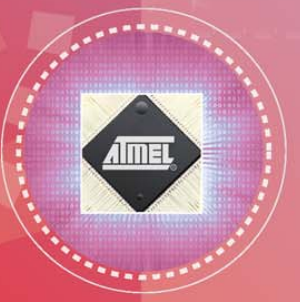

Microcontrollers
(8-bit and 32-bit)

TouchScreen Technology

Automotive

picoPower™

AVR®
ARM®

High Performance

ASICs

RF

Security Solutions

Nonvolatile Memory

Atmel® Products Selector Guide

Winter 2008

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ATMEL PRODUCT GUIDE

Winter 2008

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Atmel's Products

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.

As a global company with worldwide revenues coming from Asia, Europe and the Americas, Atmel has a significant number of global development and manufacturing operations. Atmel operates fabrication facilities in Colorado Springs, Colorado and in Rousset, France. The company employs approximately 7,000 people worldwide. In addition to its fabrication facilities, Atmel has both its own test and assembly operations in Manila, Philippines and a sub contractor network. To better serve its customers Atmel has sales and field application support at 44 offices worldwide and numerous design facilities.

Atmel has a corporate-wide commitment to quality and continuous improvement that extends to every level of its activities. The ultimate objective is total customer satisfaction. Atmel strives to meet the needs of its worldwide customers and has continued its quality excellence path via major third-party certification programs: ISO 9001, ISO/TS 16949, and ISO 14001. All of Atmel's registration certificates can be downloaded from the Atmel quality web site (**http://www.atmel.com/quality/quality_cert.asp**).

Online Product Information

http://www.atmel.com

Atmel RoHS and Green Packaging (Lead-Free)

Atmel began introducing Pb-free packages in the late 1990's with our LAP laminate package family. Since then we have aggressively developed Pb-free or fully Green packages and now provide offerings in virtually every available package footprint in accordance with customer demand as well as legislative directives such as RoHS 2002/95/EC. For more information go to:

http://www.atmel.com/green

Ordering Information

Atmel's products are available from any of the Atmel sales offices, franchised sales representative or distributors. To find your local contact, go to:

http://www.atmel.com/contacts

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http://www.atmel.com/literature

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http://www.atmel.com/forms/newsletter.asp

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Microcontrollers

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.

Microcontrollers (Continued)

AVR 8-bit RISC (Continued)

ATmega AVR Series (Continued)

Part Number	Flash (Kbytes)	EEPROM (Kbytes)	RAM (Kbytes)	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
ATmega644	64	2	4	32	–	1	1+USART	1	2	1	8	Y	JTAG	S	PDIP, TQFP, QFN, DIE	2.7-5.5V	0-20	–	Now
ATmega644V	64	2	4	32	–	1	1+USART	1	2	1	8	Y	JTAG	S	PDIP, TQFP, QFN, DIE	1.8-5.5V	0-10	–	Now
ATmega645	64	2	4	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	2.7-5.5V	0-16	–	Now
ATmega645V	64	2	4	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	1.8-5.5V	0-8	–	Now
ATmega6450	64	2	4	69	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, DIE	2.7-5.5V	0-16	–	Now
ATmega6450V	64	2	4	69	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, DIE	1.8-5.5V	0-8	–	Now
ATmega128	128	4	4	53	–	2	1	1	2	2	8	Y	JTAG	S	TQFP, QFN, DIE	4.5-5.5V	0-16	XRAM	Now
ATmega128L	128	4	4	53	–	2	1	1	2	2	8	Y	JTAG	S	TQFP, QFN, DIE	2.7-5.5V	0-8	XRAM	Now
ATmega1280	128	4	8	86	–	4	1+USART	1	2	4	16	Y	JTAG	S	TQFP, BGA, DIE	2.7-5.5V	0-16	XRAM	Now
ATmega1280V	128	4	8	86	–	4	1+USART	1	2	4	16	Y	JTAG	S	TQFP, BGA, DIE	1.8-5.5V	0-8	XRAM	Now
ATmega1281	128	4	8	54	–	2	1+USART	1	2	4	8	Y	JTAG	S	TQFP, QFN, DIE	2.7-5.5V	0-16	XRAM	Now
ATmega1281V	128	4	8	54	–	2	1+USART	1	2	4	8	Y	JTAG	S	TQFP, QFN, DIE	1.8-5.5V	0-8	XRAM	Now
ATmega2561	256	4	8	54	–	2	1+USART	1	2	4	8	Y	JTAG	S	TQFP, QFN, DIE	2.7-5.5V	0-16	XRAM	Now
ATmega2561V	256	4	8	54	–	2	1+USART	1	2	4	8	Y	JTAG	S	TQFP, QFN, DIE	1.8-5.5V	0-8	XRAM	Now
ATmega2560	256	4	8	86	–	4	1+USART	1	2	4	16	Y	JTAG	S	TQFP, BGA, DIE	2.7-5.5V	0-16	XRAM	Now
ATmega2560V	256	4	8	86	–	4	1+USART	1	2	4	16	Y	JTAG	S	TQFP, BGA, DIE	1.8-5.5V	0-8	XRAM	Now
ATmega8HVA	8	256	512	6	–	–	1	–	–	2	–	Y	debug-WIRE	S	LGA, TSOP	1.8-9.0V	0-4	12-bit ADC	Now
ATmega16HVA	16	256	512	6	–	–	1	–	–	2	–	Y	debug-WIRE	S	LGA, TSOP	1.8-9.0V	0-4	12-bit ADC	Now

Evaluation/Development Kits		
ATAVRBFLY	AVR Butterfly, ATmega169 Demo Board with LCD and Speaker	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
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	STK®500 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 AVR Series parts are RoHS compliant.

Microcontrollers (Continued)

AVR 8-bit RISC (Continued)

ATmega picoPower™ 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)	Availability
ATtiny13A	1	64	64	6	1	–	–	–	–	–	4	Y	debug-WIRE	S	QFN, PDIP, SOIC, Narrow SOIC, DIE	1.8-5.5V	0-20	Now
ATtiny48	4	64	256	28	–	–	Y	1	1	1	8	Y	debug-WIRE	S	PDIP, TQFP, QFN, DIE	1.8-5.5V	0-12	Now
ATtiny88	8	64	512	28	–	–	Y	1	1	1	8	Y	debug-WIRE	S	PDIP, TQFP, QFN, DIE	1.8-5.5V	0-12	Now
ATmega48P	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
ATmega48PV	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
ATmega88P	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
ATmega88PV	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
ATmega168P	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
ATmega168PV	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
ATmega164P	16	512	1K	32	–	2	1+USART	1	2	1	8	Y	JTAG	S	PDIP, TQFP, QFN, DIE	2.7-5.5V	0-20	Now
ATmega164PV	16	512	1K	32	–	2	1+USART	1	2	1	8	Y	JTAG	S	PDIP, TQFP, QFN, DIE	1.8-5.5V	0-10	Now
ATmega165P	16	512	1K	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	2.7-5.5V	0-16	Now
ATmega165PV	16	512	1K	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	1.8-5.5V	0-8	Now
ATmega169P	16	512	1K	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	2.7-5.5V	0-16	Now
ATmega169PV	16	512	1K	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	1.8-5.5V	0-8	Now
ATmega324P	32	1K	2K	32	–	2	1+USART	1	2	1	8	Y	JTAG	S	PDIP, TQFP, QFN, DIE	2.7-5.5V	0-20	Now
ATmega324PV	32	1K	2K	32	–	2	1+USART	1	2	1	8	Y	JTAG	S	PDIP, TQFP, QFN, DIE	1.8-5.5V	0-10	Now
ATmega325P	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
ATmega325PV	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

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

Microcontrollers (Continued)

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

Evaluation/Development Kits		
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.

