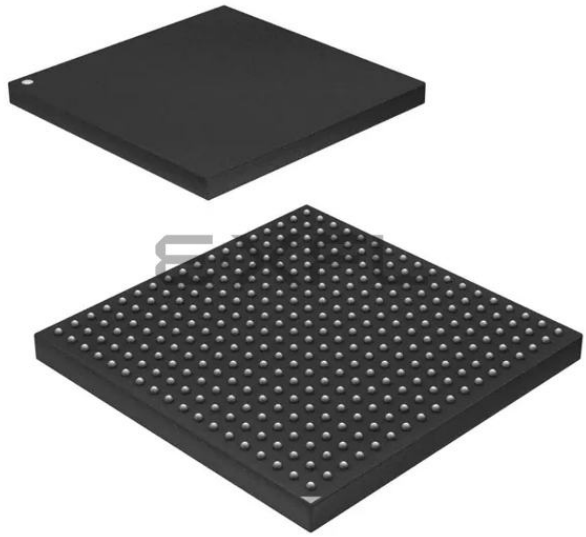

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What is "Embedded - Microcontrollers"?

"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-ctur

Atmel Corporation is a global leader in the design and manufacture of microcontrollers, and complementary products such as capacitive touch sensing ICs, ASICs, nonvolatile memory and radio frequency components. Leveraging one of the industry's broadest intellectual property (IP) technology portfolios, Atmel is able to provide the electronics industry with complete microcontroller-based system solutions focused on consumer, industrial, automotive, security, communications computing markets. By providing tools and support Atmel enables those customers to lead the markets they serve with electronic products that are smaller, smarter, more cost-effective and versatile than ever before.

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AVR 8-bit RISC (Continued)
ATmega picoPower AVR Series (Continued)

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)	Availability
ATmega329P	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
ATmega329PV	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
ATmega3250P	32	1K	2K	69	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, DIE	2.7-5.5V	0-16	Now
ATmega3250PV	32	1K	2K	69	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, DIE	1.8-5.5V	0-8	Now
ATmega3290P	32	1K	2K	69	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, DIE	2.7-5.5V	0-16	Now
ATmega3290PV	32	1K	2K	69	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, DIE	1.8-5.5V	0-8	Now
ATmega328P	32	1K	2K	23	–	1	1+USART	1	2	1	8	Y	debug-WIRE	S	PDIP, TQFP, QFN, DIE	2.7-5.5V	0-20	Now
ATmega328PV	32	1K	2K	23	–	1	1+USART	1	2	1	8	Y	debug-WIRE	S	PDIP, TQFP, QFN, DIE	1.8-5.5V	0-10	Now
ATmega644P	64	2K	4K	32	–	2	1+USART	1	2	1	8	Y	JTAG	S	PDIP, TQFP, QFN, DIE	2.7-5.5V	0-20	Now
ATmega644PV	64	2K	4K	32	–	2	1+USART	1	2	1	8	Y	JTAG	S	PDIP, TQFP, QFN, DIE	1.8-5.5V	0-10	Now
ATmega1284P	128	4K	16K	32	–	2	1+USART	1	1	2	8	Y	JTAG	S	PDIP, TQFP, QFN, DIE	1.8-5.5V	0-20	Sampling

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
ATAVRISP2	AVRISP Programmer for All AVR ISP Devices	Now
ATAVRRTOS	AVR Real-time Operating System Development Kit	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
ATSTK501	STK501 Expansion of STK500 to Support 64-pin megaAVR Devices	Now
ATSTK503	STK503 Expansion of STK500 for 100-pin megaAVR Devices	Now
ATSTK600	Starter Kit and Development System for AVR and AVR32	Now

