256GA110	16	64–256	16	64–100	10			✓				✓			✓	15	✓	✓			✓	✓		✓	L2				✓	✓	✓	✓	✓		✓								✓			✓	✓			TQFP (PT), QFN (MR)
PIC24FJ256GB110	16	64–256	16	64–100	10			✓				✓			✓	15	✓	✓			✓	✓		✓	L2	✓			✓	✓	✓	✓	✓		✓								✓			✓	✓			TQFP (PT), QFN (MR)
PIC24FJ128GA204	16	64–128	8	28–44	12			✓				✓			✓	15	✓	✓	✓		✓	✓							✓		✓	✓	✓		✓			✓	✓	✓			✓		✓	✓	✓	✓	✓	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM), TQFP (PT), QFN (ML)
PIC24FJ128GB204	16	64–128	8	28–44	12			✓				✓			✓	15	✓	✓	✓		✓	✓				✓		✓			✓	✓	✓		✓			✓	✓	✓			✓		✓	✓	✓	✓	✓	SPDIP (SP), SOIC (SO), SSOP (SS), QFN (MM), TQFP (PT), QFN (ML)
PIC24FJ128GA310	16	64–128	8	64–100	12		✓	✓				✓			✓	15	✓	✓	✓		✓	✓		✓	L2				✓	✓	✓	✓	✓				Up to 480							✓			✓	✓	✓	✓	✓	TQFP (PT), QFN (MR)
PIC24FJ128GC010	16	64–128	8	64–100	16	10	✓	✓				✓			✓	15	✓	✓	✓		✓	✓		✓	L2	✓			✓	✓	✓	✓	✓			✓	Up to 472							✓			✓	✓	✓	✓	✓	TQFP (PT), QFN (MR)
PIC24FJ256DA210	16	128–256	24-96	64–100	10			✓				✓			✓	15	✓	✓			✓	✓		✓	L2	✓			✓	✓	✓	✓	✓			✓		✓						✓			✓	✓	✓			TQFP (PT), QFN (MR)
PIC24FJ256GB210	16	128–256	96	64–100	10			✓				✓			✓	62	✓	✓			✓	✓		✓	L2	✓			✓	✓	✓	✓	✓			✓								✓			✓	✓				TQFP (PT), QFN (MR)
PIC24FJ256GA412	16	64–256	8-16	64–121	12	10	✓	✓		✓	✓	✓			✓	62	✓	✓	✓		✓	✓		✓	L2				✓			✓	✓	✓		✓	Up to 512		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	TQFP (PT), QFN (ML), XBGA (BG)
PIC24FJ256GB412	16	64–256	8-16	64–121	12	10	✓	✓		✓	✓	✓			✓	62	✓	✓	✓		✓	✓		✓	L2	✓			✓			✓	✓	✓		✓	Up to 512		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	TQFP (PT), QFN (ML), XBGA (BG)
PIC24FJ256GA705	16	64–256	16	24–48	12			✓	✓			✓	✓		✓	62	✓	✓	✓		✓	✓		✓	L2				✓	✓	✓	✓	✓	✓		✓								✓		✓	✓	✓			QFN (ML), UQFN (M6), SOIC (SO), SSOP (SS), SPDIP (SP), TQFP (PT), UQFN (M4)
PIC24FJ1024GA610	16	128–1024	32	64–100	12			✓	✓	✓	✓	✓			✓	62	✓	✓	✓		✓	✓		✓	L2				✓			✓	✓	✓		✓							✓	✓	✓			✓	✓			TQFP (PT), QFN (ML) ,TFBGA (BG)
PIC24FJ1024GB610	16	128–1024	32	64–100	12			✓	✓	✓	✓	✓			✓	62	✓	✓	✓		✓	✓		✓	L2	✓			✓			✓	✓	✓		✓							✓	✓	✓			✓	✓			TQFP (PT), QFN (ML) ,TFBGA (BG)
dsPIC33EV Family – 5V Operating Range																																															
dsPIC33EV256GM006	70	32–256	4-16	28–64	12	7			✓	✓			✓	✓		✓	8	✓	✓				✓	✓		L3	✓			✓	✓	✓	✓	✓		✓								✓			✓	✓	✓			SPDIP (SP), SOIC (SO), QFN (MM, ML),TQFP (PT)
dsPIC33EV256GM106	70	32–256	4-16	28–64	12	7			✓	✓			✓	✓		✓	8	✓	✓				✓	✓		L3	✓		✓	✓	✓	✓	✓	✓		✓								✓			✓	✓	✓			SPDIP (SP), SOIC (SO), QFN (MM, ML),TQFP (PT)
dsPIC33EP Family																																															
dsPIC33EP64GS2/506	70	16–64	2-8	28–64	12	12	✓	✓	✓			✓		✓	✓	1	✓	✓				✓			L1	✓			✓			✓	✓	✓										✓		✓			✓	✓			SOIC (SO), SSOP (SS), UQFN (M6, MX, 2N), QFN (MM, ML),TQFP (PT)
dsPIC33EP128GS808	70	64–128	8	28–80	12	12	✓	✓	✓			✓		✓	✓	1	✓	✓	✓			✓			L1	✓		✓	✓	✓	✓	✓	✓	✓										✓	✓	✓	✓	✓	✓	✓			SOIC (SO), UQFN (2N), QFN (MM, ML),TQFP (PT)
dsPIC33EP512GP506	70	32–512	4-48	28–64	12	4			✓	✓			✓			✓	14	✓	✓				✓		✓	L2			✓	✓	✓	✓	✓	✓												✓	✓	✓	✓	✓			SPDIP (SP), SOIC (SO), QFN (MM, ML, MR), TQFP (PT)
dsPIC33EP512MC206	70	32–512	4-48	28–64	12	4			✓	✓		✓	✓	✓	✓	7	✓	✓		✓		✓		✓	L2				✓	✓	✓	✓	✓													✓	✓	✓	✓	✓			TQFP (PT), QFN (MR)
dsPIC33EP512MC506	70	32–512	4-48	28–64	12	4			✓	✓		✓	✓	✓	✓	7	✓	✓		✓		✓		✓	L2			✓	✓	✓	✓	✓	✓												✓	✓	✓	✓	✓			TQFP (PT), QFN (MR)
dsPIC33EP512GM310	70	128–512	16-48	44–100	12	4			✓	✓		✓	✓	✓	✓	7	✓	✓		✓		✓		✓	L2				✓	✓	✓	✓	✓	✓		✓										✓	✓	✓	✓	✓			QFN (ML, MR), TQFP (PT, PF), TFBGA (BG)
dsPIC33EP512GM6/710	70	128–512	16-48	44–100	12	4			✓	✓		✓	✓	✓	✓	7	✓	✓		✓		✓		✓	L2			✓	✓	✓	✓	✓	✓	✓		✓										✓	✓	✓	✓	✓			QFN (ML, MR), TQFP (PT, PF), TFBGA (BG)
dsPIC33EP512MU814	70	256–512	28-52	64–144	12	4			✓			✓	✓	✓	✓	7	✓	✓		✓		✓		✓	L2	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓								✓		✓		✓	✓	✓			TQFP (PT, PF), QFN (MR), LQFP (PL)
dsPIC33EP512GP806	70	512	52	64	12	4			✓			✓			✓	14	✓	✓				✓		✓	L2		✓	✓	✓	✓	✓	✓	✓	✓		✓								✓		✓		✓	✓	✓			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, Code-Guard™ 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

16-bit Microcontrollers and dsPIC® Digital Signal Controllers

Product Family	Maximum MIPS	Program Flash Memory (KB)	RAM (KB)	Pin Count	ADC resolution[1]	DAC resolution[2]	CVREF	HS Comp	OPA/PGA	SCCP	MCCP	PWM	MC PWM	SMPS PWM	IC and OC	PWM Resolution (ns)	16-bit Timer	32-bit Timer	RTCC	QEI	LVD	WDT/WWDT	DMT	CRC	Class B Safety[3]	Functional Safety Ready	USB	CAN	UART	LIN	IrDA®	I²C	SPI	I²S™	SENT	Parallel Port	LCD (Segments)	GFX	Cryptographic Engine	Secure Key Storage	RNG	Dual Partition Flash	CLC	PPS	PTG	DMA	IDLE, SLEEP and PMD	DOZE	XLP	Vbat	Packages
					Intelligent Analog					Waveform Control							Timing and Measurements				Safety and Monitoring						Communication										User Interface		Secure Data			System Flexibility									
dsPIC33CH Family – Dual Core (M – Master Core, S – Slave Core)																																																			
dsPIC33CH128MP508	M: 90 S: 100	M:64-128	M:16 S:24(PRAM) S:4 (Data)	28-80	12	12		✓	✓	✓		✓	✓	✓	✓	0.25	✓			✓		✓✓	✓	✓	L3	✓		FD	✓	✓	✓	✓	✓	✓	✓	✓						✓	✓	✓	✓	✓	✓	✓			SSOP (SS), UQFN (2N, M5, M4), TQFP (PT), QFN (MR)
dsPIC33CH512MP508	M: 90 S:100	M:256-512	M:32-48 S:72(PRAM) S:16 (Data)	48-80	12	12		✓	✓	✓		✓	✓	✓	✓	0.25	✓			✓		✓✓	✓	✓	L3	✓		FD	✓	✓	✓	✓	✓	✓	✓	✓						✓	✓	✓	✓	✓	✓	✓			UQFN (M4), TQFP (PT), QFN (MR)
dsPIC33CK Family – Single Core																																																			
dsPIC33CK256MP508	100	32-256	8-24	28-80	12	12		✓	✓	✓	✓	✓	✓	✓	✓	0.25	✓			✓		✓✓	✓	✓	L3	✓		FD	✓	✓	✓	✓	✓	✓	✓	✓						✓	✓	✓	✓	✓	✓	✓			SSOP (SS), UQFN (2N, M5, M4), TQFP (PT), QFN (MR)
dsPIC33CK64MP105	100	32-64	8	28-48	12	12		✓	✓	✓	✓	✓	✓	✓	✓	0.25	✓			✓	✓	✓✓	✓	✓	L3	✓			✓	✓	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓	✓	✓			SSOP (SS), UQFN (M6, 2N, M5, M4), TQFP (PT)

Peripheral Function Focus: Intelligent Analog, Waveform Control, Timing and Measurements, Safety and Monitoring, Communication, User Interface, Secure Data, System Flexibility

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

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.
Functional Safety Ready	Functional Safety Ready devices include integrated hardware safety features and offer safety manuals, FMEDA reports and diagnostic software.

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	
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 Microcontroller Quick Reference Guide

Product Family	Core	Max. Operation Freq. (MHz)	Program Flash Memory (KB)	RAM (KB)	Pin Count	Peripheral Function Focus: Intelligent Analog: ADC (channels/bits)	ADC Speed (sps)	DAC (channels/bits)	Analog Comparator (+Op Amp)	Waveform Control: Output Compare Channels	Input Capture Channels	PWM Channels	Timing and Measurements: 16-bit/32-bit Timer	TCC (24-bit Control Timer) [4]	Motor Interface (QEI/QDEC) [4]	Safety and Monitoring: Watchdog Timer DMT (Dead Man Timer) [4]	Class B Safety/DSU/Touch Safety	Functional Safety Support (ASILB , SIL2) [4]	Communication: 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]	User Interface: Touch PTC (channels)/Driven Shield + [4]	Segment/Graphics LCD Controller	LCD/GFX Interface (PMP/EBI)	Security: Crypto Engine (AES, SHA, ECC, RSA/DSA, TRNG)	TrustZone [4]	Secure Boot [4]	TrustRAM (Bytes) [4]	DataFlash (KB) [4]	Tamper Detection	Secure Key Provisioning	Kinibi-M SDK Support	System Flexibility: Dual Panel/Bank Flash [4]	Intelligent Low Power Peripheral Event System (channels) [4]	DMA (channels)	CLC/CCL [4]	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																✓	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	✓	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			P										4		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			P										4		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			P										4		TQFP, QFN, TFBGA, VTLA
PIC32MX 5	M4K	80	64-512	16-64	64-100	16/10	1M		2	5	5	5	5/2			W	B		1F+P	1		6	5	4					P16			P										8		QFN, TQFP, TFBGA, VTLA
PIC32MX 6	M4K	80	64-512	32-128	64-100	16/10	1M		2	5	5	5	5/2			W	B		1H+P		1	6	5	4					P16			P										8		QFN, TQFP, TFBGA, VTLA
PIC32MX 7	M4K	80	128-512	32-128	64-100	16/10	1M		2	5	5	5	5/2			W	B		1F+P	2	1	6	5	4					P16			P										8		QFN, TQFP, TFBGA, VTLA
PIC32MK GP/MC	microAptiv	120	512-1024	128-256	64-100	42/12	16M	3/12	5O4	12	16	16	14/16		E	W+D	B		2F+P	4		6		6				6	P24			P									✓	13		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		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		G	P+E	A,S,T							✓		26		LFBGA, LQFP
SAM																																													
SAM D09	CM0+	48	8-16	4	14-24	10/12	350k			6	3	4	2/1			W	B					2	2	2	2																	6	6		QFN, SOIC
SAM D10	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		QFN, SOIC, WLCSP
SAM D11	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		QFN, SOIC, WLCSP
SAM D20	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			TQFP, QFN, WLCSP, UFBGA
SAM D21	CM0+	48	32-256	4-32	32-64	20/12	350k	1/10	2	18	8	24	5/2	3		W	B+T	A+S	1F+P			6	6	6	6				1	P256												12	12		TQFP, QFN, WLCSP, UFBGA
SAM D21L	CM0+	48	32-64	4-8	32-48	18/12	350k	1/10	4	18	13	24	5/2	3		W	B+T					5	5	5	5																	12	12		TQFP, QFN
SAM DA1 [3]	CM0+	48	16-64	4-8	32-64	20/12	350k	1/10	2	18	8	24	5/2	3		W	B+T	A	1F+P			6	6	6	6				1	P256												12	8		TQFP, QFN
SAM L10	CM23	32	16-64	4-16	24-32	10/12	1M	1/10	2O3	6	6	6	3/1			W	B+T					3	3	3	3					P100, D+			T			✓256	2	✓				8	8	✓	SSOP, WLCSP, VQFN, TQFP
SAM L11	CM23	32	16-64	8-16	24-32	10/12	1M	1/10	2O3	6	6	6	3/1			W	B+T					3	3	3	3					P100, D+			A,S,T	✓	✓	✓256	2	✓	✓			8	8	✓	SSOP, WLCSP, VQFN, TQFP
SAM L11-KPH	CM23	32	32-64	8-16	24-32	10/12	1M	1/10	2O3	6	6	6	3/1			W	B+T					3	3	3	3					P100, D+			A,S,T	✓	✓	✓256	2	✓	✓	✓		8	8	✓	VQFN, TQFP

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 Microcontroller Quick Reference Guide																																														
						Peripheral Function Focus																																								
						Intelligent Analog				Waveform Control			Timing and Measurements			Safety and Monitoring			Communication												User Interface			Security								System Flexibility				
Product Family	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	Functional Safety Support (ASILB , SIL2) [4]	USB (FS/HS) + PHY (Transceiver)	CAN (2.0B or FD)	Ethernet (10/100)	SERCOM/FLEXCOM (4)	USART/UART	I^2C	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 (channels)/Driven Shield + [4]	Segment/Graphics LCD Controller	LCD/GFX Interface (PMP/EBI)	Crypto Engine (AES. SHA, ECC, RSA/DSA, TRNG)	TrustZone [4]	Secure Boot [4]	TrustRAM (Bytes) [4]	DataFlash (KB) [4]	Tamper Detection	Secure Key Provisioning	Kinibi-M SDK Support	Dual Panel/Bank Flash [4]	Intelligent Low Power Peripheral Event System (channels) [4]	DMA (channels)	CLC/CCL [4]	Packages
SAM																																														
SAM L21	CM0+	48	32-256	4-32	32-64	$20^{/12}$	1M	$2^{/12}$	2O3	24	8	24	5/2	2		W	B+T	S	1^{F+P}			6	6	6	6						P^{169}			A,T									12	16	✓	TQFP, QFN, WLCSP
SAM L22	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	✓	TQFP, QFN, WLCSP, UFBGA
SAM C20	CM0+	48	32-256	4/32	32-64	$12^{/12}$	1M		2	14	6	18	5/2	2		W	B+T	A				4	4	4	4						P^{256}												6	6	✓	TQFP, QFN, WLCSP
SAM C21 [5]	CM0+	48	32-256	4-32	32-100	$20^{/12}$	1M	$1^{/10}$	4	18	8	24	5/2	2		W	B+T	A		2^{FD}		8	8	8	8						P^{256}												12	12	✓	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		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		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		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		P^{32}	S^{160}		A,T									4	16		LQFP, WLCSP
SAM G	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		LQFP, QFN, WLCSP
SAM D5x	CM4F	120	256-1024	128-256	64-128	$32^{/12}$	1M	$2^{/12}$	2	25	16	24	8/4	2	D	W	B+T		1^{F+P}			8	8	8	8	2	✓	✓	1		P^{256}			A,S,E,R,T					✓			✓	32	32	✓	TQFP, QFN, WLCSP
SAM E5x	CM4F	120	256-1024	128-256	64-128	$32^{/12}$	1M	$2^{/12}$	2	25	16	24	8/4	2	D	W	B+T		1^{F+P}	2^{FD}	1	8	8	8	8	2	✓	✓	1		P^{256}			A,S,E,R,T					✓			✓	32	32	✓	TQFP, QFN
SAM S7x [2]	CM7	300	512-2048	256-384	64-144	$24^{/12}$	1.7M	$2^{/12}$	1	44	24	8	4/-		D	W			1^{H+P}				3/5	3	5	1	✓	✓	2	E^{24}			E	A,S,T					✓				12	24		LQFP, LFBGA, TFBGA, UFBGA, VFBGA, QFN
SAM E7x [2]	CM7	300	512-2048	256-384	64-144	$24^{/12}$	1.7M	$2^{/12}$	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, LFBGA, TFBGA, UFBGA
SAM V7x [2] [3]	CM7	300	512-2048	256-384	64-144	$24^{/12}$	1.7M	$2^{/12}$	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	Selected 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 applictions. **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.
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.
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 safetycritical applications, where any single failure of a software functionality and sequencing must be detected.
Functional Safety Support	Select 32-bit MCUs support safety critical applications enabling household appliances with Class B based on IEC60730 , industrial applications with SIL 2 based on the IEC61508 and automotive with ASIL B based on the ISO26262 standards.
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 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 64-pin devices and 60 channels on 32-pin devices. PTC with Driven Shield + can achieve better noise immunity and moisture tolerance.

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, compared to a traditional interrupt-based system.
Dual Panel/Bank Flash	Dual Bank Flash allows live field firmware/program update on one bank while CPU can continue executing code from another Flash bank.
Security: Chip-Level Security, Crypto Acceleration, Secure Key Provisioning and Storage and Tamper Detection	
TrustZone	TrustZone® for ARMv8-M provides hardware-enforced security isolation between trusted and the untrusted resources on a Cortex™-M23 based device, while maintaining the efficient exception handling.
TrustRAM	TrustRAM provides secure key storage against software attacks and can resist microprobing. It also prevents data remanence and facilitates rapid erase on tamper event.
DataFlash	DataFlash provides secure key storage against software attacks. It also allows data scrambling and facilitates rapid erase on tamper event.
Secure Boot	Secure Boot authenticates the Flash content at startup and ensures the desired code is executed.
Kinibi-M	A modular secure application development framework that makes implementation of security simple.

Development Tools

PIC32 and SAM Products

Tool	Description
MPLAB® X IDE	MPLAB® X is the Integrated Development Environment (IDE) for developing and debugging PIC32 and SAM MCU and MPU applications, in addition to Microchips 8- and 16-bit Microcontrollers. It is based on the open-source NetBeans IDE from Oracle and runs under Windows®, Mac OS® and Linux®, and connects seamlessly to a range of debuggers, programmers and development kits.
MPLAB Harmony Configurator	The MPLAB Harmony Configurator (MHC) is a time-saving hardware configuration utility for MPLAB Harmony, Microchip's award winning software framework. Developers use MHC to get visual understanding and control of the configuration of their 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 and SAM microcontrollers and MPUs. It takes key elements of modular and object oriented design, adds in the flexibility to use a Real-Time Operating System (RTOS) or work without one. 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 re-use and reduces time to market.
MPLAB Harmony Graphics Suite	MPLAB Harmony Graphics Suite is Microchip's industry-leading graphics toolset for PIC32 and SAM Microcontrollers and MPUs. Providing a fully-integrated easy to use WYSIWYG editor, graphics asset management and code generator within the MPLAB Harmony framework, the suite 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	MPLAB Harmony supports both capacitive and resistive touch. With automatic generation and configuration of event handlers for touch events, it allows quick development of touch enabled graphics solutions.
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.

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 a seamless 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. Atmel START 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 that 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 Studio 7 and tune the touch design in QTouch Composer.

32-bit Microprocessors

Product	Core Sub-System				Memory										Connectivity														User Interface					Security				Control					
													NAND							USB			Ethernet																				
	Core	VFPU/NEON/Trustzone	Clock Speed (MHz)*	Core Operating Voltage	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	SLC ECC (bit)	MLC ECC (bit)	UART	SPI	TWI (I²C)	SSC (and I²S™)	CAN	Device Only	Device and Host	Host Only	10/100 Ethernet MAC	10/100/1000 MAC	IEEE 1588 Support	SD/eMMC	Class D/PDM/Audio PLL	Max I/O Pins	Graphic LCD	LCD Overlay	Resistive (R) and/or PCAP (P) Touchscreen	Hardware Video Decoder	Camera Interface	Security Level	Secure Boot	Anti-Tamper Pins	Environmental Monitors	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
SAMA5D27C-LD1G	Cortex-A5	1/1/1	500	1.2V	–	128	128	2 × 32	128	2	1/1/1	1/1/1	32	32	10	7	7	4	2	–	1 HS	1 HS, 1 HSIC	1	–	Y	2	1	Y	R, C	–	1	1/1/1		Adv.	Y	8	–	6	4	–	12	–	BGA 361, 16 × 16, 0.8 mm pitch
SAMA5D27C-LD2G	Cortex-A5	1/1/1	500	1.2V	–	256	128	2 × 32	128	2	1/1/1	1/1/1	32	32	10	7	7	4	2	–	1 HS	1 HS, 1 HSIC	1	–	Y	2	1	Y	R, C	–	1	1/1/1		Adv.	Y	8	–	6	4	–	12	–	BGA 361, 16 × 16, 0.8 mm pitch
SAMA5D28C-LD1G	Cortex-A5	1/1/1	500	1.2V	–	128	128	2 × 32	128	2	1/1/1	1/1/1	32	32	10	7	7	4	2	–	1 HS	1 HS, 1 HSIC	1	–	Y	2	1	Y	R, C	–	1	1/1/1		PCI Pre-certified	Y	8	Y	6	4	–	12	–	BGA 361, 16 × 16, 0.8 mm pitch
SAMA5D28C-LD2G	Cortex-A5	1/1/1	500	1.2V	–	256	128	2 × 32	128	2	1/1/1	1/1/1	32	32	10	7	7	4	2	–	1 HS	1 HS, 1 HSIC	1	–	Y	2	1	Y	R, C	–	1	1/1/1		PCI Pre-certified	Y	8	Y	6	4	–	12	–	BGA 361, 16 × 16, 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							Connectivity													User Interface					Security		Control				Packages
									NAND								USB																			
	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 (I²C)	SSC (I²S)	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
SAM9X60	ARM926EJ-S	600	1.2V	64	2 × 32	1/1	1	1/1/-	24	24	13	6	13	2	2	–	1 HS	2 HS	2	2	–		1	Y	Y	–	1	Adv.	Y	–	6	4	–	BGA 228, 11 × 11, 0.65 mm pitch
SAM9X60D6K	ARM926EJ-S	600	1.2V	64	2 × 32	1/1	1	1/1/-	24	24	13	6	13	2	2	–	1 HS	2 HS	2	2	–		1	Y	Y	–	1	Adv.	Y	–	6	4	–	BGA 196, 11 × 11, 0.65 mm pitch
SAM9X60D5M	ARM926EJ-S	600	1.2V	64	2 × 32	1/1	1	1/1/-	24	24	13	6	13	2	2	–	1 HS	2 HS	2	2	–		1	Y	Y	–	1	Adv.	Y	–	6	4	–	BGA 233, 14 × 14, 0.8 mm pitch
SAM9X60D1G	ARM926EJ-S	600	1.2V	64	2 × 32	1/1	1	1/1/-	24	24	13	6	13	2	2	–	1 HS	2 HS	2	2	–		1	Y	Y	–	1	Adv.	Y	–	6	4	–	BGA 233, 14 × 14, 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; 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	Description	Typical Tc Accuracy (°C)	Typical Th Accuracy (°C)	Temperature Range (°C)	Vcc Range (V)	Max Supply Current (µA)	Packages
MCP9600	Fully Integrated thermocouple EMF to temperature converter. Supports thermocouple types K, J, T, N, S, E, B and R.	1	1	-40 to +125	2.7 to 5.5	500	5 x 5 MQFN
MCP96L00	Fully Integrated thermocouple EMF to temperature converter. Supports thermocouple types K, J, T, N, S, E, B and R.	1	4	-40 to +125	2.7 to 5.5	500	5 x 5 MQFN
MCP96RL00	Fully Integrated thermocouple EMF to temperature converter. Supports thermocouple types K, J, T, N, S, E, B and R.	1	6	-40 to +125	2.7 to 5.5	500	5 x 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

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							
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
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 × 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

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							
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
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	1.1, 1.8, 1.05, 1.25, 12 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: AC-DC Auxiliary Controllers										
Product	**Minimum Input Voltage (V)**	**Maximum Input Voltage (V)**	**Osc Frequency Min (kHz)**	**Osc Frequency Max (kHz)**	**On-Board FET**	**Type of On-Board FET**	**Rds,on (Max, 25C)**	**Overcurrent Protection**	**Other Protections**	**Package**
MCP1012	16V (Typical)	500V Continuous/700V Transient	37	63	FALSE	NA	NA	Cycle-Cycle	CCM, OVP, UVLO, OTP (Shutdown)	7/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	150/400 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

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**
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 × 3 DFN
MIC5167	±6A	2.6	5.5	Adj. down to 0.35V	Y	±12 mV	–	Y	1 MHz	Integrated Sync-Buck	4 × 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 460	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
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 × 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
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 x 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 x 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
HV96001	8–60					External FET	Extra Wide Range PWM and Analog	Yes		16/SOIC, 16/QFN

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
CL88030	90–320			External Dimmer	Yes	4-Tap, ALR, OTP, Iout FET Dependent	10-Ld DFN
CL88031	90–320			External Dimmer	Yes	6-Tap, ALR, OTP, Io FET Dependent	10-Ld DFN

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
HV265	4	0.02	82	4.9	3000	3000	200	TSSOP-24
HV56020	0.2	75	1.9	96000	167000	N/A	OCP Flag to Host Micro	43-Ld. 7mmx7mm VQFN
HV56022	0.2	75	1.9	96000	167000	N/A	OCP Flag to Host Micro	20-Ld. 4mm x 4mm VQFN

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

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 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)	Iq Typical (µA)	Vos Max (mV)	Operating Voltage (V)	Packages	Product	# Per Package	GBWP (MHz)	Iq Typical (µA)	Vos 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	MCP6V61/2/4	1/2/4	1	80	0.008	1.8 to 5.5	TSSOP, MSOP, TDFN, 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	MCP6061/2/4	1/2/4	0.73	60	0.15	1.8 to 6.0	SOIC, TSSOP, DFN, SOT
MCP6491/2/4	1/2/4	7.5	530	1.5	2.4 to 5.5	SOT, SC70, MSOP, TDFN, SOIC, TSSOP	MCP6241/2/4	1/2/4	0.55	50	5	1.8 to 5.5	PDIP, SOIC, MSOP, TSSOP, TDFN, SOT, SC70
MCP6H81/2/4	1/2/4	5.5	700	4	3.5 to 12.0	DFN, SOIC, TSSOP	MCP6051/2/4	1/2/4	0.385	30	0.15	1.8 to 6.0	SOIC, TSSOP, DFN, SOT
MCP6V81/2/4	1/2/4	5	500	0.009	2.2 to 5.5	TSSOP, MSOP, TDFN, SOT, SC70	MCP6V31/2/4	1/2/4	0.3	23	0.008	1.8 to 5.5	TSSOP, MSOP, TDFN, SOT, SC70
MCP6281/2/3/4/5	1/2/1/4/2	5	445	3	2.2 to 6.0	PDIP, SOIC, MSOP, TSSOP, SOT	MCP6231/2/4	1/2/4	0.3	20	5	1.8 to 6.0	PDIP, SOIC, MSOP, TSSOP, TDFN, SOT, SC70
MCP6481/2/4	1/2/4	4	240	1.5	2.2 to 5.5	SOT, SC70, MSOP, TDFN, SOIC, TSSOP	MCP616/7/8/9	1/2/1/4	0.19	19	0.15	2.3 to 5.5	PDIP, SOIC, MSOP, TSSOP
MCP6286	1	3.5	540	1.5	2.2 to 5.5	SOT	MCP606/7/8/9	1/2/1/4	0.155	19	0.25	2.5 to 6.0	PDIP, SOIC, TSSOP, SOT
MCP601/2/3/4	1/2/1/4	2.8	230	2	2.7 to 6.0	PDIP, SOIC, TSSOP, SOT	MCP6141/2/3/4	1/2/1/4	0.1	0.6	3	1.4 to 6.0	PDIP, SOIC, MSOP, TSSOP, SOT
MCP6H71/2/4	1/2/4	2.7	480	4	3.5 to 12.0	DFN, SOIC, TSSOP	MCP6421/2/4	1/2/4	0.09	4.4	1	1.8 to 5.5	SOT, SC70, MSOP, SOIC, TSSOP
MCP6271/2/3/4/5	1/2/1/4/2	2	170	3	2.0 to 6.0	PDIP, SOIC, MSOP, TSSOP, SOT	MCP6V11/2/4	1/2/4	0.08	7.5	0.008	1.6 to 5.5	TSSOP, MSOP, TDFN, SOT, SC70
MCP6471/2/4	1/2/4	2	100	1.5	2 to 5.5	SOT, SC70, MSOP, TDFN, SOIC, TSSOP	MCP6041/2/3/4	1/2/1/4	0.014	0.6	3	1.4 to 6.0	PDIP, SOIC, MSOP, TSSOP, SOT
MCP6V26/7/8	1/2/1	2	620	0.002	2.3 to 5.5	SOIC, MSOP, DFN	MCP6031/2/3/4	1/2/1/4	0.01	0.9	0.15	1.8 to 5.5	SOIC, MSOP, TSSOP, DFN, SOT
MCP6V71/2/4	1/2/4	2	170	0.008	2.0 to 5.5	TSSOP, MSOP, TDFN, SOT, SC70	MCP6441/2/4	1/2/4	0.009	0.45	4.5	1.4 to 6.0	SOIC, MSOP, TSSOP, SOT, SC70
MCP6V51	1	2	470	0.015	4.5 to 45	SOT, MSOP							

