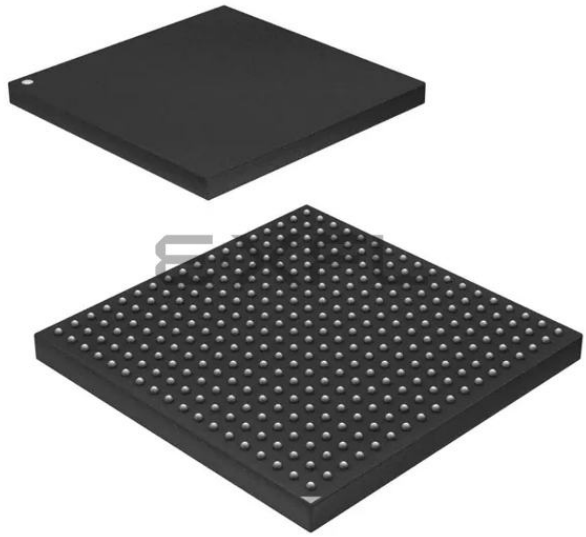

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"Embedded - Microcontrollers" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

Applications of "Embedded - Microcontrollers"

Details	
Product Status	Discontinued at Digi-Key
Core Processor	AVR
Core Size	32-Bit Single-Core
Speed	200MHz
Connectivity	EBI/EMI, Ethernet, I²C, Memory Card, SPI, SSC, UART/USART
Peripherals	AC'97, DMA, I²S, LCD, POR, PWM, WDT
Number of I/O	146
Program Memory Size	-
Program Memory Type	ROMless
EEPROM Size	-
RAM Size	64K x 8
Voltage - Supply (Vcc/Vdd)	1.08V ~ 3.6V
Data Converters	D/A 2x16b
Oscillator Type	Internal
Operating Temperature	-40°C ~ 85°C (TA)
Mounting Type	Surface Mount
Package / Case	324-TFBGA
Supplier Device Package	324-TFBGA (15x15)
Purchase URL	https://www.e-xfl.com/product-detail/microchip-technology/at32ap7200-cfur

AVR® 8-bit RISC
ATmega AVR Series

Part Number	Flash (Kbytes)	EEPROM (Bytes)	RAM (Bytes)	I/O Pins	USI	USART	SPI	TWI	8-bit Timer	16-bit Timer	10-bit ADC	BOD	On-chip Debug.	Self-prog. (S)	Package	VCC	Speed (MHz)	Other	Availability
ATmega48	4	256	512	23	–	1	1+USART	1	2	1	8	Y	debug-WIRE	S	PDIP, TQFP, QFN, DIE	2.7-5.5V	0-20	–	Now
ATmega48V	4	256	512	23	–	1	1+USART	1	2	1	8	Y	debug-WIRE	S	PDIP, TQFP, QFN, DIE	1.8-5.5V	0-10	–	Now
ATmega8	8	512	1K	23	–	1	1	1	2	1	8	Y	–	S	PDIP, TQFP, QFN, DIE	4.5-5.5V	0-16	–	Now
ATmega8L	8	512	1K	23	–	1	1	1	2	1	8	Y	–	S	PDIP, TQFP, QFN, DIE	2.7-5.5V	0-8	–	Now
ATmega88	8	512	1K	23	–	1	1+USART	1	2	1	8	Y	debug-WIRE	S	PDIP, TQFP, QFN, DIE	2.7-5.5V	0-20	–	Now
ATmega88V	8	512	1K	23	–	1	1+USART	1	2	1	8	Y	debug-WIRE	S	PDIP, TQFP, QFN, DIE	1.8-5.5V	0-10	–	Now
ATmega8515	8	512	512	35	–	1	1	–	1	1	–	Y	–	S	PDIP, PLCC, TQFP, QFN, DIE	4.5-5.5V	0-16	XRAM	Now
ATmega8515L	8	512	512	35	–	1	1	–	1	1	–	Y	–	S	PDIP, PLCC, TQFP, QFN, DIE	2.7-5.5V	0-8	XRAM	Now
ATmega8535	8	512	512	32	–	1	1	1	2	1	8	Y	–	S	PDIP, PLCC, TQFP, QFN, DIE	4.5-5.5V	0-16	–	Now
ATmega8535L	8	512	512	32	–	1	1	1	2	1	8	Y	–	S	PDIP, PLCC, TQFP, QFN, DIE	2.7-5.5V	0-8	–	Now
ATmega168	16	512	1K	23	–	1	1+USART	1	2	1	8	Y	debug-WIRE	S	PDIP, TQFP, QFN, DIE	2.7-5.5V	0-20	–	Now
ATmega168V	16	512	1K	23	–	1	1+USART	1	2	1	8	Y	debug-WIRE	S	PDIP, TQFP, QFN, DIE	1.8-5.5V	0-10	–	Now
ATmega162	16	512	1K	35	–	2	1	–	2	2	–	Y	JTAG	S	PDIP, TQFP, QFN, DIE	2.7-5.5V	0-16	XRAM	Now
ATmega162V	16	512	1K	35	–	2	1	–	2	2	–	Y	JTAG	S	PDIP, TQFP, QFN, DIE	1.8-5.5V	0-8	XRAM	Now
ATmega16A	16	512	1K	32	–	1	1	1	2	1	8	Y	JTAG	S	PDIP, TQFP, QFN, DIE	2.7-5.5V	0-16	–	Now
ATmega32A	32	1K	2K	32	–	1	1	1	2	1	8	Y	JTAG	S	PDIP, TQFP, QFN, DIE	2.7-5.5V	0-16	–	Now
ATmega325	32	1K	2K	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	2.7-5.5V	0-16	–	Now
ATmega325V	32	1K	2K	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	1.8-5.5V	0-8	–	Now
ATmega3250	32	1K	2K	69	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, DIE	2.7-5.5V	0-16	–	Now
ATmega3250V	32	1K	2K	69	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, DIE	1.8-5.5V	0-8	–	Now
ATmega64	64	2	4	54	–	2	1	1	2	2	8	Y	JTAG	S	TQFP, QFN, DIE	4.5-5.5V	0-16	XRAM	Now
ATmega64L	64	2	4	54	–	2	1	1	2	2	8	Y	JTAG	S	TQFP, QFN, DIE	2.7-5.5V	0-8	XRAM	Now
ATmega640	64	4	8	86	–	4	1+USART	1	2	4	16	Y	JTAG	S	TQFP, BGA, DIE	2.7-5.5V	0-16	XRAM	Now
ATmega640V	64	4	8	86	–	4	1+USART	1	2	4	16	Y	JTAG	S	TQFP, BGA, DIE	1.8-5.5V	0-8	XRAM	Now

Note: 1. All ATmega AVR Series parts are RoHS compliant.

AVR 8-bit RISC (Continued)
Automotive AVR (Continued)

Part Number	Flash (Kbytes)	EEPROM (Bytes)	RAM (Bytes)	I/O Pins	CAN Mess. Obj.	Timers 16-bit	Timers 8-bit	PWM (Channels)	RTC	SPI	USART	TWI (I2C Compatible)	ISP	ADC 10-bit (Channels)	BOD	WDT	Int. RC	HW Mult.	Interrupts	Ext. Interrupts	SPM	VCC	Clock Speed (MHz)	Package	Temperature	Availability
ATmega88	8	512	1K	23	–	1	2	6	Y	1+USART	1	Y	Y	8	Y	Y	Y	Y	26	5	Y	2.7-5.5V	16	TQFP32, MLF32	-40° C to +150° C	Now
ATmega88V	8	512	1K	23	–	1	2	6	Y	1+USART	1	Y	Y	8	Y	Y	Y	Y	26	5	Y	1.8-3.6V	8	TQFP32, MLF32	-40° C to +85° C	Now
ATmega164P	16	512	1K	32	–	1	2	6	Y	1+USART	2	Y	Y	8	Y	Y	Y	Y	31	7	Y	2.7-5.5V	16	TQFP44, MLF44	-40° C to +125° C	Now
ATmega168	16	512	1K	23	–	1	2	6	Y	1+USART	1	Y	Y	8	Y	Y	Y	Y	26	5	Y	2.7-5.5V	16	TQFP32, MLF32	-40° C to +150° C	Now
ATmega169P	16	512	1K	54	–	1	2	4	Y	1+USI	1	USI	Y	8	Y	Y	Y	Y	23	3	Y	2.7-5.5V	16	TQFP64, MLF64	-40° C to +85° C	Now
ATmega16M1	16	1K	2K	32	6	1	1	6+4	–	1	–	–	Y	11	Y	Y	Y	Y	31	4	Y	2.7-5.5V	16	TQFP32, MLF32	-40° C to +150° C	Feb. 2009
ATmega324P	32	1K	2K	32	–	1	2	6	Y	1+USART	2	Y	Y	8	Y	Y	Y	Y	31	7	Y	2.7-5.5V	16	TQFP44, MLF44	-40° C to +125° C	Now
ATmega328P	32	1K	2K	23	–	1	2	6	Y	1+USART	1	Y	Y	8	Y	Y	Y	Y	26	5	Y	2.7-5.5V	16	TQFP32, MLF32	-40° C to +125° C	Nov. 2008
ATmega32M1	32	1K	2K	32	6	1	1	6+4	–	1	–	–	Y	11	Y	Y	Y	Y	31	4	Y	2.7-5.5V	16	TQFP32, MLF32	-40° C to +150° C	Oct. 2008
ATmega32C1	32	1K	2K	32	6	1	1	4	–	1	–	–	Y	11	Y	Y	Y	Y	31	4	Y	2.7-5.5V	16	TQFP32, MLF32	-40° C to +150° C	Oct. 2008
ATmega64M1	64	2K	4K	32	6	1	1	6+4	–	1	–	–	Y	11	Y	Y	Y	Y	31	4	Y	2.7-5.5V	16	TQFP32, MLF32	-40° C to +150° C	Jan. 2009
ATmega64C1	64	2K	4K	32	6	1	1	4	–	1	–	–	Y	11	Y	Y	Y	Y	31	4	Y	2.7-5.5V	16	TQFP32, MLF32	-40° C to +150° C	Jan. 2009
ATmega644P	64	2K	4K	32	–	1	2	6	Y	1+USART	2	Y	Y	8	Y	Y	Y	Y	31	7	Y	2.7-5.5V	16	TQFP44, MLF44	-40° C to +125° C	Now
AT90CAN32	32	1K	2K	53	15	2	2	6+2	Y	1	2	Y	Y	8	Y	Y	Y	Y	37	8	Y	2.7-5.5V	16	TQFP64, MLF64	-40° C to +125° C	Now
AT90CAN64	64	2K	4K	53	15	2	2	6+2	Y	1	2	Y	Y	8	Y	Y	Y	Y	37	8	Y	2.7-5.5V	16	TQFP64, MLF64	-40° C to +125° C	Now
AT90CAN128	128	4K	4K	53	15	2	2	6+2	Y	1	2	Y	Y	8	Y	Y	Y	Y	37	8	Y	2.7-5.5V	16	TQFP64, MLF64	-40° C to +125° C	Now