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

AVR 8-bit RISC (Continued)
CAN AVR™

Part Number	Flash (Kbytes)	EEPROM (Kbytes)	RAM (Kbytes)	I/O Pins	CAN Message Objects	16-bit Timers	8-bit Timers	PWM (Channels)	RTC	SPI	USART	TWI (I2C Compatible)	ISP	10-bit ADC	BOD	WDT	Int. RC	HW MULT	Interrupts	Interrupts Ext.	SPM	VCC	Clock Speed (MHz)	Package	Temperature	Availability
AT90CAN32	32	1	2	53	15	2	2	6+2	1	1	2	1	1	8	1	1	1	1	37	8	1	2.7-5.5V	16	MLF64, TQFP64	-40 to +85° C	Now
AT90CAN64	64	2	4	53	15	2	2	6+2	1	1	2	1	1	8	1	1	1	1	–	–	1	2.7-5.5V	16	TQFP64, MLF64	-40 to +85° C	Now
AT90CAN128	128	4	4	53	15	2	2	6+2	1	1	2	1	1	8	1	1	1	1	37	8	1	2.7-5.5V	16	MLF64, TQFP64	-40 to +85° 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
ATAVRISP2	AVRISP Programmer for All AVR ISP Devices	Now
ATADAPCAN01	Replacement: STK500/501/AT90CAN128 CAN Adapter	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
ATSTK501	STK501 Expansion of STK500 to Support 64-pin megaAVR Devices	Now
ATSTK600	Starter Kit and Development System for AVR and AVR32	Now

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

AVR 8-bit RISC (Continued)
Lighting/Power Control AVR

Part Number	Flash (Kbytes)	EEPROM (Bytes)	RAM (Bytes)	I/O Pins	DALI	16-bit Timers	8-bit Timers	PWM (Channels)	RTC	SPI	USART	TWI (I2C-compatible)	ISP	ADC 10-bit (Channels)	BOD	WDT	Int. RC	HW MULT	Interrupts	Interrupts Ext.	SPM	VCC	Clock Speed (MHz)	Package	Temperature	Availability
AT90PWM1	8	512	512	19	–	1	1	7	–	1	–	–	1	8	1	1	1	1	26	4	1	2.7-5.5V	16	SOIC24	-40 to +105° C	Now
AT90PWM2	8	512	512	19	1	1	1	7	1	1	1	–	1	8	1	1	1	1	29	4	1	2.7-5.5V	16	SOIC24	-40 to +105° C	Now
AT90PWM3	8	512	512	27	1	1	1	10	1	1	1	–	1	11	1	1	1	1	29	4	1	2.7-5.5V	16	MLF32, SOIC32	-40 to +105° C	Now
AT90PWM81	8	512	256	16/20	–	1	–	4	–	1	–	–	1	11	1	1	1	1	20	3	1	2.7-5.5V	16	MLF32, SOIC20	-40 to +105/125° C	Now
AT90PWM216	16	512	1024	19	1	1	1	7	1	1	1	–	1	8	1	1	1	1	29	4	1	2.7-5.5V	16	SOIC24	-40 to +105° C	Now
AT90PWM316	16	512	1024	27	1	1	1	10	1	1	1	–	1	11	1	1	1	1	29	4	1	2.7-5.5V	16	MLF32, SOIC32	-40 to +105° 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
ATJTAGICE2	AVR Low-cost In-Circuit Emulator Supporting All AVR with debugWIRE or JTAG Interface	Now
ATAVRFBKIT	DALI Controlled Dimmable Fluorescent Demo Kit for AT90PWM2	Now
ATAVRISP2	AVRISP Programmer for All AVR ISP Devices	Now
ATAVRLI100	Fluorescent Dimmable Ballast Evaluation Kit with PWM81	Now
ATAVRMC100	Brushless DC Motor Control Evaluation Kit	Now
ATAVRMC200	Asynchronous AC Induction Motor Control Evaluation Kit	Now
ATAVRMC201	Asynchronous AC Induction Motor for ATAVRMC200 Evaluation Kit	Now
ATAVRMC300	Low Voltage Motor Control Power Evaluation Board (Max 40V)	Now
ATAVRMC301	Motor Control Processor Evaluation Board with the Low Cost ATtinyx61	Now
ATAVRMC303	Motor Control Processor Evaluation Board with the New High Performance XMEGA	Now
ATAVRMC310	Motor Control Processor Evaluation Board with the ATmega32M1 (with CAN and LIN Interfaces)	Now
ATAVRMC321	Motor Control Evaluation Kit for Low Cost Applications (MC300+MC301+BLDC Motor)	Now
ATAVRMC323	Motor Control Evaluation Kit for CPU Intensive Algorithm (MC300+MC303+BLDC Motor)	Now
ATAVRMC320	Motor Control Evaluation Kit for CAN and LIN Applications (MC300+MC310+BLDC Motor)	Now
ATSTK500	STK500 AVR Starter Kit with AVR Studio Interface	Now
ATSTK520	STK520 Expansion for STK500 to Support 90PWM Devices	Now
ATSTK521	Expansion Board for STK500 to Support 90PWM81 Devices	Now
ATSTK600	Starter Kit and Development System for AVR and AVR32	Now
ATSTK600-SOIC	STK600 Add-on to Support the New Devices in SO Packages	Now

Note: 1. All Lighting/Power Control AVR parts are RoHS compliant.