Microcontrollers (Continued)

AVR 8-bit RISC (Continued)

ATtiny AVR Series

Part Number	Flash (Kbytes)	EEPROM (Bytes)	RAM (Bytes)	I/O Pins	USI*	TWI	UART	8-bit Timer	16-bit Timer	10-bit ADC	BOD	On-chip Debug.	In-System(I)/Self-prog. (S)	Package	VCC	Speed (MHz)	Availability
ATtiny12	1	64	32 Registers	6	–	–	–	1	–	–	Y	–	I	PDIP, SOIC, DIE	4-5.5V	0-8	Now
ATtiny12L	1	64	32 Registers	6	–	–	–	1	–	–	Y	–	I	PDIP, SOIC, DIE	2.7-5.5V	0-4	Now
ATtiny12V	1	64	32 Registers	6	–	–	–	1	–	–	Y	–	I	PDIP, SOIC, DIE	1.8-5.5V	0-1	Now
ATtiny13A	1	64	64	6	–	–	–	1	–	4	Y	debug-WIRE	S	PDIP, SOIC, Narrow SOIC, QFN, DIE	1.8-5.5V	0-20	Now
ATtiny24	2	128	128	12	1	–	–	1	1	8	Y	debug-WIRE	S	PDIP, Narrow SOIC, QFN, DIE	2.7-5.5V	0-20	Now
ATtiny24V	2	128	128	12	1	–	–	1	1	8	Y	debug-WIRE	S	PDIP, Narrow SOIC, QFN, DIE	1.8-5.5V	0-10	Now
ATtiny25	2	128	128	6	1	–	–	2	–	4	Y	debug-WIRE	S	PDIP, SOIC, QFN, DIE	2.7-5.5V	0-20	Now
ATtiny25V	2	128	128	6	1	–	–	2	–	4	Y	debug-WIRE	S	PDIP, SOIC, QFN, DIE	1.8-5.5V	0-10	Now
ATtiny26	2	128	128	16	1	–	–	2	–	11	Y	–	I	PDIP, SOIC, QFN, DIE	4.5-5.5V	0-16	Now
ATtiny26L	2	128	128	16	1	–	–	2	–	11	Y	–	I	PDIP, SOIC, QFN, DIE	2.7-5.5V	0-8	Now
ATtiny261	2	128	128	16	1	–	–	1	1	11	Y	debug-WIRE	S	PDIP, SOIC, QFN, DIE	2.7-5.5V	0-20	Now
ATtiny261V	2	128	128	16	1	–	–	1	1	11	Y	debug-WIRE	S	PDIP, SOIC, QFN, DIE	1.8-5.5V	0-10	Now
ATtiny2313	2	128	128	18	1	–	1	1	1	–	Y	debug-WIRE	S	PDIP, SOIC, QFN, DIE	2.7-5.5V	0-20	Now
ATtiny2313V	2	128	128	18	1	–	1	1	1	–	Y	debug-WIRE	S	PDIP, SOIC, QFN, DIE	1.8-5.5V	0-10	Now
ATtiny28L	2	–	32 Registers	11	–	–	–	1	–	–	–	–	–	PDIP, QFN, TQFP, DIE	2.7-5.5V	0-4	Now
ATtiny28V	2	–	32 Registers	11	–	–	–	1	–	–	–	–	–	PDIP, QFN, TQFP, DIE	1.8-5.5V	0-1	Now

Notes: 1. *USI = Universal Serial Interface.
2. All ATtiny AVR Series parts are RoHS compliant.

Microcontrollers (Continued)

AVR 8-bit RISC (Continued)

ATtiny AVR Series (Continued)

Part Number	Flash (Kbytes)	EEPROM (Bytes)	RAM (Bytes)	I/O Pins	USI*	TWI	UART	8-bit Timer	16-bit Timer	10-bit ADC	BOD	On-chip Debug.	In-System(I)/Self-prog. (S)	Package	VCC	Speed (MHz)	Availability
ATtiny44	4	256	256	12	1	–	–	1	1	8	Y	debug-WIRE	S	PDIP, Narrow SOIC, QFN, DIE	2.7-5.5V	0-20	Now
ATtiny44V	4	256	256	12	1	–	–	1	1	8	Y	debug-WIRE	S	PDIP, Narrow SOIC, QFN, DIE	1.8-5.5V	0-10	Now
ATtiny45	4	256	256	6	1	–	–	2	–	4	Y	debug-WIRE	S	PDIP, SOIC, QFN, DIE	2.7-5.5V	0-20	Now
ATtiny45V	4	256	256	6	1	–	–	2	–	4	Y	debug-WIRE	S	PDIP, SOIC, QFN, DIE	1.8-5.5V	0-10	Now
ATtiny461	4	256	256	16	1	–	–	1	1	11	Y	debug-WIRE	S	PDIP, SOIC, QFN, DIE	2.7-5.5V	0-20	Now
ATtiny461V	4	256	256	16	1	–	–	1	1	11	Y	debug-WIRE	S	PDIP, SOIC, QFN, DIE	1.8-5.5V	0-10	Now
ATtiny48	4	64	256	28	–	Y	–	1	1	8	Y	debug-WIRE	S	PDIP, TQFP, QFN, DIE	1.8-5.5V	0-12	Now
ATtiny84	8	512	512	12	1	–	–	1	1	8	Y	debug-WIRE	S	PDIP, QFN, DIE	2.7-5.5V	0-20	Now
ATtiny84V	8	512	512	12	1	–	–	1	1	8	Y	debug-WIRE	S	PDIP, QFN, DIE	1.8-5.5V	0-10	Now
ATtiny85	8	512	512	6	1	–	–	2	–	4	Y	debug-WIRE	S	PDIP, SOIC, QFN, DIE	2.7-5.5V	0-20	Now
ATtiny85V	8	512	512	6	1	–	–	2	–	4	Y	debug-WIRE	S	PDIP, SOIC, QFN, DIE	1.8-5.5V	0-10	Now
ATtiny861	8	512	512	16	1	–	–	1	1	11	Y	debug-WIRE	S	PDIP, SOIC, QFN, DIE	2.7-5.5V	0-20	Now
ATtiny861V	8	512	512	16	1	–	–	1	1	11	Y	debug-WIRE	S	PDIP, SOIC, QFN, DIE	1.8-5.5V	0-10	Now
ATtiny88	8	64	512	28	–	Y	–	1	1	8	Y	debug-WIRE	S	PDIP, TQFP, QFN, DIE	1.8-5.5V	0-12	Now

Evaluation/Development Kits		
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
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
ATSTK505	STK505 Expansion of STK500 for 14-pin SOIC and 20-pin PDIP AVR Devices	Now
ATSTK600	Starter Kit and Development System for AVR and AVR32	Now

Notes:
1. *USI = Universal Serial Interface.
2. All ATtiny AVR Series parts are RoHS compliant.

Microcontrollers (Continued)

AVR 8-bit RISC (Continued)

Automotive AVR

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
ATtiny167	16	512	512	16	–	1	1	4	–	1+USI	–	–	–	–	–	–	–	–	–	–	–	2.7-5.5V	16	MLF32, SOIC20, TSSOP20	-40° C to +150° C for MLF32, TSSOP20; 40° C to +125° C for SOIC20	Dec. 2008
ATtiny24	2	128	128	12	–	1	1	4	–	USI	–	USI	Y	8	Y	Y	Y	–	17	3	Y	2.7-5.5V	16	MLF20, SOIC14	-40° C to +125° C	Now
ATtiny25	2	128	128	6	–	–	2	4	–	USI	–	USI	Y	4	Y	Y	Y		15	2	Y	2.7-5.5V	16	MLF20, SOIC8	-40° C to +125° C	Now
ATtiny25V	2	128	128	6	–	–	2	4	–	USI	–	USI	Y	4	Y	Y	Y	–	15	2	Y	1.8-3.6V	8	SOIC8	-40° C to +85° C	Now
ATtiny261	2	128	128	16	–	1	1	5	–	1+USI	–	USI	Y	11	Y	Y	Y	–	–	–	–	2.7-5.5V	8	SOIC20, MLF32, TSSOP20	-40° C to +150° C for MLF32, TSSOP20; 40° C to +125° C for SOIC20	Oct. 2008
ATtiny44	4	256	256	12	–	1	1	4	–	USI	–	USI	Y	8	Y	Y	Y	–	17	3	Y	2.7-5.5V	16	MLF20, SOIC14	-40° C to +125° C	Now
ATtiny44V	4	256	256	12	–	1	1	4	–	USI	–	USI	Y	8	Y	Y	Y	–	17	3	Y	1.8-3.6V	8	MLF20, SOIC14	-40° C to +85° C	Now
ATtiny45	4	256	256	6	–	–	2	4	–	USI	–	USI	Y	4	Y	Y	Y	–	15	2	Y	2.7-5.5V	16	MLF20, SOIC8	-40° C to +150° C	Now
ATtiny45V	4	256	256	6	–	–	2	4	–	USI	–	USI	Y	4	Y	Y	Y	–	15	2	Y	1.8-3.6V	8	SOIC8	-40° C to +85° C	Now
ATtiny461	4	256	256	16	–	1	2	5	–	USI	–	USI	Y	11	Y	Y	Y	–	–	–	Y	2.7-5.5V	16	SOIC20, MLF32, TSSOP20	-40° C to +150° C for MLF32, TSSOP20; 40° C to +125° C for SOIC20	Oct. 2008
ATtiny84	8	512	512	12	–	1	1	4	–	USI	–	USI	Y	8	Y	Y	Y	–	17	3	Y	2.7-5.5V	16	MLF20	-40° C to +125° C	Now
ATtiny85	8	512	512	6	–	–	2	4	–	USI	–	USI	Y	4	Y	Y	Y	–	15	2	Y	2.7-5.5V	16	MLF20, SOIC8	-40° C to +125° C	Now
ATtiny85V	8	512	512	6	–	–	2	4	–	USI	–	USI	Y	4	Y	Y	Y	–	15	2	Y	1.8-3.6V	8	SOIC8	-40° C to +85° C	Now
ATtiny861	8	512	512	16	–	1	1	5	–	1+USI	–	USI	Y	11	Y	Y	Y	–	–	–	–	2.7-5.5V	16	SOIC20, MLF32, TSSOP20	-40° C to +150° C for MLF32, TSSOP20; 40° C to +125° C for SOIC20	Oct. 2008
ATmega48	4	256	512	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	Now

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

Microcontrollers (Continued)

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

Evaluation/Development Kits		
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.