Linear: Instrumentation Amps						
Product	Bandwidth (kHz)	Iq Typical (µA)	Vos 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

Linear: Current Sense Amplifiers											
Part #	# per Package	Input Common-Mode Range (V)	Vos Max (uV)	Vos Drift Max (nV/°C)	Max Gain Error (%)	Bandwidth (kHz)	Iq Max (mA)	Operating Voltage (V)	Temperature Range (°C)	Features	Packages
MCP6C02	1	3 to 65	16 (G=20), 14 (G=50), 12 (G=100)	85 (G=20), 70 (G=50), 65, (G=100)	1.6	500 (G=20), 500 (G=50), 350 (G=100)	0.75	2 to 5.5	-40 to +125	Bidirectional Current Sense Amplifier, Enhanced EMI Rejection	6-pin SOT-23
MCP6C04	1	3 to 52	30 (G=20), 27 (G=50), 24 (G=100)	180 (G=20), 140 (G=50), 130 (G=100)	1.6	500 (G=20), 500 (G=50), 350 (G=100)	0.84	2 to 5.5	-40 to +125	Bidirectional Current Sense Amplifier, Enhanced EMI Rejection	6-pin SOT-23

Mixed Signal: Successive Approximation Register (SAR) Analog-to-Digital Converters							
Product	Resolution (bits)	Maximum Sampling Rate (samples/sec)	# of Input Channels	Input Type	Interface	Max. Supply Current (µA)	Temperature Range (°C)	Packages
MCP3021/3221	10/12	22k	1	Single-ended	I²C	250	–40 to +125	SOT-23A
MCP3001/2/4/8	10	200k	1/2/4/8	Single-ended	SPI	500–550	–40 to +85	PDIP, SOIC, MSOP, TSSOP
MCP3201/2/4/8	12	100k	1/2/4/8	Single-ended	SPI	400–550	–40 to +85	PDIP, SOIC, MSOP, TSSOP
MCP3301/2/4	13	100k	1/2/4	Differential	SPI	450	–40 to +85	PDIP, SOIC, MSOP, TSSOP
MCP33111D	12	1M	1	Differential	SPI	2250	–40 to +85	10-pin MSOP, 10-pin TDFN
MCP33121D	14	1M	1	Differential	SPI	2250	–40 to +85	10-pin MSOP, 10-pin TDFN
MCP33131D	16	1M	1	Differential	SPI	2250	–40 to +85	10-pin MSOP, 10-pin TDFN

Mixed Signal: Digital-to-Analog Converters

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
MCP48FEB02/12/22	8/10/12	2	EEPROM	0.25/0.5/1	0.5/1.5/6	MSOP-8
MCP48FVB01/11/21	8/10/12	1	Volatile	0.25/0.5/1	0.5/1.5/6	MSOP-8
MCP48FVB02/12/22	8/10/12	2	Volatile	0.25/0.5/1	0.5/1.5/6	MSOP-8
MCP47FEB01/11/21	8/10/12	1	EEPROM	0.25/0.5/1	0.5/1.5/6	MSOP-8
MCP47FEB02/12/22	8/10/12	2	EEPROM	0.25/0.5/1	0.5/1.5/6	MSOP-8
MCP47FVB01/11/21	8/10/12	1	Volatile	0.25/0.5/1	0.5/1.5/6	MSOP-8
MCP47FVB02/12/22	8/10/12	2	Volatile	0.25/0.5/1	0.5/1.5/6	MSOP-8
MCP47CVB01/11/21	8/10/12	1	Volatile	0.1/0.25/1	0.1/0.25/1	10-pin MSOP, 16-pin QFN, 10-pin DFN
MCP47CVB02/12/22	8/10/12	2	Volatile	0.1/0.25/1	0.1/0.25/1	10-pin MSOP, 16-pin QFN, 10-pin DFN
MCP47CMB01/11/21	8/10/12	1	MTP	0.1/0.25/1	0.1/0.25/1	10-pin MSOP, 16-pin QFN, 10-pin DFN
MCP47CMB02/12/22	8/10/12	2	MTP	0.1/0.25/1	0.1/0.25/1	10-pin MSOP, 16-pin QFN, 10-pin DFN

Product	Resolution (Bits)	DAC Channels	Memory	DNL (±LSb)	INL (±LSb)	Packages
MCP47DA1	6	1	Volatile	0.35	0.7	SOT23-6, SC70-6
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
MCP4725	12	1	EEPROM	0.75	14.5	SOT23-6
MCP4728	12	4	EEPROM	0.75	13	MSOP-10
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
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
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
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
MCP48CVB01/11/21	8/10/12	1	Volatile	0.1/0.25/1	0.1/0.25/1	10-pin MSOP, 16-pin QFN, 10-pin DFN
MCP48CVB02/12/22	8/10/12	2	Volatile	0.1/0.25/1	0.1/0.25/1	10-pin MSOP, 16-pin QFN, 10-pin DFN
MCP48CMB01/11/21	8/10/12	1	MTP	0.1/0.25/1	0.1/0.25/1	10-pin MSOP, 16-pin QFN, 10-pin DFN
MCP48CMB02/12/22	8/10/12	2	MTP	0.1/0.25/1	0.1/0.25/1	10-pin MSOP, 16-pin QFN, 10-pin DFN

Mixed Signal: Energy Meter and Power Monitoring ICs

Product	Dynamic Range	Typical Accuracy	ADC Channels	ADC Resolution	SINAD	Gain Selection	Output Type	Analog V_{DD} (V)	Digital V_{DD} (V)	Temperature Range (°C)	Features	Packages
MCP3918/10/19	10000:1	0.1%	1/2/3	24	94.5 dB	1 to 32	SPI/2-Wire	2.7–3.6	2.7–3.6	–40 to +125	Two Channel, 24-bit AFE with Phase Correction, Programmable Data Rate up to 125 kSPS, 16-bit CRC, Register Map Lock, 2-wire Interface	4 mm x 4 mm QFN-20, SSOP-20
MCP3911/12/13/14	10000:1	0.1%	2/4/6/8	24	94.5 dB	1 to 32	SPI	2.7–3.6	2.7–3.6	–40 to +125	Two Channel, 24-bit AFE with Phase Correction, Programmable Data Rate up to 125 kSPS, 16-bit CRC, Register Map Lock	4 mm x 4 mm QFN-20, SSOP-20
MCP39F511N	4000:1	0.5%	3	24	94.5 dB	1 to 32	UART/ Single-wire	2.7–3.6	2.7–3.6	–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	5 mm x 5 mm QFN-28
MCP39F511A	4000:1	0.1%	2	24	94.5 dB	1 to 32	UART/ Single-wire	2.7–3.6	2.7–3.6	–40 to +125	AC/DC Dual-mode Power monitoring IC with active, reactive and apparent power, active and reactive energy, PF, RMS current/voltage, frequency, event notifications, EEPROM, PWM output	5 mm x 5 mm QFN-28

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
MCP4011/12/13/14	64	Volatile	1	Up/Down	2.1, 5, 10, 50	–40 to +125	DFN, SOT-23
MCP4017/18/19	128	Volatile	1	I²C	5, 10, 50, 100	–40 to +125	SC70
MCP40D17/D18/D19	128	Volatile	1	I²C	5, 10, 50, 100	–40 to +125	SC70
MCP4021/22/23/24	64	Nonvolatile	1	Up/Down	2.1, 5, 10, 50	–40 to +125	DFN, SOT-23
MCP4141/42	128	Nonvolatile	1	SPI	5, 10, 50, 100	–40 to +125	MSOP, QFN, DFN
MCP4241/42	128	Nonvolatile	2	SPI	5, 10, 50, 100	–40 to +125	MSOP, QFN, DFN
MCP4131/32	128	Volatile	1	SPI	5, 10, 50, 100	–40 to +125	QFN, DFN
MCP4231/32	128	Volatile	2	SPI	5, 10, 50, 100	–40 to +125	MSOP, QFN, DFN
MCP4151/52	256	Volatile	1	SPI	5, 10, 50, 100	–40 to +125	MSOP, QFN, DFN

Mixed Signal: Digital Potentiometers							
Product	**# of Taps**	**Memory**	**Channels**	**Interface**	**Resistance (kΩ)**	**Temperature Range (°C)**	**Packages**
MCP41HV31	128	Volatile	1	SPI	5, 10, 50, 100	–40 to +125	TSSOP, QFN
MCP41HV51	256	Volatile	1	SPI	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
MCP4251/52	256	Volatile	2	SPI	5, 10, 50, 100	–40 to +125	MSOP, QFN, DFN
MCP4261/62	256	Nonvolatile	2	SPI	5, 10, 50, 100	–40 to +125	MSOP, QFN, DFN
MCP4341/42	129	Nonvolatile	4	SPI	5, 10, 50, 100	–40 to +125	TSSOP, QFN
MCP4361/62	257	Nonvolatile	4	SPI	5, 10, 50, 100	–40 to +125	TSSOP, QFN
MCP4331/32	129	Volatile	4	SPI	5,10,50,100	–40 to +125	TSSOP, QFN
MCP4351/52	257	Volatile	4	SPI	5,10,50,100	–40 to +125	TSSOP, QFN
MCP4431/32	129	Volatile	4	I²C	5, 10, 50, 100	–40 to +125	TSSOP, QFN
MCP4441/42	129	Nonvolatile	4	I²C	5, 10, 50, 100	–40 to +125	TSSOP, QFN
MCP4451/52	257	Volatile	4	I²C	5, 10, 50, 100	–40 to +125	TSSOP, QFN
MCP4461/62	257	Nonvolatile	4	I²C	5, 10, 50, 102	–40 to +125	TSSOP, QFN
MCP4531/32	128	Volatile	1	I²C	5, 10, 50, 100	–40 to +125	MSOP, DFN
MCP4631/32	128	Volatile	2	I²C	5, 10, 50, 100	–40 to +125	MSOP, DFN
MCP4541/42	128	Nonvolatile	1	I²C	5, 10, 50, 100	–40 to +125	MSOP, DFN
MCP46HV31	128	Volatile	1	I²C	5, 10, 50, 100	–40 to +125	TSSOP, QFN
MCP45HV51	256	Volatile	1	I²C	5, 10, 50, 100	–40 to +125	TSSOP, QFN
MCP4641/42	128	Nonvolatile	2	I²C	5, 10, 50, 100	–40 to +125	MSOP, DFN
MCP4551/52	256	Volatile	1	I²C	5, 10, 50, 100	–40 to +125	MSOP, DFN
MCP4651/52	256	Volatile	2	I²C	5, 10, 50, 100	–40 to +125	MSOP, DFN
MCP4561/62	256	Nonvolatile	1	I²C	5, 10, 50, 100	–40 to +125	MSOP, DFN
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**
MCP3461	16	153.6k	2	SPI	930	–40 to +125	One Differential or Two Single-ended Input Channels, 153.6 kSPS, Low-Noise 16-Bit Delta-Sigma ADCs	3 mm x 3 mm UQFN-20
MCP3462	16	153.6k	4	SPI	930	–40 to +125	Two Differential or Four Single-ended Input Channels, 153.6 kSPS, Low-Noise 16-Bit Delta-Sigma ADCs	3 mm x 3 mm UQFN-20
MCP3464	16	153.6k	8	SPI	930	–40 to +125	Four Differential or Eight Single-ended Input Channels, 153.6 kSPS, Low-Noise 16-Bit Delta-Sigma ADCs	3 mm x 3 mm UQFN-20
MCP3561	24	153.6k	2	SPI	930	–40 to +125	One Differential or Two Single-ended Input Channels, 153.6 kSPS, Low-Noise 24-Bit Delta-Sigma ADCs	3 mm x 3 mm UQFN-20
MCP3562	24	153.6k	4	SPI	930	–40 to +125	Two Differential or Four Single-ended Input Channels, 153.6 kSPS, Low-Noise 24-Bit Delta-Sigma ADCs	3 mm x 3 mm UQFN-20
MCP3564	24	153.6k	8	SPI	930	–40 to +125	Four Differential or Eight Single-ended Input Channels, 153.6 kSPS, Low-Noise 24-Bit Delta-Sigma ADCs	3 mm x 3 mm UQFN-20
MCP3910	24	125k	2	SPI/2-Wire	2500	–40 to +125	Two Channel, 125 kSPS, 24-bit Simultaneously Sampling Delta-Sigma ADCs with 2-Wire Mode, AEC-Q100 Grade 1	4 mm x 4 mm QFN-20, SSOP-20
MCP3911	24	125k	2	SPI	2500	–40 to +125	Two Channel, 125 kSPS, 24-bit Simultaneously Sampling Delta-Sigma ADCs, AEC-Q100 Grade 1	4 mm x 4 mm QFN-20, SSOP-20
MCP3912	24	125k	4	SPI	4700	–40 to +125	Four Channel, 125 kSPS, 24-bit Simultaneously Sampling Delta-Sigma ADCs, AEC-Q100 Grade 1	4 mm x 4 mm QFN-20, SSOP-20
MCP3913	24	125k	6	SPI	7400	–40 to +125	Six Channel, 125 kSPS, 24-bit Simultaneously Sampling Delta-Sigma ADCs, AEC-Q100 Grade 1	4 mm x 4 mm QFN-20, SSOP-20
MCP3914	24	125k	8	SPI	9800	–40 to +125	Eight Channel, 125 kSPS, 24-bit Simultaneously Sampling Delta-Sigma ADCs, AEC-Q100 Grade 1	4 mm x 4 mm QFN-20, SSOP-20
MCP3918	24	125k	1	SPI/2-Wire	1300	–40 to +125	Single Channel, 125 kSPS, 24-bit Simultaneously Sampling Delta-Sigma ADCs, AEC-Q100 Grade 1	4 mm x 4 mm QFN-20, SSOP-20
MCP3919	24	125k	3	SPI/2-Wire	3500	–40 to +125	Three Channel, 125 kSPS, 24-bit Simultaneously Sampling Delta-Sigma ADCs, AEC-Q100 Grade 1	4 mm x 4 mm QFN-20, SSOP-20

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 +125/150	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

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
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
MD0101	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: 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
HV7322	8	±80	7	–40	±2.0	8-Channel 7-level with dual T/R	206-ball TFBGA 12 × 12 mm
HV7358	16	±80	7	–40	±1.6	16-Channel 3-Level with Built-in Digital Beamformer and T/R	168-ball TFBGA 13 × 13 mm

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

Ultrasound: High-Voltage Analog Multiplexers								
Part #	# of Ch. and Configuration	Bleed Resistor	V_{PP}-V_{NN}	R_{ON} (Ω)	C_{SG} On/Off (pF)	I_{SW} (A)	Features	Packages
HV20220	8 SPST	No	200V	22	38/12	3	5V–12V Logic Input, 5 MHz clock frequency	48-Lead LQFP, 28-Lead PLCC
HV209	6 × 2:1 Mux	Yes	200V	22	38/12	3	5V–12V Logic Input, 5 MHz clock frequency	48-Lead LQFP
HV20822	2 Banks of 8 channel	No	220V	22	38/12	3	5V–12V Logic Input, 5 MHz clock frequency	48-Lead LQFP
HV2601	16 SPST	No	200V	22	38/12	3	3.3V–5V Logic input, 20 MHz clock frequency	48-Lead LQFP, 42-Ball Bumped Die (BD)
HV2701	16 SPST	No	200V	22	38/12	3	3.3V–5V Logic input, 20 MHz clock frequency	48-Lead LQFP, 42-Ball Bumped Die (BD)
HV2605	16 SPST	No	200V	22	13/10	3	3.3V–5V Logic input, 20 MHz clock frequency	48-Lead LQFP, 42-Ball Bumped Die (BD)
HV2705	16 SPST	Yes	200V	22	13/10	3	3.3V–5V Logic input, 20 MHz clock frequency	48-Lead LQFP, 42-Ball Bumped Die (BD)
HV2803	32 SPST	No	±6V	10	27/9	3	3.3V Input Logic, 66 MHz Clock Frequency	132-ball TFBGA 12 x 12 mm
HV2903	32 SPST	Yes-2	±6V	10	27/9	3	3.3V Input Logic, 66 MHz Clock Frequency	132-ball TFBGA 12 x 12 mm
HV2904	32 SPST	Yes-1	±6V	10	27/9	3	3.3V Input Logic, 66 MHz Clock Frequency	132-ball TFBGA 12 x 12 mm
HV2662	24 SPST	No	200V	22	12/9	2	3.3V–5V Logic input, 20 MHz clock frequency	64-Ball VFBGA
HV2762	24 SPST	Yes	200V	22	12/9	2	3.3V–5V Logic input, 20 MHz clock frequency	64-Ball VFBGA
HV2801	16 × 2:1 Mux	No	200V	22	23/9	3	3.3V–5V Logic input, 20 MHz clock frequency	64-Lead QFN
HV2901	16 × 2:1 Mux	Yes	200V	22	23/9	3	3.3V–5V Logic input, 20 MHz clock frequency	64-Lead QFN
HV2802	32 SPST	No	200V	22	13/10	3	3.3V–5V Logic input, 20 MHz clock frequency	9 × 9 VFBGA
HV2902	32 SPST	Yes	200V	22	13/10	3	3.3V–5V Logic input, 20 MHz clock frequency	9 × 9 VFBGA

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

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
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
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

Clock and Data Distribution: Buffers																	
Product	Buffer Type	Fanout	Input MUX	Input Type	EEPROM	Termination	Output Type	Supply Voltage (V)	Output Frequency (Max) (MHz)	Host BUS	Output Data Rate (Max) (Gbps)	Propagation Delay (Max) (ps)	Within Device Skew (Max) (ps)	Output Enable	Runt Pulse Eliminator (RPE)	Fail-Safe Input (FSI)	Packages
PL123-02N	Fanout	1:2		LVCMOS			LVCMOS	1.8/2.5/3.3	200				500				6/DFN
PL123-05	Zero Delay	1:5		LVCMOS			LVCMOS	3.3	100/134				250				8/SOIC
PL123-09	Zero Delay	1:9		LVCMOS			LVCMOS	3.3	100/134				250				16/SOIC 16/ TSSOP
PL123E-05	Zero Delay	1:5		LVCMOS			LVCMOS	2.5/3.3	220/167/200/134								8/SOIC
PL123E-09	Zero Delay	1:9		LVCMOS			LVCMOS	2.5/3.3	220/167/200/134								16/SOIC
PL133-21	Fanout	1:2		LVCMOS/Sine Wave			LVCMOS	1.8/2.5/3.3	150				500				6/UDFN
PL133-27	Fanout	1:2		LVCMOS/Sine Wave			LVCMOS	1.8/2.5/3.3	150				500				6/UDFN
PL133-37	Fanout	1:3		LVCMOS/Sine Wave			LVCMOS	1.8/2.5/3.3	150				250				6/SOT-23
PL133-47	Fanout	1:4		LVCMOS			LVCMOS	2.5/3.3	150			9200	250				8/SOIC 150mil
PL133-67	Fanout	1:6		LVCMOS			LVCMOS	2.5/3.3	150			9200	250				16/TSSOP
PL133-97	Fanout	1:9		LVCMOS			LVCMOS	2.5/3.3	150			9200	250				16/QFN
PL133-97	Fanout	1:9		LVCMOS			LVCMOS	1.8/2.5/3.3	0.15			9200	250	Yes			16/VQFN
PL135-27	Fanout	1:2		Crystal Oscillator			LVCMOS	1.8/2.5/3.3	40				500				6/UDFN
PL135-37	Fanout	1:3		Crystal Oscillator			LVCMOS	1.8/2.5/3.3	40				250				8/SOIC 150mil
PL135-47	Fanout	1:4		Crystal			LVCMOS	1.8/2.5/3.3	0.04				250	Yes			16/TSSOP
PL135-67	Fanout	1:6		Crystal			LVCMOS	1.8/2.5/3.3	0.04				250	Yes			16/WQFN
PL138-48	Fanout	1:4	2:1	LVDS/LVPECL/LVHSTL/ SSTL/HCSL/LVCMOS			LVPECL	2.5/3.3	800			890	37				16/QFN and 20/TSSOP
SY100E222L	Fanout	1:15	2:1	LVECL/LVPECL			LVPECL	3.3	1500			1520	50				52/LQFP
SY100EL11V	Fanout	1:2		ECL			ECL	3.3/5	800			365	20				8/SOIC
SY100EL14V	Fanout	1:5	2:1	ECL/PECL			PECL	3.3/5				880	50	Yes			20/SOIC
SY100EP111U	Fanout	1:10	2:1	LVPECL/LVECL/HSTL			PECL	2.5/3.3	3000			400	25				32/TQFP
SY100EP11U	Fanout	1:2		LVPECL/PECL/ECL			PECL	2.5/3.3/5	3			300	20				8/MSOP 8/ SOIC
SY100EP14U	Fanout	1:5	2:1	PECL, LVPECL, ECL, HSTL			ECL	2.5/3.3/5	2			600	25	Yes			20/TSSOP
SY100EP15V	Fanout	1:4	2:1	PECL, LVPECL, ECL, HSTL			LVPECL	2.5/3.3/5	2.5			425	25	Yes			16/TSSOP 32/TQFP
SY10EP11U	Fanout	1:2		LVPECL/PECL/ECL			PECL	2.5/3.3/5	3			300	20				8/MSOP 8/ SOIC
SY54020AR	Fanout	1:4		ANY			CML	2.5	3.2		3.2	400	20	Yes			16/MLF
SY56011R	Fanout	1:2		ANY			CML	2.5	4.5		6.4	280	15				16/ QFN
SY56020R	Fanout	1:4		ANY			CML	2.5	4.5		6.4	280	15	Yes			16/ QFN
SY58011U	Fanout	1:2		ANY			CML	2.5/3.3	7		10.7	250	15				16/QFN

Clock and Data Distribution: Buffers																	
Product	Buffer Type	Fanout	Input MUX	Input Type	EEPROM	Termination	Output Type	Supply Voltage (V)	Output Frequency (Max) (MHz)	Host BUS	Output Data Rate (Max) (Gbps)	Propagation Delay (Max) (ps)	Within Device Skew (Max) (ps)	Output Enable	Runt Pulse Eliminator (RPE)	Fail-Safe Input (FSI)	Packages
SY58012U	Fanout	1:2		ANY			LVPECL	2.5/3.3	5		5	260	15				16/MLF
SY58020U	Fanout	1:4		ANY			CML	2.5/3.3	6			250	15				16/QFN
SY58021U	Fanout	1:4		ANY			LVPECL	2.5/3.3	4		5	300	15				16/QFN
SY58031U	Fanout	1:8		ANY			CML	2.5/3.3	5			270	20				16/QFN
SY58032U	Fanout	1:8		ANY			LVPECL	2.5/3.3	4			330	20				32/MLF
SY58035U	Fanout	1:6	2:1	ANY			LVPECL	2.5/3.3	4.5			230	20				32/MLF
SY58606U	Fanout	1:2		ANY			CML	2.5/3.3	2.5		4.25	400	15			Yes	16/QFN
SY58607U	Fanout	1:2		ANY			LVPECL	2.5/3.3	2.5		3.2	450	20			Yes	16/QFN
SY58608U	Fanout	1:2		ANY			LVDS	2.5	2		3.2	420	20			Yes	16/QFN
SY75572L	PCIe Fanout	1:2	2:1	HCSL/LVDS			HCSL	3.3	267				50	Yes			16/VQFN
SY75576L	PCIe Fanout	1:4	2:1	HCSL/LVDS			HCSL/LVDS	3.3	267				50	Yes			20/TSSOP
SY89112U	Fanout	1:12	2:1	ANY			LVPECL	2.5/3.3	3			550	25				44/QFN
SY89311U	Fanout	1:2		ECL/PECL/LVPECL/LVECL			ECL/PECL/ LVPECL/ LVECL	2.5/3.3/5	3			300	20				8/MLF
SY89467U	Fanout	1:20	2:1	ANY			LVPECL	2.5/3.3	1.5			1200	20			Yes	64/TQFP
SY89468U	Fanout	1:20	2:1	ANY			LVDS	2.5	1.5			1200	25			Yes	64/TQFP
SY897132L	Link Replicator	1:2	2:1	LVPECL			LVPECL	3.3	0.8		1.5	4000		Yes			28/TSSOP
SY89830U	Fanout	1:4	2:1	ECL/PECL/LVPECL/LVECL			ECL/PECL/ LVPECL/ LVECL	2.5/3.3/5	2.5			450	25				16/TSSOP
SY89831U	Fanout	1:4		ANY			LVPECL	2.5/3.3	2			390	20				16/VQFN
SY89832U	Fanout	1:4		ANY			LVDS	2.5	2			570	20				16/VQFN
SY89833AL	Fanout	1:4		ANY			LVDS	3.3	2			600	20				16/VQFN
SY89833L	Fanout	1:4		ANY			LVDS	3.3	2			600	20				16/VQFN
SY89835U	Fanout	1:2		LVDS			LVDS	2.5	3.2		2	500	20			Yes	8/MLF
SY89837U	Fanout	1:8	2:1	ANY			LVPECL	2.5/3.3	1.5			975	40		Yes	Yes	32/VQFN
SY89838U	Fanout	1:8	2:1	ANY			LVDS	2.5	1.5			950	40		Yes	Yes	32/VQFN
SY89846U	Fanout	1:5	2:1	ANY			LVPECL	2.5/3.3	1.5			900	20			Yes	32/VQFN
SY89847U	Fanout	1:5	2:1	ANY			LVDS	2.5	1.5			1000	20			Yes	32/VQFN
SY898530U	Fanout	1:16		LVDS/LVPECL/LVHSTL/ SSTL/HCSL			LVPECL	3.3	0.5			2000	50				48/TQFP
SY898535XL	Fanout	1:4	2:1	XTAL/LVCMOS/LVTTL			LVPECL	3.3	0.24			1750	30				20/TSSOP
SY89854U	Fanout	1:4		ANY			LVPECL	2.5/3.3	3.5			340	20				16/VQFN
ZL40200	Fanout	1:2	1:1	LVPECL, LVDS, HCSL, CML		External	LVPECL	2.5/3.3	750								16/QFN
ZL40201	Fanout	1:2	1:1	LVPECL, LVDS, HCSL, CML		Internal	LVPECL	2.5/3.3	750								16/QFN
ZL40202	Fanout	1:4	1:1	LVPECL, LVDS, HCSL, CML		External	LVPECL	2.5/3.3	750								16/QFN
ZL40203	Fanout	1:4	1:1	LVPECL, LVDS, HCSL, CML		Internal	LVPECL	2.5/3.3	750								16/QFN
ZL40204	Fanout	1:6	1:1	LVPECL, LVDS, HCSL, CML		External	LVPECL	2.5/3.3	750								32/QFN
ZL40205	Fanout	1:6	1:1	LVPECL, LVDS, HCSL, CML		Internal	LVPECL	2.5/3.3	750								32/QFN
ZL40206	Fanout	1:8	1:1	LVPECL, LVDS, HCSL, CML		External	LVPECL	2.5/3.3	750								32/QFN
ZL40207	Fanout	1:8	1:1	LVPECL, LVDS, HCSL, CML		Internal	LVPECL	2.5/3.3	750								32/QFN
ZL40208	Fanout	1:6	2:1	LVPECL, LVDS, HCSL, CML		External	LVPECL	2.5/3.3	750								32/QFN
ZL40209	Fanout	1:6	2:1	LVPECL, LVDS, HCSL, CML		Internal	LVPECL	2.5/3.3	750								32/QFN