AVR 8-bit RISC (Continued)
USB Controllers AVR

Part Number	Flash (Kbytes)	EEPROM (Bytes)	RAM (Bytes)	I/O Pins	USB Host/OTG	USB DRAM (Bytes)	USB Endpoints	USB Full Speed	USB Low Speed	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	Interrupts Ext.	SPM	VCC	Clock Speed (MHz)	Package	Temperature	Availability
AT90USB82	8	512	512	22	–	176	4+1	Y	–	1	1	3+1	–	1	1	–	Y	–	Y	Y	Y	–	29	8+2x8	Y	2.7-5.5V	16	MLF32	-40 to +85° C	Now
AT90USB162	16	512	512	22	–	176	4+1	Y	–	1	1	3+1	–	1	1	–	Y	–	Y	Y	Y	–	29	8+2x8	Y	2.7-5.5V	16	TQFP32, MLF32	-40 to +85° C	Now
ATmega16U4	16	1K	1.25K	26	–	832	6+1	Y	Y	2	1	5+3 +1	–	1	1	Y	Y	12	Y	Y	Y	Y	38	5+1x8	Y	2.7-5.5V	16	MLF44	-40 to +85° C	4Q2008
ATmega32U4	32	1K	2.5K	26	–	832	6+1	Y	Y	2	1	5+3 +1	–	1	1	Y	Y	12	Y	Y	Y	Y	38	5+1x8	Y	2.7-5.5V	16	TQFP44, MLF44	-40 to +85° C	Now
ATmega32U6	32	1K	2.5K	48	–	832	6+1	Y	Y	2	2	6+2	Y	1	1	Y	Y	8	Y	Y	Y	Y	38	5+1x8	Y	2.7-5.5V	16	TQFP64, MLF64	-40 to +85° C	Now
AT90USB646	64	2K	4K	48	–	832	6+1	Y	Y	2	2	6+2	Y	1	1	Y	Y	8	Y	Y	Y	Y	38	8+1x8	Y	2.7-5.5V	16	MLF64	-40 to +85° C	Now
AT90USB647	64	2K	4K	48	1	832	6+1	Y	Y	2	2	6+2	Y	1	1	Y	Y	8	Y	Y	Y	Y	38	8+1x8	Y	2.7-5.5V	16	TQFP32, MLF32	-40 to +85° C	Now
AT90USB1286	128	4K	8K	48	–	832	6+1	Y	Y	2	2	6+2	Y	1	1	Y	Y	8	Y	Y	Y	Y	38	8+1x8	Y	2.7-5.5V	16	TQFP32, MLF32	-40 to +85° C	Now
AT90USB1287	128	4K	8K	48	1	832	6+1	Y	Y	2	2	6+2	Y	1	1	Y	Y	8	Y	Y	Y	Y	38	8+1x8	Y	2.7-5.5V	16	TQFP32, MLF32	-40 to +85° 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
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
AT90USBKEY	Demo Kit for AT90USB Devices	Now
ATEVK525	Mass Storage Evaluation Kit for AT90USB Devices (STK525 Add-on)	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
ATSTK520	STK520 Expansion for STK500 to Support 90PWM Devices	Now
ATSTK525	STK525 AVR Starter Kit to Support 64-pin AT90USB Devices	Now
ATSTK526	STK526 AVR Starter Kit to Support 32-pin AT90USB Devices	Now
ATSTK600	Starter Kit and Development System for AVR and AVR32	Now

Note: 1. All USB Controllers 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)
Flash ISP (In-System Programmable) (Continued)