ATAVRDRAGON	Starter Kit Supporting On-chip Debugging and Programming for AVR (AVR Dragon Supports OCD for All AVRs with 32 Kbytes or Less Flash Memory)	Now
ATAVRAUTO102	AVR Automotive Debugger Kit for CAN-LIN	Now
ATAVRAUTOEK1	AVR Automotive Evaluation Kit	Now
ATAVRISP2	AVRISP Programmer for All AVR ISP Devices	Now
ATDVK90CAN1	DVK90CAN1 Development Kit for AT90CAN Devices	Now
ATJTAGICE2	AVR Low-cost In-Circuit Emulator Supporting All AVR with debugWIRE or JTAG Interface	Now
ATSTK500	STK500 AVR Starter Kit with AVR Studio Interface	Now
ATSTK524	AVR Automotive Starter Kit for 32 Pins ATmega32M1 – ATmega32C1	Now
ATSTK600	Starter Kit and Development System for AVR and AVR32	Now

Note: 1. All Automotive AVR parts are RoHS compliant.

AVR 8-bit RISC (Continued)
XMEGA AVR Series

Part Number	Flash (Kbytes)	Boot Code (Kbytes)	EEPROM (Kbytes)	SRAM (Kbytes)	DMA (Channels)	Event (Channels)	I/O Pins	16-bit Timer	PWM (Channels)	RTC 16-bit	SPI	TWI (I2C-compatible)	USART	ADC 12-bit (Channels)	DAC 12-bit (Channels)	Ana. Comp.	BOD	WDT	Calibrated Int. RC	Interrupts	Ext. Interrupts	JTAG	PDI	VCC	Clock Speed (MHz)	Package	Temperature	Availability
ATxmega64A1	64	4	2	4	4	8	78	8	24	Y	4	4	8	2x8	2x2	4	Y	Y	32 MHz, 2 MHz, 32 kHz	122	78	Y	Y	1.6-3.6V	32	TQFP100, CBGA100	-40° to +85° C	Sampling
ATxmega128A1	128	8	2	8	4	8	78	8	24	Y	4	4	8	2x8	2x2	4	Y	Y	32 MHz, 2 MHz, 32 kHz	122	78	Y	Y	1.6-3.6V	32	TQFP100, CBGA100	-40° to +85° C	Sampling
ATxmega192A1	192	8	4	16	4	8	78	8	24	Y	4	4	8	2x8	2x2	4	Y	Y	32 MHz, 2 MHz, 32 kHz	122	78	Y	Y	1.6-3.6V	32	TQFP100, CBGA100	-40° to +85° C	2Q2009
ATxmega256A1	256	8	4	16	4	8	78	8	24	Y	4	4	8	2x8	2x2	4	Y	Y	32 MHz, 2 MHz, 32 kHz	122	78	Y	Y	1.6-3.6V	32	TQFP100, CBGA100	-40° to +85° C	2Q2009
ATxmega64A3	64	4	2	4	4	8	50	7	22	Y	3	2	7	2x8	1x2	4	Y	Y	32 MHz, 2 MHz, 32 kHz	102	50	Y	Y	1.6-3.6V	32	TQFP64, MLF64	-40° to +85° C	1Q2009
ATxmega128A3	128	8	2	8	4	8	50	7	22	Y	3	2	7	2x8	1x2	4	Y	Y	32 MHz, 2 MHz, 32 kHz	102	50	Y	Y	1.6-3.6V	32	TQFP64, MLF64	-40° to +85° C	1Q2009
ATxmega192A3	192	8	4	16	4	8	50	7	22	Y	3	2	7	2x8	1x2	4	Y	Y	32 MHz, 2 MHz, 32 kHz	102	50	Y	Y	1.6-3.6V	32	TQFP64, MLF64	-40° to +85° C	1Q2009
ATxmega256A3	256	8	4	16	4	8	50	7	22	Y	3	2	7	2x8	1x2	4	Y	Y	32 MHz, 2 MHz, 32 kHz	102	50	Y	Y	1.6-3.6V	32	TQFP64, MLF64	-40° to +85° C	1Q2009
ATxmega16A4	16	4	1	2	4	8	36	5	16	Y	2	2	5	1x12	1x2	2	Y	Y	32 MHz, 2 MHz, 32 kHz	77	36	N	Y	1.6-3.6V	32	TQFP44, MLF44	-40° to +85° C	1Q2009
ATxmega32A4	32	4	2	4	4	8	36	5	16	Y	2	2	5	1x12	1x2	2	Y	Y	32 MHz, 2 MHz, 32 kHz	77	36	N	Y	1.6-3.6V	32	TQFP44, MLF44	-40° to +85° C	1Q2009
ATxmega64A4	64	4	2	4	4	8	36	5	16	Y	2	2	5	1x12	1x2	2	Y	Y	32 MHz, 2 MHz, 32 kHz	77	36	N	Y	1.6-3.6V	32	TQFP44, MLF44	-40° to +85° C	1Q2009
ATxmega128A4	128	4	2	8	4	8	36	5	16	Y	2	2	5	1x12	1x2	2	Y	Y	32 MHz, 2 MHz, 32 kHz	77	36	N	Y	1.6-3.6V	32	TQFP44, MLF44	-40° to +85° C	3Q2009

ATAVRISP2	AVRISP Programmer for All AVR ISP Devices	Now
ATAVRONEKIT	AVR ONE! Development Tool for On-chip Debugging and Programming of all AVR32 Devices	4Q2008
ATJTAGICE2	AVR Low-cost In-Circuit Emulator Supporting All AVR with debugWIRE or JTAG Interface	Now
ATSTK600	Starter Kit and Development System for AVR and AVR32	Now

Note: 1. All XMEGA AVR Series Control AVR parts are RoHS compliant.