MICROCONTROLLERS (CONTINUED)

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

Evaluation/Development Kits		
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.

Microcontrollers (Continued)

AVR 8-bit RISC (Continued)

LCD Control AVR

Part Number	Flash (Kbytes)	EEPROM (Bytes)	RAM (Kbytes)	I/O Pins	USI	USART	SPI	TWI	8-bit Timer	16-bit Timer	10-bit ADC	BOD	On-chip Debugging	Self-prog. (S)	Package	VCC	Speed (MHz)	LCD	Availability
ATmega169P	16	512	1	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	2.7-5.5V	0-16	4x25	Now
ATmega169PV	16	512	1	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	1.8-5.5V	0-8	4x25	Now
ATmega329	32	1K	2	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	2.7-5.5V	0-16	4x25	Now
ATmega329V	32	1K	2	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	1.8-5.5V	0-8	4x25	Now
ATmega329P	32	1K	2	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	2.7-5.5V	0-16	4x25	Now
ATmega329PV	32	1K	2	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	1.8-5.5V	0-8	4x25	Now
ATmega3290	32	1K	2	69	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, DIE	2.7-5.5V	0-16	4x40	Now
ATmega3290V	32	1K	2	69	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, DIE	1.8-5.5V	0-8	4x40	Now
ATmega3290P	32	1K	2	69	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, DIE	2.7-5.5V	0-16	4x40	Now
ATmega3290PV	32	1K	2	69	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, DIE	1.8-5.5V	0-8	4x40	Now
ATmeg649	64	2K	4	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	2.7-5.5V	0-16	4x25	Now
ATmega649V	64	2K	4	54	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, QFN, DIE	1.8-5.5V	0-8	4x25	Now
ATmega6490	64	2	4	69	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, DIE	2.7-5.5V	0-16	4x40	Now
ATmega6490V	64	2	4	69	1	1	1+USI	USI	2	1	8	Y	JTAG	S	TQFP, DIE	1.8-5.5V	0-8	4x40	Now
Evaluation/Development Kits																			
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
ATAVRBFLY	AVR Butterfly, ATmega169 Demo Board with LCD and Speaker																		Now
ATAVRISP2	AVRISP Programmer for All AVR ISP 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
ATSTK502	STK502 Expansion of STK500 for 64-pin LCD AVR Devices																		Now
ATSTK504	STK504 Expansion of STK500 for 100-pin LCD AVR Devices																		Now
ATSTK600	Starter Kit and Development System for AVR and AVR32																		Now

Note: 1. All LCD Control AVR parts are RoHS compliant.

Microcontrollers (Continued)

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
Evaluation/Development Kits																										
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.

Microcontrollers (Continued)

AVR 8-bit RISC (Continued)

Smart Battery AVR

Part Number	Flash (Kbytes)	EEPROM (Bytes)	RAM (Bytes)	Battery Prot.	CC-ADC (Resolution)	# Battery Cells	SMBus	Voltage ADC	Highside FET	VCC	Clock Speed (MHz)	Package	Temperature	Availability
ATmega406	40	512	2K	Y	7	2/3/4	1	6	P-ch	4.0-25V	1	LQFP48	-40 to +85° C	Now
ATmega8HVA	8	256	512	Y	7	2/1	SW	3	N-ch	1.8-9V	4	LGA36, TSOP28	-10 to +70° C	Now
ATmega16HVA	16	256	512	Y	7	1/1	SW	3	N-ch	1.8-9V	4	LGA36, TSOP28	-10 to +70° C	Now

Evaluation/Development Kits		
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
ATAVRSB100	Smart Battery Development Kit for ATmega406	Now
ATAVRBC100	The BC100 Is a Reference Design that Demonstrates Charging and Discharging of Two Batteries/Battery Packs with a Programmable Charge Voltage of Up to 40V	Now
ATJTAGICE2	AVR Low-cost In-Circuit Emulator Supporting All AVR with debugWIRE or JTAG Interface	Now

Note: 1. All Smart Battery AVR parts are RoHS compliant.

Microcontrollers (Continued)

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

Evaluation/Development Kits		
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.

Microcontrollers (Continued)

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

Evaluation/Development Kits		
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.

Microcontrollers (Continued)

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
AT86RF230 Bundles											
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
AT86RF231 Bundles											
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
AT86RF212 Bundles											
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

Evaluation/Development Kits		
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.

Microcontrollers (Continued)

AVR32 32-bit Microcontrollers/Application Processors

AP7 Family (Application Processors)

Part Number	SRAM (Kbytes)	Vector Multiplier Co-proc.	Ether. MAC 10/100	USB	LCD Controller	USART	PWM (Channel)	Max I/O Pins	Audio DAC (16-bit)	Ext. Bus Interface	SDRAM Interface	16-bit Timer	RTC	SPI	Audio	Camera Interf.	PS/2	SSC	TWI	MCI	Watch. Timer	POR	ECCC	Power Supply (V)	Package	Speed (MHz)	Availability
AT32AP7000	32	Y	2	1xHS	2048x 2048	4	4	160	Stereo	Y	Y	6	1	2	AC97, 3xI2S	CMOS	Y	3	1	1	Y	Y	Y	1.65-1.95 Core 3.0-3.6 IO	BGA256	150	Now
AT32AP7001	32	Y	0	1xHS	–	4	4	90	Stereo	Y	Y	6	1	2	AC97, 3xI2S	CMOS	Y	3	1	1	Y	Y	Y	1.65-1.95 Core 3.0-3.6 IO	QFP208	150	Now
AT32AP7002	32	Y	0	1xHS	2048x 2048	4	4	85	Stereo	Y	Y	6	1	2	AC97, 3xI2S	CMOS	Y	3	1	1	Y	Y	Y	1.65-1.95 Core 3.0-3.6 IO	BGA196	150	Now
AT32AP7200	64	Y	2	–	2048x 2048	6	4	146	Stereo	Y	Y	3	1	4	AC97, 3xI2S	–	–	3	1	1	Y	Y	Y	1.08-1.32 Core 3.0-3.6 IO	CTBGA324	200	4Q20 08
Evaluation/Development Kits																											
ATAVRONEKIT	AVR ONE! Development Tool for On-chip Debugging and Programming of All AVR32 Devices																										Now
ATJTAGICE2	AVR Low-cost In-Circuit Emulator Supporting All AVR with debugWIRE or JTAG Interface																										Now
ATNGW100	AVR32 Network Gateway Kit – A Linux® Plug-and-Play Evaluation Platform																										Now
ATSTK1000	Starter Kit for AT32AP7xxx Devices																										Now

Note: 1. All AP7 Family parts are RoHS compliant.