Part Number	Description	Memory Size	RoHS Compliance	Availability
AT89C51RE2	In-System Programmable Microcontroller with 128-Kbyte Flash, 8192-byte RAM, PCA, SPI, 2 UART	128K x 8	Yes	Now
AT89ISP	In-System Programmer for AT89S/AT89LP Series			Now
AT89OCD-01	On Chip Debug Tool for 8051 Flash Microcontrollers: AT89C51RE2 and Derivatives			Now
AT89STK-11	Starter Kit for In-System Programming 8051 Flash Microcontrollers			Now
FLIP	FLexible In-System Programmer – PC-based Software for In-System Programming of C51-based Flash Microcontrollers – Available in Microsoft® Windows® (Support RS-232, CAN, USB Interfaces), Linux (RS-232 Interface)			Now

Flash ISP – Single Cycle Core

Part Number	Description	Memory Size	RoHS Compliance	Availability
AT89LP2052	Single-cycle 8051 Core, In-System Programmable Microcontroller with 2-Kbyte Flash, 256-byte RAM, Analog Comparator	2K x 8	Yes	Now
AT89LP4052	Single-cycle 8051 Core, In-System Programmable Microcontroller with 4-Kbyte Flash, 256-byte RAM, Analog Comparator	4K x 8	Yes	Now
AT89LP213	Single-cycle 8051 Core, In-System Programmable Microcontroller with 2-Kbyte Flash, 128-byte RAM, On-chip Debug, SPI, 14-pin, PWM, Internal RC Oscillator, Analog Comparator	2K x 8	Yes	Now
AT89LP214	Single-cycle 8051 Core, In-System Programmable Microcontroller with 2-Kbyte Flash, 128-byte RAM, On-chip Debug, SPI, 14-pin, UART, Analog Comparator, Internal RC Oscillator	2K x 8	Yes	Now
AT89LP216	Single-cycle 8051 Core, In-System Programmable Microcontroller with 2-Kbyte Flash, 128-byte RAM, On-chip Debug, SPI, 16-pin, UART, PWM, Analog Comparator, Internal RC Oscillator	2K x 8	Yes	Now
AT89LP428	Single-cycle 8051 Core, In-System Programmable Microcontroller with 4-Kbyte Flash, 512-byte Flash Data, 768-byte RAM, On-chip Debug, SPI, 28-/32-pin, UART, PWM, Dual Analog Comparator, Internal RC Oscillator, In-Application Programming	4K x 8	Yes	Now
AT89LP828	Single-cycle 8051 Core, In-System Programmable Microcontroller with 8-Kbyte Flash, 1024-byte Flash Data, 768-byte RAM, On-chip Debug, SPI, 28-/32-pin, UART, PWM, Dual Analog Comparator, Internal RC Oscillator, In-Application Programming	8K x 8	Yes	Now
AT89LP6440	Single-cycle 8051 Core, In-System Programmable Microcontroller with 64-Kbyte Flash, 8-Kbyte Flash Data, 4-Kbyte RAM, On-chip Debug, SPI, TWI, 40-/44-pin, UART, PWM, Dual Analog Comparator, 8-channel/10-bit ADC, Internal RC Oscillator, In-Application Programming, 2.4 V - 3.6V V_{CC} Range	64K x 8	Yes	4Q2008
AT89ISP	In-System Programmer for AT89S/AT89LP Series			Now

Lighting Microcontrollers

Part Number	Description	Program Memory	RoHS Compliance	Availability
AT83EB5114	Microcontroller with 256-byte RAM, 256-byte EEPROM, 10-bit 6-channel ADC, 16-bit Timers, Analog Comparator, RC Oscillator, Amplifier/Rectifier	4-Kbyte ROM	Yes	Now
AT89RFD-10	Non Dimmable Fluorescent Demo Kit for AT8xEB5114			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

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 ASSPs (Continued)
Car Access (Continued)
Car Components (Continued)