Clock and Data Distribution: Buffers																	
Product	Buffer Type	Fanout	Input MUX	Input Type	EEPROM	Termination	Output Type	Supply Voltage (V)	Output Frequency (Max) (MHz)	Host BUS	Output Data Rate (Max) (Gbps)	Propagation Delay (Max) (ps)	Within Device Skew (Max) (ps)	Output Enable	Runt Pulse Eliminator (RPE)	Fail-Safe Input (FSI)	Packages
ZL40210	Fanout	1:8	2:1	LVPECL, LVDS, HCSL, CML		External	LVPECL	2.5/3.3	750								32/QFN
ZL40211	Fanout	1:8	2:1	LVPECL, LVDS, HCSL, CML		Internal	LVPECL	2.5/3.3	750								32/QFN
ZL40212	Fanout	1:2	1:1	LVPECL, LVDS, HCSL, CML		External	LVDS	2.5/3.3	750								16/QFN
ZL40213	Fanout	1:2	1:1	LVPECL, LVDS, HCSL, CML		Internal	LVDS	2.5/3.3	750								16/QFN
ZL40214	Fanout	1:4	1:1	LVPECL, LVDS, HCSL, CML		External	LVDS	2.5/3.3	750								16/QFN
ZL40215	Fanout	1:4	1:1	LVPECL, LVDS, HCSL, CML		Internal	LVDS	2.5/3.3	750								16/QFN
ZL40216	Fanout	1:6	1:1	LVPECL, LVDS, HCSL, CML		External	LVDS	2.5/3.3	750								32/QFN
ZL40217	Fanout	1:6	1:1	LVPECL, LVDS, HCSL, CML		Internal	LVDS	2.5/3.3	750								32/QFN
ZL40218	Fanout	1:8	1:1	LVPECL, LVDS, HCSL, CML		External	LVDS	2.5/3.3	750								32/QFN
ZL40219	Fanout	1:8	1:1	LVPECL, LVDS, HCSL, CML		Internal	LVDS	2.5/3.3	750								32/QFN
ZL40220	Fanout	1:6	2:1	LVPECL, LVDS, HCSL, CML		External	LVDS	2.5/3.3	750								32/QFN
ZL40221	Fanout	1:6	2:1	LVPECL, LVDS, HCSL, CML		Internal	LVDS	2.5/3.3	750								32/QFN
ZL40222	Fanout	1:8	2:1	LVPECL, LVDS, HCSL, CML		External	LVDS	2.5/3.3	750								32/QFN
ZL40223	Fanout	1:8	2:1	LVPECL, LVDS, HCSL, CML		Internal	LVDS	2.5/3.3	750								32/QFN
ZL40224	Fanout	1:8	2:1	LVPECL, LVDS, HCSL, CML		External	LVPECL	2.5/3.3	750								32/QFN
ZL40225	Fanout	1:8	2:1	LVPECL, LVDS, HCSL, CML		Internal	LVPECL	2.5/3.3	750								32/QFN
ZL40226	Fanout	1:8	1:1	LVPECL, LVDS, HCSL, CML		External	LVDS	2.5/3.3	750								32/QFN
ZL40227	Fanout	1:8	1:1	LVPECL, LVDS, HCSL, CML		Internal	LVDS	2.5/3.3	750								32/QFN
ZL40230	Fanout	1:10	2:1	LVPECL, HCSL, LVDS, SSTL, CML, LVCMOS			LVPECL, LVDS, HCSL	2.5/3.3	1600	SPI				YES			48/qfn
ZL40231	Fanout	1:10	2:1	LVPECL, HCSL, LVDS, SSTL, CML, LVCMOS			LVPECL, LVDS, HCSL	2.5/3.3	1600								48/qfn
ZL40234	Fanout	1:4	2:1	LVPECL, HCSL, LVDS, SSTL, CML, LVCMOS			LVPECL, LVDS, HCSL	2.5/3.3	1600								32/qfn
ZL40235	Fanout	1:4	2:1	LVPECL, HCSL, LVDS, SSTL, CML, LVCMOS			LVPECL, LVDS, HCSL	2.5/3.3	1600	SPI				YES			32/qfn
ZL40240	Fanout	1:10	2:1	LVPECL, HCSL, LVDS, SSTL, CML, LVCMOS			LVCMOS	2.5/3.3	250	SPI				YES			32/qfn
ZL40241	Fanout	1:10	2:1	LVPECL, HCSL, LVDS, SSTL, CML, LVCMOS			LVCMOS	2.5/3.3	250								32/qfn
ZL40260	Fanout	1:10	2:1	LVPECL, HCSL, LVDS, SSTL, CML, LVCMOS			LVPECL	2.5/3.3	1600								32/qfn
ZL40250	Programmable Fanout	1:6	3:1	LVPECL, HCSL, LVDS, SSTL, CML, LVCMOS	External		LVDS, LVPECL, HCSL, CMOS, HSTL	2.5/3.3	1000	SPI/ I²C				YES			56/QFN
ZL40251	Programmable Fanout	1:6	3:1	LVPECL, HCSL, LVDS, SSTL, CML, LVCMOS	Internal		LVDS, LVPECL, HCSL, CMOS, HSTL	2.5/3.3	1000	SPI/ I²C				YES			56/QFN
ZL40252	Programmable Fanout	1:10	3:1	LVPECL, HCSL, LVDS, SSTL, CML, LVCMOS	External		LVDS, LVPECL, HCSL, CMOS, HSTL	2.5/3.3	1000	SPI/ I²C				YES			56/QFN
ZL40253	Programmable Fanout	1:10	3:1	LVPECL, HCSL, LVDS, SSTL, CML, LVCMOS	Internal		LVDS, LVPECL, HCSL, CMOS, HSTL	2.5/3.3	1000	SPI/ I²C				YES			56/QFN
ZL40255	Programmable Fanout	1:10	3:1	LVPECL, HCSL, LVDS, SSTL, CML, LVCMOS	Internal		CML	2.5/3.3	1000	SPI/ I²C				YES			32/QFN

Clock and Data Distribution: Buffers																	
Product	Buffer Type	Fanout	Input MUX	Input Type	EEPROM	Termination	Output Type	Supply Voltage (V)	Output Frequency (Max) (MHz)	Host BUS	Output Data Rate (Max) (Gbps)	Propagation Delay (Max) (ps)	Within Device Skew (Max) (ps)	Output Enable	Runt Pulse Eliminator (RPE)	Fail-Safe Input (FSI)	Packages
ZL40292	DB2000/PCIe Fanout	1:20	1:1	HCSL			LPHCSL	3.3	250					YES			72/QFN
ZL40293	PCIe Fanout	1:20	1:1	HCSL			LPHCSL	3.3	250					YES			72/QFN
ZL40294	DB2000/PCIe Fanout	1:20	1:1	HCSL			LPHCSL	3.3	250					YES			80/GQFN
ZL40295	PCIe Fanout	1:20	1:1	HCSL			LPHCSL	3.3	250					YES			80/GQFN
ZL40262	PCIe Fanout	1:1	1:2	HCSL			HCSL		400					YES			20/QFN
ZL40264	PCIe Fanout	1:1	1:4	HCSL			HCSL		400					YES			20/QFN

Timing Products: Real-Time Clock/Calendar (RTCC)													
			Timing Features				Memory			Power			
Bus	Product	Pins	Digital Trimming (Adj./Range)	Alarm Settings	WDT	Outputs	SRAM (Bytes)	EEPROM (KBits)	Protected EEPROM (bits)	Min Vcc	Min Vbat	Unique Features [2]	Packages
I²C	**MCP7940M**	8	±127 ppm	1 sec.	–	IRQ/CLK	64	0	0	1.8	–	–	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	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	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	SOIC (SN), TSSOP (ST), MSOP (MS), TDFN (MNY)
	MCP7951x	10	±255 ppm	0.01 sec.	–	IRQ/CLK	64	1	128	1.8	1.3	Power Fail Timestamp	SOIC (SL), TSSOP (ST)
SPI	**MCP7952x**	10	±255 ppm	0.01 sec.	–	IRQ/CLK	64	2	128	1.8	1.3	Power Fail Timestamp	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)	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)	SOIC (SL), TSSOP (ST)

Clock and Data Distribution: Dividers												
Product	Divide by	MUX: Fanout	Input Type	Output Type	Supply Voltage (V)	Output Frequency (Max) (GHz)	Propagation Delay (Max) (ps)	Within Device Skew (Max) (ps)	Internal Termination	Output Enable	Fail-Safe Input (FSI)	Packages
SY89872U	2, 4, 8, 16	1:2	ANY	LVDS	2.5V	2	750	15	Yes	Yes		16/QFN
SY89876L	1, 2, 4, 8, 16	1:2	ANY	LVDS	3.3V	2	870	15	Yes			16/QFN
SY89875U	1, 2, 4, 8, 16	1:2	ANY	LVDS	2.5V	2	870	15	Yes	Yes		16/QFN
SY89871UMG	2, 4, 8, 16	1:3	ANY	LVPECL	2.5/3.3	3.2	670	15	Yes	Yes		16/QFN
SY100EP32V	2	1:1	ECL	ECL	5/3.3	4	440					8/MSOP, 8/SOIC
SY100EL33	4	1:1	ECL	ECL	3.3	3.8	630					8/SOIC
SY89874U	1, 2, 4, 8, 16	1:2	ANY	LVPECL	2.5/3.3V	2.5	790	15	Yes	Yes		16/QFN
SY89873L	2, 4, 8, 16	1:2	ANY	LVDS	3.3V	2	800	15	Yes	Yes		16/QFN
SY89874AU	1, 2, 4, 8, 16	1:2	ANY	LVPECL	2.5/3.3V	2.5	570	15	Yes	Yes		16/QFN
SY89200U	1, 2, 4	1:3	ANY	LVDS	2.5	1.5	900	25	Yes			32/QFN
SY89202U	1, 2, 4	1:8	ANY	LVPECL	2.5/3.3	1.5	930	25	Yes	Yes		32/VQFN
SY89228U	3, 5	1:1	ANY	LVPECL	2.5/3.3V	1	1500		Yes		Yes	16/QFN
SY100S834L	1, 2, 4 or 2, 4, 8	1:1	ECL/PECL	ECL/PECL	3.3		1200	50		Yes		16/SOIC
SY89230U	3, 5	1:1	ANY	LVPECL	2.5/3.3V	3.2	850		Yes		Yes	16/QFN
SY100EL32V	2	1:1	LVPECL	LVPECL	3.3/5	3	630					8/SOIC
SY100EP33V	4	1:1	ECL	ECL	5/3.3	4	500					16/SOIC
SY100EL34	2, 4, 8	1:3	ECL/PECL	ECL/PECL	5		1200	50		Yes		16/SOIC
SY100EL34L	2, 4, 8	1:3	ECL/PECL	ECL/PECL	3.3		1200	50		Yes		16/SOIC
SY89218U	1, 2, 4	2:15	ANY	LVDS	2.5	1.5	1600	35	Yes		Yes	64/TQFP
SY89221U	1, 2, 4	2:15	ANY	LVPECL	2.5/3.3V	1.5	1600	35	Yes		Yes	64/TQFP
SY89231U	3, 5	1:1	ANY	LVDS	2.5V	3.2	810		Yes	Yes		16/QFN

Clock and Data Distribution: Drivers and Receivers												
Product	Function	Channels	Feature	Input Type	Output Type	Supply Voltage (V)	Output Frequency (Max) (GHz)	Output Data Rate (Max) (Gbps)	Propagation Delay (Max) (ps)	Icc (mA)	Fail Safe Input (FSI)	Packages
SY89251V	Receiver	Single	Output Enable	ECL/LVPECL	ECL/LVPECL	3.3/5V			380	26		8/DFN
SY100EL16V	Receiver	Single		ECL/PECL	ECL/PECL	3.3/5V			425	26		8MSOP/SOIC
SY58600U	Driver/Receiver	Single	Internal Termination	ANY	CML	2.5/3.3V	10.7	7	220	65		8/MLF
SY58603U	Buffer	Single	Fail-Safe Input (FSI)	ANY	CML	2.5/3.3V	4.25	2.5	350	50	Yes	8/DFN
SY58605U	Buffer	Single	Fail-Safe Input (FSI)	ANY	LVDS	2.5V	3.2	2	420	50	Yes	8/DFN
SY89250V	Receiver	Single	Output Enable	LVECL/LVPECL	PECL	3.3/5V		0.8	380	46		8/MLF
SY58604U	Buffer	Single	Fail-Safe Input (FSI)	ANY	LVPECL	2.5/3.3V	3.2	2.5	450	45	Yes	8/DFN
SY54016AR	Driver/Receiver	Single	Internal Termination	ANY	CML	2.5V	3.2	3.2	280	16		8/MLF
SY100EL17	Receiver	Quad		ECL/LVPECL	ECL/LVPECL	3.3/5V			610	26		20/SOIC
SY58601U	Driver/Receiver	Single	Internal Termination	ANY	LVPECL	2.5/3.3V	5	5	220	60		8/MLF
SY54016R	Driver/Receiver	Single	Fail-Safe Input (FSI)	ANY	CML	2.5V	2.5		420	40		8/MLF
SY58016L	Driver/Receiver	Single	Internal Termination	CML/PECL	CML	3.3V	10.7	7	150	75		16/MLF
SY58602U	Driver/Receiver	Single	Internal Termination	ANY	LVPECL	2.5/3.3	10.7	7	220	65		8/QFN
SY56016R	Driver/Receiver	Single	Input Equalization	ANY	CML	2.5V	6.4	5	250	42		10/MLF

Clock and Data Distribution: Translators									
Product	No. of Channels	Core Supply Voltage (V)	Input Type	Output Type	Output Voltage (V)	Output Frequency (Max) (GHz)	Propagation Delay (Max) (ps)	Within Device Skew (Max) (ps)	Packages
SY89321L	Single	3.3	LVPECL/CML/LVDS	LVTTL	3.3	0.275	2500		8/MLF
SY100ELT22	Dual	5	TTL	PECL	2.5/3.8	0.15	600	100	8/SOIC
SY100EPT21	Single	3.3	LVPECL	LVTTL	3.3	0.275	2500	500	8/MSOP 8/SOIC
SY100ELT22L	Dual	3.3	LVTTL	LVPECL	2.5/3.9	0.15	600	100	8/SOIC
SY100ELT23L	Dual	3.3	LVPECL	LVTTL	2	0.16	2500	300	8/SOIC
SY55857L	Dual	3.3	ANY	LVPECL	3.3	2.5	400	50	10/MSOP
SY89323L	Dual	3.3	LVPECL	LVTTL	3.3	0.275	250	50	8/MLF
SY89329V	Single	3.3/8	LVTTL	LVPECL	3.3/7	0.8	600		8/MLF
PL130-07	Single	2.5/3.4	Sine Wave/ LVCMOS	LVCMOS	2.5/3.4	0.2			16/QFN, 8/TSSOP, 8/SOIC
SY100EPT22	Dual	3.3/6	TTL/LVTTL/CMOS/LVCMOS	PECL/LVPECL	3.3/6	0.8	600	500	8/MSOP 8/SOIC
SY89322V	Dual	3.3/7	LVTTL	LVPECL	3.3/6	0.8	600	100	8/MLF
SY10/100EPT20	Single	3.3/5	TTL/LVTTL/CMOS/LVCMOS	PECL/LVPECL	3.3/5	0.35	600	500	8/MSOP 8/SOIC
SY55855V	Dual	3.3/6	PECL/LVPECL/CML	LVDS	3.3/5	0.75	700	50	10/MSOP
SY100ELT23	Dual	5	PECL	TTL	2.5	0.16	3500	300	8/SOIC
SY100EPT23	Dual	3.3	LVPECL	LVTTL	3.3	0.275	2500	300	8/MSOP 8/SOIC
SY89327L	Single	3.3	ANY	LVPECL	3.3	2.5	400		8/QFN
SY100ELT21L	Single	3.3	LVPECL	LVTTL	2.5/3.7	0.15	2500		8/SOIC
SY100ELT25	Single	5	ECL	TTL	5	0.5	3600		8/SOIC
SY89328L	Single	3.3	LVPECL/LVTTL	LVTTL/LVPECL	3.3	0.275	600		8/MLF
SY100EPT28	Single	3.3	LVPECL/LVTTL	LVPECL/LVTTL	3.3	0.275	2500		8/MSOP 8/SOIC
PL130-09	Single	2.5/3.6	Sine Wave/TTL/CMOS/LVDS	LVDS	2.5/3.6	1			8/SOP,16/QFN

Clock and Data Distribution: Multiplexers												
Product	MUX: Fanout	No. of Channels	Input Type	Output Type	Supply Voltage (V)	Output Frequency (Max) (GHz)	Output Data Rate (Max) (Gbps)	Propagation Delay (Max) (ps)	Within Device Skew (Max) (ps)	Crosspoint	Runt Pulse Eliminator (RPE)	Fail-Safe Input (FSI)	Packages
SY58609U	2:1	Single	ANY	CML	2.5/3.3V	3	4.25	450	20			Yes	16/QFN
SY58018U	2:1	Single	ANY	LVPECL	2.5/3.3V	4	5	240	15				16/QFN
SY58611U	2:1	Single	ANY	LVDS	2.5V	2.5	3.2	470	20			Yes	16/QFN
SY89474U	2:2	Single	ANY	LVDS	2.5V	2.5	2.5	470	20				24/QFN
SY100EP57	4:1	Single	PECL/ECL	PECL/ECL	3.3V/5V	3		520					20/TSSOP
SY89544U	4:1	Single	ANY	LVDS	2.5V	4	3.2	510	20				32/MLF
SY89840U	2:1	Single	ANY	LVPECL	2.5/3.3V	2		880			Yes	Yes	16/QFN
SY89841U	2:1	Single	ANY	LVDS	2.5V	2		870			Yes	Yes	16/MLF
SY89547L	4:2	Single	ANY	LVDS	3.3V	4	3.2	540	20				32/MLF
SY58028U	4:2	Single	ANY	CML	2.5/3.3V	7	10.7	340	20				32/MLF
SY58610U	2:1	Single	ANY	LVPECL	2.5/3.3V	2.5	3.2	470	20			Yes	16/QFN
SY58017U	2:1	Single	ANY	CML	2.5/3.3V	7	10.7	240	15				16/MLF
SY58038U	8:2	Single	ANY	LVPECL	2.5/3.3V	5	4.5	500	15				44/QFN
SY100EP56	2:1	Dual	PECL/ECL	PECL/ECL	3.3V/5V	3		470	100				20/TSSOP
SY89853U	2:1	Dual	ANY	LVPECL	2.5/3.3V	2.5	2.5	360	20				32/QFN
SY89545L	4:1	Single	ANY	LVDS	3.3V	3	3.2	600	25				32/MLF
SY56034AR	2:6	Single	ANY	CML	2.5V	5	6.4	300	25	Yes			32/QFN
SY89859U	8:2	Single	ANY	LVPECL	2.5/3.3V	2.5	3.5	640	20				44/QFN
SY89543L	2:1	Dual	ANY	LVDS	3.3V	3	3.2	510	25				32/MLF
SY58029U	4:2	Single	ANY	LVPECL	2.5/3.3V	4	5	390	15				32/MLF
SY89855U	4:2	Single	ANY	LVPECL	2.5/3.3V	2.5	2.5	410	20				32/QFN
SY89465U	2:1	Single	ANY	LVDS	2.5V	2		1200	25		Yes	Yes	44/QFN
SY89844U	2:2	Single	ANY	LVDS	2.5V	2		870	20		Yes	Yes	24/QFN
SY58026U	2:1	Dual	ANY	LVPECL	2.5/3.3V	6	5	310	15				32/MLF

Clock and Data Distribution: Multiplexers													
Product	MUX: Fanout	No. of Channels	Input Type	Output Type	Supply Voltage (V)	Output Frequency (Max) (GHz)	Output Data Rate (Max) (Gbps)	Propagation Delay (Max) (ps)	Within Device Skew (Max) (ps)	Crosspoint	Runt Pulse Eliminator (RPE)	Fail-Safe Input (FSI)	Packages
SY58019U	2:1	Single	ANY	LVPECL	2.5/3.3V	7	10.7	240	15				16/MLF
SY58025U	2:1	Dual	ANY	CML	2.5/3.3V	6	10.7	290	15				32/MLF
SY58030U	4:2	Single	ANY	LVPECL	2.5/3.3V	7	10.7	340	20				32/MLF

Clock and Data Distribution: Skew Management										
Product	No. of Channels	Input Type	Output Type	Propagation Delay Resolution (Typ) (ps/step)	Propagation Delay (Min) (ns)	Propagation Delay (Max)(ns)	Fine Tune	Supply Voltage (V)	Output Frequency (Max) (GHz)	Packages
SY100EP195V	Single	ANY	ECL	10	2.2	12.2		3.3/5	2.5	32/TQFP
SY100EP196V	Single	ANY	ECL	10	2.2	12.2	Yes	3.3/5	2.5	32/TQFP
SY55856U	Dual	CML	CML	50	0.35	0.7		2.5/3.3	2.5	32/TQFP
SY89295U	Single	LVPECL/LVTTL	LVPECL	10	3.2	14.8		2.5/3.3	1.5	32/TQFP 32/VQFN
SY89296U	Single	LVPECL/LVTTL	LVPECL	10	3.2	14.8	Yes	2.5/3.3	1.5	32/TQFP 32/VQFN
SY89297U	Dual	ANY	CML	5	2	7		3.3	1.6	24/VQFN

Clock and Data Distribution: High Temperature Oscillators							
Part Family	Type	Footprint (mm)	Output Frequency (MHz)	Temperature Stability (ppm)	Temperature Range (°C)	Output Logic	Supply Voltage (V)
HM-4201-RTCM1	Real time clock module	13 x 13	0.000512	150	–40 to 200	CMOS	3.3
HT-RTC-XO	Real time clock XO	multiple options, see specification	0.032768	100	–55 to 200	CMOS	1.8, 2.5, 3.3, 5
HX-171	High temp OCXO	28 x 38	10 to 20	0.005	–40 to 150	CMOS	5
PX-420	High temp XO	13 x 13	0.5 to 40	200	–55 to 230	CMOS	3.3, 5
PX-570	High temp XO	8.5 x 8	0.5 to 40	200	–55 to 230	CMOS	1.8, 2.5, 3, 3.3, 5
PX-610	High temp XO	Ø9.65	0.032768 to 40	200	–55 to 230	CMOS	1.8, 2.5, 3.3, 5
PX-702	High temp XO	7 x 5	0.5 to 50	200	–55 to 230	CMOS	1.8, 2.5, 3, 3.3, 5
VX-400	High temp VCXO	20 x 13	1 to 32.768		–55 to 200	CMOS	3.3, 5
VX-708	High temp VCXO	7 x 5	2 to 40		–55 to 180	CMOS	3.3

Clock and Data Distribution: Disciplined Oscillator Module									
Part Family	Type	Footprint (mm)	Output Standard (MHz)	Temperature Stability (ppb)	Temperature Range Min (°C)	Holdover 24 hours - constant temperature us	1pps RMS (1 sigma) accuracy to UTC ns	Phase Noise 10 Hz dBc/Hz	Phase Noise 100 kHz dBc/Hz
MD-013	High Stability GNSSDOCXO	115 x 60	19	0.4	–40 to 85	1.5	10	–125	-145
MD-174	Low noise GNSSDOCXO	50 x 40	10	5	–40 to 85	15	20	–135	-170
MD-175	High Stability GNSSDOCXO	50 x 40	10	0.4	–40 to 85	1.5	10	–125	-145
MD-2610-OCXO	Compact GNSSDOCXO	25 x 20	10	5	–40 to 85	8	20	–120	-150

OCXO										
Part Family	Type	Footprint (mm)	Output Frequency (MHz)	Temperature Stability (ppb)	Temperature Range (°C)	Aging Per Year (ppb)	Phase Noise 10 Hz dBc/Hz	Phase Noise 10 kHz dBc/Hz	Carrier (MHz)	Supply Voltage (V)
EX-219	Low Power Space OCXO	26 x 24	10 to 120	100	–40 to +85	200	–90	–145	10	3.3, 5
EX-421	Low power OCXO	13 x 13	10 to 100	30	–40 to +85	100	–125	–165	10	3.3, 5
MX-503	Microprocessor corrected TCXO	14 x 9	8 to 50	30	–40 to +85	250	–93	–154	20	3.3, 5
MX-600	Microprocessor corrected TCXO	9 x 7	8 to 40	30	–40 to +85	250	–100	–153	10	3.3
OX-043	Low g OCXO	51 x 51	8 to 15	30	–40 to +85	40	–135	–170	10	12, 15
OX-046	Low g OCXO	51 x 51	50 to 250	200	–40 to +85	200	–100	–175	100	12, 15
OX-171	High stability OCXO	38 x 28	5 to 20	0.8	–40 to +85	15	–125	–145	10	3.3, 5, 12
OX-208	High Stability OCXO	25 x 25	5 to 20	0.8	–40 to +85	20	–125	–155	10	3.3, 5
OX-221	High Stability OCXO	25 x 22	10 to 30.72	3	–40 to +85	60	–122	–151	10	3.3
OX-228	High stability OCXO	25 x 22	10 to 20	1	–40 to +85	200				3.3
OX-249	Space OCXO	35 x 20	10 to 120	100	–40 to +85	200	–108	–162	50	5

OCXO										
Part Family	Type	Footprint (mm)	Output Frequency (MHz)	Temperature Stability (ppb)	Temperature Range (°C)	Aging Per Year (ppb)	Phase Noise 10 Hz dBc/Hz	Phase Noise 10 kHz dBc/Hz	Carrier (MHz)	Supply Voltage (V)
OX-304	Low noise OCXO	20 x 20	10 to 20	20	–40 to +85	30	–135	–173	10	12
OX-305	Low noise OCXO	20 x 20	80 to 120	200	–40 to +85	200	–105	–178	100	12
OX-401	1588 OCXO	20 x 13	10 to 40	25	–40 to +85	100	–121	–152	20	3.3, 5
OX-405	Low noise OCXO	20 x 13	80 to 120	50	–40 to +85	300	–95	–155	100	3.3, 5
OX-502	Standard OCXO	14 x 9	10 to 40	10	–40 to +85	500	–90	–150	20	3.3
OX-601	Standard OCXO	9 x 7	10 to 40	10	–40 to +85	500	–90	–150	20	3.3

TCXO									
Part Family	Type	Footprint (mm)	Output Frequency (MHz)	Temperature Stability –40 to 85 ppm	Phase Noise 10 Hz dBc/Hz	Phase Noise 10 kHz dBc/Hz	Carrier (MHz)	Output Logic	Supply Voltage (V)
DOC200103	Space TCXO	multiple options, see specification	0.3 to 425	2				CMOS, Sine	3.3, 5, 12
DOC207139	Space TCXO	35 x 25	12 to 200	2				LVDS	3.3
TX-321	Low noise TCXO	23 x 18	5 to 50	1	–116	–162	10	CMOS	3.3, 5
TX-707	Low g TCXO	7 x 5	8 to 52	1	–100	–158	10	CMOS, Clipped Sine	3.3, 5
TX-708	Low g TCXO	7 x 5	96 to 160	1	–75	–140	150	CMOS	3.3
VT-706	Stratum 3 TCXO	7 x 5	5 to 52	0.2	–102	–154	10	CMOS	3, 3.3, 5
VT-803	Stratum 3 TCXO	5 x 3.2	10 to 52	0.28	–91	–150	26	CMOS, Clipped Sine	2.5, 3.3, 5
VT-820	Standard TCXO	3.2 x 2.5	8 to 45	0.5	–91	–149	10	Clipped Sine	1.8, 2.5, 3, 3.3
VT-841	Standard TCXO	2.5 x 2	10 to 52	1	–91	–148	19.2	Clipped Sine	1.8, 2.5, 3.3
VT-860	Standard TCXO	2 x 1.6	13 to 52	0.5	–90	–145	26	Clipped Sine	1.8, 2.5, 3, 3.3

VCSO and PSO							
Part Family	Type	Footprint (mm)	Output Frequency (MHz)	Temperature Range (°C)	Jitter 12k-20 MHz fs–rms	Carrier (MHz)	Output Logic
DOC206559	Space VCSO	16 x 16	300 to 1500	–40 to +85		1000	Sine
DOC206906	Space VCSO	16 x 16	300 to 1000	–40 to +85	0.5	1000	LVPECL
VS-501	Single frequency VCSO	14 x 9	600 to 3000	–10 to +85	12	1700	Sine, Balanced or Differential Sinewave, LVPECL
VS-504	Dual frequency VCSO	14 x 9	600 to 3000	–10 to +85	12	1980	Sine, Balanced or Differential Sinewave, LVPECL
VS-507	Single frequency VCSO	14 x 9	3000 to 6000	–40 to +85	10	5898.24	Sine, Balanced or Differential Sinewave
VS-702	Single frequency VCSO	7 x 5	150 to 1000	–40 to +85	100	622.08	LVPECL, LVDS
VS-709	Dual frequency VCSO	7 x 5	120 to 1200	–40 to +85	120	698.81	LVPECL, LVDS
VS-800	Single frequency VCSO	5 x 3.2	800 to 3200	–40 to +85	6	2949.12	Sine, Balanced or Differential Sinewave

VCXO										
Part Family	Type	Footprint (mm)	Output Frequency (MHz)	Temperature Range (°C)	Pull Range (ppm)	Phase Noise 10 Hz dBc/Hz	Phase Noise 100 kHz dBc/Hz	Carrier (MHz)	Output Logic	Supply Voltage (V)
VX-501	Low noise VCXO	14 x 9	10 to 1200	–40 to +85	65	–76	–166	100	CMOS, Sine, LVPECL, LVDS	3.3, 5
VX-706	Low noise VCXO	7 x 5	40 to 300	–40 to +85	60	–72	–166	122.88	CMOS, LVPECL	3.3, 5
VX-805	Low noise VCXO	5 x 3.2	100 to 204.8	–40 to +105	50	–68	–157	122.88	LVPECL	3.3
VX-505	Mil temp range VCXO	14 x 9	20 to 800	–55 to +125	60	–76	–161	100	CMOS, LVPECL	3.3, 5
DOC204898	Space VCXO	25 x 25	100 to 700	–40 to +85	20			700	LVPECL	3.3
DOC204899	Space VCXO	25 x 25	80 to 200	–40 to +85	20			200	LVDS	3.3
DOC206218	Space VCXO	14 x 9	1 to 100	–40 to +85	50	–85	–159	16	CMOS	3.3, 5
VV-800	Standard VCXO	5 x 3.2	1.544 to 77.76	–40 to +85	150	–63	–157	61.44	CMOS	3.3, 5
VX-705	Standard VCXO	7 x 5	77.76 to 170	–40 to +85	50	–66	–151	122.88	CMOS, LVPECL	3.3