AVR 8-bit RISC (Continued)

MCU Wireless – 802.15.4/6LoWPAN/ZigBee® Solutions

Part Number	AVR	Radio	Flash (Kbytes)	EEPROM (Kbytes)	RAM (Kbytes)	ISM Band	Sensitivity (dBm)	Output Power (dBm)	VCC	I/Os	Availability
ATmega64RZA	ATmega644	RF230	64	1	4	2.4 GHz	-101	3	1.8-3.6V	32	Now
ATmega64RZAP	ATmega644P	RF230	64	1	4	2.4 GHz	-101	3	1.8-3.6V	32	Now
ATmega128RZA	ATmega1281	RF230	128	4	8	2.4 GHz	-101	3	1.8-3.6V	54	Now
ATmega128RZB	ATmega1280	RF230	128	4	8	2.4 GHz	-101	3	1.8-3.6V	86	Now
ATmega1284RZAP	ATmega1284P	RF230	128	4	16	2.4 GHz	-101	3	1.8-3.6V	32	Now
ATmega256RZA	ATmega2561	RF230	256	4	8	2.4 GHz	-101	3	1.8-3.6V	54	Now
ATmega256RZB	ATmega2560	RF230	256	4	8	2.4 GHz	-101	3	1.8-3.6V	86	Now
ATmega644PR231	ATmega644P	RF231	64	1	4	2.4 GHz	-101	3	1.8-3.6V	32	Now
ATmega1281R231	ATmega1281	RF231	128	4	8	2.4 GHz	-101	3	1.8-3.6V	54	Now
ATmega1280R231	ATmega1280	RF231	128	4	8	2.4 GHz	-101	3	1.8-3.6V	86	Now
ATmega1284PR231	ATmega1284P	RF231	128	4	16	2.4 GHz	-101	3	1.8-3.6V	32	Now
ATmega2561R231	ATmega2561	RF231	256	4	8	2.4 GHz	-101	3	1.8-3.6V	54	Now
ATmega2560R231	ATmega2560	RF231	256	4	8	2.4 GHz	-101	3	1.8-3.6V	86	Now
ATmega644PR212	ATmega644P	RF212	64	1	4	800/900 MHz	-110	10	1.8-3.6V	32	Now
ATmega1281R212	ATmega1281	RF212	128	4	8	800/900 MHz	-110	10	1.8-3.6V	54	Now
ATmega1280R212	ATmega1280	RF212	128	4	8	800/900 MHz	-110	10	1.8-3.6V	86	Now
ATmega1284PR212	ATmega1284P	RF212	128	4	16	800/900 MHz	-110	10	1.8-3.6V	32	Now
ATmega2561R212	ATmega2561	RF212	256	4	8	800/900 MHz	-110	10	1.8-3.6V	54	Now
ATmega2560R212	ATmega2560	RF212	256	4	8	800/900 MHz	-110	10	1.8-3.6V	86	Now

ATAVRRZRAVEN	2.4 GHz 802.15.4 Evaluation and Starter Kit	Now
ATAVRRAVEN	2.4 GHZ 802.15.4 Raven Board	Now
ATAVRRZUSBSTICK	2.4 GHZ 802.15.4 USB Stick	Now
ATAVRRZ600	RF Accessory Kit AT86RF230, AT86RF231, AT86RF212	Now
ATJTAGICE2	AVR Low-cost In-Circuit Emulator Supporting All AVR with debugWIRE or JTAG Interface	Now
ATAVRISP2	AVRISP Programmer for All AVR ISP Devices	Now
ATSTK500	STK500 AVR Starter Kit with AVR Studio Interface	Now
ATSTK600	Starter Kit and Development System for AVR and AVR32	Now

Note: 1. All MCU Wireless parts are RoHS compliant.

8051 Architecture (Continued)
OTP (One Time Programmable)

Part Number	Description	Memory Size	RoHS Compliance	Availability
AT87C52X2	Microcontroller with 8-Kbyte OTP	8K x 8	Yes	Now
AT87C54X2	Microcontroller with 16-Kbyte OTP	16K x 8	Yes	Now
AT87C51RB2	Microcontroller with16-Kbyte Flash, 512-byte RAM, PCA	16K x 8	Yes	Now
AT87C58X2	Microcontroller with 32-Kbyte OTP	32K x 8	Yes	Now
AT87C51RC2	Microcontroller with 32-Kbyte OTP, 512-byte RAM, PCA	32K x 8	Yes	Now
AT87C51RD2	Microcontroller with 64-Kbyte OTP, 1024-byte RAM, PCA	64K x 8	Yes	Now

ROM

Part Number	Description	Memory Size	RoHS Compliance	Availability
AT80C52X2	Microcontroller with 8-Kbyte ROM	8K x 8	Yes	Now
AT80C54X2	Microcontroller with 16-Kbyte ROM	16K x 8	Yes	Now
AT83C51RB2	Microcontroller with 16-Kbyte ROM, 1280-byte RAM, PCA, SPI, Keyboard Interface	16K x 8	Yes	Now
AT80C58X2	Microcontroller with 32-Kbyte ROM	32K x 8	Yes	Now
AT83C51RC2	Microcontroller with 32-Kbyte ROM, 1280-byte RAM, PCA, SPI, Keyboard Interface	32K x 8	Yes	Now
AT83C51RD2	Microcontroller with 64-Kbyte ROM, 1024-byte RAM	64K x 8	Yes	Now

ROMless

Part Number	Description	RoHS Compliance	Availability
AT80C31X2	Microcontroller with 128 Bytes of RAM	Yes	Now
AT80C32X2	Microcontroller with 256 Bytes of RAM	Yes	Now
AT80C51RA2	Microcontroller with 512 Bytes of RAM, PCA	Yes	Now

USB Microcontrollers 8051-based

Part Number	Description	Program Memory	RoHS Compliance	Availability
AT89C5130A	Microcontroller with 1280-byte RAM, 1-Kbyte EEPROM, USB 2.0 (12 Mbps), SPI, TWI, PCA	16-Kbyte Flash	Yes	Now
AT89C5131A	Microcontroller with 1280-byte RAM, 1-Kbyte EEPROM, USB 2.0 (12 Mbps), SPI, TWI, PCA	32-Kbyte Flash	Yes	Now
AT83C5134	Microcontroller with 1280-byte RAM, USB 2.0 (12 Mbps), 6 Endpoints, SPI, TWI, PCA	8-Kbyte ROM	Yes	Now
AT83C5135	Microcontroller with 1280-byte RAM, USB 2.0 (12 Mbps), 6 Endpoints, SPI, TWI, PCA	16-Kbyte ROM	Yes	Now
AT83C5136	Microcontroller with 1280-byte RAM, USB 2.0 (12 Mbps), 6 Endpoints, SPI, TWI, PCA	32-Kbyte ROM	Yes	Now
AT83EC5136	Microcontroller with 1280-byte RAM, 512-byte EEPROM and USB 2.0 (12 Mbps), 6 Endpoints, SPI, TWI, PCA	32-Kbyte ROM	Yes	Now
AT83EI5136	Microcontroller with 1280-byte RAM, 32-Kbyte EEPROM and USB 2.0 (12 Mbps), 6 Endpoints, SPI, TWI, PCA	32-Kbyte ROM	Yes	Now

AT89STK-05	Starter Kit for AT89C5130A/AT89C5131A/AT89C5122 USB Microcontroller	Now
AT89STK-10	USB Mass Storage Starter Kit for AT89C5130A/AT89C5131A/AT89C5122 USB Microcontrollers	Now

MARC4 4-bit Architecture Microcontrollers (Continued)
4-bit Microcontrollers/MARC4 Family (Continued)

Part Number	Description	Package	RoHS Compliance	Availability
ATAR092	1.8 to 6.2V, Extended Voltage Range with Very Low Current Consumption for IR and RF Remote Control, Security and Wireless Communication Systems, Sleep Current <1 µA, Watchdog Timer, POR and Brown-out Function, 3 x Multifunction Timer/Counter with Remote Control Carrier Generation and Biphase, Manchester and Pulse Width Modulator and Demodulator, 4096-byte ROM + 512 Bytes for Test Purposes, 256 Nibbles RAM, I/O 16 Bi-directional Ports Including 4 High-current Outputs, 8-bit Synchronous Serial Interface, Battery Low Detection, Comparator for Zero Cross Detection, 4 Internal, 6 External Interrupts, 32 kHz Quartz Oscillator, 4 MHz Oscillator (Internal RC, External R, Quartz or Ceramic Resonator, External Clock), Operating Temperature Range T_{AMB} = -40° C to +85° C (-40° C to +105° C) (-40° C to +125° C)	SSO20	Pb-free Only	Now
ATAR092-C	See ATAR092, Operating Temperature Range T_{AMB} = -40° C to +105° C	SSO20	Pb-free Only	Now
ATAR092-D	See ATAR092, Operating Temperature Range T_{AMB} = -40° C to +125° C	SSO20	Pb-free Only	Now
ATAR862x-yyy-TNz3	Complete UHF ASK/FSK Transmitter, ROM Microcontroller and Transmitter PLL T5753 in One IC, Temperature Range: -40° C to +125° C, Frequency Range: 310 to 330 MHz	SSO24	Pb-free Only	Now
ATAR862x-yyy-TNz4	Complete UHF ASK/FSK Transmitter, ROM Microcontroller and Transmitter PLL T5754 in One IC, Temperature Range: -40° C to +125° C, Frequency Range: 429 to 439 MHz	SSO24	Pb-free Only	Now
ATAR862x-yyy-TNz8	Complete UHF ASK/FSK Transmitter, ROM Microcontroller and Transmitter PLL T5750 in One IC, Temperature Range: -40° C to +125° C, Frequency Range: 868 to 928 MHz	SSO24	Pb-free Only	Now
ATAR890	See ATAR090, Additional 512-bit EEPROM (64 Bytes) On-chip, Operating Temperature Range T_{AMB} = -40° C to +85° C (-40° C to +105° C)	SSO20	Pb-free Only	Now
ATAR890-C	See ATAR090, Additional 512-bit EEPROM (64 Bytes) On-chip, Operating Temperature Range T_{AMB} = -40° C to +105° C	SSO20	Pb-free Only	Now
ATAR892	See ATAR092, Additional 512-bit EEPROM (64 Bytes) On-chip, Operating Temperature Range T_{AMB} = -40° C to +85° C (-40° C to +105° C)	SSO20	Pb-free Only	Now
ATAR892-C	See ATAR092, Additional 512-bit EEPROM (64 Bytes) On-chip, Operating Temperature Range T_{AMB} = -40° C to +105° C	SSO20	Pb-free Only	Now
M4EMUX9X	MARC4 Development System for the ATAR090, ATAR092, ATAR892, ATAR890 and ATAR080 Series, Including the Flash Part ATAM893 and the U9280M			Now