Part Number	Description	Package	RoHS Compliance	Availability
ATA5812	UHF Transceiver for ASK and FSK Systems, 315 MHz	QFN48	Yes	Now
ATA5823	UHF Transceiver for ASK and FSK Systems, 315 MHz, Full Duplex	QFN48	Yes	Now
ATA5824	UHF Transceiver for ASK and FSK Systems, 433 to 435 MHz or 868 to 870 MHz, Full Duplex	QFN48	Yes	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
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
ATAB5278	Evaluation Board, LF Antenna Driver, Preferred for Passive Entry Systems			Now
ATAB5760-N	Receiver Board ATA5760N, 868.3 MHz, No SAW Filter			Now
ATAB5760-S	Receiver Board ATA5760N, 868.3 MHz, SAW Filter			Now
ATAB5761-N	Receiver Board ATA5761N, 915 MHz, No SAW Filter			Now
ATAB5744-N3	Receiver Board ATA5744N, 315 MHz, No SAW Filter			Now
ATAB5744-S3	Receiver Board ATA5744N, 315 MHz, SAW Filter			Now
ATAB5744-N4	Receiver Board ATA5744N, 433.92 MHz, No SAW Filter			Now
ATAB5744-S4	Receiver Board ATA5744N, 433.93 MHz, SAW Filter			Now
ATAB5812-3-B	UHF ASK/FSK Transceiver Basestation Board for 315 MHz			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
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-LFMB78	LF Mainboard with AVR for ATAB5278			Now
ATAB5279	Evaluation Board for Six-fold LF Antenna Driver, Preferred for Passive Entry Systems			Now
ATAB-LF-MB-79	LF Mainboard with AVR for ATAB5279			Now
ATAKSTK511-8	AVR-based RF Starter Kit for 868 MHz			Now
ATAKSTK511-9	AVR-based RF Starter Kit for 915 MHz			Now
ATAKSTK512-3	Remote Access Control Kit for Uni-directional Communication at 315 MHz			Now
ATAKSTK512-4	Remote Access Control Kit for Uni-directional Communication at 433 MHz			Now
ATAB-LFTX-MOD1	Antenna Module for LF TX Systems			Now
ATAB-RFMB	RF Mainboard with AVR and Interface			Now
ATAB-SPI-LPT	SPI to Parallel Port (LPT) Interface Board for TRX Basestation Boards			Now
TMEB8704	LF RFID IDIC® Evaluation Kit for U2270B and TK5561			Now

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

Military & Avionics

ASICs and FPGAs

Part Number	Description	RoHS Compliance	Availability
MH1	0.35 Micron 1.6M Used Gates Sea of Gates/Embedded Arrays	Plastic Package	Now
ATC18M	0.18 Micron 5.5M Gates Cell-based	Plastic Package	Now
AT40KAL040	FPGA 40K ASIC Gates and 18-Kbit SRAM	Yes	Now
SERVICE	FPGA to ASIC Conversion	Plastic Package	Now

Space Radiation Tolerant/Hard ASICs and FPGAs

Part Number	Description	RoHS Compliance	Availability
MH1RT	Rad Hard 0.35 Micron 1.6M Used Gates Sea of Gates/Embedded Gates	Yes (Except for MCGA Package)	Now
ATC18RHA	Rad Hard 0.18 Micron 5.5M Gates Cell-based	Yes (Except for MCGA Package)	Now
AT40KEL040	Rad Hard FPGA 40K ASIC Gates and 18-Kbit SRAM	Yes	Now
ATF280E	Rad Hard FPGA 280K ASIC Gates and 115-Kbit SRAM	Yes (Except for MCGA Package)	1Q2009
SERVICE	FPGA to ASIC Conversion	Yes	Now

Space Radiation Tolerant/Hard Communication ICs

Part Number	Description	RoHS Compliance	Availability
29C516E	Rad Tolerant 16-bit Flow through EDAC Error Detection and Correction Unit	Yes	Now
T7906E	Rad Tolerant Single Point-to-Point IEEE® 1355 High-speed Controller (SMCS Lite)	Yes	Now
TSS901E	Rad Tolerant Triple Point-to-Point IEEE1355 High-speed Controller (SMCS)	Yes	Now
AT7908E	Rad Hard CAN Controller	Yes	Now
AT7909E	Single Chip TeleMetry and TeleCommand (SCTMTC)	Yes	Now
AT7910E	SpaceWire Router	Yes	Now
AT7911E	Triple SpaceWire links High Speed Controller (SMCS332SPW)	Yes	Now
AT7912E	Single SpaceWire links High Speed Controller (SMCS116SPW)	Yes	Now
AT7913E	SpaceWire Remote Terminal Controller	Yes	4Q2008

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.