XO									
Part Family	Type	Footprint (mm)	Output Frequency (MHz)	Temperature Stability (ppm)	Temperature Range Min (°C)	Jitter 12k-20 MHz fs–rms	Carrier (MHz)	Output Logic	Supply Voltage (V)
DOC203679	Space XO	16 x 16	12 to 200	50	–55 to +125	0.09	200	LVDS	3.3
DOC203810	Space XO	multiple options, see specification	100 to 700	50	–55 to +125	0.3	700	LVPECL	3.3
DOC204900	Space XO	multiple options, see specification	12 to 160	50	–55 to +125	0.14	100	CMOS	2.5, 3.3
DOC206379	Space XO, 300k rad	16 x 16	12 to 100	50	–55 to +125	0.08	100	CMOS	3.3, 5
DOC206903	Space XO, 300 krad	16 x 16	12 to 200	50	–55 to +125	0.09	200	LVDS	3.3
M55310/28B	Mil temp range XO	14 x 9	1 to 85	50	–55 to +125			TTL	3.3
M55310/30B	Mil temp range XO	14 x 9	0.45 to 85	50	–55 to +125			CMOS	3.3
OS-68338	Space XO	multiple options, see specification	0.35 to 100	50	–55 to +125	0.16	40	CMOS, TTL	3.3, 5
PS-702	High frequency SO	7 x 5	150 to 1000	50	–40 to +85	100	622.08	LVPECL, LVDS	3.3
PX-700	Precision XO	7 x 5	1 to 800	50	–55 to +125	500	100	CMOS, TTL, LVPECL, LVDS	2.5, 3.3, 5
PX-706	Standard XO	7 x 5	40 to 300	25	–40 to +85	48	100	CMOS, LVPECL	3.3, 5
VC-711	Low jitter XO	7 x 5	10 to 170	100	–40 to +105	100	156.25	LVPECL, LVDS	2.5, 3.3
VC-801	Standard XO	5 x 3.2	0.03277 to 125	50	–55 to +125	500	125	CMOS	1.8, 2.5, 3.3, 5
VC-806	Standard XO	5 x 3.2	25 to 250	25	–40 to +85	300	155.52	LVPECL, LVDS	2.5, 3.3
VC-820	Standard XO	3.2 x 2.5	0.625 to 133	50	–55 to +125	61	125	CMOS	1.8, 2.5, 3.3
VC-827	Low jitter XO	3.2 x 2.5	20 to 170	100	–40 to +105	130	156.25	LVPECL, LVDS	2.5, 3.3
VC-840	Standard XO	2.5 x 2	0.75 to 60	25	–40 to +105	177	25	CMOS	1.8, 2.5, 3.3

Low-Power Oscillators										
Product	Output Frequency Min. (MHz)	Output Frequency Max (MHz)	Output Logic	Frequency Stability (ppm)	Temp. Range (°C)	Supply Voltage (V)	Current (Typ) (mA)	Period Jitter (ps RMS)	# Outputs	Dimensions	Output Drive Strength (pf)
DSC60X1B	0.002	80	LVCMOS	±20, ±25, ±50	–40 to +125	1.71–3.63	1.3	10	1	1.6 x 1.2 mm 4-pin	15
DSC60X3B	0.002	80	LVCMOS	±20, ±25, ±51	–40 to +125	1.71–3.63	1.3	10	1	2.0 x 1.6 mm 4-pin	5
DSC61X1B	0.002	100	LVCMOS	±20, ±25, ±56	–40 to +125	1.71–3.63	3.0	7.0	1	2.5 x 2.0 mm 4-pin 3.2 x 2.5 mm 4-pin*	15
DSC61X2B	0.002	100	LVCMOS	±20, ±25, ±57	–40 to +125	1.71–3.63	3.0	7.0	1	5.0 x 3.2 mm 4 pin* 7.0 x 5.0 mm 4-pin*	25
DSC1001	1	170	LVCMOS	±10, ±25, ±50	–40 to +105	1.62–3.63	5.0	6.0	1	2.5 x 2.0 mm 4-pin	15
DSC1003	1	170	LVCMOS	±10, ±25, ±50	–40 to +105	1.62–3.63	6.0	5.0	1	3.2 x 2.5 mm 4-pin	25
DSC1004	1	170	LVCMOS	±10, ±25, ±50	–40 to +105	1.62–3.63	7.0	5.0	1	5.0 x 3.2 mm 4-pin 7.0 x 5.0 mm 4-pin	40

Low-Jitter Oscillators											
Product	Output Frequency Min. (MHz)	Output Frequency Max (MHz)	Output Logic	Frequency Stability (ppm)	Temperature Range (°C)	Supply Voltage (V)	Current (Typ) (mA)	Period Jitter (ps RMS)	Phase Noise (ps RMS) (12k–20 MHz)	# Outputs	Dimensions	Output Drive Strength (pf)
MX57	10	860	LVCMOS, LVPECL, LVDS, HCSL	±20, ±50	–40 to +85	2.375–3.63	70		0.16	1	7.0 x 5.0 mm 6-pin	
MX55	10	860	LVCMOS, LVPECL, LVDS, HCSL	±20, ±50	–40 to +85	2.375–3.63	70		0.16	1	5.0 x 3.2 mm 6-pin	
DSC11x1	2.3	170	LVCMOS	±10, ±25, ±50	–55 to +125	2.25–3.63	25	3	1.70/0.3 (200k–20M)	1	2.5 x 2.0 mm 6-pin 3.2 x 2.5 mm 6-pin 5.0 x 3.2 mm 6-pin 7.0 x 5.0 mm 6-pin	15
DSC11x2	2.3	460	LVPECL	±10, ±25, ±50	–40 to +105	2.25–3.63	51	2.5	1.70/0.3 (200k–20M)	1		
DSC11x3	2.3	460	LVDS	±10, ±25, ±50	–40 to +105	2.25–3.63	29	2.5	1.70/0.3 (200k–20M)	1		
DSC11x4	2.3	460	HCSL	±10, ±25, ±50	–40 to +105	2.25–3.63	30	2.5	1.70/0.3 (200k–20M)	1		
DSC12x1	2.5	170	LVCMOS	±20, ±25, ±55	–40 to +125	2.25–3.63	27		0.65	1		15
DSC12x2	2.5	450	LVPECL	±20, ±25, ±55	–40 to +105	2.25–3.63	50		0.65	1		
DSC12x3	2.5	450	LVDS	±20, ±25, ±55	–40 to +125	2.25–3.63	32		0.65	1		
DSC12x4	2.5	450	HCSL	±20, ±25, ±55	–40 to +105	2.25–3.63	40		0.65	1		
DSC2x10	2.3	170	LVCMOS	±10, ±25, ±50	–55 to +125	2.25–3.63	25	3	1.70/0.3 (200k–20M)	1	3.2 x 2.5 mm 14-pin	15
DSC2x20	2.3	460	LVPECL	±10, ±25, ±50	–40 to +105	2.25–3.63	51	2.5	1.70–0.3 (200k–20M)	1		
DSC2x30	2.3	460	LVDS	±10, ±25, ±50	–40 to +105	2.25–3.63	29	2.5	1.70/0.3 (200k–20M)	1		
DSC2x40	2.3	460	HCSL	±10, ±25, ±50	–40 to +105	2.25–3.63	30	2.5	1.70/0.3 (200k–20M)	1		

Spread Spectrum Oscillators											
Product	Output Frequency Min. (MHz)	Output Frequency Max (MHz)	Output Logic	Frequency Stability (ppm)	Temp. Range (°C)	Supply Voltage (V)	Current (Typ) (mA)	Period Jitter (ps RMS)	# Outputs	Dimensions	Output Drive Strength (pf)
DSC6x1B	1	100	LVCMOS	±20, ±25, ±50	–40 to +125	1.71–3.63	3	7	1	1.6 x 1.2 mm 4-pin	10
DSC63x2B	1	100	LVCMOS	±20, ±25, ±53	–40 to +125	1.71–3.63	3	7	1	2.0 x 1.6 mm 4-pin 2.5 x 2.0 mm 4-pin 3.2 x 2.5 mm 4-pin*	25

Automotive Oscillators											
Product	Output Frequency Min. (MHz)	Output Frequency Max (MHz)	Output Logic	Frequency Stability (ppm)	Temperature Range (°C)	Supply Voltage (V)	Current (Typ) (mA)	Period Jitter (ps RMS)	Phase Noise (ps RMS)	# Outputs	Dimensions	Output Drive Strength (pf)
DSA60x1	0.002	80	LVCMOS	±20, ±25, ±50	–40 to +125	1.71–3.63	1.3	10		1	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* 5.0 x 3.2 mm 4 pin* 7.0 x 5.0 mm 4-pin*	10
DSA60x3	0.002	80	LVCMOS	±20, ±25, ±50	–40 to +125	1.71–3.63	1.3	10		1		5
DSA61x1	0.002	100	LVCMOS	±20, ±25, ±50	–40 to +125	1.71–3.63	3.0	7.0		1		10
DSA61x2	0.002	100	LVCMOS	±20, ±25, ±50	–40 to +125	1.71–3.63	3.0	7.0		1		25
DSA63x1	1	100	LVCMOS	±20, ±25, ±50	–40 to +125	1.71–3.63	3	7		1		10
DSA63x2	1	100	LVCMOS	±20, ±25, ±50	–40 to +125	1.71–3.63	3	7		1		25
DSA1001	1	170	LVCMOS	±20, ±25, ±50	–40 to +105	1.62–3.63	5.0	6.0		1	2.5 x 2.0 mm 4-pin	15
DSA11x1	2.3	170	LVCMOS	±20, ±25, ±50	–55 to +125	2.25–3.63	25	3	1.70/0.3 (200k–20M)	1	2.5 x 2.0 mm 6-pin 3.2 x 2.5 mm 6-pin 5.0 x 3.2 mm 6-pin	15
DSA2311	2.3	170	LVCMOS	±25, ±50	–55 to +125	2.25–3.63	21	3	1.70/0.3 (200k–20M)	2	2.5 x 2.0 mm 6-pin	15
DSA557-03	100	100	HCSL	±25, ±50	–40 to +105	2.25–3.63	60		PCIe Gen 1/2/3/4	2	3.2 x 2.5 mm 14-pin	

Advanced Jitter Attenuators (OTN)															
Part	DPLLs or Paths	DPLL BW (Hz)	Inputs	Diff. Outputs	CMOS Outputs	Low-Jitter APLLs	GP Clock Gen	Typ. Jitter (psRMS)	Input Frequency	Output Frequency	NV Memory	Host Bus	2K/8K Align	1 Hz Align	NCO (ppb)	Package
ZL30152	1	14–896	2 D/SE	4	2	1	0	0.7	1 kHz to 750 MHz	1 kHz to 750 MHz	OTP	SPI/I²C				64-pin LBGA
ZL30155	2	14–896	4 D/SE	8	4	2	0	0.7	1 kHz to 750 MHz	1 kHz to 750 MHz	OTP	SPI/I²C				100-pin LBGA
ZL30157	2	14–896	4 D/SE	8–12	4–12	1	1	0.7	1 kHz to 750 MHz	1 kHz to 750 MHz	OTP	SPI/I²C				100-pin LBGA
ZL30160	4	14–896	4 D/SE	8	4–12	2	2	0.7	1 kHz to 750 MHz	1 kHz to 750 MHz	OTP	SPI/I²C				100-pin LBGA
ZL30165	4	5–806	8 D/SE	8	8	4	0	0.65	1 kHz to 750 MHz	1 Hz to 750 MHz	OTP	SPI/I²C			0.001	144-pin LBGA
ZL30166	3	5–896	9 D/SE + 2 SE	8	8	4	0	0.65	1 kHz to 750 MHz	1 Hz to 750 MHz	OTP	SPI/I²C		✓	0.001	145-pin LBGA
ZL30167	2	5–896	9 D/SE + 2 SE	8	8	4	0	0.65	1 kHz to 750 MHz	1 Hz to 750 MHz	OTP	SPI/I²C		✓	0.001	146-pin LBGA
ZL30168	4	5–896	8D/SE	8	8	4	0	0.65	1 kHz to 750 MHz	1 Hz to 750 MHz	OTP	SPI/I²C			0.001	147-pin LBGA
ZL30169	1	14–500	2 D/SE + 2 SE	3	6	1	0	0.25	1 kHz to 1250 MHz	1 Hz to 1035 MHz	Int EE	SPI/I²C	✓		0.01	32-pin QFN
ZL30182	2	5–500	4 D/SE + 2 SE	6	12	2	0	0.25	1 kHz to 1250 MHz	1 Hz to 1035 MHz	Int EE	SPI/I²C	✓		0.01	64-pin LGA
ZL30174	3	14–470	5 D/10 SE	6	14	3	1	0.18	1 kHz to 900 MHz	1 Hz to 900 MHz	Int EE	SPI/I²C	✓	✓		100-pin AQFN

IEEE 1588 Timing Solutions												
Part No.	DPLLs	BW (Hz)	Inputs	Input Frequency	Embedded PPS & EPP2S	Diff. Outputs	CMOS Outputs	Output Frequency	Low-Jitter APLLs	GP Clock Gen	Jitter (psRMS)	Pkg size (mm)
ZL30361	1 NCO	0.1 to 896	11	1 Hz to 750 MHz		6	6	1 Hz to 750 MHz	3	0	0.67	144-pin LBGA
ZL30362	4 NCO	0.1 to 896	11	1 Hz to 750 MHz		8	8	1 Hz to 750 MHz	4	0	0.67	144-pin LBGA
ZL30363	2 NCO	0.1 to 896	11	1 Hz to 750 MHz		8	8	1 Hz to 750 MHz	4	0	0.67	144-pin LBGA
ZL30364	3 NCO	0.1 to 896	11	1 Hz to 750 MHz		8	8	1 Hz to 750 MHz	4	0	0.67	144-pin LBGA
ZL30365	4 or (4 NCO)	5 to 890	8 D/SE	1 Hz to 750 MHz	8	8	8	1 Hz to 750 MHz	4	0	0.67	144-pin LBGA
ZL30367	2 or (2 NCO)	5 to 890	9 D/SE+2 SE	1 Hz to 750 MHz	6	6	6	1 Hz to 750 MHz	3	0	0.67	144-pin LBGA
ZL30721	1 NCO	0.1 to 10	2 D/SE + 1 SE	8 kHz to 1250 MHz		3	6	<1 Hz to 1035 MHz	1	0	0.26	64-pin LGA
ZL30722	1 NCO	0.1 to 500	2 D/SE + 1 SE	8 kHz to 1250 MHz		3	6	<1 Hz to 1035 MHz	1	0	0.26	32-pin QFN
ZL30723	2 NCO	0.1 to 500	4 D/SE + 1 SE	8 kHz to 1250 MHz		6	12	<1 Hz to 1035 MHz	2	0	0.26	64-pin LGA
ZL30701	1 or (1 NCO)	0.1m to 470	5 D/10 SE	0.5 Hz to 900 MHz	✓	6	14	0.5 Hz to 900 MHz	2 or 3	1	0.19	100-pin AQFN

IEEE 1588 Timing Solutions												
Part No.	DPLLs	BW (Hz)	Inputs	Input Frequency	Embedded PPS & EPP2S	Diff. Outputs	CMOS Outputs	Output Frequency	Low-Jitter APLLs	GP Clock Gen	Jitter (psRMS)	Pkg size (mm)
ZL30702	2 or (2 NCO)	0.1m to 470	5 D/10 SE	0.5 Hz to 900 MHz	✓	6	14	0.5 Hz to 900 MHz	2 or 3	1	0.19	100-pin AQFN
ZL30703	3 or (3 NCO)	0.1m to 470	5 D/10 SE	0.5 Hz to 900 MHz	✓	6	14	0.5 Hz to 900 MHz	2 or 3	1	0.19	100-pin AQFN
ZL30704	4 or (4 NCO)	0.1m to 470	5 D/10 SE	0.5 Hz to 900 MHz	✓	6	14	0.5 Hz to 900 MHz	2 or 3	1	0.19	100-pin AQFN
ZL30771	1 or (1 NCO)	0.1m to 470	10 D/10 SE	0.5 Hz to 900 MHz	✓	8	16 + 2	0.5 Hz to 1045 MHz	2	1	0.19	80-lead LGA
ZL30772	2 or (2 NCO)	0.1m to 470	10 D/10 SE	0.5 Hz to 900 MHz	✓	8	16 + 2	0.5 Hz to 1045 MHz	2	1	0.19	80-lead LGA
ZL30773	3 or (3 NCO)	0.1m to 470	10 D/10 SE	0.5 Hz to 900 MHz	✓	8	16 + 2	0.5 Hz to 1045 MHz	2	1	0.19	80-lead LGA

General-Purpose Jitter Attenuators														
Product	Independent Output Freq. Families	Inputs	Diff Input Freq. Range	Low-Jitter APLLs	Typical Jitter fs RMS	DPLL Features: Ref. Switching/ Holdover/ DPLL Bandwidth	NCO Mode	NCO ppb	Diff Outputs	CMOS Outputs	Output Freq. Range	NV Memory	Host Bus	Supply Voltage	Package
ZL30159	1	1 XTAL, 1 D	1 Hz to 750 M	1	<1000				0	2	1 Hz–177.5 M		SPI/I²C	3.3 + 1.8	64-pin LBGA
ZL30252	1	1 XTAL/SE, 3 D/SE	1 kHz to 1250 M	1	1601	Glitchless/Digital Hold/ 14 Hz–500 Hz	✓	0.01	0–3	0–6	<1 Hz–1035 M2	Ext EE3	SPI/I²C	3.3 + 1.8	32-pin QFN
ZL30253	1	1 XTAL/SE, 3 D/SE	1 kHz to 1250 M	1	1601	Glitchless/Digital Hold/ 14 Hz–500 Hz	✓	0.01	0–3	0–6	<1 Hz–1035 M2	Int EE3	SPI/I²C	3.3 + 1.8	32-pin QFN
ZL30254	1	1 XTAL, 2 SE		1	<1 ps	Glitchless/Digital Hold/ 25 Hz			2	0	125 MHz or 156.25 MHz		None	3.3 + 1.8	32-pin QFN
ZL30255	2	2 XTAL/SE, 6 D/SE	1 kHz to 1250 M	2	1601	Glitchless/Digital Hold/ 14 Hz–500 Hz	✓	0.01	0–6	0–12	<1 Hz–1035 M2	Int EE3	SPI/I²C	3.3 + 1.8	32-pin QFN
ZL30256	3	5 D/10 SE	1 kHz to 1045 M	3	190	Glitchless/Digital Hold 14 Hz–470 Hz	✓	~0.0000035	0–8	0–16 +2	1 Hz–1045 M	Int EE4	SPI/I²C	3.3 + 1.8	80-lead LGA

Synchronous Ethernet (SyncE) Silicon Timing Solutions												
Part	DPLLs	BW (Hz)	Inputs	Input Frequency	Embedded PPS & EPP2S	Diff. Outputs	CMOS Outputs	Output Frequency	Low-Jitter APLLs	GP Clock Gen	Jitter (psRMS)	Package size (mm)
ZL30161	1 or (1 NCO)	0.1m–1k	11	1 Hz–750 MHz		6	6	1 Hz–750 MHz	3	0	0.67	144-pin LBGA
ZL30162	4 or (4 NCO)	0.1m–1k	11	1 Hz–750 MHz		8	8	1 Hz–750 MHz	4	0	0.67	144-pin LBGA
ZL30163	2 or (2 NCO)	0.1m–1k	11	1 Hz–750 MHz		8	8	1 Hz–750 MHz	4	0	0.67	144-pin LBGA
ZL30164	3 or (3 NCO)	0.1m–1k	11	1 Hz–750 MHz		8	8	1 Hz–750 MHz	4	0	0.67	144-pin LBGA
ZL30621	1 or (1 NCO)	0.1m–10	2 D/SE + 1 SE	8 kHz–1250 MHz		3	6	<1 Hz–1035 MHz	1	0	0.26	64-pin LGA
ZL30622	1 or (1NCO)	0.1m–500	2 D/SE + 1 SE	8 kHz–1250 MHz		3	6	<1 Hz–1035 MHz	1	0	0.26	32-pin QFN
ZL30623	2 or (2 NCO)	0.1m–500	4 D/SE + 1 SE	8 kHz–1250 MHz		6	12	<1 Hz–1035 MHz	2	0	0.26	64-pin LGA
ZL30601	1 or (1 NCO)	0.1m–470	5 D/10 SE	0.5 Hz–900 MHz	✓	6	14	0.5 Hz–900 MHz	2 or 3	1	0.19	100-pin AQFN
ZL30602	2 or (2 NCO)	0.1m–470	5 D/10 SE	0.5 Hz–900 MHz	✓	6	14	0.5 Hz–900 MHz	2 or 3	1	0.19	100-pin AQFN
ZL30603	3 or (3 NCO)	0.1m–470	5 D/10 SE	0.5 Hz–900 MHz	✓	6	14	0.5 Hz–900 MHz	2 or 3	1	0.19	100-pin AQFN
ZL30604	4 or (4 NCO)	0.1m–470	5 D/10 SE	0.5 Hz–900 MHz	✓	6	14	0.5 Hz–900 MHz	2 or 3	1	0.19	100-pin AQFN
ZL30671	1 or (1 NCO)	0.1m-470	10 D/10 SE	0.5 Hz-900 MHz	✓	8	16 + 2	0.5 Hz-1045 MHz	2	1	0.19	80-lead LGA
ZL30672	2 or (2 NCO)	0.1m-470	10 D/10 SE	0.5 Hz-900 MHz	✓	8	16 + 2	0.5 Hz-1045 MHz	2	1	0.19	80-lead LGA
ZL30673	3 or (3 NCO)	0.1m-470	10 D/10 SE	0.5 Hz-900 MHz	✓	8	16 + 2	0.5 Hz-1045 MHz	2	1	0.19	80-lead LGA
ZL30151	1	1–500	2 D/SE + 1 SE	1 kHz–650 MHz		0–3	0–6	<1 Hz–650 MHz	1	0	0.26	32-pin QFN
ZL30611	1 or (1 NCO)	14–470	5 D/10 SE	0.5 Hz–900 MHz	✓	6	14	0.5 Hz–900 MHz	2 or 3	1	0.19	100-pin AQFN
ZL30612	2 or (2 NCO)	14–470	5 D/10 SE	0.5 Hz–900 MHz	✓	6	14	0.5 Hz–900 MHz	2 or 3	1	0.19	100-pin AQFN
ZL30614	4 or (4 NCO)	14–470	5 D/10 SE	0.5 Hz–900 MHz	✓	6	14	0.5 Hz–900 MHz	2 or 3	1	0.19	100-pin AQFN
ZL30681	1 or (1 NCO)	14-470	10 D/10 SE	0.5 Hz–900 MHz	✓	8	16 + 2	0.5 Hz–1045 MHz	2	1	0.19	80-lead LGA
ZL30682	2 or (2 NCO)	14-470	10 D/10 SE	0.5 Hz–900 MHz	✓	8	16 + 2	0.5 Hz–1045 MHz	2	1	0.19	80-lead LGA
ZL30683	3 or (3 NCO)	14-470	10 D/10 SE	0.5 Hz–900 MHz	✓	8	16 + 2	0.5 Hz–1045 MHz	2	1	0.19	80-lead LGA

Programmable Oscillators											
Product	Output Frequency Min. (MHz)	Output Frequency Max (MHz)	Output Logic	Frequency Stability (ppm)	Temperature Range (°C)	Supply Voltage (V)	Current (Typ) (mA)	Period Jitter (ps RMS)	Phase Noise (ps RMS) (12k–20 MHz)	# Outputs	Dimensions	Output Drive Strength (pf)
DSC8001	1	170	LVCMOS	±10, ±25, ±50	–40 to +105	1.62–3.63	5.0	6.0		1	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	15
DSC8003	1	170	LVCMOS	±10, ±25, ±50	–40 to +105	1.62–3.63	6.0	5.0		1		25
DSC8004	1	170	LVCMOS	±10, ±25, ±50	–40 to +105	1.62–3.63	7.0	5.0		1		40
DSC81x1	2.3	170	LVCMOS	±10, ±25, ±50	–40 to +105	2.25–3.63	25	3	1.70/0.3 (200k–20M)	1	2.5 x 2.0 mm 6-pin 3.2 x 2.5 mm 6-pin 5.0 x 3.2 mm 6-pin 7.0 x 5.0 mm 6-pin	15
DSC81x2	2.3	460	LVPECL	±10, ±25, ±50	–40 to +105	2.25–3.63	51	2.5	1.70/0.3 (200k–20M)	1		
DSC81x3	2.3	460	LVDS	±10, ±25, ±50	–40 to +105	2.25–3.63	29	2.5	1.70/0.3 (200k–20M)	1		
DSC81x4	2.3	460	HCSL	±10, ±25, ±50	–40 to +105	2.25–3.63	30	2.5	1.70/0.3 (200k–20M)	1		

555 Timers										
Product	Max Astable Frequency (MHz)	Monostable Accuracy (%)	Monostable Drift over Temp (ppm)	Monostable Drift over Supply (%V)	Astable Accuracy (%)	Astable Drift over Temp (ppm)	Astable Drift over Supply (%V)	Temperature Range (°C)	Supply Voltage (V)	Current (Typ) (uA)
MIC1555	5	2	100	0.5	2	150	0.5	–55 to +125	2.7 to 18	240
MIC1557	5	2	100	0.5	2	150	0.5	–55 to +125	2.7 to 18	255

High Frequency TCXO										
Product	Output Frequency Min. (MHz)	Output Frequency Max (MHz)	Output Logic	Frequency Stability (ppm)	Temp. Range (°C)	Supply Voltage (V)	Current (Typ) (mA)	Phase Noise (ps RMS) (12k–20 MHz)	# Outputs	Dimensions
MXT57	10	860	LVCMOS, LVPECL, LVDS, HCSL	±2.5, ±5.0	–40 to +85	2.375–3.63	80	0.5	1	7.0 x 5.0 mm 6-pin

Multi-Output Oscillators									
Product	Output Frequency Min (MHz)	Output Frequency Max (MHz)	Output Logic	Frequency Stability (ppm)	Temp. Range (°C)	Supply Voltage (V)	Phase Noise (ps RMS) (12k - 20MHz)	# Outputs	Dimensions
MX85	10	860	LVPECL, LVDS, HCSL, LVCMOS	±25, ±50	–40 to +85	2.375–3.63	0.2	5	5.0 x 7.0 mm 38-pin
DSC2311	2.3	170	LVCMOS	±25, ±50	–55 to +125	2.25–3.63	1.70/0.3 (200k–20M)	2	2.5 x 2.0 mm 6-pin
DSC20xx	2.3	460	LVCMOS, LVPECL, LVDS, HCSL	±25, ±50	–40 to +105	2.25–3.63	1.70/0.3 (200k–20M)	2	3.2 x 2.5 mm 14-pin
DSC21xx	2.3	460	LVCMOS, LVPECL, LVDS, HCSL	±25, ±50	–40 to +105	2.25–3.63	1.70/0.3 (200k–20M)	2	3.2 x 2.5 mm 14-pin
DSC22xx	2.3	460	LVCMOS, LVPECL, LVDS, HCSL	±25, ±50	–40 to +105	2.25–3.63	1.70/0.3 (200k–20M)	2	3.2 x 2.5 mm 14-pin
DSC400-xxxx	2.3	460	LVCMOS, LVPECL, LVDS, HCSL	±25, ±50	–40 to +105	2.25–3.63	1.70/0.3 (200k–20M)	4	5.0 x 3.2 mm 20-pin
DSC612	0.002	100	LVCMOS	±20, ±25, ±50	–40 to +125	1.71–3.63		2	1.6 x 1.2 mm 6-pin 2.0 x 1.6 mm 6-pin 2.5 x 2.0 mm 6-pin
DSC613	0.002	100	LVCMOS	±20, ±25, ±50	–40 to +125	1.71–3.63		3	
DSC557-03	100	100	HCSL/LVDS	±25, ±50	–40 to +105	2.25–3.63	PCIe Gen 1/2/3/4	2	3.2 x 2.5 mm 14-pin
DSC557-04	100	100	HCSL/LVDS	±25, ±50	–40 to +105	2.25–3.63	PCIe Gen 1/2/3/4	3	5.0 x 3.2 mm 20-pin
DSC557-05	100	100	HCSL/LVDS	±25, ±50	–40 to +105	2.25–3.63	PCIe Gen 1/2/3/4	4	