Microcontrollers (Continued)

AVR32 32-bit Microcontrollers (Continued)

UC3 Family

Part Number	Flash (Kbytes)	RAM (Bytes)	Ether. MAC 10/100	USB	USB On-the-Go	USART	PWM (Channel)	Max I/O Pins	Ext. Bus Interface	System Bus	Peripheral DAM Ch.	16-bit Timer	OS Timer	RTC	SPI	SSC	TWI	Watch. Timer	POR	Power Supply (V)	Package	Speed (MHz)	Availability
AT32UC3A0128	128	32	1	1xFS	Y	4	13	109	1	6	7	3	1	Y	2	1	1	Y	Y	3.0-3.6	QFP144	66	Now
AT32UC3A0256	256	64	1	1xFS	Y	4	13	109	1	6	7	3	1	Y	2	1	1	Y	Y	3.0-3.6	QFP144	66	Now
AT32UC3A0512	512	64	1	1xFS	Y	4	13	109	1	6	7	3	1	Y	2	1	1	Y	Y	3.0-3.6	QFP144	66	Now
AT32UC3A1128	128	32	1	1xFS	Y	4	13	69	0	6	7	3	1	Y	2	1	1	Y	Y	3.0-3.6	QFP100	66	Now
AT32UC3A1256	256	64	1	1xFS	Y	4	13	69	0	6	7	3	1	Y	2	1	1	Y	Y	3.0-3.6	QFP100	66	Now
AT32UC3A1512	512	64	1	1xFS	Y	4	13	69	0	6	7	3	1	Y	2	1	1	Y	Y	3.0-3.6	QFP100	66	Now
AT32UC3B064	64	16	0	1xFS	Y	3	13	44	0	5	7	3	1	Y	1	1	1	Y	Y	3.0-3.6	QFP/ MLF64	60	Now
AT32UC3B0128	128	32	0	1xFS	Y	3	13	44	0	5	7	3	1	Y	1	1	1	Y	Y	3.0-3.6	QFP/ MLF64	60	Now
AT32UC3B0256	256	32	0	1xFS	Y	3	13	44	0	5	7	3	1	Y	1	1	1	Y	Y	3.0-3.6	QFP/ MLF64	60	Now
AT32UC3B164	64	16	0	1xFS	–	2	13	28	0	5	7	3	1	Y	1	0	1	Y	Y	3.0-3.6	QFP/ MLF48	60	Now
AT32UC3B1128	128	32	0	1xFS	–	2	13	28	0	5	7	3	1	Y	1	0	1	Y	Y	3.0-3.6	QFP/ MLF48	60	Now
AT32UC3B1256	256	32	0	1xFS	–	2	13	28	0	5	7	3	1	Y	1	0	1	Y	Y	3.0-3.6	QFP/ MLF48	60	Now

Evaluation/Development Kits		
ATAVRONEKIT	AVR ONE! Development Tool for On-chip Debugging and Programming of All AVR32 Devices	Now
ATEVK1100	Evaluation Kit for AVR32 UC3A Series	Now
ATEVK1101	Evaluation Kit for AVR32 UC3B Series	Now
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
ATSTK600-TQFP48	The STK600-TQFP48 Contains a Socket Board and Adapter Boards for 48-pins, 0.5 mm Pitch TQFP Devices and Is an Expansion Module for STK600.	Now
ATSTK600-TQFP64-2	The STK600-TQFP64-2 Contains a Socket Board and Adapter Boards for 64-pins, 0.5 mm Pitch TQFP Devices and Is an Expansion Module for STK600.	Now
ATSTK600-TQFP100	The STK600-TQFP100 Contains a Socket Board and Adapter Boards for 100-pins, 0.5 mm Pitch TQFP Devices and Is an Expansion Module for STK600.	Now
ATSTK600-TQFP144	The STK600-TQFP144 Contains a Socket Board and Adapter Boards for 144-pins, 0.5 mm Pitch TQFP Devices and Is an Expansion Module for STK600.	Now

Note: 1. All UC3 Family parts are RoHS compliant.

MICROCONTROLLERS (CONTINUED)

AT91SAM ARM-based Microcontrollers

ARM7™-based Microcontrollers

Part Number	Flash (Kbytes)	SRAM (Kbytes)	External Bus Interface	Peripheral DMA (Channels)	UART	SPI	TWI	SSC/I2S	MCI	CAN	USB Device	Ethernet MAC 10/100	Triple-DES/AES Engine	Timers	PWM Controller	High Current Pads	RTC/RTT	10-bit ADC Channel	10-bit DAC Channel	Power-On Reset	Brown Out Detection	I/O Voltage Domain (V)	Clock Speed (MHz)	Packages	Availability
AT91SAM7L128	128	6	–	11	1	1	1	–	–	–	–	–	–	4	4	4	1	4	–	1	1	2.5/3.3	36	QFP128, BGA144	Now
AT91SAM7L64	64	6	–	11	1	1	1	–	–	–	–	–	–	4	4	4	1	4	–	1	1	2.5/3.3	36	QFP128, BGA144	Now
AT91SAM7X512	512	128	–	11	3	2	1	1	–	1	FS	1	–	5	4	4	1	8	–	1	1	3.3	55	QFP100, BGA100	Now
AT91SAM7X256	256	64	–	11	3	2	1	1	–	1	FS	1	–	5	4	4	1	8	–	1	1	3.3	55	QFP100, BGA100	Now
AT91SAM7X128	128	32	–	11	3	2	1	1	–	1	FS	1	–	5	4	4	1	8	–	1	1	3.3	55	QFP100, BGA100	Now
AT91SAM7XC512	512	128	–	11	3	2	1	1	–	1	FS	1	1	5	4	4	1	8	–	1	1	3.3	55	QFP100, BGA100	Now
AT91SAM7XC256	256	64	–	11	3	2	1	1	–	1	FS	1	1	5	4	4	1	8	–	1	1	3.3	55	QFP100, BGA100	Now
AT91SAM7XC128	128	32	–	11	3	2	1	1	–	1	FS	1	1	5	4	4	1	8	–	1	1	3.3	55	QFP100, BGA100	Now
AT91SAM7S512	512	64	–	11	3	1	1	1	–	–	FS	–	–	5	4	4	1	8	–	1	1	3.3	55	QFP64, QFN64	Now
AT91SAM7S256	256	64	–	11	3	1	1	1	–	–	FS	–	–	5	4	4	1	8	–	1	1	3.3	55	QFP64, QFN64	Now
AT91SAM7S128	128	32	–	11	3	1	1	1	–	–	FS	–	–	5	4	4	1	8	–	1	1	3.3	55	QFP64, QFN64	Now
AT91SAM7S64	64	16	–	11	3	1	1	1	–	–	FS	–	–	5	4	4	1	8	–	1	1	3.3	55	QFP64, QFN64	Now
AT91SAM7S321	32	8	–	11	3	1	1	1	–	–	FS	–	–	5	4	4	1	8	–	1	1	3.3	55	QFP64, QFN64	Now
AT91SAM7S32	32	8	–	9	3	1	1	1	–	–	–	–	–	5	4	4	1	8	–	1	1	3.3	55	QFP48, QFN48	Now
AT91SAM7S161	16	4	–	11	3	1	1	1	–	–	FS	–	–	5	4	4	1	8	–	1	1	3.3	55	QFP64, QFN64	Now
AT91SAM7S16	16	4	–	9	3	1	1	1	–	–	–	–	–	5	4	4	1	8	–	1	1	3.3	55	QFP48, QFN48	Now
AT91SAM7SE512	512	32	1	11	3	1	1	1	–	–	FS	–	–	5	4	4	1	8	–	1	1	3.3	48	QFP128, BGA144	Now
AT91SAM7SE256	256	32	1	11	3	1	1	1	–	–	FS	–	–	5	4	4	1	8	–	1	1	3.3	48	QFP128, BGA144	Now
AT91SAM7SE32	32	8	1	11	3	1	1	1	–	–	FS	–	–	5	4	4	1	8	–	1	1	3.3	48	QFP128, BGA144	Now
AT91SAM7A3	256	32	–	19	4	2	1	2	1	2	FS	–	–	11	8	–	1	16	–	3	–	3.3	60	QFP100	Now
AT91M55800A	–	8	1	10	3	1	–	–	–	–	–	–	–	7	–	–	1	8	2	–	–	3.3/5.0	33	QFP176, BGA176	Now
AT91M42800A	–	8	1	8	2	2	–	–	–	–	–	–	–	8	–	–	1	–	–	–	–	3.3/5.0	33	QFP144, BGA144	Now
AT91FR40162S	2M	256	1	4	2	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	3.3	75	BGA121	Now
AT91R40008	–	256	1	4	2	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	3.3	75	QFP100	Now
AT91M40800	–	8	1	4	2	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	1.8/3.3	40	QFP100	Now
Evaluation/Development Kits																									
AT91SAM7L-EK	Eval. Kit for AT91SAM7L Products (SAM7L128 and SAM7L64); Includes IAR™ Toolchain (32-Kbyte Limited Compiler)																								On Request
AT91SAM7L-EK2	Eval. Kit for AT91SAM7L Products (SAM7L128 and SAM7L64); Includes IAR Toolchain (32-Kbyte Limited Compiler)																								March 2008
AT91SAM7S-EK	Eval. Kit for AT91SAM7S Products (SAM7S16 to SAM7S512); Includes IAR Toolchain (32-Kbyte Limited Compiler)																								Now
AT91SAM7SE-EK	Eval. Kit for AT91SAM7SE Products (SAM7SE32 to SAM7SE512); Includes IAR Toolchain (32-Kbyte Limited Compiler)																								Now
AT91SAM7X-EK	Eval. Kit for AT91SAM7X Products (SAM7X128 to SAM7X512); Includes IAR Toolchain (32-Kbyte Limited Compiler)																								Now
AT91SAM7A3-EK	Eval. Kit for AT91SAM7A3																								Now
AT91EB55	Eval. Kit for AT91M55800A																								Now
AT91EB42	Eval. Kit for AT91M42800A																								Now
AT91EB40A	Eval. Kit for AT91FR40162S, AT91R40008 and AT91M40800																								Now

Note: 1. All ARM7-based Microcontrollers parts are RoHS compliant.