Customer Specific ICs

IP Cores

Part Number	Description	Availability
Memory Blocks	Single-port SRAM, Dual-port SRAM, Register File RAM, FIFO, Diffusion Mask ROM, Metal Mask ROM, Flash, EEPROM	Now
MCU/DSP Cores	ARM1176JZF-S™, ARM946E-S™, ARM926EJ-S™, ARM7TDMI® (ARM® Thumb®), TeakDSPCore™, mAgicDSP™ Modular VLIW Computation Core, OakDSPCore®, USP9 Co-processor	Now
ARM System Bus Peripherals	Bus Interface, Arbiter, Bridge, Matrix, Cache Memory and Bus Interface Unit, Decoder, Embedded Flash Controllers	Now
ARM Peripherals	AC97 Controller, CAN2.0 A/B, 10T/100 Ethernet MAC, Image Sensor Interface, Multimedia Card Interface Master MMC/SD/SDIO/CEATA, Pulse Width Modulator, Serial Peripheral Interface, Synchronous Serial Controller, 2-wire Interface Master/Slave, USART, USART IrDA®, USART ISO 7816, USART Manchester E/D, LIN 1.3/2.0, USB V1.1 Host, Hub and Device, USB 2.0 High-speed Device, USB 2.0 High-speed OTG, 4-wire Touch Screen Controller Burst Flash Controller, SDR-SDRAM Controller, DDR/LPDDR/SDR/LPSDR-SDRAM Controller, Burst Cellular RAM Controller, Static Memory Controller, ECC, TFT LCD Controller, Segmented LCD Controller 128/192/256-bit Advanced Encryption Standard, Secure Hash Algorithm 160/224/256/384/512, Triple DES, XTEA, TRNG Advanced Interrupt Controller, Advanced Power Management Controller, Debug Unit, Parallel Input/Output, General Purpose DMA, Peripheral DMA Controller, Quadrature Decoder, Real-time Clock, System Controller, Timer/Counter	Now
Analog Cells	General-purpose ADCs, Analog Mux, Analog Input/Output, Analog Power and Ground, PLLs, POR/BOD, Tamper Detectors, Battery Monitor, GSM Voice Codec, Telecom A/D Converter, Telecom D/A Converter, Clock Squarer, Precision Voltage Reference Generator, Bandgap Reference Generator, GSM Baseband Receive Port, GSM Baseband Transmit Port	Now
IO Pads	General-purpose, PCI, LVDS, SSTL2, USB1.1 LS & FS, USB2.0 HS, PECL	Now

Process Technology and Libraries

Technology	Description	Process Name	Libraries	Availability
0.09 µm	Core Supply: 1.0V Options: 3V, MIM Capacitance, High Poly Resistance, Low Leakage	AT91K	ATC09	Now
0.13 µm	Core Supply: 1.2V Options: Low Leakage, Mixed, 3V, MIM Capacitance Embedded EEPROM and Flash	AT59K	ATC13	Now
		AT59.86K AT66.8K	ATC13/EEPROM ATC13/Flash	2H2008
0.15 µm	Core Supply: 1.8V, Embedded EEPROM and Flash Options: Low Leakage, Mixed, 3V, MIM Capacitance	AT58.85K	ATC15/EE	Now
0.18 µm	Core Supply: 1.8V Options: Low Leakage, Mixed, 3V, MIM Capacitance Embedded EEPROM and Flash	AT58K AT58.8K	ATC18 ATC18/EE	Now
0.35 µm	Core Supply 3.3V Options: Mixed, 5V Embedded EEPROM and Flash Option: HV 15V Devices	AT56K AT56.8K AT56.7K	ATL35 ATC35/EE, ATL35/EE ATC35	Now
CAP™	Customizable Microcontroller	See AT91 CAP in the AT91 Microcontroller Section on		

FPGA/CPLD Conversion: ULCs

Part Number	Technology	Max Kgates	Max I/Os	Supply (Volts)		Other	Availability
				Core	I/O Tolerant		
UA1E	0.35 µm	780	976	3.3	5	Embedded DPRAM, Up to 390-Kbit	Now
ATU18	0.18 µm	1000	700	1.8	3.3	Embedded DPRAM, Up to 847-Kbit	Now

Automotive Standard Products (Continued)
Automotive Control (Continued)
Safety

Part Number	Description	Package	RoHS Compliance	Availability
U6813B	Fail-safe IC, Watchdog Timer, Relay Driver, Lamp Driver and Charge Pump	SO16	Pb-free Only	Now
ATA6842	Fail-safe System IC with 4-channel Relay Driver, Power Supply, Watchdog	QFN48	Yes	Now
U6268B	Side Airbag Sensor Dual Interface (Satellite Interface), 50 mA Sensor Supply, Data Transfer by Current Modulation	SO16	Pb-free Only	Now

Watchdog ICs

Part Number	Description	Package	RoHS Compliance	Availability
ATA6025	Watchdog IC with Fail-safe Output, Voltage Monitors, Low-power Consumption in Standby Mode	SO8	Pb-free Only	Now
ATA6020N	Watchdog IC, µP Based, Programmable Via Metal Mask (Based on the ATAR080 Microcontroller)	SO20	Pb-free Only	Now
U5020M	Watchdog Timer, Active and Sleep Mode, 6 Wake-up Inputs, Enable Output	SO16	Pb-free Only	Now
U5021M	Watchdog Timer, Active and Sleep Mode, 1 Wake-up Input, Enable Output	SO8	Pb-free Only	Now

Wiper and Wash Control ICs

Part Number	Description	Package	RoHS Compliance	Availability
U641B	Wipe/Wash Control with Prewash Delay, INT/WIWA Switches to V_{BATT}	DIP8, SO8	Pb-free Only	Now
U642B	Wipe/Wash Control without Prewash Delay, INT/WIWA Switches to V_{BATT}	DIP8, SO8	Pb-free Only	Now

Automotive Standard Products (Continued)
Serial EEPROMs

Part Number	Density (Kbits)	Organization	VCC (V)	Max Speed (MHz)	Package*	Comments	Availability
AT24C01B	1	128 x 8	2.5	0.4	SOIC	Full Array Write Protection Cascade Up to 8 Devices	Now (Replaces AT24C01A/AT24C11)
AT24C02B	2	256 x 8	2.5	0.4	SOIC	Full Array Write Protection Cascade Up to 8 Devices	Now (Replaces AT24C02)
AT34C02C	2	256 x 8	2.7	0.4	SOIC	Lower Half Permanent SW Write Protect	Now (Replaces AT34C02)
AT24C04B	4	512 x 8	2.7	0.4	SOIC	Full Array Write Protection Cascade Up to 4 Devices	Now (Replaces AT24C04)
AT24C08B	8	1024 x 8	2.7	0.4	SOIC	Full Array Write Protection Cascade Up to 2 Devices	Now (Replaces AT24C08)
AT24C16A	16	2048 x 8	2.7	0.4	SOIC	Full Array Write Protection	Now
AT24C32A	32	4096 x 8	2.7	0.4	SOIC	Full Array Write Protection Cascade Up to 8 Devices	Now
AT24C64A	64	8192 x 8	2.7	0.4	SOIC	Full Array Write Protection Cascade Up to 8 Devices	Now
AT24C128	128	16384 x 8	2.7	0.4	SOIC	Full Array Write Protection Cascade Up to 4 Devices	Now
AT24C256	256	32768 x 8	2.7	0.4	SOIC	Full Array Write Protection Cascade Up to 4 Devices	Now
AT25010A	1	128 x 8	2.7	5	SOIC	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT25020A	2	256 x 8	2.7	5	SOIC	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT25040A	4	512 x 8	2.7	5	SOIC	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT25080A	8	1024 x 8	2.7	5	SOIC	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT25160A	16	2048 x 8	2.7	5	SOIC	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT25320A	32	4096 x 8	2.7	5	SOIC	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT25640A	64	8192 x 8	2.7	5	SOIC	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT25128A	128	16384 x 8	2.7	5	SOIC	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT25256A	256	32768 x 8	2.7	5	SOIC	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT93C46	1	64 x 16/128 x 8	2.7	2	SOIC	x8 or x16 Memory Organization	Now
AT93C56A	2	128 x 16/256 x 8	2.7	2	SOIC	x8 or x16 Memory Organization with Sequential Read	Now
AT93C66A	4	256 x 16/512 x 8	2.7	2	SOIC	x8 or x16 Memory Organization with Sequential Read	Now
AT93C86A	16	1024 x 16/2048 x 8	2.7	2	SOIC	x8 or x16 Memory Organization with Sequential Read	Now

**Other Packages Available on Request.*

All Automotive Serial EEPROMs Parts are RoHS Compliant.