Clock Generators												
Product	Category	Phase Jitter (ps) (Typ, 12 KHz to 20 MHz)	Period Jitter (ps)(peak to peak)	Inputs	No. of outputs	Output Logic	Output Frequency Min. (MHz)	Output Frequency Max. (MHz)	Voltage (V)	Temp. Range (°C)	Dimensions	Frequency Stability (ppm)
DSC2030	Low Power Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	1	LVDS	2.3	460	2.25–3.63	–40 to +105	14–pin QFN, 3.2 x 2.5 mm	±25, ±50
PL611s–02	Low Power Clock Generators		70	Crystal or Reference	2	LVCMOS	1	200	1.8–3.3	–45 to +85	DFN–6L, SOT–6L	
DSC2210	Low Power Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	1	LVCMOS	2.3	170	2.25–3.63	–40 to +105	14–pin QFN, 3.2 x 2.5 mm	±25, ±50
SM802	Low–Jitter Clock Generators	0.2		25 MHz Crystal/Ref	8	LVPECL, LVDS, HCSL, LVCMOS			2.5–3.3	–40 to +85	24–pin QFN 4 x 4	
PL902	Clock Conditioning			Reference	3	LVCMOS	1.25	200	2.5~3.3	–45 to +85		
DSC2010	Low Power Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	1	LVCMOS	2.3	170	2.25–3.63	–40 to +105	14–pin QFN, 3.2 x 2.5 mm	
DSC612	Low Power Clock Generators		140	Integrated MEMS	2	LVCMOS	0.002	100	1.71–3.63	–40 to +125	1.6 x 1.2 mm, 2.0 x 1.6 mm, 2.5 x 2.0 mm	±20, ±25, ±50
DSC613	Low Power Clock Generators		140	Integrated MEMS	3	LVCMOS	0.002	100	1.71–3.63	–40 to +125	1.6 x 1.2 mm, 2.0 x 1.6 mm, 2.5 x 2.0 mm	±20, ±25, ±50
PL602032	Low–Jitter Clock Generators	2	25	25 MHz Crystal	2	HCSL	100	100	2.25–3.63	–40 to +85	16 pin QFN 3 x 3	
PL602041	Low–Jitter Clock Generators	0.22	10	25 MHz Crystal	4	HCSL	100	100	2.25–3.63	–40 to +85	24–pin QFN 4 x 4	
PL607041	Low–Jitter Clock Generators	0.78		25 MHz Crystal	4	HCSL	100	100	2.25–3.63	–40 to +85	24–pin QFN 4 x 4	
PL602081	Low–Jitter Clock Generators	0.22	10	25 MHz Crystal	8	HCSL	100	100	2.25–3.63	–40 to +85	44–pin QFN 7 x 7	
PL607081	Low–Jitter Clock Generators	0.78		25 MHz Crystal	8	HCSL	100	100	2.25–3.63	–40 to +85	44–pin QFN 7 x 7	
PL602–21	Low–Jitter Clock Generators	2	25	25 MHz Crystal/Ref	1	HCSL	100	100	2.25–3.63	–40 to +85	8–pin SOP/ 6–pin SOT	
DSC557–04	Low–Jitter Clock Generators	PCIe Gen1/2/3/4	30	Integrated MEMS	3	HCSL	100	100	2.25–3.63	–40 to +105	20–pin QFN 5.0 x 3.2 mm	±25, ±50
DSC557–05	Low–Jitter Clock Generators	PCIe Gen1/2/3/4	30	Integrated MEMS	4	HCSL	100	100	2.25–3.63	–40 to +105	20–pin QFN 5.0 x 3.2 mm	±25, ±50
DSA557–03	Low–Jitter Clock Generators	PCIe Gen1/2/3/4		Integrated MEMS	2	HCSL	100	100	2.25–3.63	–40 to +105	14–pin QFN 3.2 x 2.5 mm	±50 ppm ±100 ppm
DSA557–04	Low–Jitter Clock Generators	PCIe Gen1/2/3/4		Integrated MEMS	3	HCSL	100	100	2.25–3.63	–40 to +105	20–pin QFN 5.0 x 3.2 mm	±50 ppm ±100 ppm
DSA557–05	Low–Jitter Clock Generators	PCIe Gen1/2/3/4		Integrated MEMS	4	HCSL	100	100	2.25–3.63	–40 to +105	20–pin QFN 5.0 x 3.2 mm	±50 ppm ±100 ppm
DSC557–03	Low–Jitter Clock Generators	PCIe Gen1/2/3/4	30	Integrated MEMS	2	HCSL/LVDS/LVCMOS	100	100	2.25–3.63	–40 to +105	14–pin QFN 3.2 x 2.5 mm	±25, ±50
PL602033	Low–Jitter Clock Generators	2	25	25MHz Crystal	2	LVCMOS/HCSL	125	125	2.5~3.3	–45 to +85	16 pin QFN 3 x 3	
PL602–22	Low–Jitter Clock Generators	2	25	25MHz Crystal	1	HCSL	125	125	2.5~3.3	–45 to +85	8–pin SOP/ 6–pin SOT	
PL613–21	Low Power Clock Generators		300	Crystal or Reference	4	LVCMOS	156.25	125	1.8–3.3	–45 to +85	QFN–16L, TSSOP–16L	
PL611s–18	Low Power Clock Generators		70	Crystal or Reference	2	LVCMOS	.5 KHz	125	1.8–3.3	–45 to +85	DFN–6L, SOT–6L	
PL611s–19	Low Power Clock Generators		70	Reference	2	LVCMOS	.5 KHz	125	1.8–3.3	–45 to +85	DFN–6L, SOT–6L	
PL904	Clock Conditioning	0.5			2	LVPECL,LVDS, HCSL,LVCMOS		12–850	2.5~3.3	–45 to +85		
PL500–37	VCXO	0.1		Crystal	1	CMOS	36	130	2.5/3.3	–45 to +85	Die, SOT–6L, SOP–8L	
PL602–15	None	2	25	25MHz Crystal	2	HCSL	156.25	156.25	2.5~3.3	–45 to +85	8–pin SOP/ 6–pin SOT	
SM803020	Low–Jitter Clock Generators	0.18			12	PECL	200	156.25		–45 to +85		
DSC2311	Low–Jitter Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	2	LVCMOS	200	170	2.25–3.63	–55 to +125	6–pin DFN, 2.5 x 2.0 mm	±25, ±50
DSC2011	Low–Jitter Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	2	LVCMOS	2.3	170	2.25–3.63	–55 to +125	14–pin QFN, 3.2 x 2.5 mm	±25, ±50
DSA2311	Low–Jitter Clock Generators		3		2	LVCMOS x 2	2.3	170		–40 to +125	2.5 x 2.0 mm 6–pin	±20, ±25, ±50
PL500–16	VCXO	0.1		Crystal	1	CMOS	4	18	2.5/3.3	–45 to +85	Die, SOT–6L, SOP–8L	
PL602034	None		25	25MHz Crystal	2	LVCMOS/HCSL	200	200	2.5~3.3	–45 to +85	8–pin SOP/ 6–pin SOT	
PL602–23	None		25	25MHz Crystal	1	LVCMOS/HCSL	200	200	2.5~3.3	–45 to +85	8–pin SOP/ 6–pin SOT	
PL671–25	Clock Conditioning		100	Crystal or Reference	2	CMOS	1	200	2.5–3.3	–45 to +85	SOP–8L	
PL671–29	Clock Conditioning		100	Crystal or Reference	1	CMOS	1	200	2.5–3.3	–45 to +85	SOP–8L	
PL671–30	Clock Conditioning		100	Crystal or Reference	1	CMOS	1	200	2.5–3.3	–45 to +85	SOP–8L	

Clock Generators												
Product	Category	Phase Jitter (ps) (Typ, 12 KHz to 20 MHz)	Period Jitter (ps)(peak to peak)	Inputs	No. of outputs	Output Logic	Output Frequency Min. (MHz)	Output Frequency Max. (MHz)	Voltage (V)	Temp. Range (°C)	Dimensions	Frequency Stability (ppm)
PL671–01	Clock Conditioning		100	Crystal or Reference	3	CMOS	1	200	2.5–3.3	–45 to +85	SOP–8L, SOT23–6L	
PL671–02	Clock Conditioning		100	Crystal or Reference	3	CMOS	1	200	2.5–3.3	–45 to +85	SOT23–6L	
PL613–05	Low Power				3	LVCMOS	1	200	1.8~3.3	–45 to +85		
PL611–01	Low Power Clock Generators	3	40	Crystal or Reference	3	LVCMOS	1	200	2.5–3.3	–45 to +85	DFN–6L, SOT–6L	
PL613–01	Low Power Clock Generators		300	Crystal or Reference	8	LVCMOS	1	200	1.8–3.3	–45 to +85	QFN–16L, TSSOP–16L	
PL611–31	Low Power Clock Generators	2.5	40	Crystal or Reference	3	PECL, LVDS, HCSL, CMOS	5	200	2.5–3.3	–45 to +85	SOP–8L	
PL602031	None	2	25	25MHz Crystal	2	LVCMOS/HCSL	25	25	2.5~3.3	–45 to +85	16-pin QFN 3 × 3	
PL602–27	None	2	25	25MHz Crystal	1	LVCMOS/HCSL	250	250	2.5~3.3	–45 to +85		
PL602082	None	0.22	10	25MHz Crystal	8	HCSL	25	250	2.5~3.3	–45 to +85		
PL607082	None				8	HCSL	25	250	2.5~3.3	–45 to +85		
PL500–17	VCXO	0.1		Crystal	1	CMOS	17	36	2.5/3.3	–45 to +85	Die, SOT–6L, SOP–8L	
PL500–15	VCXO	0.1		Crystal	1	CMOS	1	4	2.5/3.3	–45 to +85	Die, SOT–6L, SOP–8L	
PL611–30	Low-Power Clock Generators	2.5	40	Crystal or Reference	3	PECL, LVDS, HCSL, CMOS	5	400	2.5–3.3	–45 to +85	DFN–6L, SOT–6L	
DSC2040	Low-Power Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	1	HCSL	2.3	460	2.25–3.63	–40 to +105	14–pin QFN, 3.2 × 2.5 mm	±25, ±50
DSC2044	Low–Jitter Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	2	HCSL	2.3	460	2.25–3.63	–40 to +105	14–pin QFN, 3.2 × 2.5 mm	±25, ±50
DSC2041	Low–Jitter Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	2	HCSL, LVCMOS	2.3	460	2.25–3.63	–40 to +105	14–pin QFN, 3.2 × 2.5 mm	±25, ±50
DSC2042	Low–Jitter Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	2	HCSL, LVPECL	2.3	460	2.25–3.63	–40 to +105	14–pin QFN, 3.2 × 2.5 mm	±25, ±50
DSC2211	Low–Jitter Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	2	LVCMOS	2.3	460	2.25–3.63	–55 to +125	14–pin QFN, 3.2 × 2.5 mm	±25, ±50
DSC400	Low–Jitter Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	4	LVCMOS/LVPECL/LVDS/HCSL	2.3	460	2.25V to 3.63V	–40 to +105	5.0 × 3.2 mm 20-pin	±20/25/50 ppm
DSC2033	Low–Jitter Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	2	LVDS	2.3	460	2.25–3.63	–40 to +105	14–pin QFN, 3.2 × 2.5 mm	±25, ±50
DSC2233	Low–Jitter Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	2	LVDS	2.3	460	2.25–3.63	–40 to +105	14–pin QFN, 3.2 × 2.5 mm	±25, ±50
DSC2031	Low–Jitter Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	2	LVDS, LVCMOS	2.3	460	2.25–3.63	–40 to +105	14–pin QFN, 3.2 × 2.5mm	±25, ±50
DSC2022	Low–Jitter Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	2	LVPECL	2.3	460	2.25–3.63	–40 to +105	14–pin QFN, 3.2 × 2.5 mm	±25, ±50
DSC2222	Low–Jitter Clock Generators	1.70/0.3 (200k–20M)	30	Integrated MEMS	2	LVPECL	2.3	460	2.25–3.63	–40 to +105	14–pin QFN, 3.2 × 2.5 mm	±25, ±50
SM803	Low–Jitter Clock Generators	0.18	5	Crystal or Reference	12	CMOS, PECL, LVDS, HCSL	12	850				
SM813	Low–Jitter Clock Generators	0.115	5	Crystal or Reference	12	PECL, LVDS, HCSL, CMOS	12	850	2.5–3.3	–45 to +85	48-, 76-pin QFN	
ZL30250	Low–Jitter Clock Generators	0.16		1 XTAL/SE, 3 D/SE	3D/6SE	CML, CMOS	<1Hz	1.035	3.3+1.8	–40 to +85	32-pin QFN	
ZL30251	Low–Jitter Clock Generators	0.16		1 XTAL/SE, 3 D/SE	3D/6SE	CML, CMOS	<1Hz	1.035	3.3+1.8	–40 to +85	32-pin QFN	
ZL30244	Low–Jitter Clock Generators	0.16		2 XTAL/SE, 6 D/SE	6D/12SE	CML, CMOS	<1Hz	1.035	3.3+1.8	–40 to +85	64-pin LGA	
ZL30245	Low–Jitter Clock Generators	0.16		2 XTAL/SE, 6 D/SE	6D/12SE	CML, CMOS	<1Hz	1.035	3.3+1.8	–40 to +85	64-pin LGA	
ZL30260	Low–Jitter Clock Generators	0.18		1 XTAL/SE, 3 D/SE	6D/12SE	LVDS, LVPECL, HCSL, CMOS, HSTL	<1Hz	1.035	2.5 V only, 3.3 V only, 1.8 V + 2.5 V, 1.8 V + 3.3 V	–40 to +85	56-pin QFN	
ZL30261	Low–Jitter Clock Generators	0.18		1 XTAL/SE, 3 D/SE	6D/12SE	LVDS, LVPECL, HCSL, CMOS, HSTL	<1Hz	1.035	2.5 V only, 3.3 V only, 1.8 V + 2.5 V, 1.8 V + 3.3 V	–40 to +85	56-pin QFN	
ZL30262	Low–Jitter Clock Generators	0.18		1 XTAL/SE, 3 D/SE	10D/20SE	LVDS, LVPECL, HCSL, CMOS, HSTL	<1Hz	1.035	2.5 V only, 3.3 V only, 1.8 V + 2.5 V, 1.8 V + 3.3 V	–40 to +85	56-pin QFN	
ZL30263	Low–Jitter Clock Generators	0.18		1 XTAL/SE, 3 D/SE	10D/20SE	LVDS, LVPECL, HCSL, CMOS, HSTL	<1Hz	1.035	2.5 V only, 3.3 V only, 1.8 V + 2.5 V, 1.8 V + 3.3 V	–40 to +85	56-pin QFN	
ZL30264	Low–Jitter Clock Generators	0.18		1 XTAL/SE, 3 D/SE	6D/12SE	LVDS, LVPECL, HCSL, CMOS, HSTL	<1Hz	1.035	2.5 V only, 3.3 V only, 1.8 V + 2.5 V, 1.8 V + 3.3 V	–40 to +85	56-pin QFN	
ZL30265	Low–Jitter Clock Generators	0.18		1 XTAL/SE, 3 D/SE	6D/12SE	LVDS, LVPECL, HCSL, CMOS, HSTL	<1Hz	1.035	2.5 V only, 3.3 V only, 1.8 V + 2.5 V, 1.8 V + 3.3 V	–40 to +85	56-pin QFN	
ZL30266	Low–Jitter Clock Generators	0.18		1 XTAL/SE, 3 D/SE	10D/20SE	LVDS, LVPECL, HCSL, CMOS, HSTL	<1Hz	1.035	2.5 V only, 3.3 V only, 1.8 V + 2.5 V, 1.8 V + 3.3 V	–40 to +85	56-pin QFN	
ZL30267	Low–Jitter Clock Generators	0.18		1 XTAL/SE, 3 D/SE	10D/20SE	LVDS, LVPECL, HCSL, CMOS, HSTL	<1Hz	1.035	2.5 V only, 3.3 V only, 1.8 V + 2.5 V, 1.8 V + 3.3 V	–40 to +85	56-pin QFN	
ZL30281	PCIe Clock Generators	0.16		1 XTAL	3D/6SE	CML, CMOS	25 M, 100 M	N/A	3.3+1.8	–40 to +85	32-pin QFN	

Clock Generators												
Product	**Category**	**Phase Jitter (ps) (Typ, 12 KHz to 20 MHz)**	**Period Jitter (ps)(peak to peak)**	**Inputs**	**No. of outputs**	**Output Logic**	**Output Frequency Min. (MHz)**	**Output Frequency Max. (MHz)**	**Voltage (V)**	**Temp. Range (°C)**	**Dimensions**	**Frequency Stability (ppm)**
ZL30282	PCIe Clock Generators	0.18		1 XTAL	6D/12SE	LVDS, LVPECL, HCSL, CMOS, HSTL	25 M, 75 M, 100 M	N/A	2.5 V only, 3.3 V only, 1.8 V + 2.5 V, 1.8 V + 3.3 V	–40 to +85	56-pin QFN	
SM806	Low+B123:N123–Jitter Clock Generators	0.079	6	Crystal or Reference	12	PECL, LVDS, HCSL, CMOS	12	850	2.5–3.3	–45 to +85	24-, 48-pin QFN	
MX87	Low–Jitter Clock Generators	0.079	6	Crystal Integrated/ Reference	6	PECL, LVDS, HCSL, CMOS	12	850	2.5–3.3	–45 to +85	48-pin QFN	

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 50Ω 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
SY84403BL	Limiting Amplifiers - Continuous Mode	4.25 Gbps	3.3	PECL with Internal 50Ω to V_{REF}	CML	LOS (TTL)	Please call for package information

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 (Typical)**	**Data Retention (Minimum)**	**Write Speed (Typical)**	**Max. Standby Current (@ 85°C)**	**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
SST26VF020A	× 1, x 2, x 4	2 Mbit	× 8	104 MHz	2.3V–3.6V	–40°C to +125°C	100k	100 Years	1 ms (Page Program)	30 µA	Y	Y	Various	8L-SOIC, 8C-WDFN
SST25PF040C	× 1, x 2	4 Mbit	× 8	40 MHz	2.3–3.6V	–40°C to +125°C	100k	20 Years	4 ms (Page Program)	50 µA	Y	Y	Various	8L-SOIC, 8C-WSON, 8C-USON
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
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
SST25WF040B	× 1, x 2	4 Mb	× 8	40 MHz	1.65–1.95V	–40°C to +125°C	100k	20 Years	0.8 ms (Page Program)	50 µA	Y	Y	Various	8L-SOIC, 8C- UDFN, 8C-USON, 9B-WLCSP
SST26VF040A	× 1, x 2, x 4	4 Mbit	× 8	104 MHz	2.3–3.6V	–40°C to +125°C	100k	100 Years	1 ms (Page Program)	30 µA	Y	Y	Various	8L-SOIC, 8C-WDFN
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

Memory Products: Serial Flash														
Product	Bus	Density	Organization	Max. Clock Frequency	Operating Voltage	Temperature Range	E/W Endurance (Typical)	Data Retention (Minimum)	Write Speed (Typical)	Max. Standby Current (@ 85˚C)	Hard Pin Protect	Software Protect	Protected Array Size	Packages
SST25WF080B	× 1, x 2	8 Mb	× 8	40 MHz	1.65–1.95V	–40°C to +125°C	100k	20 Years	0.8 ms (Page Program)	50 µA	Y	Y	Various	8L-SOIC, 8C- UDFN, 8C-USON, 9B-WLCSP
SST26VF080A	× 1, x 2, x 4	8 Mb	× 8	104 MHz	2.3–3.6V	–40°C to +125°C	100k	100 Years	1 ms (Page Program)	30 µA	Y	Y	Various	8L-SOIC, 8C-WDFN
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
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 +125°C	100k	100 Years	1 ms (Page Program)	45 µA	Y	Y	Various	8L-SOIC, 8L-SOIJ, 8C-WSON
SST26VF032B/BA	× 1, x 2, x 4	32 Mb	× 8	104 MHz	2.3–3.6V	–40°C to +125°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: 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
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
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
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
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

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
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
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 (@ 85°C)	Hard Pin Protect	Software Protect	Protected Array Size	Special/Unique Features	Packages
Single Wire	**AT21CS01**	1 Kb	x 8	125 kbps	1.7–3.6	–40°C to +85°C	1M	100 Years	Y	2.5 uA	–	Y	W, ¾, ½, ¼	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	x 8	125 kbps	2.7 to 4.5	–40°C to +85°C	1M	100 Years	Y	2.5 uA	–	Y	W, ¾, ½, ¼	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	x 8	400 kHz	1.7–5.5	–40°C to +125°C	1M	200 Years	N	1 µA	–	–	–	No address pins - single slave address	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MNY), 5-SOT-23 (OT)
	24xx01/01H	1 Kb	x 8	1 MHz	1.7-5.5	-40°C to +125°C	1M	200 Years	N	1 µA	Y	-	W, ½	No address pins - single slave address	PDIP (P),SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MC), TDFN (MNY), UDFN (MUY), 5-SOT-23 (OT), SC70 (LT)
	AT24C01C	1 Kb	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	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)
	24xx014/014H	1 Kb	x 8	400 KHz	1.7-5.5	-40°C to +125°C	1M	200 Years	N	1 µA	Y	-	W, ½	Three address pins; page size = 16 Bytes	PDIP (P),SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MC), TDFN (MNY), 5-SOT-23 (OT)
	AT24CS01	1 Kb	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	Y	6 µA	Y	–	W	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	1.7–5.5	–40°C to +125°C	1M	100 Years	Y	0.8 uA	–	Y	W, ¾, ½, ¼	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)
	24xx02E48/ E64/ UID	2 Kb	x 8	400 kHz	1.7–5.5 1.5–3.6	–40°C to +125°C	1M	200 Years	Y	1 µA	Y	–	W, ½	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)
	24xx02/02H	2 Kb	x 8	1 MHz	1.7-5.5	-40°C to +125°C	1M	200 Years	N	1 µA	Y	-	W, ½	No address pins - single slave address	PDIP (P),SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MC), TDFN (MNY), UDFN (MUY), 5-SOT-23 (OT), SC70 (LT)
	24xx024/25/24H	2 Kb	x 8	400 KHz	1.7-5.5	-40°C to +125°C	1M	200 Years	N	1 µA	Y	-	W, ½	Three address pins; page size = 16 Bytes	PDIP (P),SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 5-SOT-23 (OT), SC70 (LT)
	AT24C02C	2 Kb	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	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)
	AT24CS02	2 Kb	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	Y	6 µA	Y	–	W	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	1.7–5.5	–40°C to +125°C	1M	100 Years	Y	0.8 uA	–	Y	W, ¾, ½, ¼	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	1.7–5.5	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	½	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)
	AT24MAC402/602	2 Kb	x 8	1 MHz	1.7–5.5	–40°C to +85°C	1M	100 Years	Y	6 µA	Y	Y	W, ½	Unique IEEE -provided 48/64-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 (@ 85°C)	Hard Pin Protect	Software Protect	Protected Array Size	Special/Unique Features	Packages
I²C	**24xx04/04H**	4 Kb	x 8	1 MHz	1.7-5.5	-40°C to +125°C	1M	200 Years	N	1 µA	Y	-	W, ½	No address pins - single slave address	PDIP (P),SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MC), TDFN (MNY), UDFN (MUY), 5-SOT-23 (OT), CS16K (CSP)
	24xx044	4 Kb	x 8	1 MHz	1.7-5.5	-40°C to +125°C	1M	200 Years	N	1 µA	Y	-	W	Three address pins; page size = 16 Bytes	PDIP (P),SOIC (SN), TSSOP (ST), MSOP (MS), UDFN (MUY)
	AT24C04C	4 Kb	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	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)
	AT24CS04	4 Kb	x 8	1 MHz	1.7–5.5	–40°C to +85°C	1M	100 Years	Y	6 µA	Y	–	W	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	1.7–5.5	–40°C to +85°C	1M	100 Years	Y	0.8 µA	–	Y	W, ¾, ½, ¼	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	1.7–5.5	–40°C to +125°C	1M	100 Years	N	0.8 µA	Y	–	½	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)
	24xx08/08H	8 Kb	x 8	1 MHz	1.7-5.5	-40°C to +125°C	1M	200 Years	N	1 µA	Y	-	W, 1/2	No address pins - single slave address; page size = 16 Bytes	PDIP (P),SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MC), TDFN (MNY), UDFN (MUY), 5-SOT-23 (OT), CS16K (CSP)
	AT24C08C	8 Kb	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	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)
	AT24CS08	8 Kb	x 8	1 MHz	1.7–5.5	–40°C to +85°C	1M	100 Years	Y	6 µA	Y	–	W	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	1.7–5.5	–40°C to +85°C	1M	100 Years	Y	0.8 µA	–	Y	W, ¾, ½, ¼	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	1 MHz	1.7–5.5	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W, ½	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 (MC), DFN (MNY), 5-SOT-23 (OT), WLCSP (CS), UDFN (MUY)
	AT24C16C	16 Kb	x 8	1 MHz	1.7–5.5	–40°C to +85°C	1M	100 Years	N	6.0 µA	Y	–	W	No address pins - single slave address	PDIP (P), SOIC (SS), SOT-23 (ST), TSSOP (X), UDFN (MA), VFBGA (C), XDFN (ME)
	AT24CS16	16 Kb	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	Y	6 µA	Y	–	W	No address pins - single slave address	SOIC (SS), TSOT (ST), TSSOP (X), UDFN (MA)
	24xx32A	32 Kb	x 8	400 kHz	1.7–5.5	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W, ¼	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	1.7–5.5	–40°C to +125°C	1M	100 Years	N	0.8 uA	Y	–	W	Three address pins - cascade up to eight devices to share a common 2-wire bus, 32 byte page write buffer	SOIC (SS), SOT-23 (ST), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C), XDFN (ME)
	AT24CS32	32 Kb	x 8	1 MHz	1.7–5.5	–40°C to +85°C	1M	100 Years	Y	6 µA	Y	–	W	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	1.7–5.5	–40°C to +125°C	1M, 10M	200 Years	N	1 µA	Y	–	W, ¼	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)
	24xx65	64 Kb	x 8	1 MHz	1.8-6	–40°C to +125°C	1M, 10M	200 Years	N	1 µA	–	Y	up to 15 4 KB blks	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	1.7–5.5	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	Three address pins, software WP, high endurance block, page size up to 64 Bytes	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C), WLCSP (U), XDFN (ME)
	AT24CS64	64 Kb	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	Y	6 µA	Y	–	W	Unique 128-bit serial number separate from the main memory array	SOIC (SS), TSSOP (X), UDFN (MA)
	24xx128	128 Kb	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W	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	1.7–5.5	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	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	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W	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	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	200 Years	Y	1 µA	Y	–	W	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)

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 (@ 85°C)	Hard Pin Protect	Software Protect	Protected Array Size	Special/Unique Features	Packages
I²C	**AT24C256C**	256 Kb	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	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	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	200 Years	N	1 µA	Y	–	W	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	1.7–5.5	–40°C to +125°C	1M	40 Years	N	6 µA	Y	–	W	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	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	200 Years	N	5 µA	Y	–	W	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	1.7–5.5	–40°C to +125°C	1M	40 Years	N	6 µA	Y	–	W	Two address pins - cascade up to four devices to share a common 2-wire bus.	SOIC (SS), SOIJ (S), TSSOP (X), WLCSP (U)
	AT24CM02	2 Mb	x 8	1 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	6 µA	Y	–	W	Two address pins - cascade up to four devices to share a common 2-wire bus.	SOIC (SS), WLCSP (U)
	48LM01	1 Mb	x 8	66 MHz	2.7-3.6	-40°C to +85°C	oo	100 Years		200 µA	N	N	W, ½, ¼	Unlimited endurance to SRAM, Data automatically backed up to EEPROM and power down (with small external capacitor)	SOIJ (SM)
SPI	**25xx010A**	1 Kb	x 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	5 MHz @ 2.5V, Status register, 16 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	AT25010B	1 Kb	x 8	20 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	3.5 µA	Y	Y	W, ½, ¼	Supports SPI Modes 0 (0, 0) and 3 (1, 1)	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C)
	25xx020A	2 Kb	x 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	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	x 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	Y	1 µA	Y	Y	W, ½, ¼	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	x 8	20 MHz	1.7–5.5	-40°C to +125°C	1M	100 Years	N	3.5 µA	Y	Y	W, ½, ¼	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP)
	25xx040A	4 Kb	x 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	5 MHz @ 2.5V, Status register, 16 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY), 6-SOT-23 (OT)
	AT25040B	4 Kb	x 8	20 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	3.5 µA	Y	Y	W, ½, ¼	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C)
	25xx080C/D	8 Kb	x 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	16/32 byte page, 5 MHz @ 2.5V, Status register	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY)
	AT25080B	8 Kb	x 8	5 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	13 µA	Y	Y	W, ½, ¼	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	x 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	16/32 byte page, 5 MHz @ 2.5V, Status register	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY)
	AT25160B	16 Kb	x 8	5 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	13 µA	Y	Y	W, ½, ¼	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	x 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	5 MHz @ 2.5V, Status register, 32 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY)
	AT25320B	32 Kb	x 8	5 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	13 µA	Y	Y	W, ½, ¼	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	x 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	5 MHz @ 2.5V, Status register, 32 byte page	PDIP (P), SOIC (SN), TSSOP (ST), MSOP (MS), DFN (MNY, MF)
	AT25640B	64 Kb	x 8	5 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	13 µA	Y	Y	W, ½, ¼	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	x 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	5 MHz @ 2.5V, Status register, 64 byte page	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MF)
	AT25128B	128 Kb	x 8	20 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	5.0 µA	Y	Y	W, ½, ¼	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (SS), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C)
	25xx256	256 Kb	x 8	10 MHz	1.8–5.5	–40°C to +150°C	1M	200 Years	N	1 µA	Y	Y	W, ½, ¼	5 MHz @ 2.5V, Status register, 64 byte page	PDIP (P), SOIC (SN), TSSOP (ST), DFN (MF), SOIJ (SM)
	AT25256B	256 Kb	x 8	20 MHz	1.7–5.5	–40°C to +125°C	1M	100 Years	N	5.0 µA	Y	Y	W, ½, ¼	Supports SPI Modes 0 (0,0) and 3 (1,1)	SOIC (SS), SOIJ (S), TSSOP (X), UDFN (MA), UDFN (MAP), VFBGA (C)

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 (@ 85°C)	Hard Pin Protect	Software Protect	Protected Array Size	Special/Unique Features	Packages
SPI	**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	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	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	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	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	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 (85°C)	Hard Pin Protect	Software Protect	Protected Array Size	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	–	–	–	Zero write cycle time, Infinite endurance, Volatile RAM, Byte/page/sequential read-write modes	PDIP (P), SOIC (SN), TSSOP (ST)
	23x256	256 Kb	× 8	20 MHz	1.5–1.95, 2.7–3.6	–40 to +125	∞	Volatile	4 µA	–	–	–	Zero write cycle time, Infinite endurance, Volatile RAM, Byte/page/sequential read-write modes	PDIP (P), SOIC (SN), TSSOP (ST)
	23xx512	512 Kb	× 8	20 MHz	1.7–2.2, 2.5–5.5	–40 to +125	∞	Volatile	4 µA	–	–	–	Fast Speed: Quad SPI available (80 MHz), Infinite endurance, Zero write times, 5V capable	SOIC (SN), PDIP (P), TSSOP (ST)
	23xx1024	1024 Kb	× 8	20 MHz	1.7–2.2, 2.5–5.5	–40 to +125	∞	Volatile	4 µA	–	–	–	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	–	–	–	Battery-backed non-volatile SRAM, Infinite endurance, Zero write times	SOIC (SN), PDIP (P), TSSOP (ST)
	23LCV1024	1024 Kb	× 8	20 MHz	2.5–5.5	–40 to +85	∞	20 Years via battery	4 µA	–	–	–	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	Unlimited endurance to SRAM, Data automatically backed up to EEPROM and power down (with small external capacitor)	SOIC (SN), PDIP (P), TSSOP (ST)
	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	Unlimited endurance to SRAM, Data automatically backed up to EEPROM and at power down (with small extenal capacitor)	SOIC (SN), PDIP (P), TSSOP (ST)
SPI	**47L64**	64 Kb	x 8	1 MHz	2.7-3.6	-40°C to +85°C	oo	100 Years	200 µA	Y	N	¼	Unlimited endurance to SRAM, Data automatically backed up to EEPROM and power down (with small external capacitor)	SOIC (SN), TDFN (MNY)
	48L640	64 Kb	x 8	66 MHz	2.7-3.6	-40°C to +85°C	oo	100 Years	200 µA	N	N	W, ½, ¼	Unlimited endurance to SRAM, Data automatically backed up to EEPROM and power down (with small external capacitor)	SOIC (SN), TDFN (MNY)
	48L256	256 Kb	x 8	66 MHz	2.7-3.6	-40°C to +85°C	oo	100 Years	300 µA	N	N	W, ½, ¼	Unlimited endurance to SRAM, Data automatically backed up to EEPROM and power down (with small external capacitor)	SOIC (SN)
	48L512	512 Kb	x 8	66 MHz	2.7-3.6	-40°C to +85°C	oo	100 Years	200 µA	N	N	W, ½, ¼	Unlimited endurance to SRAM, Data automatically backed up to EEPROM and power down (with small external capacitor)	SOIC (SN)
	48LM01	1 Mb	x 8	66 MHz	2.7-3.6	-40°C to +85°C	oo	100 Years	200 µA	N	N	W, ½, ¼	Unlimited endurance to SRAM, Data automatically backed up to EEPROM and power down (with small external capacitor)	SOIJ (SM)