Serial EEPROMs Standard Products (Continued)

Part Number	Density (Kbits)	Organization	VCC (V)	Max Speed (MHz)	Package	Comments	Availability
AT25040A	4	512 x 8	1.8, 2.7	20	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), XDFN*, Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT25040B	4	512 x 8	1.8	20	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), XDFN*, Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	2Q2009 (Replaces AT25040A)
AT25080A	8	1024 x 8	1.8, 2.7	20	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT25080B	8	1024 x 8	1.8	20	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), XDFN*, Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	4Q2008 (Replaces AT25080A)
AT25160A	16	2048 x 8	1.8, 2.7	20	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), XDFN, Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT25160B	16	2048 x 8	1.8	20	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), XDFN, Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	4Q2008 (Replaces AT25160A)
AT25320A	32	4096 x 8	1.8, 2.7	20	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT25320B	32	4096 x 8	1.8	20	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), XDFN*, Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	1Q2009 (Replaces AT25320A)
AT25640A	64	8192 x 8	1.8, 2.7	20	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT25640B	64	8192 x 8	1.8	20	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), XDFN*, Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	1Q2009 (Replaces AT25640A)
AT25128A	128	16384 x 8	1.8, 2.7	20	PDIP, SOIC, TSSOP, DFN (SAP), Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	Now
AT25128B	128	16384 x 8	1.8	20	PDIP, SOIC, TSSOP, dBGA2, DFN (SAP), Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	2Q2009 (Replaces AT25128A)
AT25256A	256	32768 x 8	1.8, 2.7	20	PDIP, SOIC, TSSOP, DFN (SAP), Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	Now (Replaces AT25HP256)
AT25256B	256	32768 x 8	1.8	20	PDIP, SOIC, TSSOP, dBGA2, DFN (SAP), Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	2Q2009 (Replaces AT25256A)
AT25512	512	65536 x 8	1.8	20	SOIC, TSOP, dBGA2, DFN, Die/Wafer	SPI Mode 0 and 3, SW/HW Write Protect	Now (Replaces AT25HP512)
AT93C46D	1	64 x 16/ 128 x 8	1.8	2	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), XDFN*, Die/Wafer	x8 or x16 Organization	Replaces AT93C46
AT93C46E	1	64 x 16	1.8	2	PDIP, SOIC, TSSOP	x16 Organization	Replaces AT93C46A
AT93C56A	2	128 x 16/ 256 x 8	1.8, 2.7	2	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), Die/Wafer	x8 or x16 Organization with Sequential Read	Now
AT93C66A	4	256 x 16/ 512 x 8	1.8, 2.7	2	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), Die/Wafer	x8 or x16 Organization with Sequential Read	Now
AT93C86A	16	1024 x 16/ 2048 x 8	1.8, 2.7	2	PDIP, SOIC, TSSOP, DFN (MAP), Die/Wafer	x8 or x16 Organization with Sequential Read	Now

* Available on Request

All Serial EEPROMs Parts are RoHS Compliant.

FPGA Configuration Memory (Continued)
FPGA Serial Configuration EEPROM (Continued)