MICROCONTROLLERS (CONTINUED)

AT91SAM ARM-based Microcontrollers (Continued)

ARM9™-based Microcontrollers

Part Number	Flash (Kbytes)	SRAM (Kbytes)	Cache Memory (Bytes)	External Bus Interface	Peripheral DMA (Channels)	UART	SPI	TWI	SSC/I2S	MCI	CAN	USB Device	USB Host (Full Speed)	Ethernet MAC 10/100	LCD Controller	Image Sensor Interface	Timers	PWM Controller	RTC/RTT	10-bit ADC Channel	I/O Voltage Domain (V)	Clock Speed (MHz)	Packages	Availability
AT91SAM9261	–	160	2x16	1	19	4	2	1	3	1	–	FS	2	–	1	–	5	–	1	–	1.8/3.3	240	BGA217	Now
AT91SAM9261S	–	16	2x16	1	19	4	2	1	3	1	–	FS	2	–	1	–	5	–	1	–	1.8/3.3	240	BGA217	Now
AT91SAM9260	–	2x4	2x8	1	24	7	2	1	1	1	–	FS	2	1	–	1	8	–	1	4	1.8/3.3	210	QFP208, BGA217	Now
AT91SAM9R64	–	64	2x4	1	18	5	1	1	1	1	–	HS	–	–	–	–	5	3	2	3	3.3	240	BGA144	Now
AT91SAM9RL64	–	64	2x4	1	22	5	1	2	2	1	–	HS	–	–	1	–	5	4	2	6	3.3	240	BGA217	Now
AT91SAM9XE512	512	32	16K+8	1	24	6	2	2	1	1	–	FS	2	1	–	1	8	–	1	4	1.8/3.3	210	QFP208, BGA217	Now
AT91SAM9XE256	256	32	16K+8	1	24	6	2	2	1	1	–	FS	2	1	–	1	8	–	1	4	1.8/3.3	210	QFP208, BGA217	Now
AT91SAM9XE128	128	16	16K+8	1	24	6	2	2	1	1	–	FS	2	1	–	1	8	–	1	4	1.8/3.3	210	QFP208, BGA217	Now
AT91SAM9263	–	96	2x16	2	22	4	2	1	2	2	1	FS	2	1	1	1	5	4	2	–	1.8/3.3	240	BGA324	Now
AT91RM9200	–	16	2x16	1	20	5	1	1	3	1	–	FS	2	1	–	–	8	–	2	–	3.3	180	QFP208, BGA256	Now
Evaluation/Development Kits																								
AT91RM9200-EK	Evaluation Kit for AT91RM9200																							Now
AT91SAM9263-EK	Evaluation Kit for AT91SAM9263																							Now
AT91SAM9261-EK	Evaluation Kit for AT91SAM9261																							Now
AT91SAM9260-EK	Evaluation Kit for AT91SAM9260																							Now
AT91SAM9RL-EK	Evaluation Kit for AT91SAM9RL64 and AT91SAM9R64																							Now
AT91SAM-ICE	SAM-ICE™ Is a USB JTAG Emulator Designed for All Atmel® AT91 Microcontrollers																							Now

Note: 1. All ARM9-based Microcontrollers parts are RoHS compliant.

MICROCONTROLLERS (CONTINUED)

AT91 Customizable Atmel Processor (CAP) 32-bit ARM-based MCUs

CAP ARM-based Microcontrollers

Part Number	Clock Freq. (MHz)	Cache Memory (Kbytes)	ROM (Kbytes)	SRAM (Kbytes)	NAND Flash/ECC	SDRAM Controller	DDR RAM Controller	Static Memory Controller	Burst/Cellular RAM	Usable Gates (K)	MP Block SRAM (Kbytes)	MP Block DPRAM (Kbytes)	General Purpose I/O (2)	USB OHCI Host Full Speed Ports	USB Device High Speed UTMI+/PHY Endpoints	USB Device Full Speed Endpoints	Ethernet MAC 10/100	Image Sensor Interface	LCD Controller	PLL/Osc	Power-on Reset	Shut-down Controller	Watch-dog Timer	Real-time Timer	Battery Backup Registers	SSC	SPI Master/Slave	MMCard, SDCard, SDIO Host	TWI Master/Slave	USART	Debugging UART	CAN 2.0A & B Controller Mailboxes	16-bit Timer/Counter Channels	16-bit PWM Channels	AC97 Controller Channels	10-bit ADC Channels	AES/TDES	32-bit Parallel I/O Controller	Package	Availability
ARM7TDMI Core																																								
AT91CAP7S450A	80	–	256	160	1	1	–	1	–	450	–	8	90	–	–	6	–	–	–	1/1	2	1	1	1	20	–	1	–	–	2	1	–	3	2(1)	–	8	–	1	144, 176, 208 QFP/ BGA, 225 BGA	Now
AT91CAP7S250A	80	–	256	160	1	1	–	1	–	250	–	8	90	–	–	6	–	–	–	1/1	2	1	1	1	20	–	1	–	–	2	1	–	3	2(1)	–	8	–	1	144, 176, 208 QFP/ BGA, 225 BGA	Now
ARM926EJ-S Core																																								
AT91CAP9S500A	200	16/16	32	32	1	1	1	1	1	500	36	22	77	2	8	–	1	1	1	1/1	2	1	1	1	4	2	2	2	1	3	1	16	3	4	6	8	–	4	LFBGA400, TFBGA324	Now
AT91CAP9S250A	200	16/16	32	32	1	1	1	1	1	250	36	22	77	2	8	–	1	1	1	1/1	2	1	1	1	4	2	2	2	1	3	1	16	3	4	6	8	–	4	LFBGA400, TFBGA324	Now
AT91CAP9SC500A	200	16/16	32	32	1	1	1	1	1	500	36	22	77	2	8	–	1	1	1	1/1	2	1	1	1	4	2	2	2	1	3	1	16	3	4	6	8	1/1	4	LFBGA400, TFBGA324	Now
AT91CAP9SC250A	200	16/16	32	32	1	1	1	1	1	250	36	22	77	2	8	–	1	1	1	1/1	2	1	1	1	4	2	2	2	1	3	1	16	3	4	6	8	1/1	4	LFBGA400, TFBGA324	Now

Evaluation/Development Kits		
AT91CAP7X-DK	Development Kit for AT91CAP7 with Xilinx FPGA	Now
AT91CAP7A-DK	Development Kit for AT91CAP7 with Altera® FPGA	4Q2008
AT91CAP7A-STK	Starter Kit for AT91CAP7 with Altera FPGA	Now
AT91CAP7X-STK	Starter Kit for AT91CAP7 with Xilinx FPGA	4Q2008
AT91CAP9A-DK	Development Kit for AT91CAP9 with Altera FPGA	Now
AT91CAP9X-DK	Development Kit for AT91CAP9 with Xilinx FPGA	2H2008
AT91CAP9A-STK	Starter Kit for AT91CAP9 with Altera FPGA	Now
AT91CAP9X-STK	Starter Kit for AT91CAP9 with Xilinx FPGA	2H2008

Notes:
1. CAP7 PWMs implemented via timer block.
2. Number of general-purpose I/O for the largest package.
3. All CAP parts are RoHS compliant.
4. Many of the ASIC IP Cores listed on Page 29 can be integrated into the AT91CAP Metal Programmable Block, together with compatible third-party IPs, and IP blocks developed by the CAP user.