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)	Tested Throughput Mbps		Encryption/ Security	Interface	Packages (Dimensions)
									Downlink	Uplink			
ATSAMW25	802.11 b/g/n	51	Chip, PCB, U.FL	2.412–2.472	–98	17	264	61	TCP: 10 UDP: 15	TCP: 8 UDP: 11	WEP, WPA/WPA2 Personal and Enterprise, TLS	SPI	51/Module (33.9 x 14.9 mm)
ATWINC15x0	802.11 b/g/n	28	Chip, PCB, U.FL	2.412–2.472	–89	17	264	61	TCP: 11 UDP: 19	TCP: 10 UDP: 12	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)	TCP: 3 UDP: 6	TCP: 5 UDP: 5	WEP, WPA/WPA2 Personal	SPI, UART	37/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	Linux® TCP: 26 UDP: 46	Linux TCP: 20 UDP: 25	WEP, WPA/WPA2 Personal and Enterprise, TLS (Linux) WEP, WPA/WPA2 Personal and Enterprise (RTOS)	SPI, SDIO	29/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)	Linux TCP: 28 UDP: 16	Linux TCP: 20 UDP: 24	WEP, WPA/WPA2 Personal and Enterprise, TLS (Linux) WEP, WPA/WPA2 Personal (RTOS)	SPI, SDIO, UART	37/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	Module 11.5 × 19.5 mm
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	Module 22 × 12 × 2.4 mm 15 × 12 × 1.8 mm
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	Module 9 × 11.5 × 2.1 mm 6 × 8 × 1.6 mm
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	Module 22 × 12 × 2.4 mm 15 × 12 × 1.8 mm
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	Module 22 × 12 × 2.4 mm 15 × 12 × 1.8 mm
BM20	Audio	Yes	–91	4	System Off 2 µA	HFP, HSP, A2DP, AVRCP, SPP, PCAP	Analog audio out, mic in, line in, UART	40	Module 29 × 15 × 2.5 mm

Wireless Products: Bluetooth®									
Product	Functionality	No Shield Option	Rx Sensitivity (dBm)	Power Output (dBm) (typ.)	Sleep	Profiles	Interface	Pin Count	Packages (Dimensions)
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	Module 29 × 15 × 2.5 mm
BM62	Audio	Yes	–90	+2 (Class 2)	System < 10 µA	HFP, AVRCP, A2DP, HSP, SPP	UART	37	Module 29 x 15 x 2.5 mm
BM83	Audio (BBC, AAC, LDAC)	No	–90	8.5 dBm (Class 1)	System < 10 µA	HFP, HSP, A2DP, AVRCP, SPP, PCAP, MAP, DIS, ANO5	Line in, mic in, ADC, IS, I²C, UART, USB, GPIOs	50	Module 32 x 15 mm
BM64	Audio	Yes	–90	+15 (Class 1), +2 (Class 2)	System < 10 µA	HFP, AVRCP, A2DP, HSP, SPP	UART	43	Module 32 x 15 x 2.5 mm
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)
IS2063	Audio		–90	+2 (Class 2)	System < 20 µA	HFP, AVRCP, A2DP, HSP, SPP	UART	82	BGA (5 x 5 mm)
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 mm), 68 QFN (8 x 8 x 0.9 mm), 61 BGA (5 x 5 x 0.9 mm)
IS2066	Audio (SBC, AAC)		–90	+2 (Class 2)	–	HFP, AVRCP, A2DP, HSP, SPP	mic in, analog out, DAC	50	BGA (5 x 3.5 mm)
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 (IS2021S) 7 × 7 mm 56 QFN (IS2020S, IS2023S) 8 × 8 mm 68 QFN (IS2025S)

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
ATSAMR30	32/48	779/930	up to –110	11	Yes	18.2 mA @ 5 dBm	9.4	48 MHz	0.45	SPI, USART, I²C, LIN	(5 × 5 mm) 32-pin QFN, (7 × 7 mm) 48-pin QFN
ATSAMR30M	32/48	779/930	up to –105	8.7	Yes	18.7 mA @ 5 dBm	9.4	48 MHz	0.45	SPI, USART, I²C, LIN	(11 × 127 mm) Module

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)

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 SmartHub for Mobile Applications	USB 2.0 or HSIC	3 (USB 2.0 ×2/HSIC ×1)	–	✓	30-ball WLCSP
USB253X	USB2.0 Hi-Speed SmartHub 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 SmartHub, Host/Device Switching, USB/HSIC interfaces	USB 2.0	2 or 4 ports	–	Automotive only	48-pin QFN
USB491X	Automotive SmartHub, Multi-Host Endpoint Reflector	USB 2.0	3 or 5 ports	–	Automotive only	48- or 64-pin QFN
USB4715	SmartHub, FlexConnect on all ports	USB 2.0	4 ports	–	✓ Automotive	48-pin QFN
USB492X	Automotive SmartHub, Dual Upstream architecture	USB 2.0	3 or 5 ports	–	Automotive only	48- or 64-pin QFN
USB 3.x Hubs/Controllers						
USB553XB	SuperSpeed Hub with Battery Charger Detection	USB 3.0	2, 3, 4 or 7 port options	–	–	64- or 72-pin QFN
USB5734	SuperSpeed SmartHub with I/O Bridging and FlexConnect	USB 3.1 Gen 1	4	–	✓	64-pin QFN
USB574X	SuperSpeed SmartHub with FlexConnect	USB 3.1 Gen 1	2 or 4 port options	–	✓	56-pin QFN
USB58XXC	SuperSpeed SmartHub with I/O Bridging and FlexConnect with USB-C™ support downstream	USB 3.1 Gen 1	6 or 7 port options	–	✓	100-pin QFN
USB59XXC	SuperSpeed SmartHub with I/O Bridging and FlexConnect with USB-C support upstream and downstream	USB 3.1 Gen 1	6	–	✓	100-pin QFN
USB7002	SuperSpeed USB 3.1 Gen 1 SmartHub with Power Delivery and Type C Support	USB 3.1 Gen 1	4	–	✓ Automotive	100-pin QFN
USB705X	SuperSpeed USB 3.1 Gen1 SmartHub with Power Delivery and Type C Support	USB 3.1 Gen 1	4, 6	–	✓	100-pin QFN
USB72XX	SuperSpeed Plus USB3.1 Gen2 SmartHub and Type C support	USB 3.1 Gen 2	4, 6	–	✓	100-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 SmartHub 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 Bridges						
LAN9500A	USB 2.0 to 10/100 Ethernet Bridge	USB 2.0	✓	–	✓	56-pin QFN
LAN9730	USB HSIC 2.0 to 10/100 Ethernet Bridge	USB 2.0 (HSIC), MII	–	–	✓	56-pin QFN
LAN7500	USB 2.0 to 10/100/1000 Ethernet Bridge	USB 2.0	✓	–	✓	56-pin QFN
LAN7800/01/50	USB 3.1 Gen1 to 10/100/1000 Ethernet Bridge (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 Bridge with 2-Port USB 2.0 Hub	USB 2.0	–	–	✓	64-pin QFN
LAN9513	USB 2.0 to 10/100 Ethernet Bridge with 3-Port USB 2.0 Hub	USB 2.0	–	–	✓	64-pin QFN
LAN9514	USB 2.0 to 10/100 Ethernet Bridge with 4-Port USB 2.0 Hub	USB 2.0	–	–	✓	64-pin QFN
LAN89730	USB 2.0 to 10/100 Ethernet Bridge	USB 2.0	✓	–	Automotive	56-pin QFN
LAN89530	USB 2.0 to 10/100 Ethernet Bridge	USB 2.0	✓	–	Automotive	56-pin QFN
LAN7430	PCIe 3.1 to 10/100/1000 Ethernet Bridge	PCIe 3.1 at 2.5GT/s	✓	✓	✓	48-pin SQFN
LAN7431	PCIe 3.1 to RGMII Bridge	PCIe 3.1 at 2.5GT/s	✓	✓	Automotive	72-pin SQFN

Ethernet Products

Product	Bandwidth	Ports	Interface (Upstream)	1588–v2	Cable Diags	100 Fx	Temperature	AEC-Q100 Auto	Packages
EtherCAT® Controllers									
LAN9252	10/100	2/3	SPI, SQI™, 8-/16-/32-bit host bus	Clock Sync.	✓	✓	–40°C to +85°C	–	64-pin QFN, 64-pin TQFP-EP
Ethernet Switches									
LAN9303	10/100	3	MII/RMII/Turbo MII	–	–	✓	–40°C to +85°C	–	56-pin QFN, 72-pin QFN
LAN9352	10/100	2	SPI/SQI/HBI	✓	✓	–	–40°C to +85°C	–	72-pin QFN, 80-pin TQFP-EP
LAN9353	10/100	3	MII/RMII/Turbo MII	✓	✓	✓	–40°C to +85°C	–	64-pin QFN, 64-pin TQFP-EP
LAN9354	10/100	3	RMII	✓	✓	✓	–40°C to +85°C	–	56-pin QFN
LAN9355	10/100	3	MII/RMII/Turbo MII	✓	✓	✓	–40°C to +85°C	–	64-pin QFN, 64-pin TQFP-EP
KSZ8463	10/100	3	MII/RMII	✓	✓	✓	–40°C to +85°C	–	64-pin LQFP
KSZ8563	10/100	3	MII/RMII/RGMII	✓	✓	–	–40°C to 105°C	✓	64-pin VQFN
KSZ8565	10/100	5	MII/RMII/RGMII	✓	✓	–	–40°C to 105°C	✓	128-pin TQFP
KSZ8567	10/100	7	MII/RMII/RGMII/SGMII	✓	✓	with SGMII	–40°C to 105°C	✓	128-pin TQFP
KSZ8765	10/100	5	MII/GMII/RGMII	–	✓	✓	–40°C to +85°C	–	64-pin QFN, 80-pin LQFP
KSZ8775	10/100	5	MII/GMII/RGMII	–	✓	–	–40°C to +85°C	–	80-pin LQFP
KSZ8794	10/100	4	MII/GMII/RGMII	–	✓	–	–40°C to +85°C	–	64-pin VQFN

Ethernet Products									
Product	**Bandwidth**	**Ports**	**Interface (Upstream)**	**1588–v2**	**Cable Diags**	**100 Fx**	**Temperature**	**AEC-Q100 Auto**	**Packages**
Ethernet Switches									
KSZ8795	10/100	5	GMII/RGMII/MII/RMII	–	✓	–	–40°C to +85°C	–	80-pin LQFP
KSZ8863	10/100	3	MII/RMII	–	✓	✓	–40°C to +85°C	–	48-pin LQFP
KSZ8864	10/100	4	MII/RMII	–	✓	–	–40°C to 105°C	✓	64-pin VQFN
KSZ8873	10/100	3	MII/RMII	–	✓	✓	–40°C to 105°C	✓	64-pin VQFN
KSZ8895	10/100	5	MII/RMII	–	✓	–	–40°C to +85°C	✓	128-pin LQFP
KSZ9477	Gigabit	7	SGMII/RGMII/MII/RMII	1588 + AVB +HDR/DLR	LinkMD+ with signal quality indicator	with SGMII	–40°C to +85°C	–	128-pin LQFP
KSZ9563	Gigabit	3	SGMII/RGMII/MII/RMII	1588 + AVB	LinkMD+ with signal quality indicator	with SGMII	–40°C to +85°C	–	64-pin QFN, 128-pin LQFP
KSZ9567	Gigabit	7	SGMII/RGMII/MII/RMII	1588 + AVB	LinkMD+ with signal quality indicator	with SGMII	–40°C to +85°C	–	128-pin TQFP-EP
KSZ9893	Gigabit	3	SGMII/RGMII/MII/RMII	–	✓	–	–40°C to +85°C	–	64-pin QFN, 128-pin LQFP
KSZ9896	Gigabit	6	RGMII/GMII/MII/RMII	–	✓	–	–40°C to +85°C	–	128-pin TQFP
KSZ9897	Gigabit	7	RGMI/SGMII/MII/RMII	–	✓	with SGMII	–40°C to +85°C	–	128-pin TQFP
VSC7511	10/100/1000/2500 Mbps	4	SGMII 1000Base-T (4)	–	✓	100FX, 1000X	–40°C to +125°C	–	172/VQFN
VSC7512	10/100/1000/2500 Mbps	10	SGMII, QSGMII 1000Base-T (4)	–	✓	100FX, 1000X	–40°C to +125°C	–	172/VQFN
VSC7513	10/100/1000/2500 Mbps	8	SGMII, QSGMII 1000Base-T (4)	✓	✓	100FX, 1000X	–40°C to 125°C	–	256/PBGA
VSC7514	10/100/1000/2500 Mbps	10	SGMII, QSGMII 1000Base-T (4)	✓	✓	100FX, 1000X	–40°C to +125°C	–	256/PBGA
VSC7420	10/100/1000/2500 Mbps	10	SGMII 1000Base-T (8)	–	✓	100FX, 1000X	–40°C to +125°C	–	672/HSBGA
VSC7421	10/100/1000/2500 Mbps	17	SGMII, QSGMII 1000Base-T (12)	–	✓	100FX, 1000X	–40°C to +125°C	–	672/HSBGA
VSC7422	10/100/1000/2500 Mbps	25	SGMII, QSGMII 1000Base-T (12)	–	✓	100FX, 1000X	–40°C to +125°C	–	672/HSBGA
VSC7423	10/100/1000/2500 Mbps	7	SGMII 1000Base-T (5)	✓	✓	100FX, 1000X	–40°C to +125°C	–	672/HSBGA
VSC7424	10/100/1000 Mbps	10	SGMII 1000Base-T (8)	–	✓	100FX, 1000X	0°C to 125°C	–	672/HSBGA
VSC7425	10/100/1000 Mbps	18	SGMII, QSGMII 1000Base-T (12)	–	✓	100FX, 1000X	0°C to 125°C	–	672/HSBGA
VSC7426	10/100/1000 Mbps	24	QSGMII 1000Base-T (12)	–	✓	–	0°C to 125°C	–	672/HSBGA
VSC7427	10/100/1000 Mbps	26	SGMII, QSGMII 1000Base-T (12)	–	✓	100FX, 1000X	0°C to 125°C	–	672/HSBGA
VSC7440	10/100/1000/2500 Mbps 10 Gbps	10	SGMII 1000Base-T XFI	✓	✓	100FX, 1000X, SFI	–40°C to +125°C	–	324/PBGA
VSC7448	10/100/1000/2500 Mbps 10 Gbps	52	SGMII, QSGMII XFI, XAUI, RXAUI	✓	–	100FX, 1000X, SFI	–40°C to +110°C	–	672/HFCBGA
VSC7449	10/100/1000/2500 Mbps 10 Gbps	52	SGMII, QSGMII XFI, XAUI, RXAUI	✓	–	100FX, 1000X, SFI	–40°C to +110°C	–	672/HFCBGA

*VSC parts Junction temperature (Tja)

Ethernet Products									
Product	**Bandwidth**	**Ports**	**Interface (Upstream)**	**1588v2**	**Wake-On-LAN**	**EEE**	**Temperature**	**AEC-Q100 Auto**	**Packages**
Ethernet Controllers									
ENC28J60	10	1	SPI	–	–	–	–40°C to +85°C	–	28-pin SPDIP, SSOP, SOIC, QFN
ENC624J600	10/100	1	SPI/Parallel	–	–	–	–40°C to +85°C	–	24-pin TQFN, QFN, 64-pin TQFN
LAN9217	10/100	1	16-bit Host Bus/MII	–	–	–	–	–	100-pin TQFP
LAN9218	10/100	1	32-bit Host Bus	–	–	–	–40°C to +85°C	–	100-pin TQFP
LAN9220/1	10/100	1	16-bit Host Bus	–	–	–	–40°C to +85°C	–	56-pin QFN
LAN9250	10/100	1	SPI, SQI™, HBI	–	✓	✓	–40°C to +85°C	–	64-pin QFN, 64-pin TQFP-EP
LAN9420	10/100	1	32-bit PCI 3.0	–	–	–	–40°C to +85°C	–	128-pin VTQFP
LAN89218	10/100	1	32-bit Host Bus	–	–	–	–40°C to +105°C	✓	100-pin TQFP
KSZ8851	10/100	1	8-/16-/32-bit or SPI	–	✓	–	–40°C to +105°C	✓	32-pin QFN, 48-pin LQFP, 128-pin PQFP
KSZ8852	10/100	1	8-/16-/32-bit	–	✓	✓	I	–	64-pin LQFP
KSZ8441	10/100	1	8-/16-/32-bit or SPI	–	✓	✓	I	–	64-pin LQFP
Ethernet Transceivers (PHYs)									
LAN8710A	10/100	1	MII/RMII	–	–	–	–40°C to +85°C	–	32-pin QFN
LAN8720A	10/100	1	RMII	–	–	–	–40°C to +85°C	–	24-pin QFN
LAN8740A	10/100	1	MII/RMII	–	✓	✓	–40°C to +85°C	–	32-pin QFN
LAN8741A	10/100	1	MII/RMII	–	–	✓	–40°C to +85°C	–	32-pin QFN
LAN8742A	10/100	1	RMII	–	✓	–	–40°C to +85°C	–	24-pin QFN
LAN88730	10/100	1	MII/RMII	–	–	–	–40°C to +105°C	✓	32-pin QFN
KSZ8051	10/100	1	MII/RMII	–	–	–	–40°C to +105°C	✓	32-pin QFN
KSZ8061	10/100	1	MII/RMII	–	✓	–	–40°C to +105°C	✓	32-/48-pin QFN
KSZ8081	10/100	1	MII/RMII	–	–	–	–40°C to +85°C	–	24-/32-pin QFN, 48-pin LQFP
KSZ8091	10/100	1	MII/RMII	–	✓	✓	–40°C to +85°C	–	24-/32-pin QFN, 48-pin LQFP
LAN8810	Gigabit	1	GMII	–	–	–	–40°C to +85°C	–	72-pin QFN
LAN8820	Gigabit	1	RGMII	–	–	–	–40°C to +85°C	–	56-pin QFN
KSZ9031	Gigabit	1	MII/RMII/RGMII	–	✓	–	–40°C to +105°C	✓	48-/64-pin QFN
KSZ9131	Gigabit	1	MII/RMII/RGMII	–	✓	✓	–40°C to +105°C	✓	48-/64-pin QFN
VSC8531	Gigabit	1	RMII/RGMII	–	✓	✓	–40°C to +125°C*	–	48 pin QFN
VSC8541	Gigabit	1	GMII/MII//RMII/RGMII	–	✓	✓	–40°C to +125°C*	–	68 pin QFN
VSC8584	Gigabit	4 Cu/4 Fbr	QSGMII/SGMII	✓	✓	✓	–40°C to +125°C*	–	256 pin QFN
VSC8258	10G Optical	4Cu	XFI, SFI, KR	✓	✓	✓	–40°C to +125°C*	–	256 pin QFN
VSC8490	10G Optical	2Cu	XAUI, RXAUI, XFI, SFI	✓	✓	✓	–40°C to +125°C*	–	196 pin QFN

*VSC parts Junction temperature (Tja)

High-Speed Ethernet PHYs											
Product	**Description**	**Max Bandwidth Gbps**	**MACsec**	**FlexE**	**Interlaken**	**Retimer**	**Gearbox**	**Crosspoint**	**# Ports**	**Max port rate**	**Max SERDES Rate Gbps**	**RoHS**
PM61104	META-DX1 Ethernet PHY (without MACsec/FlexE)	1200	–	–	–	✓	✓	✓	12	400GbE	56	✓
PM61108	META-DX1 Ethernet PHY (without FlexE)	1200	✓	–	✓	✓	✓	✓	12	400GbE	56	✓
PM61110	META-DX1 Ethernet PHY Family (MACsec/FlexE)	1200	✓	✓	✓	✓	✓	✓	12	400GbE	56	✓

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
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
MEC1428-SZ-C	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
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

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 Vcc Supply	Unique ID	RNG	Monotonic Counters	Crypto Algorithms	Key Size	Individual Slots	TLS Stack Support	Cloud Support	Packakges (Designator)	Secure Provisioning Service
ECC508A	30 nA Typ 2 µA 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 µA 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 2 µA 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
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
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

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

Power Discretes: Silicon Carbide (SiC) MOSFETs			
Part Number	Voltage	RDS(on)	Package
MSCxxxSMA070B	700V	15–90 mΩ	TO-247
MSCxxxSMA070S	700V	15–90 mΩ	D3PAK
MSCxxxSMA120B	1200V	25–280 mΩ	TO-247
MSCxxxSMA120S	1200V	25–360 mΩ	D3PAK
MSCxxxSMA120J	1200V	25–80 mΩ	SOT-227
MSCxxxSMA170B	1700V	45–750 mΩ	TO-247
MSCxxxSMA170S	1700V	45–750 mΩ	D3PAK

Power Discretes: Silicon Carbide (SiC) Diodes			
Part Number	Voltage	RDS(on)	Package
MSCxxxSDA070K	700V	10-30A	TO-220
MSCxxxSDA070B	700V	10-50 A	TO-247
MSCxxxSDA070S	700V	30-50A	D3PAK
MSCxxxSDA120K	1200V	10-30A	TO-220
MSCxxxSDA120B	1200V	10-50A	TO-247
MSCxxxSDA120S	1200V	10-30A	D3PAK
MSCxxxSDA170B	1700V	10-50 A	TO-247

Power Discretes: Insulated Gate Bipolar Transistors (IGBTs)					
Standard Series	Voltage Range (V)	Technology	Easy to Parallel	Short Circuit Safe Operating Range (SOA)	Parameter
MOS 7™	1200	Punch-Through	-	-	Ultra-low gate charge
MOS 8™	600, 650, 900, 1200	Punch-Through, Non-Punch-Through	-	-	Highest efficiency
Field Stop Trench Gate	600, 1200	Field Stop	Yes	Yes	Lowest conduction loss

Power Discretes: Power MOS 8™ MOSFETs/FREDFETs						
MOSFET Part Number	FREDFET Part Number	BVDSS (V)	Rds(on)Max (Ω)	Id (A)	Id (A)	Package Style
APTxxM120xx	APTxxF120xx	1200	2.4–0.29	8–35	7-33	TO-247, D3PAK, T-MAX®, TO-264, ISOTOP
APTxxM100xx	APTxxF100xx	1000	2.0–0.18	8–45	7-42	TO-247, D3PAK, T-MAX, TO-264, ISOTOP
APTxxM80xx	APTxxF80xx	800	0.9–0.10	13–60	12-57	TO-247, D3PAK, T-MAX, TO-264, ISOTOP
APTxxM60xx	APTxxF80xx	600	0.37–0.055	36–84	19-84	TO-247, D3PAK, T-MAX, TO-264, ISOTOP
APTxxM50xx	APTxxF50xx	500	0.24–0.036	56–103	24-103	TO-247, D3PAK, T-MAX, TO-264, ISOTOP

Power Discretes: Low-Voltage Power MOS V® MOSFETs/FREDFETs						
MOSFET Part Number	FREDFET Part Number	BVDSS (V)	Rds(on)Max (Ω)	Id (A)	Id (A)	Package Style
APT30MxxxxRx	APT30MxxxxFRx	300	0.085–0.019	40–130	48–130	TO-247, D3PAK, ISOTOP
APT20MxxxxRx	APT20MxxxxFRx	200	0.045–0.011	56–175	56–175	TO-247, D3PAK, T-MAX®, TO-264, ISOTOP

Power Discretes: Ultra-Fast, MOS7® MOSFETs					
MOSFET Part Number	BVDSS (V)	Rds(on)Max (Ω)	Id (A)	FREDFET Part Number	Package Style
APT120xxxxLLx	1200	4.700-0.570	3.5–22	APT120xxxFLLx	TO-247, D3PAK, T-MAX®
APT100xxxxLLx	1000	0.900-0.210	12–37	APT100xxxFLLx	TO-247, D3PAK, T-MAX, TO-264, ISOTOP
APT80xxxxLLx	800	0.200-0.140	33–52	APT80xxxFLLx	TO-247, D3PAK, T-MAX, TO-264, ISOTOP
APT50xxxxLLx	500	0.140-0.038	35–88	APT50xxxFLLx	TO-247, D3PAK, T-MAX, TO-264, ISOTOP

Power Discretes: Ultra-fast, MOS 7R MOSFET				
MOSFET Part Number	BVDSS (V)	Rds(on)Max (Ω)	Id (A)	Package Style
APT36N90BC3G	900	0.12	36	TO-247
APTxxN80xxC3G	800	0.450–0.145	11–34	TO-247, T-MAX®, TO-264
APTxxN65xxCxx	650	0.070–0.035	47–94	TO-247, D3PAK, T-MAX, TO-264
APTxxN60xxCxx	600	0.125–0.035	30–106	TO-247, D3PAK, T-MAX, TO-264, ISOTOP

Power Discretes: Linear MOSFETs				
Part Number	BVDSS (V)	Rds(on)Max (Ω)	Id (A)	SOA (W)
APL602xxx	600	0.125	43–49	325
APL502xxx	500	0.90	52–58	325

Power Discretes: Silicon and Silicon Carbide Diodes				
Series	Voltage Ratings	Features	Applications	Comment
D	200, 300, 400, 600, 1000, 1200	Medium Vf, Medium speed	Freewheeling diode, Output rectifier, DC–DC converter	Proprietary platinum process
DQ	600, 1000, 1200	High speed, Avalanche rated	PFC, Freewheeling diode, DC–DC converter	Stepped EPI improves softness Proprietary platinum process
Schottky	200	Low Vf, Avalanche rated	Output rectifier, Freewheeling diode, DC–DC converter	APL602xxx
SiC Schottky	700, 1200, 1700	Zero reverse recovery	PFC, Freewheeling diode, DC–DC converter	Low switching losses, high power density and high-temperature operation

Power Discretes: High-Voltage RF MOSFETs					
Part Number	Pout(W)	Freq.(MHz)	Package Style	Class of Operation	Comments
ARFxxxxxxx	90–750	25–120	TO-247, M174, TO-264, T3A, T3, T3C, T1, T2	A–E	The ARF family of RF power MOSFETs is optimized for appli-cations requiring frequencies as high as 150 MHz and operat-ing voltages as high as 400V
VRFxxxxxxx	30–600	30–175	M113, M174, M177, M208, T2	–	The VRF family of RF MOSFETs includes improved replacements for industry-standard RF transistors. They provide improved ruggedness by increasing the Bvdss over 30 percent from the industry-stan-dard 125V to 170V minimum
DRFxxxxxxx	400–2000	30	T2B, T4, T4A, T5	D-E	The DRF family of RF solutions integrate drivers, bypass capacitors and RF MOSFETs into a single package

Power Modules: Standard Configurations							
Electrical Topolgy	**IGBT 600V to 1700V**	**MOSFET 75V to 1200V**	**DIODE 200V to 1700V**	**Mix Si–SiC 600V to 1200V**	**SiC DIODE 600V to 1200V**	**SiC MOSFET 600V to 1700V**	**Packages**
Asymmetrical Bridge	50A to 300A	64A to 207A	–	–	–	–	SP1, SP3F, SP4, SP6
Boost buck	100A	70A	–	–	–	–	SP3F
Boost and Buck Chopper	30A to 600A	17A to 370A	–	15A to 107A	–	50A and 100A	SOT–227, SP1, SP3F, SP4, SP6, D3
Common Anode	–	–	400A	–	–	–	SP6
Common Cathode	–	–	400A	–	100A to 600A	–	D1P, SP6
Dual boost and Buck Chopper	50A to 90A	17A to 100A	–	40A	–	–	SP1, SP3F
Dual Common Source	50A to 600A	45A to 370A	–	–	–	–	SP4, SP6
Dual Diode	–	–	–	–	20A to 100A	–	SOT–227
Full Bridge	20A to 300A	6A to 207A	30A to 200A	–	20A to 200A	110A	SOT–227, SP1, SP2, SP3F, SP4, SP6
Full Bridge With PFC	38A	29A and 38A	–	38A	–	–	SP3F
Full Bridge With Fast Rectifier Diode Bridge	38A and 50A	29A and 38A	–	38A	–	–	SP3F
Full bridge With Series and Parallel Diodes	–	13A to 62A	–	11A to 38A	–	–	SP4
Interleaved PFC	–	38A and 70A	–	–	–	–	SP1, SP3F
Linear Single and Dual Switch	–	14A and 33A	–	–	–	–	SP1, SP3F
Phase Leg	30A to 600A	25A to 370A	400A	–	100A to 600A	40A to 586A	SP1, SP2, SP3F, SP4, SP6, SP6LI, D1P, D3
Phase Leg With Gate Driver	300A to 400A	–	–	–	–	–	LP8
Phase Leg With PFC	–	27A and 38A	–	–	–	–	SP3F
Phase Leg With Series and Parallel Diodes	–	26A to 225A	–	21A to 110A	–	–	SP4, SP6
Single switch	400A to 750A	97A to 640A	400A to 500A	–	–	–	SP6, D4, LP4
Single Switch With Series and Parallel Diodes	–	86A to 310A	–	86A and 110A	–	–	SP6
Single Switch With Series Diodes	475A	110A to 160A	–	–	–	–	SP6
3–Level NPC Inverter	20A to 300A	30A to 75A	–	–	–	20A to 160A	SP1, SP3F, SP6
3–Level T–Type Inverter	40A to 200A	–	–	–	–	20A and 50A	SP3F, SP6
3–Phase Bridge	30A to 75A	–	–	40A and 90A	50A	–	SP1, SP3F
Triple Dual Common Source	50A to 150A	21A and 54A	–	–	–	–	SP6–P
Triple Phase Leg	30A to 150A	17A to 100A	–	50A and 87A	–	55A to 150A	SP3F, SP6–P