Automotive ASSPs (Continued)
Tire Pressure Monitoring ICs (Continued)
UHF Receiver/Transceiver ICs

Part Number	Description	Package	RoHS Compliance	Availability
ATA5721	UHF Receiver for ASK and FSK Systems, 315 MHz, Full Duplex	QFN48	Yes	4Q2008
ATA5722	UHF Receiver for ASK and FSK Systems, 433 to 435 MHz, Full Duplex	QFN48	Yes	4Q2008
ATA5723P3	Highly Integrated UHF Remote Control Receiver, ASK/FSK, 315 MHz, 300 kHz Bandwidth, RSSI Pin Compatible to ATA5724, ATA5728	SSO20	Pb-free Only	Now
ATA5724P3	Highly Integrated UHF Remote Control Receiver, ASK/FSK, 433 MHz, 300 kHz Bandwidth, RSSI Pin Compatible to ATA5723, ATA5728	SSO20	Pb-free Only	Now
ATA5728P6	Highly Integrated UHF Remote Control Receiver, ASK/FSK, 868 MHz, 600 kHz Bandwidth, RSSI Pin Compatible to ATA5723, ATA5724	SSO20	Pb-free Only	Now
ATA5745	Transparent ASK/FSK UHF Receiver IC with Fast RKE/TPMS Switching Rate, Suited to 1 to 20 Kbits/s Manchester FSK with 4 Programmable Bit-rate Ranges, High ASK Sensitivity (-114 dBm at 2.4 Kbits/s), High Blocking Capability, 433 MHz	QFN24	Pb-free Only	Now
ATA5746	Transparent ASK/FSK UHF Receiver IC with Fast RKE/TPMS Switching Rate, Suited to 1 to 20 Kbits/s Manchester FSK with 4 Programmable Bit-rate Ranges, High ASK Sensitivity (-114 dBm at 2.4 Kbits/s), High Blocking Capability, 315 MHz	QFN24	Pb-free Only	Now
ATA5811	UHF Transceiver for ASK and FSK Systems, 433 to 435 MHz or 868 to 870 MHz	QFN48	Yes	Now
ATA5812	UHF Transceiver for ASK and FSK Systems, 315 MHz	QFN48	Yes	Now

ATA5723-DK	Receiver Board ATA5723, 315 MHz, no SAW Filter	Now
ATA5724-DK	Receiver Board ATA5724, 433 MHz, no SAW Filter	Now
ATA5728-DK	Receiver Board ATA5728, 868 MHz, no SAW Filter	Now
ATA5745-EK	Receiver Board for ATA5745	Now
ATA5746-EK	Receiver Board for ATA5746	Now
ATAB5811-4-B	UHF ASK/FSK Transceiver Basestation Board for 433.92 MHz	Now
ATAB5811-8-B	UHF ASK/FSK Transceiver Basestation Board for 868.3 MHz	Now
ATAB5812-3-B	UHF ASK/FSK Transceiver Basestation Board for 315 MHz	Now
ATAB5823-3-B	UHF ASK/FSK Transceiver Basestation Board for 315 MHz	Now
ATAB5824-4-B	UHF ASK/FSK Transceiver Basestation Board for 433.92 MHz	Now
ATAB5824-8-B	UHF ASK/FSK Transceiver Basestation Board for 868.3 MHz	Now
ATAB-SPI-LPT	SPI to Parallel Port (LPT) Interface Board for TRX Basestation Boards	Now
ATAB-STK-F	Flamingo® Interface Board for Connecting RF Boards to STK500	Now

UHF Transmitter ICs

Part Number	Description	Package	RoHS Compliance	Availability
ATA5756	UHF ASK/FSK Transmitter, Frequency Range 313 to 317 MHz, 6 dBm/8.1 mA Current in Tx Mode, 2.0V Min. Voltage, -40° C to +125° C	TSSOP10	Pb-free Only	Now
ATA5757	UHF ASK/FSK Transmitter, Frequency Range 432 to 448 MHz, 6 dBm/8.5 mA Current in Tx Mode, 2.0V Min. Voltage, -40° C to +125° C	TSSOP10	Pb-free Only	Now

ATAB5756	Reference Design for UHF Transmitter ATA5756, Operation Frequency 315 MHz	Now
ATAB5757	Reference Design for UHF Transmitter ATA5757, Operation Frequency 433 MHz	Now

Note: 1. For dedicated microcontrollers, see Automotive 4-bit microcontrollers .

BD/HD-DVD/DVD/CD Storage Chipsets

BD/HD-DVD/DVD/CD Front Monitor Diodes

Part Number	Description	Package	RoHS Compliance	Availability
ATR1840	Front Monitor OEIC for Blu-ray/HD-DVD/ DVD/CD	QFN Open, 3 x 3 mm	Yes	Now
ATR1841	Front Monitor OEIC for Blu-ray/HD-DVD/ DVD/CD, I2C-compatible for Gain Setting and Gain Adjustment	QFN Open, 3 x 3 mm	Yes	Now
ATR1842	Front Monitor OEIC for Blu-ray/HD-DVD/ DVD/CD with SPI Interface for Gain Setting and Gain Adjustment	QFN Open, 3 x 3 mm	Yes	Now

BD/HD-DVD/DVD/CD Laser Driver ICs

Part Number	Description	Package	RoHS Compliance	Availability
ATR0826	Three-channel Combo Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 500/150 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 3 External Resistors, NER Enable	SSO16, QFN16	Yes	Now
ATR0834T	Four-channel Low Head Room LVDS Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 700 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors, NER Enable, Internal Termination	QFN24	Yes	Now
ATR0849	Four-channel LVDS Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 700 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors, NER Enable, Internal Termination	QFN24	Yes	Now
ATR0881	3-output Laser Driver with 5 Channels and Serial Interface. Flexible Gain Adjustment and Oscillator Settings Via Serial Interface	QFN24	Yes	Now
ATR0885	3-output Laser Driver for Blu-ray/DVD/CD Player	QFN24	Yes	Now

BD/HD-DVD/DVD/CD Photo Detector ICs

Part Number	Description	Package	RoHS Compliance	Availability
ATR0874	2 Wavelength PDIC® (650 nm and 780 nm) for CD-RW and DVD±RW, 10 Channels with 4 Configurable Gain Steps, 150 MHz Data Bandwidth, 12 Photo Diode Pattern	QFN OPEN 4 x 3.5	Yes	Now
ATR1874	2 Wavelength PDIC (650 nm and 780 nm) for CD-RW and DVD±RW, 10 Channels with 4 Configurable Gain Steps, 150 MHz Data Bandwidth, 12 Photo Diode Pattern	QFN OPEN 4 x 3.5	Yes	Now

Dream® Sound Synthesis ICs

Part Number	Description	Package	RoHS Compliance	Availability
ATSAM9708	128-voice Integrated Sound Synthesizer	LQFP144	Yes	Now
ATSAM2553	Integrated Digital Musical Instrument	LQFP128	Yes	Now
ATSAM2533	Low-power Synthesizer with Effects and Built-in RAM	LQFP100	Yes	Now
ATSAM2195	Low-power Single-chip Synthesizer with Effects	QFN44	Yes	Now
ATSAM3703	High Performance Low-cost Effects DSP	LQFP80	Yes	Now
ATSAM3303B	GM-Lite Synthesizer/Professional Effects DSP	LQFP100	Yes	Now
ATSAM3108B	8-channel Multiprocessing DSP	LQFP64	Yes	Now
ATSAM3308B	Multi-purpose Audio DSP	LQFP100	Yes	Now
ATSAM3516	High Performance Keyboard Synthesizer	LQFP144	Yes	Jan. 2009
ATSAM3716	Multiple Stream Compressed Audio Player	LQFP128	Yes	Jan. 2009
ATSAM3816	Professional Audio Multiple Purpose Processor	LQFP144	Yes	Jan. 2009