Microcontrollers (Continued)

8051 Architecture

CAN Networking

Part Number	Description	RoHS Compliance	Availability
AT89C51CC02	8-bit Microcontroller with 4-channel CAN Controller, 16-Kbyte of Flash, 512-byte RAM, 2-Kbyte EEPROM, 10-bit ADC, PCA16-Kbyte	Yes	Now
AT89C51CC01	8-bit Microcontroller with 15-channel CAN Controller, 32-Kbyte Flash, 1280-byte RAM, 2-Kbyte EEPROM, 10-bit ADC, PCA32-Kbyte	Yes	Now
AT89C51CC03	8-bit Microcontroller with 15-channel CAN Controller, 64-Kbyte Flash, 2304-byte RAM, 2-Kbyte EEPROM, 10-bit ADC, PCA64-Kbyte	Yes	Now
Development Kits and Tools			
AT89STK-06	Starter Kit for CAN Microcontrollers AT89C51CC01, AT89C51CC02 and AT89C51CC03		Now
CANADAPT28	PLCC28 Adapter for AT89C51CC02 to AT89C51CC02 PLCC44 Socket		Now

Flash (Reprogrammable)

Part Number	Description	Memory Size	RoHS Compliance	Availability
AT89C2051	Microcontroller with 2-Kbyte Flash with Analog Comparator	2K x 8	Yes	Now
AT89C4051	Microcontroller with 4-Kbyte Flash with Analog Comparator	4K x 8	Yes	Now
AT89C55WD	Microcontroller with 20-Kbyte Flash, 256-byte RAM, Watchdog Timer	20K x 8	Yes	Now
AT89C51RC	Microcontroller with 32-Kbyte Flash, 512-byte RAM, Watchdog Timer	32K x 8	Yes	Now

Flash ISP (In-System Programmable)

Part Number	Description	Memory Size	RoHS Compliance	Availability
AT89S51	In-System Programmable Microcontroller with 4-Kbyte Flash	4K x 8	Yes	Now
AT89LS51	2.7-volt, In-System Programmable Microcontroller with 4-Kbyte Flash	4K x 8	Yes	Now
AT89S52	In-System Programmable Microcontroller with 8-Kbyte Flash	8K x 8	Yes	Now
AT89LS52	2-7-volt, In-System Programmable Microcontroller with 8-Kbyte Flash	8K x 8	Yes	Now
AT89S8253	In-System Programmable Microcontroller with 12-Kbyte Flash, 256-byte RAM, 2-Kbyte EEPROM, SPI	12K x 8	Yes	Now
AT89C5115	Low-pin Count, In-System Programmable Microcontroller with 16-Kbyte Flash, 2-Kbyte EEPROM, 512-byte RAM, 10-bit ADC, PCA	16K x 8	Yes	Now
AT89C51RB2	In-System Programmable Microcontroller with 16-Kbyte Flash, 1280-byte RAM, SPI, PCA	16K x 8	Yes	Now
AT89C51RC2	In-System Programmable Microcontroller with 32-Kbyte Flash, 1280-byte RAM, SPI, PCA	32K x 8	Yes	Now
AT89C51IC2	In-System Programmable Microcontroller with 32-Kbyte Flash, 1280-byte RAM, TWI, SPI, PCA	32K x 8	Yes	Now
AT89C51AC2	In-System Programmable Microcontroller with 32-Kbyte Flash, 1280-byte RAM, 2-Kbyte EEPROM, 10-bit ADC, PCA	32K x 8	Yes	Now
AT89C51AC3	In-System Programmable Microcontroller with 64-Kbyte Flash, 2048-byte RAM, 2-Kbyte EEPROM, 10-bit ADC, PCA	64K x 8	Yes	Now
AT89C51RD2	In-System Programmable Microcontroller with 64-Kbyte Flash, 2048-byte RAM, PCA, SPI	64K x 8	Yes	Now
AT89C51ED2	In-System Programmable Microcontroller with 64-Kbyte Flash, 2048-byte RAM, 2-Kbyte EEPROM, PCA, SPI	64K x 8	Yes	Now
AT89C51ID2	In-System Programmable Microcontroller with 64-Kbyte Flash, 2048-byte RAM, 2-Kbyte EEPROM, PCA, TWI, SPI	64K x 8	Yes	Now

Microcontrollers (Continued)

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
Development Kits and Tools				
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 Micro-controllers – 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
Development Kits				
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
Development Kits				
AT89RFD-10	Non Dimmable Fluorescent Demo Kit for AT8xEB5114			Now

Microcontrollers (Continued)

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
Development Kits				
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

Microcontrollers (Continued)

MARC4 4-bit Architecture Microcontrollers

4-bit Microcontrollers/MARC4 Family

Part Number	Description	Package	RoHS Compliance	Availability
ATAM862x-TNz3	Complete UHF ASK/FSK Transmitter, Flash 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
ATAM862x-TNz4	Complete UHF ASK/FSK Transmitter, Flash 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
ATAM862x-TNz8	Complete UHF ASK/FSK Transmitter, Flash 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
ATAM893 (MTP Version)	1.8 to 6.5V, Extended Voltage Range with Very Low Current Consumption for IR and RF Remote Control, Security and Wireless Communication Systems, Sleep Current <1 µA, 4-Kbyte Flash Memory, 2 x 64 Bytes EEPROM, 3 Multifunction Timer, Watchdog, POR & Brown-out, SSI, 16 I/O Lines, T_{AMB} -40° C to +125° C, MTP Version for ATAR080/090/890/092/892	SSO20	Pb-free Only	Now
ATAM893-D (MTP Version)	1.8 to 6.5V, Extended Voltage Range with Very Low Current Consumption for IR and RF Remote Control, Security and Wireless Communication Systems, Sleep Current <1 µA, 4-Kbyte Flash Memory, 2 x 64 Bytes EEPROM, 3 Multifunction Timer, Watchdog, POR & Brown-out, SSI, 16 I/O Lines, T_{AMB} -40° C to +125° C, MTP Version for ATAR080/090/890/092/892	SSO20	Pb-free Only	Now
ATAM894 (MTP Version)	1.8 to 6.5V, Extended Voltage Range with Very Low Current Consumption for IR and RF Remote Control, Security and Wireless Communication Systems, Sleep Current <1 µA, 8-Kbyte Flash Memory, 2 x 64 Bytes EEPROM, 3 Multifunction Timer, Watchdog, POR & Brown-out, SSI, 16 I/O Lines, T_{AMB} -40° C to +85° C	SSO24	Pb-free Only	Now
ATAR080	1.8 to 6.2V, Extended Voltage Range with Very Low Current Consumption for IR and RF Remote Control, Security and Wireless Communication Systems, Very Low Power Consumption in Active, Power-down and Sleep Mode, Watchdog Timer, POR and Brown-out Function, 2 x Multifunctional Timers/Counters Including IR/RF Remote Control Carrier Generation, 2048-byte ROM + 1024 Bytes for Test Purposes, 256 Nibbles RAM, I/O 12 Bi-directional Ports Inclusive 4 High-current Outputs, 8-bit Synchronous Serial Interface, Battery-low Detection, Comparator for Zero Cross Detection, 3 Internal, 4 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	SSO20	Pb-free Only	Now
ATAR080-D	See ATAR080, Operating Temperature Range T_{AMB} = -40° C to +125° C	SSO20	Pb-free Only	Now
ATAR090	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, 2 x Multifunctional Timers/Counters Including IR/RF Remote Control Carrier Generation, 2048-byte ROM + 1024 Bytes for Test Purposes, 256 Nibbles RAM, I/O 12 Bi-directional Ports Inclusive 4 High-current Outputs, 8-bit Synchronous Serial Interface, Battery-low Detection, Comparator for Zero Cross Detection, 3 Internal, 4 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
ATAR090-C	See ATAR090, Operating Temperature Range T_{AMB} = -40° C to +105° C	SSO20	Pb-free Only	Now
ATAR090-D	See ATAR090, Operating Temperature Range T_{AMB} = -40° C to +125° C	SSO20	Pb-free Only	Now

Microcontrollers (Continued)

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
Evaluation Kits and Tools				
M4EMUX9X	MARC4 Development System for the ATAR090, ATAR092, ATAR892, ATAR890 and ATAR080 Series, Including the Flash Part ATAM893 and the U9280M			Now