Hi Rel Discrete Solutions (HRDS) Product Portfolio										
Product Family	Type	Polarity	Rated Voltage	Rated Current	Rated Power	Max Tj (°C)	Package	Qual Level	CHIP Availability	RAD HARD Availability
Bipolar Transistor	Power Transistor	NPN/PNP	40V to 760V	0.2A to 50A	0.75W to 300W	150 to 200	Metal/Ceramic - TO's and LCC's	MIL-PRF-19500 up to JANS	on Select	on Select
	Darlington Transistor	NPN/PNP	40V to 450V	5A to 20A	1W to 175W	175 to 200	Metal - TO's	MIL-PRF-19500 up to JANTXV	on Select	on Select
	Small Signal Transistor	NPN/PNP, Singles, Duals and Quads	10V to 450V	0.01A to 3A	0.15W to 5W	175 to 200	Metal/Ceramic - TO's, LCC's FP and DIP's	MIL-PRF-19500 up to JANS	on Select	on Select
	Small Signal RF Transistor	NPN/PNP	12V to 30V	0.03 to 0.04A	0.2W to 1W	200	Metal/Ceramic - TO's and LCC's	MIL-PRF-19500 up to JANS	on Select	on Select
Field Effect Transistor	JFET	P, N and Matched	30V to 50V	0.0015A to 0.175A	0.3W to 0.5W	175 to 200	Metal/Ceramic - TO's and LCC's	To be Qualified	on Select	on Select
	MOSFET's	N Channel	100V to 250V	12.4A to 56A	75W to 250W	150	Metal/Ceramic - TO's and LCC's	To be Qualified	on Select	Yes
Diode	Small Signal Diodes	PN, Singles and Duals	50V to 225V	0.075A to 0.3A		175 to 200	Glass - DO's and Metal/Ceramic - LCC's	MIL-PRF-19500 up to JANS	on Select	Not Applicable
	Rectifier	PN, Singles,Duals, Stacked, Bridge	50V to 1600V	0.12A to 300A		150 to 200	Glass/Metal - DO's and Metal/Ceramic - LCC's	MIL-PRF-19500 up to JANS	on Select	Not Applicable
	High Voltage Rectifier	PN Single and Stacked	1000V to 3000V	0.1A		175	Glass - DO's	MIL-PRF-19500 up to JANTX	Not Applicable	Not Applicable
	Power Schottky	N and N Dual	15V to 150V	3A to 150A		125 to 150	Metal/Ceramic - TO's, LCC's, ThinKey	MIL-PRF-19500 up to JANS	on Select	Not Applicable
	Small Signal Schottky - Hermetic	N and N Dual	20V to 100V	0.033A to 1A		125 to 150	Glass - DO's and Metal/Ceramic - LCC's	MIL-PRF-19500 up to JANS	on Select	Not Applicable
	Small Signal Schottky - Non Hermetic	N and N Dual	20V to 100V	0.033A to 1A		125 to 150	Plastic - DO's, PowerMite	Up to MX level	on Select	Not Applicable
Regulators/TVS	TVS - Hermetic	Unipolar and Bipolar	5V to 185V	1.7A to 440A	500W to 5000W	175	Glass/Metal - DO's and Ceramic - ThinKey	MIL-PRF-19500 up to JANS	on Select	Not Applicable
	TVS - Non Hermetic	Unipolar and Bipolar	5V to 185V	1.7A to 440A	500W to 5000W	175	Plastic - DO's, PowerMite and PLAD	Up to MX level	on Select	Not Applicable
	Voltage Regulator (Zener)	PN	1.8V to 390V	0.00046A to 12.4A	0.5W to 50W	175	Glass/Metal - DO's and Metal - TO's	MIL-PRF-19500 up to JANS	on Select	Not Applicable
	Temperature Compensated Zeners	PN/NP	6.2V to 49.6V	0.0005A to 0.01A	to 0.5W	100 to 175	Glass - DO's	MIL-PRF-19500 up to JANS	on Select	on Select
	Current Regulators	JFET	50V to 100V	0.0002A to 0.01A	0.5W	175	Glass - DO's	MIL-PRF-19500 up to JANS	on Select	Not Applicable
Modules	Arrays and Bridges	PN and Arrays	60V to 1000V	0.3A to 25A	0.5W and up	150	DIP's and Epoxy Filled Cases	MIL-PRF-19500 up to JANTX	Not Applicable	Not Applicable

Motor and Actuator Drives												
Part Number	Product	Description	Power rating (kVA)	Nominal High Voltage Input (V)	Nominal Low Voltage Input (V)	Nom. Output Current (A)	Max. Output Current (A)	Power Architecture	Semiconductor Technology	Operating Temp. Range (°C)	Dimensions (mm)	Package
MAICMMC40X120A	PCM510	Power Core Module (PCM) with telemetry monitoring, control, communications, power bridge and fully integrated gate drive	5	540	15	12.5	25	3-phase bridge	SiC MOSFET or Si IGBT	–55 to +110	105 x 85 x 30	Right-angle connector
MAICMMC40X120B	PCM510	Power Core Module (PCM) with telemetry monitoring, control, communications, power bridge and fully integrated gate drive	5	540	15	12.5	25	3-phase bridge	SiC MOSFET or Si IGBT	–55 to +110	105 x 85 x 30	Straight connector
MAIPDMC40X120A	HPD510	Hybrid Power Drive (HPD) with power bridge and fully integrated gate drive	5	540	15	12.5	25	3-phase bridge	SiC MOSFET or Si IGBT	–55 to +110	105 x 85 x 25	Screw terminals
MAIPDMC40X120C	HPD520	Hybrid Power Drive (HPD) with power bridge and fully integrated gate drive	5	540	15	12.5	25	3-phase bridge	SiC MOSFET or Si IGBT	–55 to +110	92 x 82 x 19	Soldered pins

Radiation Hardened Power Supplies												
Part Number	Product	Description	Power rating (W)	Nominal Voltage Input (V)	Outputs	Efficiency	Nom. Output Current (A)	Radiation	Power Architecture	Features	Operating Temp. Range (°C)	Dimensions (mm)	Weight
SA50-120-5S	SA Series DC - DC Converters	Space grade non-hybrid DC-DC Converter Single Output	50	120	Single 3.3V to 28V	85%	2A to10A	100kRad	Forward Converter	Enable; Sync; Adjust; Parallel	–55 to +105	2 x 3 x 0.5	110 gm
SA50-120-5-15T	SA Series DC - DC Converters	Space grade non-hybrid DC-DC Converter Triple Output	50	120	Triple (Dual) 3.3V to 28V	85%	1A to 10A	100kRad	Forward Converter	Enable; Sync	–55 to +105	2 x 3 x 0.5	110 gm

Integrated Power Solutions: Relays

Hermatically Sealed Power Relays	# of Poles	Latch/Non–Latch	Suppressed Coils Available	Space grade Avialable per NASA EEE–INST–002	Contact Rating @28 VDC or 115V 400 Hz				Coil AC/DC Coil	DC Coil Voltages (V)	Pull–in power (mW)	Contact Resistance (Ohms)	Insulation Resistance @500 Vdc	Dielectric @Vac	Temperature Rating (°C)	Design to meet or exceed MIL–PRF Reference	Terminal options				Dimensions in Inches less mounting Brackets (L x Wx H)
					Resistive Load (ohms)	Inductive Load (ohms)	Motor Load (ohms)	Low Level 10–50 µA @ 10–50 mv									Gold Plated plug–in	Solder pin	3 long pins	Solder Hook	
BR10	2PDT	Non–latch		No	1	–	–	X	DC	6, 12, 18, 26	100	0.050Ω	10 K MΩ	250–500	65–125	MIL–PRF–39016	✓	✓	✓	✓	0.5 x 0.24 x 0.4
BR13	2PDT	Non–latch		No	2–3–5	–	–	X	DC	6, 12, 26, 115	40, 100, 250	0.050Ω	10 K MΩ	500–1000	65–125	MIL–PRF–39016	–	✓	✓		0.81 x 0.41 x 0.90
BR15	4PDT	Non–latch		✓	5–7.5–10	1.75–2.5–3.5	–	X	115 VAC/DC	6, 12, 26, 115	400, 500, 1000	0.010Ω	10 K MΩ	1000–1250	65–125	MIL–PRF–39016	✓	✓	–	✓	1 x 1 x 1.3
BR19	2PDT	Non–latch		No	5, 7.5, 10	1.75–2.5–3.5	–	X	115 VAC/DC	6, 12, 26, 48, 115	175, 500	0.010Ω	10 K MΩ	1000–1250	65–125	MIL–PRF–39016	✓	✓	✓	–	1.08 x 0.52 x 1.3
BR20	2PDT	Latch		No	10	3.5	4	X	DC	6, 12, 26, 48, 115	130, 250	0.010Ω	10 K MΩ	1000–1250	65–125	MIL–PRF–39016	✓	✓	–	✓	1.08 x 0.52x 1.3
BR23	4PDT	Latch		✓	10	3.5	4	X	DC	6, 12, 26, 48, 115	250, 500	0.010Ω	10 K MΩ	500–1250	65–125	MIL–PRF–39016	✓	✓	–	✓	1 x 1 x 1.3
BR24	2PDT	Non–latch	Yes	No	10	3.5	4	X	DC	6, 12, 26	400	0.010Ω	10 K MΩ	500–1000	65–125	MIL–PRF–39016	✓	✓	–	✓	1.02 x 0.52 x 0.89
BR26	2PDT	Non–latch		No	2	–	–	X	DC	6, 12, 26	250	0.050Ω	10 K MΩ	500–1000	65–125	MIL–PRF–39016	✓	✓	–	✓	0.81 x 0.4 x 0.41
BR246	2PDT	Non–latch	Yes	✓	10	8	2.5	–	115 VAC/DC	6, 12, 28, 48	500	0.010Ω	100 MΩ	1000–1250	65–125	MIL–PRF–83536	✓	✓	✓	✓	1.03 x.53 x 1.01
BR247	2PDT	Latch	Yes	✓	10	8	2.5	–	115 VAC/DC	6, 12, 28, 49	500	0.010Ω	100 MΩ	1000–1250	65–125	MIL–PRF–83536	✓	✓	✓	✓	1.03 x.53 x 1.01
BR230	4PDT	Non–latch	Yes	✓	10	8	2.5	–	115 VAC/DC	6, 12, 28, 50	500	0.010Ω	100 MΩ	1000–1250	65–125	MIL–PRF–83536	✓	✓	–	✓	1.03 x 1.0 3x 1.01
BR231	4PDT	Latch	Yes	✓	10	8	2.5	–	115 VAC/DC	6, 12, 28, 51	500	0.010Ω	100 MΩ	1000–1250	65–125	MIL–PRF–83536	✓	✓	–	✓	1.03 x 1.03 x 1.01
BR250	2PDT	Non–latch	Yes	✓	25	15	5	–	115 VAC/DC	6, 12, 28, 52	500	0.006Ω	100 MΩ	1000–1250	65–125	MIL–PRF–83536	✓	✓	–	✓	1.03 x.53 x 1.01
BR246–SXXX	2PDT	Non–latch	Yes	–	10	8	2.5	–	115 VAC/DC	6, 12, 28, 48	500	0.010Ω	100 MΩ	1000–1250	40–200	MIL–PRF–83536	–	✓	–	✓	1.03 x 0.53 x 1.01
BR250–SXXX	2PDT	Non–latch	Yes	–	25	15	5	–	115 VAC/DC	6, 12, 28, 52	500	0.006Ω	100 MΩ	1000–1250	40–200	MIL–PRF–83536	–	✓	–	✓	1.03 x 0.53 x 1.01

Integrated Power Solutions: Remote Power Controllers

Remote Power Controllers	#of Poles	Latch/Non-Latch	Contact Rating @28 VDC or 115V 400 Hz		Coil AC/DC Coil	Contac Voltage Drop at Rated Current	Insulation Resistance @500 Vdc	Dielectric @Vac	MIL-PRF Reference	Options				Bi-Directional	Temperature Rating	Features
			Resistive Load (ohms)	Motor Load (ohms)						Factory Current Trip Currents	Factory Current Trip Times	Adjusted to Customers Specifications	Auxiliary Switch			
701	SPST	Magnetic Latching	5–200 Amps @ 28 VDC	5–200 Amps @ 28 VDC	28 VDC	.225 mv	100 MΩ	1350–1500	MIL-PRF-83383	✓	✓	✓	✓	✓	–55ºC to 85ºC	1500 watts of Peak Power Dissipation transient suppression
702	SPST	Magnetic Latching	5–200 Amps @ 28 VDC or 115/208V 400 Hz	5–200 Amps @ 28 VDC or 115/208V 400 Hz	28 VDC or 115 VAC 400 HZ	.225 mv	100 MΩ	1350–1500	MIL-PRF-83383	✓	✓	✓	✓	✓	–55ºC to 85ºC	
703	3PST Magnetic Latching	Magnetic Latching	5–150 Amps @ 115/208V 400 Hz	5–150 Amps @ 115/208V 400 Hz	28 VDC or 115 VAC 400 HZ	.225 mv	100 MΩ	1350–1500	MIL-PRF-83383	✓	✓	✓	✓		–55ºC to 85ºC	

PoE PSE ICs																	
Product	**Description**	**Product Type**	**Standards Supported**	**Ports**	**2-Pair Power**	**4-Pair Power**	**Maximum Current**	**PoE Class (0-8)**	**PoE Type (1-4)**	**FETs**	**Sense Resistor**	**Operating Temperature**	**PoE Controller**	**Host Interface**	**Temperature Grade**	**Package Type**	**Package Carrier**
PD69101ILQ-TR	IEEE 802.3at single port PoE PSE controller + manager, industrial temp	PSE Manager	IEEE 802.3af IEEE 802.3at	1	36.25W	NA	0.725A	0-4	1-2	Internal 0.3Ω	External 0.5Ω	–40°C to 85°C	Auto mode	Serial monitoring	Industrial	24 QFN 4 mm x 5 mm	Tape and reel
PD69104B1ILQ-TR	IEEE 802.3at / UPoE, 4 ports PSE controller + manager	PSE Manager	IEEE 802.3af IEEE 802.3at Dual-IEEE 802.3at UPoE	4	36W	72W	0.725A	0-4	1-2	Internal 0.3Ω	External 0.36Ω	–40°C to 85°C	Auto mode	I²C UART	Commercial	48 QFN 8 mm x 8 mm	Tape and reel
PD69104B1FILQ-TR	IEEE 802.3at / UPoE, 4 ports PSE controller + manager	PSE Manager	IEEE 802.3af IEEE 802.3at Dual-IEEE 802.3at UPoE	4	36W	72W	0.725A	0-4	1-2	Internal 0.3Ω	External 0.36Ω	–40°C to 85°C	Auto mode	I²C UART	Commercial	48 QFN 8 mm x 8 mm	Tape and reel
PD69108ILQ-TR	IEEE 802.3at / UPoE / PoH, 8 ports PSE controller + manager	PSE Manager	IEEE 802.3af IEEE 802.3at UPoE PoH	8	50W	100W	1A	0-4	1-2	Internal 0.3Ω	External 0.36Ω	–40°C to 85°C	PD69100 / Marvell ISSR	I²C UART	Industrial	48 QFN 8 mm x 8 mm	Tape and reel
PD69200X-GGGG	IEEE 802.3bt / UPoE / PoH PoE controller	PoE Controller	IEEE 802.3af IEEE 802.3at IEEE 802.3bt UPoE PoH	96	NA	NA	NA	NA	NA	NA	NA	–40°C to 85°C	NA	I²C UART	Industrial	32 QFN 5 mm x 5 mm	Tray
PD69204T4ILQ-TR-LE	IEEE 802.3bt Type 4 / UPoE / PoH, 4 ports, fully integrated PSE manager, industrial temp	PSE Manager	IEEE 802.3af IEEE 802.3at IEEE 802.3bt UPoE PoH	4	47.5W	95W	0.94A	0-8	1-4	Internal 0.2Ω	Internal 0.1Ω	–40°C to 85°C	PD69200 / PD69210 / Marvell ISSR	NA	Industrial	56 QFN 8 mm x 8 mm	Tape and reel
PD69208MILQ-TR-LE	IEEE 802.3bt Type 3 / UPoE / PoH, 8 ports, fully integrated PSE manager, industrial temp	PSE Manager	IEEE 802.3af IEEE 802.3at IEEE 802.3bt UPoE PoH	8	35.7W	71.4W	0.627A	0-6	1-3	Internal 0.2Ω	Internal 0.1Ω	–40°C to 85°C	PD69200 / PD69210 / Marvell ISSR	NA	Industrial	56 QFN 8 mm x 8 mm	Tape and reel
PD69208T4ILQ-TR-LE	IEEE 802.3bt Type 4 / UPoE / PoH, 8 ports, fully integrated PSE manager, industrial temp	PSE Manager	IEEE 802.3af IEEE 802.3at IEEE 802.3bt UPoE PoH	8	47.5W	95W	0.94A	0-8	1-4	Internal 0.2Ω	Internal 0.1Ω	–40°C to 85°C	PD69200 / PD69210 / Marvell ISSR	NA	Industrial	56 QFN 8 mm x 8 mm	Tape and reel
PD69210X-GGGG	IEEE 802.3bt / UPoE / PoH PoE controller	PoE Controller	IEEE 802.3af IEEE 802.3at IEEE 802.3bt UPoE PoH	96	NA	NA	NA	NA	NA	NA	NA	–40°C to 85°C	NA	I²C UART	Industrial	32 QFN 5 mm x 5 mm	Tray

PoE PSE EVBs											
Product	Description	Product Type	Standards Supported	Number of Ports	2-Pair Power	4-Pair Power	PoE Class (0-8)	PoE Type (1-4)	PD-PSE Power Forwarding	Host Interface	Featured
PD-IM-7401	IEEE 802.3at, Dual-port PSE EVB featuring PD69101	PSE IC	IEEE 802.3af IEEE 802.3at	2	36W	NA	0-4	1-2	No	Serial	PD69101
PD-IM-7504B	IEEE 802.3at/UPoE, 4 ports PSE EVB featuring PD69104B1	PSE IC	IEEE 802.3af IEEE 802.3at	4	36W	72W	0-4	1-2	No	I²C UART	PD69104B1
PD-IM-7604-4MH	IEEE 802.3 at/bt Type 3, 4 x 2-pair + 4 x 4-Pair ports PSE EVB featuring PD69208M and PD69200, LED stream support	PSE IC	IEEE 802.3af IEEE 802.3at IEEE 802.3bt	8	35.7W	71.4W	0-6	1-3	No	USB (PC)	PD69208M PD69200
PD-IM-7604-4T4H	IEEE 802.3 at/bt Type 4, 4 x 2-pair + 4 x 4-Pair ports PSE EVB featuring PD69208T4, PD69204T4 and PD69200, LED stream support	PSE IC	IEEE 802.3af IEEE 802.3at IEEE 802.3bt PoH	8	47.5W	95W	0-8	1-4	No	USB (PC)	PD69208T4 PD69204T4 PD69200
PD-IM-7608M	IEEE 802.3 at/bt Type 3, 8 ports PSE EVB featuring PD69208M and PD69200, LED stream support	PSE IC	IEEE 802.3af IEEE 802.3at IEEE 802.3bt	8	35.7W	71.4W	0-4	1-2	No	USB (PC)	PD69208M PD69200
PD-IM-7608M-2	IEEE 802.3 at/bt Type 3, 2 PoE Inputs and 8 PSE ports out EVB PSE EVB featuring PD69208M, PD69200, PD70224 IdealBridge™ and PD70211 PD ICs	PSE IC	IEEE 802.3af IEEE 802.3at IEEE 802.3bt	8	35.7W	71.4W	0-6	1-3	Yes	I²C USB (PC) SPI (Internal Use)	PD69208M PD69200 PD70224 PD70211
PD-IM-7618T4	IEEE 802.3 at/bt Type 3, eight 2-pair ports PSE EVB featuring PD69208T4 and PD69210, LED stream support	PSE IC	IEEE 802.3af IEEE 802.3at IEEE 802.3bt	8	30W					UART USB	PD69208T4 PD69210
PD-IM-7618T4H	IEEE 802.3 at/bt Type 4, eight 4-pair ports PSE EVB featuring PD69208T4 and PD69210, LED stream support	PSE IC	IEEE 802.3af IEEE 802.3at IEEE 802.3bt	8		90W				UART USB	PD69208T4 PD69210

PoE PD ICs														
Product	Description	Product Type	Standards Supported	IC Type	PoE Type	PoE Class	Output Power	Maximum Current	Maximum Channel Resistance	Operating Temperature (°C)	Temperature Grade	Integrated PWM Controller	Package Type	Package Carrier
PD70100ILD-TR	IEEE 802.3af Type 1, PD Front-end IC w/ internal 0.6 Ohm FET	PD IC	IEEE 802.3af	PD front end	AF Type 1	1-3	15.4W	0.45A	0.6Ω	–40 to +85	Industrial	No	12 DFN 4 mm x 3 mm	Tape and reel
PD70101ILQ-TR	IEEE 802.3af Type 1, PD front-end and PWM controller IC w/internal 0.6 Ohm FET	PD IC	IEEE 802.3af	PD front end + PWM controller	AF Type 1	1-3	15.4W	0.45A	0.6Ω	–40 to +85	Industrial	Yes	32 QFN 5 mm x 5 mm	Tape and reel
PD70200ILD-TR	IEEE 802.3at Type 2, PD front-end IC w/ internal 0.6 Ohm FET	PD IC	IEEE 802.3af IEEE 802.3at Dual-IEEE 802.3at	PD front end	AT Type 2	1-4	47W	1.2A	0.6Ω	–40 to +85	Industrial	No	12-DFN 4 mm x 3 mm	Tape and reel
PD70201ILQ-TR	IEEE 802.3at Type 2, PD front-end and PWM controller IC w/internal 0.6 Ohm FET	PD IC	IEEE 802.3af IEEE 802.3at Dual-IEEE 802.3at	PD front end + PWM controller	AT Type 2	1-4	47W	1.2A	0.6Ω	–40 to +85	Industrial	Yes	32 QFN 5 mm x 5 mm	Tape and reel
PD70210ILD-TR	IEEE 802.3at Type 2 / PoH PD front-end IC w/internal 0.3 Ohm FET	PD IC	IEEE 802.3af IEEE 802.3at Dual-IEEE 802.3at PoH	PD front end	AT Type 2/ PoH	1-4	95W	2A	0.3Ω	–40 to +85	Industrial	No	16 DFN 5 mm x 4 mm	Tape and reel
PD70210AILD-TR	IEEE 802.3at Type 2 / PoH PD front-end IC w/internal 0.3 Ohm FET and Wall Adapter support	PD IC	IEEE 802.3af IEEE 802.3at Dual-IEEE 802.3at PoH	PD front end	AT Type 2/ PoH	1-4	95W	2A	0.3Ω	–40 to +85	Industrial	No	16 DFN 5 mm x 4 mm	Tape and reel
PD70211ILQ-TR	IEEE 802.3at Type 2 / PoH PD front-end and PWM controller IC w/internal 0.3 Ohm FET	PD IC	IEEE 802.3af IEEE 802.3at Dual-IEEE 802.3at PoH	PD Front end + PWM controller	AT Type 2/ PoH	1-4	95W	2A	0.3Ω	–40 to +85	Industrial	Yes	36 QFN 6 mm x 6 mm	Tape and reel
PD70224ILQ-TR	IEEE 802.3at/bt Type 2 / PoH IdealBridge™ dual MOSFET-bridge rectifier	PoE IdealBridge	IEEE 802.3af IEEE 802.3at IEEE 802.3bt PoH	Ideal diode bridge	AT/BT Type 2 /PoH	1-8	95W	2A	0.76Ω	–40 to +85	Industrial	NA	40 QFN 6 mm x 8 mm	Tape and reel

PoE PD EVBs													
Product	**Description**	**Product Type**	**Standards Supported**	**IC Used**	**Power**	**PoE Class (1-8)**	**PoE Type (1-4)**	**Output Voltage**	**Output Current**	**PD-PSE Power Forwarding**	**Diode Bridge**	**Auxiliary Power Priority**	**Topology**
PD70100EVB15B	IEEE 802.3af/bt Type 1 PD EVB featuring PD70100 w/3 output voltages	PD EVB	IEEE 802.3af IEEE 802.3at	PD70100	15W	3	1	12V 3.3V 1.8V	0.6A 2A 0.6A	No	Standard	Yes	Buck
PD70101EVB3F	IEEE 802.3af/bt Type 1 PD EVB featuring PD70101 w/ isolated flyback converter, 3.3V 1Amp output	PD EVB	IEEE 802.3af IEEE 802.3at	PD70101	3.3W	3	1	3.3V	1A	No	Standard	Yes	Flyback
PD70101EVB6F	IEEE 802.3af/bt Type 1 PD EVB featuring PD70101 w/ isolated flyback converter, 5V 1.2Amp output	PD EVB	IEEE 802.3af IEEE 802.3at	PD70101	6W	3	1	5V	1.2A	No	Standard	Yes	Flyback
PD70101EVB15F-5	IEEE 802.3af/bt Type 1 PD EVB featuring PD70101 w/ isolated flyback converter, 5V 2.6Amp output	PD EVB	IEEE 802.3af IEEE 802.3at	PD70101	13W	3	1	5V	2.6A	No	Standard	Yes	Flyback
PD70101EVB15F-12	IEEE 802.3af/bt Type 1 PD EVB featuring PD70101 w/ isolated flyback converter, 12V 1.1Amp output	PD EVB	IEEE 802.3af IEEE 802.3at	PD70101	13.2W	3	1	12V	1.1A	No	Standard	Yes	Flyback
PD70201EVB25F-3	IEEE 802.3at/bt Type 2 PD EVB featuring PD70201 w/ isolated flyback converter, 3.3V 7.5A output	PD EVB	IEEE 802.3af IEEE 802.3at	PD70201	25W	4	2	3.3V	7.5A	No	Ideal	No	Flyback
PD70201EVB25F-5	IEEE 802.3at/bt Type 2 PD EVB featuring PD70201 w/ isolated flyback converter, 5V 5Amp output	PD EVB	IEEE 802.3af IEEE 802.3at	PD70201	25W	4	2	5V	5A	No	Ideal	No	Flyback
PD70201EVB25F-12	IEEE 802.3at/bt Type 2 PD EVB featuring PD70201 w/ isolated flyback converter, 12V 2.1Amp output	PD EVB	IEEE 802.3af IEEE 802.3at	PD70201	25W	4	2	12V	2.1A	No	Ideal	No	Flyback
PD70201EVB25F-D-5	IEEE 802.3at/bt Type 2 PD Compact EVB featuring PD70201 w/ isolated flyback converter, 5V 5Amp output	PD EVB	IEEE 802.3af IEEE 802.3at	PD70201	25W	4	2	5V	5A	No	Ideal	Yes	Flyback
PD70201EVB25FW-3	Dual-IEEE 802.3at Type 2 (4 pair) PD EVB featuring PD70201, 4 pair supply w/isolated Forward converter, 3.3V 7.5A output	PD EVB	IEEE 802.3af IEEE 802.3at	PD70201	25W	4	2	3.3V	7.5A	No	Ideal	Yes	Active clamp forward
PD70201EVB47F	IEEE 802.3at/bt Type 2 PD EVB featuring PD70201 w/ isolated flyback converter, 12V 4Amp output	PD EVB	IEEE 802.3af IEEE 802.3at	PD70201	48W	4	2	12V	4A	No	Ideal	Yes	Flyback
PD70201EVB-U-25F-5	IEEE 802.3at/bt Type 2 PD EVB featuring PD70201 w/ isolated flyback converter, 5V 5Amp output, 17-54V Input range	PD EVB	IEEE 802.3af IEEE 802.3at	PD70201	25W	4	2	5V	5A	No	Standard	Yes	Flyback
PD70211EVB50FW-3	Dual-IEEE 802.3at/bt Type 2/PoH PD EVB featuring PD70211, 4 pair supply w/isolated Forward converter, 3.3V 15A output	PD EVB	IEEE 802.3af IEEE 802.3at PoH	PD70211	50W	4	2	3.3V	15A	No	Ideal	Yes	Active clamp forward
PD70211EVB50FW-5	Dual-IEEE 802.3at/bt Type 2/PoH PD EVB featuring PD70211, 4 pair supply w/isolated Forward converter, 5V 10A output	PD EVB	IEEE 802.3af IEEE 802.3at PoH	PD70211	50W	4	2	5V	10A	No	Ideal	Yes	Active clamp forward
PD70211EVB51F-12	Dual-IEEE 802.3at/bt Type 2/PoH PD EVB featuring PD70211, 4 pair supply w/isolated Forward converter, 12V 4.17A output	PD EVB	IEEE 802.3af IEEE 802.3at PoH	PD70211	51W	4	2	12V	4.25A	No	Ideal	Yes	Flyback
PD70211EVB72FW-12	Dual-IEEE 802.3at/bt Type 2/PoH PD EVB featuring PD70211, 4 pair supply w/isolated Forward converter, 12V 6A output	PD EVB	IEEE 802.3af IEEE 802.3at PoH	PD70211	72W	4	2	12V	6A	No	Ideal	Yes	Active clamp forward
PD70224EVB	Dual IEEE 802.3at/bt Type 2/PoH PD EVB featuring PD70210 PD and PD70224 IdealBridge™	PD EVB	IEEE 802.3af IEEE 802.3at PoH	PD70210 PD70224	72W	4	2	NA	NA	No	Ideal	No	NA
PD70224EVB-wAuxPwr	Dual IEEE 802.3at/bt Type 2/PoH PD EVB featuring PD70210A PD and PD70224 IdealBridge	PD EVB	IEEE 802.3af IEEE 802.3at PoH	PD70210A PD70224	72W	4	2	NA	NA	No	Ideal	Yes	NA