EPROM Standard Products – Industrial OTP EPROMs

Part Number	Density	Organization	VCC (V)	Speed (ns)	Package
AT27BV256	256-Kbit	x8	2.7 - 3.6	70	PLCC (32), TSOP (28)
AT27LV256A	256-Kbit	x8	3.0 - 3.6	55, 90	PLCC (32), TSOP (28)
AT27C256R	256-Kbit	x8	4.5 - 5.5	45, 70	PLCC (32), PDIP (28), TSOP (28)
AT27BV512	512-Kbit	x8	2.7 - 3.6	70	PLCC (32), TSOP (28)
AT27LV512A	512-Kbit	x8	3.0 - 3.6	90	PLCC (32), TSOP (28)
AT27C512R	512-Kbit	x8	4.5 - 5.5	45, 70	PLCC (32), PDIP (28), TSOP (28)
AT27C516	512-Kbit	x16	4.5 - 5.5	45	PLCC (44)
AT27BV010	1-Mbit	x8	2.7 - 3.6	90	PLCC (32), TSOP (32)
AT27BV1024	1-Mbit	x16	2.7 - 3.6	90, 120	PLCC (44)
AT27LV010A	1-Mbit	x8	3.0 - 3.6	70	PLCC (32), TSOP (32)
AT27C010	1-Mbit	x8	4.5 - 5.5	45, 70	PLCC (32), PDIP (32), TSOP (32)
AT27C1024	1-Mbit	x16	4.5 - 5.5	45, 70	PLCC (44), PDIP (40)
AT27BV020	2-Mbit	x8	2.7 - 3.6	90	PLCC (32), TSOP (32)
AT27LV020A	2-Mbit	x8	3.0 - 3.6	120	PLCC (32), TSOP (32)
AT27C020	2-Mbit	x8	4.5 - 5.5	55, 90	PLCC (32), PDIP (32), TSOP (32)
AT27C2048	2-Mbit	x16	4.5 - 5.5	55, 90	PLCC (44), PDIP (40)
AT27BV040	4-Mbit	x8	2.7 - 3.6	120	PLCC (32)
AT27LV040A	4-Mbit	x8	3.0 - 3.6	90	PLCC (32), TSOP (32)
AT27C040	4-Mbit	x8	4.5 - 5.5	70, 90	PLCC (32), PDIP (32), TSOP (32)
AT27C4096	4-Mbit	x16	4.5 - 5.5	55, 90	PLCC (44), PDIP (40)
AT27C080	8-Mbit	x8	4.5 - 5.5	90	PLCC (32), PDIP (32), TSOP (32)

All Industrial OTP EPROMs Parts are RoHS Compliant.

Parallel EEPROM

Die Products

Part Number	Density	VCC (V)	Speed (ns)
AT28BV64B-DWF	64-Kbit	2.7 - 3.6	200
AT28C64B-DWF & AT28HC64B-DWF	64-Kbit	4.5 - 5.5	70, 150
AT28BV256-DWF	256-Kbit	2.7 - 3.6	200
AT28C256-DFWM	256-Kbit	4.5 - 5.5	200
AT28HC256-DFWM	256-Kbit	4.5 - 5.5	120
AT28C010-DFWM	1-Mbit	4.5 - 5.5	200

Notes: 1. To be used for Military Applications only.
2. Military Die Information Request Form Needs to be completed and submitted to Atmel by customer. Contact Atmel Sales for a Form.

Industrial Products

Part Number	Density	Organization	VCC (V)	Speed (ns)	Package
AT28BV64B	64-Kbit	x8	2.7 - 3.6	200	PLCC (32), TSOP (28), SOIC (28)
AT28C64B	64-Kbit	x8	4.5 - 5.5	150	PLCC (32), TSOP (28), SOIC (28), PDIP (28)
AT28HC64B	64-Kbit	x8	4.5 - 5.5	70	PLCC (32), TSOP (28), SOIC (28)
AT28BV256	256-Kbit	x8	2.7 - 3.6	200	PLCC (32), TSOP (28), SOIC (28)
AT28C256	256-Kbit	x8	4.5 - 5.5	150	PLCC (32), TSOP (28), SOIC (28), PDIP (28)
AT28C256E & AT28C256F	256-Kbit	x8	4.5 - 5.5	150	PLCC (32), TSOP (28), SOIC (28)
AT28HC256	256-Kbit	x8	4.5 - 5.5	70, 90	PLCC (32), TSOP (28), SOIC (28)
AT28HC256E	256-Kbit	x8	4.5 - 5.5	70, 120	PLCC (32), TSOP (28), SOIC (28)
AT28HC256F	256-Kbit	x8	4.5 - 5.5	90	PLCC (32), TSOP (28), SOIC (28)
AT28LV010	1-Mbit	x8	3.0 - 3.6	200	PLCC (32), TSOP (32)
AT28C010 & AT28C010E	1-Mbit	x8	4.5 - 5.5	120, 150	PLCC (32), TSOP (32)

Military Products

Part Number	Density	Organization	VCC (V)	Speed (ns)	Package
AT28C256/AT28HC256	256-Kbit	x8	4.5 - 5.5	70, 90, 120	28CDIP, 28Flatpack, 32LCC, 28PGA
AT28C256E/AT28HC256E	256-Kbit	x8	4.5 - 5.5	70, 90, 120	28CDIP, 28Flatpack, 32LCC, 28PGA
AT28C256F/AT28HC256F	256-Kbit	x8	4.5 - 5.5	70, 90, 120	28CDIP, 28Flatpack, 32LCC, 28PGA
AT28C010/AT28C010E	1-Mbit	x8	4.5-5.5	120, 150, 200, 250	28CDIP, 28Flatpack, 32/44LCC, 30PGA
5962-88525 (EEPROM DSCC Military)	256-Kbit	x8	4.5-5.5	150, 200, 250	28CDIP, 28Flatpack, 32LCC, 28PGA
5962-88634 (EEPROM DSCC Military)	256-Kbit	x8	4.5-5.5	70, 90, 120	28CDIP, 28Flatpack, 32LCC, 28PGA
5962-38267 (EEPROM DSCC Military)	1-Mbit	x8	4.5-5.5	120, 150, 200	28CDIP, 28Flatpack, 32/44LCC, 30PGA

All Industrial Parallel EEPROMs Parts are RoHS Compliant.

Serial Flash Memory

DataFlash® Page Erase Serial Flash

Part Number	Density (Mbits)	VCC Min (V)	Interface Architecture	Speed (MHz)	SRAM/Buffers	Protection	Sector Lockdown	Serial Number	Packages	Availability
AT45DB011D	1-Mbit	2.7	Serial (SPI Bus)	66	1 (256/264 Bytes)	Individual Sector	x	x	(8S2)- (8S1)- (8MA1)	Now
AT45DB021D	2-Mbit	2.7	Serial (SPI Bus)	66	1 (256/264 Bytes)	Individual Sector	x	x	(8S2)- (8S1)- (8MA1)	Now
AT45DB041D	4-Mbit	2.7	Serial (SPI Bus)	66	2 (256/264 Bytes Each)	Individual Sector	x	x	(8S2)- (8S1)- (8M1-A)	Now
AT45DB081D	8-Mbit	2.7	Serial (SPI Bus)	66	2 (256/264 Bytes Each)	Individual Sector	x	x	(8S2)- (8S1)- (8M1-A)	Now
AT45DB161D	16-Mbit	2.7	Serial (SPI Bus)	66	2 (512/528 Bytes Each)	Individual Sector	x	x	(8S2)- (8M1-A)- (28T)- (24C1)	Now
AT45DB321D	32-Mbit	2.7	Serial (SPI Bus)	66	2 (512/528 Bytes Each)	Individual Sector	x	x	(8S2)- (8MW)- (8M1-A)- (28T)- (24C1)	Now
AT45DB642D	64-Mbit	2.7	Dual/SPI/Rapid8®	66/50	2 (1024/1056 Bytes Each)	Individual Sector	x	x	(8CN3)- (28T)	Now
AT45DB041D-2.5	4-Mbit	2.5	Serial (SPI Bus)	50	2 (256/264 Bytes Each)	Individual Sector	x	x	(8S2)- (8S1)- (8M1-A)	Now
AT45DB081D-2.5	8-Mbit	2.5	Serial (SPI Bus)	50	2 (256/264 Bytes Each)	Individual Sector	x	x	(8S2)- (8S1)- (8M1-A)	Now
AT45DB161D-2.5	16-Mbit	2.5	Serial (SPI Bus)	50	2 (512/528 Bytes Each)	Individual Sector	x	x	(8S2)- (8M1-A)- (28T)	Now
AT45DCB002D	2-Mbyte	2.7	Serial (SPI Bus)	66	2 (528 Bytes Each)	Individual Sector	x	x	7DF1	Now
AT45DCB004D	4-Mbyte	2.7	Serial (SPI Bus)	66	2 (528 Bytes Each)	Individual Sector	x	x	7DF1	Now
AT45DCB008D	8-Mbyte	2.7	Serial (SPI Bus)	66	2 (1056 Bytes Each)	Individual Sector	x	x	7DF1	Now