TOUCH TECHNOLOGY

Keys and Scrollers

Capacitive Touch Controllers for Keys, Slider and/or Wheels

Part Number	Technology	Touch Keys	Wheel/Slider Function	Package	Package Size in (mm²)	Voltage	Temperature Range	Inputs/Outputs	Interface	FMEA Self Test & Diag. Features	AKS*	Low Power Mode	Self Calibration	Noise Filtering	Auto Drift Compensation	Spread Spectrum Acquisition	Evaluation Board	Notes	Availability
QT100A	QTouch™	1	–	WSON- 6	3 x 3	2-5V	-40 to +85° C	0/1 Digital	–	–	–	Yes	Yes	Yes	Yes	Yes	E100S	Replaces QT100	Now
QT220	QTouch	2	–	SSOP-20	5 x 7	3.9-5.5V	-40 to +85° C	0/2 Digital	–	–	–	Yes	Yes	Yes	Yes	Yes	E240B	–	Now
QT240	QTouch	4	–	SSOP-20	5 x 7	3.9-5.5V	-40 to +85° C	0/4 Digital	–	–	–	Yes	Yes	Yes	Yes	Yes	E240B	–	Now
QT1080	QTouch	8	–	QFN-32	5 x 5	2.8-5.0V	-40 to +85° C	0/8 Digital	–	–	Yes	Yes	Yes	Yes	Yes	Yes	E1080	–	Now
QT1081	QTouch	8	–	QFN-32	5 x 5	2.8-5.0V	-40 to +85° C	0/8 Digital	–	–	Yes	Yes	Yes	Yes	Yes	Yes	E1081	Low Cost QT1080	Now
QT1101	QTouch	10	–	QFN-32	5 x 5	2.8-5.0V	-40 to +85° C	0/0	1 or 2-wire	–	Yes	Yes	Yes	Yes	Yes	Yes	–	–	Now
QT1103	QTouch	10	–	QFN-32	5 x 5	2.8-5.0V	-40 to +85° C	0/0	1 or 2-wire	–	Yes	Yes	Yes	Yes	Yes	Yes	E1103	Low Cost QT1101	Now
QT1106	QTouch	7	Yes	QFN-32	5 x 5	2.8-5.0V	-40 to +85° C	0/0	SPI	–	Yes	Yes	Yes	Yes	Yes	Yes	E1106	Replaces QT411/511	Now
QT60160	Qmatrix™	16	–	QFN- 32	5 x 5	1.8-5.5V	-40 to +85° C	0/0	I2C-compatible, Parallel Shift Reg.	–	Yes	Yes	Yes	Yes	Yes	Yes	E6240	–	Now
QT60168	Qmatrix	16	–	TQFP-32	7 x 7	3-5.25V	-40 to +105° C	0/0	SPI	Yes	Yes	Yes	Yes	Yes	Yes	Yes	E6248	Ideal for Home Appliances	Now
QT60240	Qmatrix	24	–	QFN-32	5 x 5	1.8-5.5V	-40 to +85° C	0/0	I2C - compatible, Parallel Shift Reg.	–	Yes	Yes	Yes	Yes	Yes	Yes	E6240	–	Now
QT60248	Qmatrix	24	–	TQFP-32	7 x 7	3-5.25V	-40 to +105° C	0/0	SPI	Yes	Yes	Yes	Yes	Yes	Yes	Yes	E6248	Ideal for Home Appliances	Now

TOUCH TECHNOLOGY (CONTINUED)

Keys and Scrollers (Continued)

Capacitive Touch Controllers for Keys, Slider and/or Wheels (Continued)

Part Number	Technology	Touch Keys	Wheel/Slider Function	Package	Package Size in (mm²)	Voltage	Temperature Range	Inputs/Outputs	Interface	FMEA Self Test & Diag. Features	AKS*	Low Power Mode	Self Calibration	Noise Filtering	Auto Drift Compensation	Spread Spectrum Acquisition	Evaluation Board	Notes	Availability
QT60326	Qmatrix	32	–	TQFP-44	9x9	4.75-5.25V	-40 to +105° C	0/0	SPI, UART	Yes	Yes	Yes	Yes	Yes	Yes	Yes	E6486	Ideal for Home Appliances	Now
QT60486	Qmatrix	48	–	TQFP-44	9x9	4.75-5.25V	-40 to +105° C	0/0	SPI, UART	Yes	Yes	Yes	Yes	Yes	Yes	Yes	E6486	Ideal for Home Appliances	Now
AT42QT2160	Qmatrix	16	Yes	QFN-28	4x4	1.8-5.5V	-40 to +85° C	3/11 Digital (PWM o/p)	I2C-compatible	–	Yes	Yes	Yes	Yes	Yes	Yes	AT42EVK 2160A	Ideal for Mobile Devices	Now
AT42QT1060	QTouch	6	–	QFN-28	4x4	1.8-5.5V	-40 to +85° C	7/7 Digital (PWM o/p)	I2C-compatible	–	Yes	Yes	Yes	Yes	Yes	Yes	AT42EVK 1060	Guard Channel for Mobile Devices	Now
Evaluation/Development Kits																			
E100S	1-channel Touch Sense Evaluation Kit Demonstrating the QT100A																		Now
E240B	2- and 4-channels Touch Sense Evaluation Kit Demonstrating the QT220 and QT240																		Now
E1080	Discontinued, as the QT1081 Replaces the QT1080. Please See E1081 Evaluation Kit																		Disc.
E1081	10-channels Touch Sense Evaluation Kit Demonstrating the QT1081																		Now
E1103	8-channels Touch Sense Evaluation Kit Demonstrating the QT1103																		Now
E1106	Touch Sense Evaluation Kit Demonstrating the QT1106																		Now
E6240	24-channels Touch Sense Evaluation Kit Demonstrating the QT60160 and the QT60240																		Now
E6248	24-channels Touch Sense Evaluation Kit Demonstrating the QT60168 and the QT60248																		Now
E6486	48-channls Touch Sense Evaluation Kit Demonstrating the QT60326 and the QT60486																		Now
EVK2160A	16-channels Touch Sense Evaluation Kit Demonstrating the AT42QT2160																		Now
EVK1060	6-channels Touch Sense Evaluation Kit Demonstrating the AT42QT1060																		Now

TOUCH TECHNOLOGY (CONTINUED)

TouchScreens

Capacitive Touch Controllers for TouchScreens

Part Number	Technology	Total Channels (X x Y)	Max. TouchScreen Size (In Diag. Inch)	Alternative Configuration	Single Touch/Two Touch	Optimal Sensor	Package	Package Size in (mm^2)	Voltage (V)	Temperature Range	Inputs/Outputs	Interface	AKS*	Low Power Mode	Self Calibration	Noise Filtering	Auto Drift Compensation	Spread Spectrum Acquisition	Evaluation Board	Availability
AT42QT4120	Qfield™	12 (4x3)	3.3-inch	–	Single-Touch	Single ITO Layer	QFN-32	5x5	1.8 to 5.5V	-40 to +85° C	–	I2C-com-patible	–	Yes	Yes	Yes	Yes	Yes	EVK4120A/B	Now
AT42QT4160	Qfield	16 (4x4)	4.3-inch	–	Single-Touch	Single ITO Layer	QFN-32	5x5	1.8 to 5.5V	-40 to +85° C	–	I2C-com-patible	–	Yes	Yes	Yes	Yes	Yes	EVK4160A/B	Now
AT42QT5320	Qtwo™	32 (8x4)	4.3-inch	32 Keys, 4 Sliders, 4 Wheels	Single-/ Two Touch	Two ITO Layers	QFN-32	5x5	1.8 to 5.5V	-40 to +85° C	–	I2C-com-patible	Yes	Yes	Yes	Yes	Yes	Yes	EVK5480x	Now
AT42QT5480	Qtwo	48 (8x6)	8.0-inch	48 Keys, 6 Sliders, 6 Wheels	Single-/ Two Touch	Two ITO Layers	BGA-49 QFN-44 TQFP-44	5x5 7x7 12x12	1.8 to 5.5V	-40 to +85° C	4 Digital Outputs	I2C-com-patible	Yes	Yes	Yes	Yes	Yes	No[2]	EVK5480x	Now
Evaluation/Development Kits																				
EVK4120A	Single Touch – TouchScreen Evaluation Kit Demonstrating the AT42QT4120 – 2.8 Screen (4:3 Ratio) – Single ITO Layer																			Now
EVK4120B	Single Touch – TouchScreen Evaluation Kit Demonstrating the AT42QT4120 – 3.2 Screen (16:9 Ratio) – Single ITO Layer																			Now
EVK4160A	Single Touch – TouchScreen Evaluation Kit Demonstrating the AT42QT4160 – 3.5 Screen (4:3 Ratio) – Single ITO Layer																			Now
EVK4160B	Single Touch – TouchScreen Evaluation Kit Demonstrating the AT42QT4160 – 4.3 Screen (16:9 Ratio) – Single ITO Layer																			Now
EVK5480A	Two Touch™ – TouchScreen Evaluation Kit Demonstrating the AT42QT5480 (QT5320) – 3.3 Screen (3:2 Ratio) – No Shield																			Now
EVK5480B	Two Touch – TouchScreen Evaluation Kit Demonstrating the AT42QT5480 (QT5320) – 3.3 Screen (3:2 Ratio) – With Shield																			Now
EVK5480C	Two Touch – TouchScreen Evaluation Kit Demonstrating the AT42QT5480 (QT5320) – 4.3 Screen (16:9 Ratio) – No Shield																			Now
EVK5480D	Two Touch – TouchScreen Evaluation Kit Demonstrating the AT42QT5480 (QT5320) – 4.3 Screen (16:9 Ratio) – With Shield																			Now
EVK5480E	PCB-based Two Touch – TouchScreen Demo for AT42QT5480 (QT5320) – 3.1 Screen (18:10 Ratio) – No Shield																			Now

Notes:
1. All capacitive TouchScreen controllers are RoHS compliant
2. No Spread Spectrum Acquisition on the QT5480, as external resonator is used
3. *AKS = Adjacent Key Suppression

Application-Specific Integrated Circuits (ASICs)

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	**Communication:** 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 **Memory Controllers:** 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 **Crypto Engines:** 128/192/256-bit Advanced Encryption Standard, Secure Hash Algorithm 160/224/256/384/512, Triple DES, XTEA, TRNG **System Peripherals:** 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 Page 20.		