PoE Systems								
Product	**Description**	**Operating Environment**	**Power Per Port**	**Number of Ports**	**Data Rate**	**Managed**	**Input Power**	**Package Type**
PD-3501GC/AC-XX	1 port, 15.4W, IEEE 802.3af-compliant indoor PoE midspan	Indoor	15.4W	1	1G	No	AC	Standalone Unit
PD-3504G/AC-XX	4 ports, 15.4W, IEEE 802.3af-compliant indoor PoE midspan	Indoor	15.4W	4	1G	No	AC	Standalone unit
PD-6512G/AC/M-XX	12 ports, 15.4W, IEEE 802.3af-compliant indoor PoE midspan, managed	Indoor	15.4W	12	1G	Yes	AC	Standalone unit
PD-6524G/AC/M/F-XX	24 ports, 15.4W, IEEE 802.3af-compliant indoor PoE midspan, managed	Indoor	15.4W	24	1G	Yes	AC	Standalone unit
PD-9001GC/AC-XX	1 port, 30W, IEEE 802.3at-compliant indoor PoE midspan	Indoor	30W	1	1G	No	AC	Standalone Unit
PD-9001-10GC/AC-XX	1 port, 30W, IEEE 802.3at-compliant indoor PoE midspan with 10G data rate	Indoor	30W	1	1G	No	AC	Standalone Unit
PD-9001GR/SP/AC-XX	1 port, 30W, IEEE 802.3at, indoor PoE midspan with surge protection	Indoor	30W	1	1G	No	AC	Standalone unit
PD-9004G/AC-XX	4 ports, 30W, IEEE 802.3at-compliant indoor PoE midspan	Indoor	30W	4	1G	No	AC	Standalone unit
PD-9006G/ACDC/M-XX	6 ports, 30W, IEEE 802.3at-compliant, indoor PoE midspan, managed	Indoor	30W	6	1G	Yes	AC and DC	Standalone unit
PD-9012G/ACDC/M-XX	12 ports, 30W, IEEE 802.3at-compliant, indoor PoE midspan, managed	Indoor	30W	12	1G	Yes	AC and DC	Standalone unit
PD-9024G/ACDC/M-XX	24 ports, 30W, IEEE 802.3at-compliant, indoor PoE midspan, managed	Indoor	30W	24	1G	Yes	AC and DC	Standalone unit
PD-9501GC/AC-XX	1 port, 60W, IEEE 802.3bt-compliant indoor PoE midspan	Indoor	60W	1	1G	No	AC	Standalone unit
PD-9501-10GC/AC-XX	1 port, 60W, IEEE 802.3bt-compliant indoor PoE midspan with 10G data rate	Indoor	60W	1	1G	No	AC	Standalone unit
PD-9501G/48VDC-XX	1 port, 60W, IEEE 802.3at compliant indoor PoE midspan	Indoor	60W	1	1G	No	DC	Standalone unit
PD-9501GR/SP/AC-XX	1 port, 60W, IEEE 802.3at-compliant indoor PoE midspan with surge protection	Indoor	60W	1	1G	No	AC	Standalone unit
PD-9501GCS/AC-XX	1 port, 60W, IEEE 802.3bt-compliant PoE media converter to extend existing network distance with fiber cabling	Indoor	60W	1	1G	No	AC	Standalone unit
PD-9506GC/AC-XX	6 ports, 60W, IEEE 802.3bt-compliant, indoor EEPoE midspan, managed	Indoor	60W	6	1G	Yes	AC	Standalone unit
PD-9512GC/AC-XX	12 ports, 60W, IEEE 802.3bt-compliant, indoor EEPoE midspan, managed	Indoor	60W	12	1G	Yes	AC and DC	Standalone unit
PD-9524GC/AC-XX	24 ports, 60W, IEEE 802.3bt-compliant, indoor EEPoE midspan, managed	Indoor	60W	24	1G	Yes	AC and DC	Standalone unit
PD-9601GC/AC-XX	1 port, 90W, IEEE 802.3bt-compliant indoor port PoE midspan	Indoor	90W	1	1G	No	AC	Standalone unit
PD-9606GC/AC-XX	6 ports, 90W, IEEE 802.3bt-compliant indoor PoE midspan, managed	Indoor	90W	6	1G	Yes	AC	Standalone unit
PD-9612GC/AC-XX	12 ports, 90W, IEEE 802.3bt-compliant indoor PoE midspan, managed	Indoor	90W	12	1G	Yes	AC and DC	Standalone unit
PD-9624GC/AC-XX	24 ports, 90W, IEEE 802.3bt-compliant indoor PoE midspan, managed	Indoor	90W	24	1G	Yes	AC and DC	Standalone unit
PDS-408G/AC-XX	8+3 ports, 90W, IEEE 802.3bt-compliant, fanless PoE switch for digital ceiling, managed	Indoor	90W	8+3	1G	Yes	AC	Standalone unit
PD-9001GCO/AC	1 port , 30W, IEEE 802.3at-compliant, IP67 outdoor PoE midspan with extended temperature range	Outdoor	30W	1	1G	No	AC	Standalone unit
PD-9501GCO/AC	1 port , 60W, IEEE 802.3bt-compliant, IP67 outdoor PoE midspan with extended temperature range	Outdoor	60W	1	1G	No	AC	Standalone unit
PDS-104GO/AC/M-IN	4 ports, 60W, outdoor PoE switch with surge protection and international power cord, managed	Outdoor	60W	4	1G	Yes	AC	Standalone unit
PDS-104GO/AC/M-NA	4 ports, 60W, outdoor PoE switch with surge protection and North America power cord, managed	Outdoor	60W	4	1G	Yes	AC	Standalone unit
PD-9601GO/AC	1 port, 90W, IEEE 802.3at-compliant, outdoor PoE midspan with surge protection	Outdoor	90W	1	1G	No	AC	Standalone unit
PD-9001GCI/DC	1 port, 30W, IEEE 802.3at-compliant industrial grade PoE midspan	Industrial	30W	1	1G	No	DC	Standalone unit
PD-9501GCI/DCF	1 port, 60W, IEEE 802.3bt-compliant industrial grade PoE midspan	Industrial	60W	1	1G	No	DC	Standalone unit
PD-AS-951/12-24	Single port PoE splitter for contemporary devices unable to accept power via Ethernet	Indoor	54W	1	1G		PoE	Standalone unit
PD-POE-EXTENDER	Single port PoE extender to extend Ethernet network range beyond 100m	Indoor	30W	1	1G		DC	Standalone unit
PD-OUT/SP11	Single port PoE surge protector for Ethernet networks with outdoor PoE midspans and powered devices	Outdoor		1	1G		DC	Standalone unit
PoE Tester	PoE tester to test RJ-45 for PoE	Indoor			1G		PoE	Standalone unit

XX Indicates power cord code: EU (Europe), UK (united Kingdom), US (North America), BR (Brazil), JP (Japan), AU (Australia)

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

OTN Processors								
Product	Description	Max Bandwidth Gbps	Line Rates	Client Interfaces	Max SERDES Rate Gbps	ODUk Switching	System Interfaces	OTN Encryption	RoHS
PM5420	HyPHY-20G OTN Processor	40	OTU2	GbE/FC/SDH/SONET/OTUk/Video	11	Yes (ODU1+)	Interlaken	–	✓
PM5426	HyPHY-10G OTN Processor	20	OTU2	GbE/FC/SDH/SONET/OTUk/Video	11	Yes (ODU1+)	Interlaken	–	✓
PM5440	DIGI-120G OTN Processor	240	OTU2/OTU3/OTU4	GbE/FC/SDH/SONET/OTUk	11	Yes (ODU0+)	Interlaken	–	✓
PM5441	DIGI-60G OTN Processor	120	OTU2/OTU3	GbE/FC/SDH/SONET/OTUk	28	Yes (ODU0+)	Interlaken	–	✓
PM5450	HyPHY-20Gflex OTN Processor	40	OTU2	GbE/FC/SDH/SONET/OTUk/Video	11	Yes (ODU0+)	Interlaken	–	✓
PM5451	HyPHY-AXS OTN Processor	40	OTU2	GbE/FC/SDH/SONET/OTUk/Video	11	Yes (ODU0+)	–	–	✓

OTN Processors									
Product	Description	Max Bandwidth Gbps	Line Rates	Client Interfaces	Max SERDES Rate Gbps	ODUk Switching	System Interfaces	OTN Encryption	RoHS
PM5456	HyPHY-10Gflex OTN Processor	20	OTU2	GbE/FC/SDH/SONET/OTUk/Video	11	Yes (ODU0+)	Interlaken	–	✓
PM5980	DIGI-100GX OTN Processor	200	OTU2/OTU3/OTU4	GbE/FC/SDH/SONET/OTUk	28	Yes (ODU0+)	Interlaken	✓	✓
PM5981	DIGI-100GX OTN Processor (without encryption)	200	OTU2/OTU3/OTU4	GbE/FC/SDH/SONET/OTUk	28	Yes (ODU0+)	Interlaken	–	✓
PM5990	DIGI-G4 OTN Processor Family	800	OTU2/OTU3/OTU4	GbE/FC/SDH/SONET/OTUk	28	Yes (ODU0+)	Interlaken	✓	✓
PM5991	DIGI-G4 OTN Processor (without encryption)	800	OTU2/OTU3/OTU4	GbE/FC/SDH/SONET/OTUk	28	Yes (ODU0+)	Interlaken	–	✓
PM6010	DIGI-G5 OTN Processor Family	1200	OTU2/OTU4/OTUCn	GbE/FC/OTUk/FlexO	56	Yes (ODU0+)	Interlaken	✓	✓
PM6011	DIGI-G5 OTN Processor (without encryption)	1200	OTU2/OTU4/OTUCn	GbE/FC/OTUk/FlexO	56	Yes (ODU0+)	Interlaken	–	✓

OTN PHYs								
Product	Description	# Ports / Rates	OTN Line Rates	Ethernet Line Rates	Max SERDES Rates Gbps	Max Bandwidth Gbps	OTN Encryption	RoHS
PM5442	META-120G OTN/Ethernet PHY	1x100G or 3x40G or 12x10G	OTU2/OTU3/OTU4	10/40/100 GbE	11	120	–	✓
PM5984	META-120GX OTN/Ethernet PHY	1x100G or 3x40G or 12x10G	OTU2/OTU3/OTU4	10/40/100 GbE	28	120	✓	✓
PM5985	META-120GX OTN/Ethernet PHY (without encryption)	1x100G or 3x40G or 12x10G	OTU2/OTU3/OTU4	10/40/100 GbE	28	120	–	✓
PM5992	META-240G OTN/Ethernet PHY	2x100G or 6x40G or 24x10G	OTU2/OTU3/OTU4	10/40/100 GbE	28	240	✓	✓
PM5993	META-240G OTN/Ethernet PHY (without encryption)	2x100G or 6x40G or 24x10G	OTU2/OTU3/OTU4	10/40/100 GbE	28	240	–	✓

Broad Range FPGA Supplier (1-500K LE)			
Features	SmartFusion®, ProASIC®3, IGLOO®	SmartFusion2 IGLOO2	PolarFire®
Logic Elements	100–30K	5K–150K	100–480K
Transceiver Rate	–	1–5 Gbps	250 Mbps–12.7 Gbps
I/O Speeds	400 Mbps LVDS	667 Mbps DDR3, 750 Mbps LVDS	1600 Mbps DDR4, 1.6 Gbps LVDS
DSP (18x18 Multipliers)	–	240	1480
Max RAM	144 Kb	5 Mb	33 Mb
Processor Option	Hard 100 MHz, Arm® Cortex®-M3	Hard 166 MHz, Arm Cortex-M3, Soft RISC-V	Soft RISC-V, Hard Crypto Processor
On-Board Flash	Up to 512 KB code store	Up To 512 KB code store	56 KB secure NVM
Family Type	CPLD Replacements, Smallest Packages	Low Density FPGAs with more resources and lowest power	Mid-Range Density FPGAs, Lowest Power, Cost Optimized

DCS													
Product	Part Number	Description	Port Count	Interface	RAID Level	Physical Dimensions	Form Factor	MTBF at 40°C	Controller	Connectors	Cache	SSD Cache Protection	Cache Protection
Adaptec® SmartRAID 3162-8i /e	2299600-R	12 Gbps PCIe® Gen 3 SAS/SATA RAID Adapter	8 internal	8-Lane PCIe Gen 3	Hardware RAID 0, 1, 5, 6, 10, 50, 60, 1 ADM and 10 ADM	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	1.88M hours	12 Gbps SmarROC 3100	2 (×4) SFF-8643	2 GB DDR4/ 2100 MHz	maxCache™ 4.0	Embedded Flash backup On board ASCM-17F supercap
Adaptec SmartRAID 3162-8i	2299800-R	12 Gbps PCIe Gen 3 SAS/SATA RAID Adapter	8 internal	8-Lane PCIe Gen 3	Hardware RAID 0, 1, 5, 6, 10, 50, 60, 1 ADM and 10 ADM	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	1.88M hours	12 Gbps SmarROC 3100	2 (×4) SFF-8643	2 GB DDR4/ 2100 MHz	maxCache 4.0	Embedded Flash backup On board ASCM-17F supercap
Adaptec SmartRAID 3154-24i	2294700-R	12 Gbps PCIe Gen 3 SAS/SATA RAID Adapter	24 internal	8-Lane PCIe Gen 3	Hardware RAID 0, 1, 5, 6, 10, 50, 60, 1 ADM and 10 ADM	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	1.7M hours	12 Gbps SmarROC 3100	6 (×4) SFF-8643	4 GB DDR4/ 2100 MHz	maxCache 4.0	Embedded Flash backup Tethered ASCM-35F supercap
Adaptec SmartRAID 3154-8i16e	2294600-R	12 Gbps PCIe Gen 3 SAS/SATA RAID Adapter	8 internal/ 16 external	8-Lane PCIe Gen 3	Hardware RAID 0, 1, 5, 6, 10, 50, 60, 1 ADM and 10 ADM	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	2M hours	12 Gbps SmarROC 3100	2 (×4) SFF-8643/ 4(4x) SFF-8644	4 GB DDR4/ 2100 MHz	maxCache 4.0	Embedded Flash backup Tethered ASCM-35F supercap
Adaptec SmartRAID 3154-16i	2295000-R	12 Gbps PCIe Gen 3 SAS/SATA RAID Adapter	16 internal	8-Lane PCIe Gen 3	Hardware RAID 0, 1, 5, 6, 10, 50, 60, 1 ADM and 10 ADM	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	1.7M hours	12 Gbps SmarROC 3100	4 (×4) SFF-8643	4 GB DDR4/ 2100 MHz	maxCache 4.0	Embedded Flash backup Tethered ASCM-35F supercap
Adaptec SmartRAID 3154-8i8e	2295100-R	12 Gbps PCIe Gen 3 SAS/SATA RAID Adapter	8 internal/ 8 external	8-Lane PCIe Gen 3	Hardware RAID 0, 1, 5, 6, 10, 50, 60, 1 ADM and 10 ADM	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	2M hours	12 Gbps SmarROC 3100	2 (×4) SFF-8643/ 2(4x) SFF-8644	4 GB DDR4/ 2100 MHz	maxCache 4.0	Embedded Flash backup Tethered ASCM-35F supercap
Adaptec SmartRAID 3154-8i	2291000-R	12 Gbps PCIe Gen 3 SAS/SATA RAID Adapter	8 internal	8-Lane PCIe Gen 3	Hardware RAID 0, 1, 5, 6, 10, 50, 60, 1 ADM and 10 ADM	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	1.37M hours	12 Gbps SmarROC 3100	2 (×4) SFF-8643	4 GB DDR4/ 2100 MHz	maxCache 4.0	Embedded Flash backup Tethered ASCM-35F supercap
Adaptec SmartRAID 3154-8e	2290800-R	12 Gbps PCIe Gen 3 SAS/SATA RAID Adapter	8 external	8-Lane PCIe Gen 3	Hardware RAID 0, 1, 5, 6, 10, 50, 60, 1 ADM and 10 ADM	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	1.37M hours	12 Gbps SmarROC 3100	2 (×4) SFF-8644	4 GB DDR4/ 2100 MHz	maxCache 4.0	Embedded Flash backup Tethered ASCM-35F supercap
Adaptec SmartRAID 3152-8i	2290200-R	12 Gbps PCIe Gen 3 SAS/SATA RAID Adapter	8 internal	8-Lane PCIe Gen 3	Hardware RAID 0, 1, 5, 6, 10, 50, 60, 1 ADM and 10 ADM	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	1.37M hours	12 Gbps SmarROC 3100	2 (×4) SFF-8643	4 GB DDR4/ 2100 MHz	maxCache 4.0	Embedded Flash backup Tethered ASCM-35F supercap
Adaptec SmartRAID 3102-8i	2294800-R	12 Gbps PCIe Gen 3 SAS/SATA RAID Adapter	8 internal	8-Lane PCIe Gen 3	Hardware RAID 0, 1, 5, 6,10, 50, 60,1 ADM and 10 ADM	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	1.37M hours	12 Gbps SmarROC 3100	2 (×4) SFF-8643	2 GB DDR4/ 2100 MHz	NA	NA
Adaptec SmartRAID 3101-4i	2291700-R	12 Gbps PCIe Gen 3 SAS/SATA RAID Adapter	4 internal	8-Lane PCIe Gen 3	Hardware RAID 0, 1, 5, 6, 10, 50, 60, 1 ADM and 10 ADM	2.535 H × 5.2 L (64 mm × 132.08 mm)	Low-profile, MD2	1.37M hours	12 Gbps SmarROC 3100	1 (×4) SFF-8643	1 GB DDR4/ 2100 MHz	NA	NA
Adaptec SmartRAID 3151-4i	2294900-R	12 Gbps PCIe Gen 3 SAS/SATA RAID Adapter	4 internal	8-Lane PCIe Gen 3	Hardware RAID 0, 1, 5, 6, 10, 50, 60, 1 ADM and 10 ADM	2.535 H × 5.2 L (64 mm × 132.08 mm)	Low-profile, MD2	1.37M hours	12 Gbps SmarROC 3100	1 (×4) SFF-8643	1 GB DDR4/ 2100 MHz	maxCache 4.0	Embedded Flash backup Tethered ASCM-35F supercap
Adaptec SmartRAID 3102E-8i	2304400-R	12 Gbps PCIe Gen 3 SAS/SATA RAID Adapter	8 internal	8-Lane PCIe Gen 3	Hardware RAID 0, 1, 10, 1 ADM and 10 ADM	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	1.37M hours	12 Gbps SmarROC 3100	2 (×4) SFF-8643	2 GB DDR4/ 2100 MHz	NA	NA
Adaptec SmartRAID 3101E-4i	2304200-R	12 Gbps PCIe Gen 3 SAS/SATA RAID Adapter	4 internal	8-Lane PCIe Gen 3	Hardware RAID 0, 1, 10, 1 ADM and 10 ADM	2.535 H × 5.2 L (64 mm × 132.08 mm)	Low-profile, MD2	1.37M hours	12 Gbps SmarROC 3100	1 (×4) SFF-8643	1 GB DDR4/ 2100 MHz	NA	NA
Adaptec SmartHBA 2100-24i	2301600-R	12 Gbps PCIe Gen 3 SAS/SATA Host Bus Adapter	24 internal	8-Lane PCIe Gen 3	0, 1, 10, 5	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	2.73M hours	12 Gbps SmartIOC 2100	6 (×4) SFF-8643	NA	NA	NA
Adaptec SmartHBA 2100-16i	2302100-R	12 Gbps PCIe Gen 3 SAS/SATA Host Bus Adapter	16 external	8-Lane PCIe Gen 3	0, 1, 10, 5	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	2.73M hours	12 Gbps SmartIOC 2100	4 (×4) SFF-8643	NA	NA	NA
Adaptec SmartHBA 2100-4i4e	2292200-R	12 Gbps PCIe Gen 3 SAS/SATA Host Bus Adapter	4 internal 4 external	8-Lane PCIe Gen 3	0, 1, 10, 5	2.535 H × 5.2 L (64 mm × 132.08 mm)	Low-profile, MD2	>1.4 M hours	12 Gbps SmartIOC 2100	1 (×4) SFF-8643/ 1 (×4) SFF-8644	NA	NA	NA

DCS													
Product	Part Number	Description	Port Count	Interface	RAID Level	Physical Dimensions	Form Factor	MTBF at 40°C	Controller	Connectors	Cache	SSD Cache Protection	Cache Protection
Adaptec SmartHBA 2100-8i	2290400-R	12 Gbps PCIe Gen 3 SAS/SATA Host Bus Adapter	8 internal	8-Lane PCIe Gen 3	0, 1, 10, 5	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	1.76M hours	12 Gbps SmartIOC 2100	2 (×4) SFF-8643	NA	NA	NA
Adaptec SmartHBA 2100-8i8e	2301900-R	12 Gbps PCIe Gen 3 SAS/SATA Host Bus Adapter	8 internal 8 external	8-Lane PCIe Gen 3	0, 1, 10, 5	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	1.76M hours	12 Gbps SmartIOC 2100	2 (×4) SFF-8643	NA	NA	NA
Adaptec HBA 1100-16e	2293600-R	12 Gbps PCIe Gen 3 SAS/SATA Host Bus Adapter	16 external	8-Lane PCIe Gen 3	NA	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	2.73M hours	12 Gbps SmartIOC 2100	4 (×4) SFF-8644	NA	NA	NA
Adaptec HBA 1100-16i	2293500-R	12 Gbps PCIe Gen 3 SAS/SATA Host Bus Adapter	16 internal	8-Lane PCIe Gen 3	NA	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	2.73M hours	12 Gbps SmartIOC 2100	4 (×4) SFF-8643	NA	NA	NA
Adaptec HBA 1100-24i	2293800-R	12 Gbps PCIe Gen 3 SAS/SATA Host Bus Adapter	24 internal	8-Lane PCIe Gen 3	NA	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	2.73M hours	12 Gbps SmartIOC 2100	6 (×4) SFF-8643	NA	NA	NA
Adaptec HBA 1100-4i	2293400-R	12 Gbps PCIe Gen 3 SAS/SATA Host Bus Adapter	4 internal	8-Lane PCIe Gen 3	NA	2.535 H × 5.2 L (64 mm × 132.08 mm)	Low-profile, MD2	>1.4M hours	12 Gbps SmartIOC 2100	1 (×4) SFF-8643	NA	NA	NA
Adaptec HBA 1100-8e	2293300-R	12 Gbps PCIe Gen 3 SAS/SATA Host Bus Adapter	8 external	8-Lane PCIe Gen 3	NA	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	1.38M hours	12 Gbps SmartIOC 2100	2 (×4) SFF-8644	NA	NA	NA
Adaptec HBA 1100-8i	2293200-R	12 Gbps PCIe Gen 3 SAS/SATA Host Bus Adapter	8 internal	8-Lane PCIe Gen 3	NA	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	1.36M hours	12 Gbps SmartIOC 2100	2 (×4) SFF-8643	NA	NA	NA
Adaptec HBA 1100-8i8e	2293700-R	12 Gbps PCIe Gen 3 SAS/SATA Host Bus Adapter	8 internal 8 external	8-Lane PCIe Gen 3	NA	2.535 H × 6.6 L (64 mm × 167 mm)	Low-profile, MD2	2.73M hours	12 Gbps SmartIOC 2100	2 (×4) SFF-8643/ 2 (×4) SFF-8644	NA	NA	NA

Switchtec PSX, PFX, PAX Gen 3, Gen 4 Device Comparison																		
	Switchtec™ PFX 96xG3	Switchtec™ PFX 80xG3	Switchtec™ PFX 64xG3	Switchtec™ PFX 48xG3	Switchtec™ PFX 32xG3	Switchtec™ PFX 24xG3	Switchtec™ PFX -L 96xG3	Switchtec™ PFX-L 80xG3	Switchtec™ PFX-L 64xG3	Switchtec™ PFX-L 48xG3	Switchtec™ PFX-L 32xG3	Switchtec™ PFX-L 24xG3	Switchtec™ PFX -I 96xG3	Switchtec™ PFX-I 80xG3	Switchtec™ PFX-I 64xG3	Switchtec™ PFX-I 48xG3	Switchtec™ PFX-I 32xG3	Switchtec™ PFX-I 24xG3
Lanes	96	80	64	48	32	24	96	80	64	48	32	24	96	80	64	48	32	24
Ports	48	40	32	24	16	12	24	20	16	12	8	6	48	40	32	24	16	12
Port Bifurcation	x2/4/8/16	x2/4/8/16	x2/4/8/16	x2/4/8/16	x2/4/8/16	x2/4/8/16	x4/8/16	x4/8/16	x4/8/16	x4/8/16	x4/8/16	x4/8/16	x2/4/8/16	x2/4/8/16	x2/4/8/16	x2/4/8/16	x2/4/8/16	x2/4/8/16
NTBs	48	40	32	24	16	12	2 (any port)	2 (any port)	2 (any port)	2 (any port)	2 (any port)	2 (any port)	48	40	32	24	16	12
Virtual Switches	24	20	16	12	8	6	6	6	6	6	4	3	24	20	16	12	8	6
PCIe Multicast	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Downstream Port Containment	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Completion Timeout Synthesis	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
UEC	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Hot Plug Ctrls	48	40	32	24	16	12	6	6	6	6	6	6	48	40	32	24	16	12
Customer Programmable	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Multi-host I/O Sharing	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
PCIe Fabric Support	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
DMA	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

Switchtec PSX, PFX, PAX Gen 3, Gen 4 Device Comparison																		
	Switchtec™ PFX 96xG3	Switchtec™ PFX 80xG3	Switchtec™ PFX 64xG3	Switchtec™ PFX 48xG3	Switchtec™ PFX 32xG3	Switchtec™ PFX 24xG3	Switchtec™ PFX -L 96xG3	Switchtec™ PFX-L 80xG3	Switchtec™ PFX-L 64xG3	Switchtec™ PFX-L 48xG3	Switchtec™ PFX-L 32xG3	Switchtec™ PFX-L 24xG3	Switchtec™ PFX -I 96xG3	Switchtec™ PFX-I 80xG3	Switchtec™ PFX-I 64xG3	Switchtec™ PFX-I 48xG3	Switchtec™ PFX-I 32xG3	Switchtec™ PFX-I 24xG3
Enclosure Mgmt Processor + SDK	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Ethernet	10/100	10/100	10/100	No	No	No	No	No	No	No	No	No	10/100	10/100	10/100	No	No	No
I²C Master/Slave	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Package Size (mm2)	37.5	37.5	37.5	27	27	27	37.5	37.5	37.5	27	27	27	37.5	37.5	37.5	27	27	27
Temp	0, 105	0, 105	0, 105	0, 105	0, 105	0, 105	0, 105	0, 105	0, 105	0, 105	0, 105	0, 105	-40 (Ta) to 105 (Tj)	-40 (Ta) to 105 (Tj)	-40 (Ta) to 105 (Tj)	-40 (Ta) to 105 (Tj)	-40 (Ta) to 105 (Tj)	-40 (Ta) to 105 (Tj)
RoHS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Switchtec PSX, PFX, PAX Gen3, Gen 4 Device Comparison												
	Switchtec™ PFX 96xG4	Switchtec PFX 80xG4	Switchtec PFX 64xG4	Switchtec PFX 48xG4	Switchtec PFX 32xG4	Switchtec PFX 24xG4	Switchtec PFX 100xG4	Switchtec PFX 84xG4	Switchtec PFX 68xG4	Switchtec PFX 52xG4	Switchtec PFX 36xG4	Switchtec PFX 28xG4
Lanes	96	80	64	48	32	24	100	84	68	52	36	28
Ports	48	40	32	24	16	12	52	44	36	28	20	16
Port Bifurcation	x2/4/8/16	x2/4/8/16	x2/4/8/16	x2/48/16	x2/4/8/16	x2/4/8/16	x1/x2/4/8/16	x1/x2/4/8/16	x1/x2/4/8/16	x1/x2/4/8/16	x1/x2/4/8/16	x1/x2/4/8/16
NTBs	48	40	32	24	16	12	48	42	34	26	18	16
Virtual Switches	24	20	16	12	8	6	26	22	18	14	10	8
PCIe Multicast	Yes, 64 overlays per stack	Yes, 64 overlays per stack	Yes, 64 overlays per stack	Yes, 64 overlays per stack	Yes, 64 overlays per stack	Yes, 64 overlays per stack	Yes	Yes	Yes	Yes	Yes	Yes
Downstream Port Containment	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Completion Timeout Synthesis	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UEC	No	No	No	No	No	No	No	No	No	No	No	No
Hot Plug Ctrls	48	40	32	24	16	12	52	44	36	28	20	16
Customer Programmable	No	No	No	No	No	No	No	No	No	No	No	No
Multi-host I/O Sharing	No	No	No	No	No	No	No	No	No	No	No	No
PCIe Fabric Support	No	No	No	No	No	No	No	No	No	No	No	No
DMA	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Enclosure Mgmt Processor + SDK	No	No	No	No	No	No	No	No	No	No	No	No
Ethernet (M)	Yes	Yes	Yes	No	No	No	10/100	10/100	10/100	No	No	No
I²C Master/Slave	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Package Size (mm)	40x40	40x40	40x40	29x29	29x29	29x29	40x40	40x40	40x40	29x29	29x29	29x29
Temp	0, 105	0, 105	0, 105	0, 105	0, 105	0, 105	0, 105	0, 105	0, 105	0, 105	0, 105	0, 105
RoHS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

1 only Egress Poisoned TLP blocking 2 Traffic generator does not impact operation of the device 3 AVS not available on Gen4 Switches 4 ACS equivalent implemented in PAX 51 lane/port on 4 lanes

Terms and Definitions

1 Gbps ..... 10^9 bytes per second
1 KB ..... 1024 bytes
1 Kw ..... 1024 words
18F/PIC18 ..... 16-bit instruction word: 75/83 instructions
1 Tbps ..... 10^{12} bytes per second
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
ESD ..... Electrostatic Discharge
EUSART ..... Enhanced Universal Synchronous Asynchronous Receiver Transmitter
EWDT/WDT ..... Extended Watchdog Timer/ Watchdog Timer
FlexE ..... Flexible Ethernet
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
Mid-Range ..... (Denoted as PIC1XF1XXX)
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
OTN ..... Optical Transport Network
OTU2 ..... Transport signal for 10 Gbps
OTU3 ..... Transport signal for 40 Gbps
OTU4 ..... Transport signal for 100 Gbps
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

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