Uniform Block Erase Serial Flash

Part Number	Density (Mbits)	VCC Min (V)	Interface Architecture	Speed (MHz)	Min Erase (Kbytes)	Protection	Sector Lockdown	Serial Number	Dual Bit I/O	Packages	Availability
AT25F512A	0.5	2.7	Serial (SPI Bus)	33	32	Full Array				(8S1)- (8Y4)	Now
AT25F512B	0.5	2.7	Serial (SPI Bus)	70	4	Full Array		x		(8S1)- (8MA3)	Now
AT25FS010	1	2.7	Serial (SPI Bus)	50	4	1/32, 1/16, 1/8, 1/4, 1/2, Full Array				(8S1)- (8Y7)	Now
AT25F2048	2	2.7	Serial (SPI Bus)	33	64	1/4, 1/2, Full Array				(8S1)- (8Y7)	Now
AT25DF021	2	2.7	Serial (SPI Bus	70	4	Individual Sector		x		(8S1)- (8MA1)	Now
AT25DF041A	4	2.7/2.3	Serial (SPI Bus)	70	4	Individual Sector				(8S2)- (8S1)- (8MA1)	Now
AT26DF081A	8	2.7	Serial (SPI Bus)	70	4	Individual Sector				(8S2)- (8S1)	Now
AT25DF081	8	1.65	Serial (SPI Bus)	66	4	Individual Sector				(8S1)- (8MA1)- (11U1)	Now
AT26DF161A	16	2.7	Serial (SPI Bus)	70	4	Individual Sector				(8S2)- (8S1)- (8M1-A)	Now
AT25DF161	16	2.7	Serial (SPI Bus)/Dual I/O	100	4	Individual Sector	x	x	x	(8S2)- (8S1)- (8MA1)	4Q2008
AT25DF321	32	2.7	Serial (SPI Bus)	70	4	Individual Sector				(8S2)- (16S)	Now
AT25DF321A	32	2.7	Serial (SPI Bus)/Dual I/O	100	4	Individual Sector	x	x	x	(8S2)- (16S)- (8MA1)	1Q2009
AT25DF641	64	2.7	Serial (SPI Bus)/Dual I/O	100	4	Individual Sector	x	x	x	(8MW)- (16S)	Now

Notes: 1. Package Designator: : 9C1, 9-ball, 5 x 5 x 1.2 mm; 24C1, 24-ball, 6 x 8 x 1.4 mm. : 8CN3, 8-pad, 6 x 8 mm (Footprint Compatible with 8-pin SOIC, EIAJ). , , : 8M1-A, 8-pad, 5 x 6 x 1.0 mm (Footprint Compatible to 8-pin SOIC, JEDEC); 8MA1, 8-pad 5 x 6 x 0.6 mm (UDFN); 8MA3, 8-pad, 2 x 3 x 0.6 mm (UDFN/USON); 8MW, 8-pad, 6 x 8 mm (MLF/VDFN) (Footprint Compatible to 8-pin EIAJ SOIC); 8MW1, 8-pad, 6 x 8 x 1.0 mm Very Thin Dual (VDFN). : 28R, 28-lead, 0.330 Wide (Not Recommended for New Designs). : 8S1, 8-lead, 0.150" Wide. : 8S2, 8-lead, 0.208 Wide. : 16S, 16-lead, 0.300" Wide Body. (Type 1): 28T, 28-lead, 8 x 13.4 mm. , 11-ball. : 8Y7, 8-lead, 6 x 4.90 mm Body. -pad, 2.5 mm Pitch, 24 x 32 x 1.4 mm Body DataFlash Card.

2. Packaging Available for All Serial Flash Memory Products.

Programmable Logic Devices (PLDs)
SPLDs/CPLDs

Part Number	Description	Packages	Speeds (ns)	RoHS Compliance	Availability
ATF16V8B	8 FFs, 8 I/O Pins, Standard-power	20-lead	10, 15	Yes	Now
ATF16V8BQ(L)	8 FFs, 8 I/O Pins, Quarter-power, Low-power	20-lead	15	Yes	Now
ATF16V8C	8 FFs, 8 I/O Pins, Standard-power	20-lead	5-7.5	Yes	Now
ATF16V8CZ	8 FFs, 8 I/O Pins, Zero-power	20-lead	12, 15	Yes	Now
ATF20V8B	8 FFs, 8 I/O Pins, Standard-power	24-, 28-lead	10, 15	Yes	Now
ATF20V8BQ(L)	8 FFs, 8 I/O Pins, Quarter-power, Low-power	24-, 28-lead	15	Yes	Now
ATF22V10C	10 FFs, 10 I/O Pins, Standard-power	24-, 28-lead	5 - 15	Yes	Now
ATF22V10CQ(Z)	10 FFs, 10 I/O Pins, Quarter-power, Zero-power	24-, 28-lead	15-20	Yes	Now
ATF22V10CZ	10 FFs, 10 I/O Pins, Zero-power	24-, 28-lead	12, 15	No	Now
ATF750C(L)	20 FFs, 10 I/O Pins, Standard and Low-power	24-, 28-lead	7.5-15	Yes	Now
ATF2500C	48 FFs, 24 I/O Pins, Standard-power	40-, 44-lead	15-20	Yes	Now
ATF1500A(L)	32 Macrocell, Standard and Low-power, 5V	44-lead	7.5-20	Yes	Now
ATF1502AS(L)	32 Macrocell with ISP, Standard and Low-power, 5V	44-lead	7.5-25	Yes	Now
ATF1504AS(L)	64 Macrocell with ISP, Standard and Low-power, 5V	44-, 68-, 84-, 100-lead	7.5-20	Yes	Now
ATF1508AS(L)	128 Macrocell with ISP, Standard and Low-power, 5V	84-, 100-, 128-lead	7.5-20	Yes	Now
ATF22V10B	10 FFs, 10 I/O Pins, Standard-power	24-, 28-lead	15	No	Now
ATF22V10C	10 FFs, 10 I/O Pins, Standard-power	24-, 28-lead	10, 15	No	Now
ATF750C	20 FFs, 10 I/O Pins, Standard Power	24-, 28-lead	10, 15	No	Now
ATF2500C	48 FFs, 24 I/O Pins, Standard-power	40-, 44-lead	20	No	Now
5962-89841 (EPLD, DSCC Military)	10 FFs, 10 I/O Pins, Standard-power	24-, 28-lead	10, 15	No	Now
5962-07201 (EPLD, DSCC Military)	20 FFs, 10 I/O Pins, Standard Power	24-, 28-lead	10, 15	No	Now
ATF16LV8C	8 FFs, 8 I/O Pins, Low-voltage	20-lead	10, 15	Yes	Now
ATF22LV10C	10 FFs, 10 I/O Pins, Low-voltage	24-, 28-lead	10, 15	Yes	Now
ATF22LV10CZ	10 FFs, 10 I/O Pins, Low-voltage, Zero-power	24-, 28-lead	25	No	Now
ATF22LV10CQZ	10 FFs, 10 I/O Pins, Low-voltage, Quarter-power, Zero-power	24-, 28-lead	30	Yes	Now
ATF750LVC	20 FFs, 10 I/O Pins, 3.3V Standard Power	24-, 28-lead	15	Yes	Now
ATF1502ASV	32 Macrocells with ISP, 32 I/O Pins	44-lead	15	Yes	Now
ATF1504ASV(L)	64 Macrocells with ISP, Low-voltage and Low-power, 3.3V	44-, 84-, 100-lead	15-20	Yes	Now
ATF1508ASV(L)	128 Macrocells with ISP, Low-voltage and Low-power, 3.3V	84-, 100-lead	15-20	Yes	Now
ATF1508RE	128 Macrocells with ISP, High Speed, Ultra Low-power, 3.3V	100-lead	5, 7	Yes	Now
ATV750B(L)	20 FFs, 10 I/O Pins, Standard and Low-power	24-, 28-lead	15-10	Yes	Military Only
ATF1502BE	32 Macrocells with ISP, 1.8-volt, High Speed and Very Low-power	44-lead	5, 7	Yes	Now
ATF1504BE	64 Macrocells with ISP, 1.8-volt, High Speed and Very Low-power	44-, 100-lead	5, 7	Yes	Now
ATF1508BE	128 Macrocells with ISP, 1.8-volt, High Speed and Very Low-power	100-lead, 132-BGA	5, 7	Yes	Now

Communications

Cellular/Infrastructure ICs

Part Number	Description	Package	RoHS Compliance	Availability
U2790B-N	1000 MHz Quadrature Modulator for Digital Cellular Radio Systems, Very Low Power Consumption (Typically 150 mW), 0 dBm O/P Level	SO16	Pb-free Only	Now
U2793B-N	30 to 300 MHz Quadrature Modulator for Digital Cellular Radio Systems and Hybrid Fiber Coax Applications, Current Consumption 15 mA at 5V	SSO20	Pb-free Only	Now
U2794B-N	1000 MHz Quadrature Demodulator for Cellular Phones and Hybrid Fiber Coax Applications, Low DC Offset f_{IN} = 70 to 1000 MHz	SSO20	Pb-free Only	Now

Note: 1. Demo boards are available on request.