Part Number	Description	Memory Size	RoHS Compliance	Availability
AT17N256	256-Kbit FPGA Configuration Memory	262,144 x 1	No	Now
AT17N512	512-Kbit FPGA Configuration Memory	524,288 x 1	No	Now
AT17N010	1-Mbit FPGA Configuration Memory	1,048,576 x 1	No	Now
AT17N002	2-Mbit FPGA Configuration Memory	2,097,152 x 1	No	Now
AT17N040	4-Mbit FPGA Configuration Memory	4,194,304 x 1	No	Now
AT17F040	4-Mbit FPGA Configuration Flash	4,194,304 x 1	Yes	Now
AT17F040A	4-Mbit FPGA Configuration Flash, Altera Pinout	4,194,304 x 1	Yes	Now
AT17F080	8-Mbit FPGA Configuration Flash	8,388,608 x 1	Yes	Now
AT17F080A	8-Mbit FPGA Configuration Flash, Altera Pinout	8,388,608 x 1	Yes	Now
AT17F16	16-Mbit FPGA Configuration Flash	16,777,216 x 1	Yes	Now
AT17F16A	16-Mbit FPGA Configuration Flash, Altera Pinout	16,777,216 x 1	Yes	Now
AT17F32	32-Mbit FPGA Configuration Flash	33,554,432 x 1	Yes	Now
AT17F32A	32-Mbit FPGA Configuration Flash, Altera Pinout	33,554,432 x 1	Yes	Now
AT18F010	1-Mbit FPGA Configuration Flash with ISP, Pin Compatible with Xilinx Platform Flash	1,048,576 x 1	Yes	Now
AT18F002	2-Mbit FPGA Configuration Flash with ISP, Pin Compatible with Xilinx Platform Flash	2,097,152 x 1	Yes	Now
AT18F040	4-Mbit FPGA Configuration Flash with ISP, Pin Compatible with Xilinx Platform Flash	4,194,304 x 1	Yes	Now
AT18F080	8-Mbit FPGA Configuration Flash with ISP, Pin Compatible with Xilinx Platform Flash	7,340,032 x 1	Yes	Now
ATDH2200E	Configurator Programming Kit, CPS ISP Software, 8-lead LAP and 20 PLCC Adapter			Now
AT18F-DK3	Configurator Programming Kit for AT18F Family			Now
ATDH1151VPC	ISP Cable for AT18F with Converter			Now
ATF15XXDK3-SAX20	20-lead TSSOP Adapter with AT18F Converter to Be Used with ATF15XX-DK3 Kit			Now
ATDH2221	20-lead SOIC (8-lead DIP Adapter)			Now
ATDH2222	20-lead PLCC (8-lead DIP Adapter)			Now
ATDH2223	8-lead SOIC (8-lead DIP Adapter)			Now
ATDH2224	44-lead PQFP (8-lead DIP Adapter)			Now
ATDH2225	ISP Download Cable			Now
ATDH2226A	32-lead PQFP (8-lead DIP Adapter), Altera Pinout			Now
ATDH2227	44-lead PLCC (8-lead DIP Adapter)			Now
ATDH2227A	44-lead PLCC (8-lead DIP Adapter), Altera Pinout			Now
ATDH2228	8-lead LAP (8-lead DIP Adapter)			Now

Communications (Continued)
DECT/DCT RF ICs

Part Number	Description	Package	RoHS Compliance	Availability
ATR2806	2.4 GHz Transceiver, Low IF Architecture, VCO and Voltage Regulator On-chip	QFN32	Yes	Now
ATR2807	3.3 GHz VCO/PLL, Voltage Regulator	QFN32	Yes	Now
ATR2808	2.9 GHz Transceiver, Non-blind-slot Operation, VCO and Voltage Regulator On-chip, Open Loop Modulation	QFN48	Yes	Now
ATR2809	5.8 GHz Down-conversion Triple-balanced Mixer with High LO Rejection	QFN16	Yes	Now
ATR2820	5.8 GHz Transceiver, Low IF Architecture, VCO and Voltage Regulator On-chip	QFN32	Yes	Now
ATR7035	5.8 GHz PA with 27 dBm Output Power	QFN16	Yes	Now
ATR7039	Up-converting Mixer with Buffer Amplifier for 5.8 GHz Applications	QFN16	Yes	Now
ATR7040	5.8 GHz PA with 25 dBm Output Power	QFN16	Yes	Now
T2803	2.4 GHz Transceiver, Non-blind-slot Operation, VCO and Voltage Regulator On-chip, Open Loop Modulation, Wide Band 2.4 GHz TRX	QFN48	Yes	Now
T7024	DECT/DCT 2.4 GHz Tx/Rx Front End IC	PSSO20, QFN20	Yes	Now
T7026	2.4 GHz LNA/PA	QFN20	Yes	Now

Industrial, Scientific and Medical (ISM)

Part Number	Description	Package	RoHS Compliance	Availability
T7024	ISM 2.4 GHz Tx/Rx Front End, P_{OUT} = 23 dBm, NF = 2 dBm	PSSO20, QFN20	Yes	Now
ATR2406	Single-chip RF Transceiver, 2.400-2.483 GHz ISM Band, 3 dBm Output Power, 93 dBm Receiver Sensitivity, Fully Integrated Design, No External SAW Filter Needed, Digital Baseband Interface for Easy Interconnection to 8-bit AVR Flash Microcontrollers, 32-pin QFN (5 x 5 x 0.9 mm)	QFN32	Yes	Now

Product Guide Index

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