Private Mobile Radios (PMRs)

Part Number	Description	Package	RoHS Compliance	Availability
ATR0981	Monolithic SiGe Tx/Rx Front-end IC, Frequency Range 300 MHz to 500 MHz; It Consists of a Low-Noise Amplifier (LNA) and a Power Amplifier (PA) with Good Power-added Efficiency (PAE)	PSSO20	Pb-free Only	Now

Corded Phone ICs

High-end Telephone ICs

Part Number	Description	Package	RoHS Compliance	Availability
U4089B	Multi-standard Feature Phone Circuit with Voice Switch, Speech Circuit, Speaker Amplifier	SSO44	Yes	Now
U4090B	Multi-standard Feature Phone Circuit with Voice Switch, Speech Circuit, DC/DC Converter, Speaker Amplifier	SSO44	Yes	Now
U4091BM	Multi-standard Feature Phone IC, Bus Controlled, DTMF, Voice Switch, Interface to Cordless Phones and Answering Machines	SSO44	Yes	Now

Modular Telephone ICs

Part Number	Description	Package	RoHS Compliance	Availability
U4082B	Voice-switched Circuit, Fast Channel Switching for Quasi Duplex Operation	SO28	Yes	Now
U4083B	Low-power Audio Amplifier, Low Current Consumption	SO8	Yes	Now

Cordless Phone ICs

CT0/900 MHz

Part Number	Description	Package	RoHS Compliance	Availability
U3600BM	CT0 Programmable Transceiver, One-chip RF, IF and CT0, Programmable PLL, Adjustment Free	SSO44	Pb-free Only	Now

Crypto & Secure Memories

CryptoMemory® – Embedded (2-wire Interface)
CryptoMemory – Smart Cards (ISO 7816-3, T = 0)

Part Number	Description	Organization (Bytes)	Voltage	RoHS Compliance	Availability
AT88SC0104CA	1-Kbit User Memory with Authentication and Encryption, ISO 7816-3 Asynchronous and Synchronous 2-Wire I2C-Compliant Protocols	4 x 32	2.7-5.5	Yes	Now
AT88SC0204CA	2-Kbit User Memory with Authentication and Encryption, ISO 7816-3 Asynchronous and Synchronous 2-Wire I2C-Compliant Protocols	4 x 64	2.7-5.5	Yes	Now
AT88SC0404CA	4-Kbit User Memory with Authentication and Encryption, ISO 7816-3 Asynchronous and Synchronous 2-Wire I2C-Compliant Protocols	4 x 128	2.7-5.5	Yes	Now
AT88SC0808CA	8-Kbit User Memory with Authentication and Encryption, ISO 7816-3 Asynchronous and Synchronous 2-Wire I2C-Compliant Protocols	8 x 128	2.7-5.5	Yes	Now
AT88SC0104C	1-Kbit User Memory with Authentication and Encryption, ISO 7816-3 Asynchronous and Synchronous 2-wire Protocols	4 x 32	2.7-5.5	Yes	Now
AT88SC0204C	2-Kbit User Memory with Authentication and Encryption, ISO 7816-3 Asynchronous and Synchronous 2-wire Protocols	4 x 64	2.7-5.5	Yes	Now
AT88SC0404C	4-Kbit User Memory with Authentication and Encryption, ISO 7816-3 Asynchronous and Synchronous 2-wire Protocols	4 x 128	2.7-5.5	Yes	Now
AT88SC0808C	8-Kbit User Memory with Authentication and Encryption, ISO 7816-3 Asynchronous and Synchronous 2-wire Protocols	8 x 128	2.7-5.5	Yes	Now
AT88SC1616C	16-Kbit User Memory with Authentication and Encryption, ISO 7816-3 Asynchronous and Synchronous 2-wire Protocols	16 x 128	2.7-5.5	Yes	Now
AT88SC3216C	32-Kbit User Memory with Authentication and Encryption, ISO 7816-3 Asynchronous and Synchronous 2-wire Protocols	16 x 256	2.7-5.5	Yes	Now
AT88SC6416C	64-Kbit User Memory with Authentication and Encryption, ISO 7816-3 Asynchronous and Synchronous 2-wire Protocols	16 x 512	2.7-5.5	Yes	Now
AT88SC12816C	128-Kbit User Memory with Authentication and Encryption, ISO 7816-3 Asynchronous and Synchronous 2-wire Protocols	16 x 1024	2.7-5.5	Yes	Now
AT88SC25616C	256-Kbit User Memory with Authentication and Encryption, ISO 7816-3 Asynchronous and Synchronous 2-wire Protocols	16 x 2048	2.7-5.5	Yes	Now

AT88SC-ADK1 Aris++	1K to 256K CryptoMemory Demonstration, Evaluation and Full Development Kit for Embedded AVR	Now
AT88SC-ADK2 Aris+	1K to 256K Low Cost CryptoMemory Complete Development Kit	Now
AT88SC-DK1 Aris	1K to 256K CryptoMemory Adaptor and Development Kit for Embedded Applications	Now
AT88SC-SDK1 Tuema	1K to 256K CryptoMemory Development Kit for Smart Cards	Now

Embedded Crypto Solutions CD

Part Number	Description	Availability
AT88INFO-CD	Single Source for Information on CryptoMemory, CryptoRF, CryptoCompanion, RF Reader, and Kit Information	Now

RF Identification

RF Identification/Immobilization – 100 - 150 kHz

Part Number	Description	Package	RoHS Compliance	Availability
e5561	RFID Read/Write IDIC for Highly Sophisticated Security Demands “Copy Protection”, 256-bit R/W Memory, Up to 128-bit Secret Key for Authentication Password Protection, Different Codings and Bit-rates	Wafer	Pb-free Only	Now
ATA5567	RFID Read/Write IDIC for Contactless Identification, Backward Compatible to 5551 and 5557, 64-bit Unique TAG ID, Improved Operating Performance, High Temperature Data Retention, Optional 75 pF Capacitor On-chip, Programmable	Sawn Wafer on Foil, DIT, SO8, Micromodule	Pb-free Only	Now
ATA5558	RFID Read/Write IDIC for Contactless Identification, 1-Kbit Read/Write IC with Integrated Anticollision Functionality, ASK Modulation	Sawn Wafer on Foil, Wafer, DIT	Pb-free Only	Now
ATA5570	RFID Read/Write IDIC for Contactless Identification, Multifunctional 330-bit Read/Write, External Resistor-sensor Input, Threshold Detection	Wafer, DIT, SO8	Pb-free Only	Now
ATA5577M1	RFID Read/Write IDIC for Contactless Identification, Backward Compatible to 5551, 5557 and 5567 in Most Common Modes. 64-bit Unique TAG ID, Improved Operating Performance, High Temperature Data Retention, up to 330 pF Trimmed Capacitor On-chip. ISO 11784 and ISO 11785 Compatible	Sawn Wafer on Foil, DIT, Micromodule	Pb-free Only	Now
ATA5577M2	RFID Read/Write IDIC with Gold-bumped Mega Pads for Contactless Identification, Backward Compatible to 5551, 5557 and 5567 in Most Common Modes. 64-bit Unique TAG ID, Improved Operating Performance, High Temperature Data Retention, up to 330 pF Trimmed Capacitor On-chip. ISO 11784 and ISO 11785 Compatible	Sawn Gold-bumped Wafer on Foil, DIT	Pb-free Only	Now
U2270B	Read/Write Base Station IC, 100 to 150 kHz Carrier Frequency, Amplitude Modulation Typically Up to 5-Kbaud, Manchester/Biphase RF/32, RF/64, RF/128	SO16	Pb-free Only	Now
TK5551	Read/Write Transponder, Option Configurable, 125 kHz, AOR Feature for Multi-tag Access	Plastic Package (PP)	Pb-free Only	Now
TK5561	Read/Write Transponder for Highly Sophisticated Security Applications, 125 kHz Carrier Frequency, Encryption Algorithm, 9 x 32-bit EEPROM, Low-power/Low-voltage CMOS, No Battery Supply, Small Size, Manchester/Biphase, RF/32, RF/64	Plastic Package (PP)	Pb-free Only	Now
ATA5558	RFID Read/Write IDIC Transponder for Contactless Identification, 1-Kbit Read/Write IC with Integrated Anticollision Functionality, ASK Modulation	Plastic Package PAE (Formerly PP)	Pb-free Only	Now
ATA5577M1	RFID Read/Write IDIC Transponder for Contactless Identification, Backward Compatible to 5551, 5557 and 5567 in Most Common Modes. 64-bit Unique TAG ID, Improved Operating Performance, High Temperature Data Retention	Plastic Package PAE (Formerly PP)	Pb-free Only	4Q2008
U3280M	Transponder Interface for Microcontroller, Contactless Power Supply and Communication Interface, 32 x 16-bit EEPROM, Serial Interface, Field Clock Extractor, Field and Gap Detection for Wake-up and Data	SSO16	Pb-free Only	Now
U9280M	4-bit Microcontroller Plus Transponder Front End for Combination of Remote Control and Immobilizer Functions, ROM Mask Version for >200 kpcs/a, Maximum Flexibility for Algorithm/Protocol of Data Transfer, Well Suitable in Combination with the U2741B, Integrated Power Management (Battery or RF-field Power Supply)	SSO20	Pb-free Only	Now

Product Guide Index (Continued)

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