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

Automotive Standard Products

Automotive Control

Dashboard Dimmer ICs

Part Number	Description	Package	RoHS Compliance	Availability
U6083B	PWM High-side Driver, f < 2000 Hz, 18 to 100% Duty Cycle, Minimum External Components	DIP8	Pb-free Only	Now
U6084B	PWM High-side Driver, f < 2000 Hz, 0 to 100% Duty Cycle Continuously, for High-performance Applications	SO16	Pb-free Only	Now

Flasher ICs

Part Number	Description	Package	RoHS Compliance	Availability
ATA2069	Flasher with Trailer Control, 20 mΩ Shunt, Output to Control an Additional Pilot Lamp	DIP8, SO8	Pb-free Only	Now
ATA6140	Twin Relay Flasher for 12/24V Applications, Standby Current <10 µA	SO16	Pb-free Only	Now
U2043B	Lamp Load >10W, 30 mΩ Shunt, Pilot Lamp to V_{BATT} or GND	DIP8, SO8	Pb-free Only	Now
U2044B	Twin Relay Flasher, Lamp Load >10W, 30 mΩ Shunt, Standby Current <10 µA	SO14	Pb-free Only	Now
U6043B	Lamp Load >1W, 18 mΩ Shunt, Load-dump Protected	DIP8, SO8	Pb-free Only	Now
U643B	Lamp Load >1W, 30 mΩ Shunt, Load-dump Protected	DIP8, SO8	Pb-free Only	Now

Lamp-outage Monitoring ICs

Part Number	Description	Package	RoHS Compliance	Availability
U4793B	2 Comparators, 44 mV Threshold, Glow-plug Application, ESD Protection Up to 10 kV	DIP8, SO8	Pb-free Only	Now
U479B	2 Comparators, 8 mV Threshold, Single-lamp Application, ESD Protection Up to 2 kV	DIP8	Pb-free Only	Now

Long-time Timer ICs

Part Number	Description	Package	RoHS Compliance	Availability
U6032B	Toggle IC for Switch-over Function, Defined Status After POR	DIP8, SO8	Pb-free Only	Now
U6046B	Adjustable Delay Time 4s to 20h, Delay Adjustable with RC Oscillator, R < 650 kW, C < 4700 pF	DIP8, SO8	Pb-free Only	Now

AUTOMOTIVE (CONTINUED)

Automotive Standard Products (Continued)

Automotive Control (Continued)

Safety

Part Number	Description	Package	RoHS Compliance	Availability
Fail-Safe ICs				
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
Airbag ICs				
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 (CONTINUED)

Automotive Standard Products (Continued)

Automotive Microcontrollers

Automotive AVR

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 (V)	Clock Speed (MHz)	Package	Temperature	Availability
ATtiny167	16	512	512	16	–	1	1	4	–	1+USI	–	–	–	–	–	–	–	–	–	–	–	2.7-5.5	16	MLF32, SOIC20, TSSOP20	-40° C to +150° C for MLF32, TSSOP20; -40° C to +125° C for SOIC20	Dec. 2008
ATtiny24	2	128	128	12	–	1	1	4	–	USI	–	USI	Y	8	Y	Y	Y	–	17	3	Y	2.7-5.5	16	MLF20, SOIC14	-40° C to +125° C	Now
ATtiny25	2	128	128	6	–	–	2	4	–	USI	–	USI	Y	4	Y	Y	Y	–	15	2	Y	2.7-5.5	16	MLF20, SOIC8	-40° C to +125° C	Now
ATtiny25V	2	128	128	6	–	–	2	4	–	USI	–	USI	Y	4	Y	Y	Y	–	15	2	Y	1.8-3.6	8	SOIC8	-40° C to +85° C	Now
ATtiny261	2	128	128	16	–	1	1	5	–	1+USI	–	USI	Y	11	Y	Y	Y	–	–	–	–	2.7-5.5	8	SOIC20, MLF32, TSSOP20	-40° C to +150° C for MLF32, TSSOP20; -40° C to +125° C for SOIC20	Oct. 2008
ATtiny44	4	256	256	12	–	1	1	4	–	USI	–	USI	Y	8	Y	Y	Y	–	17	3	Y	2.7-5.5	16	MLF20, SOIC14	-40° C to +125° C	Now
ATtiny44V	4	256	256	12	–	1	1	4	–	USI	–	USI	Y	8	Y	Y	Y	–	17	3	Y	1.8-3.6	8	MLF20, SOIC14	-40° C to +85° C	Now
ATtiny45	4	256	256	6	–	–	2	4	–	USI	–	USI	Y	4	Y	Y	Y	–	15	2	Y	2.7-5.5	16	MLF20, SOIC8	-40° C to +150° C	Now
ATtiny45V	4	256	256	6	–	–	2	4	–	USI	–	USI	Y	4	Y	Y	Y		15	2	Y	1.8-3.6	8	SOIC8	-40° C to +85° C	Now
ATtiny461	4	256	256	16	–	1	2	5	–	USI	–	USI	Y	11	Y	Y	Y	Y	–	–	–	2.7-5.5	16	SOIC20, MLF32, TSSOP20	-40° C to +150° C for MLF32, TSSOP20; -40° C to +125° C for SOIC20	Oct. 2008
ATtiny84	8	512	512	12	–	1	1	4	–	USI	–	USI	Y	8	Y	Y	Y		17	3	Y	2.7-5.5	16	MLF20	-40° C to +125° C	Now
ATtiny85	8	512	512	6	–	–	2	4	–	USI	–	USI	Y	4	Y	Y	Y		15	2	Y	2.7-5.5	16	MLF20, SOIC8	-40° C to +125° C	Now
ATtiny85V	8	512	512	6	–	–	2	4	–	USI	–	USI	Y	4	Y	Y	Y		15	2	Y	1.8-3.6	8	SOIC8	-40° C to +85° C	Now
ATtiny861	8	512	512	16	–	1	1	5	–	1+USI	–	USI	Y	11	Y	Y	Y	–	–	–	–	2.7-5.5	16	SOIC20, MLF32, TSSOP20	-40° C to +150° C for MLF32, TSSOP20; -40° C to +125° C for SOIC20	Oct. 2008
ATmega48	4	256	512	23	–	1	2	6	Y	1+USART	1	Y	Y	8	Y	Y	Y	Y	26	5	Y	2.7-5.5	16	TQFP32, MLF32	-40° C to +125° C	Now

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

AUTOMOTIVE (CONTINUED)

Automotive Standard Products (Continued)

Automotive Microcontrollers (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 (V)	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	2.7-5.5	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	1.8-3.6	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	2.7-5.5	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	2.7-5.5	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	2.7-5.5	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	2.7-5.5	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	2.7-5.5	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	2.7-5.5	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	2.7-5.5	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	2.7-5.5	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	2.7-5.5	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	2.7-5.5	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	2.7-5.5	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	2.7-5.5	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	2.7-5.5	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	2.7-5.5	16	TQFP64, MLF64	-40° C to +125° C	Now
Evaluation/Development Kits																										
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.

AUTOMOTIVE (CONTINUED)

Automotive Standard Products (Continued)

Automotive Microcontrollers (Continued)

Automotive MARC4 Microcontrollers[1]

Part Number	Description	Package	RoHS Compliance	Availability
ATAM862	Complete UHF Transmitter, MTP Flash Microcontroller and Transmitter PLL T5753 in One IC, Temperature Range: -40° C to +125° C, Frequency: 315 and 433 MHz	SSO24	Pb-free Only	Now
ATAR862	Complete UHF Transmitter, ROM Microcontroller and Transmitter PLL T5753 in One IC, Temperature Range: -40° C to +125° C, Frequency: 315 and 439 MHz	SSO24	Pb-free Only	Now
ATAM862x-TNz3	Complete UHF ASK/FSK Transmitter, Flash Microcontroller and Transmitter PLL T5753 in One IC, Frequency Range: 310 to 330 MHz	SSO24	Pb-free Only	Now
ATAM862x-TNz4	Complete UHF ASK/FSK Transmitter, Flash Microcontroller and Transmitter PLL T5754 in One IC, Frequency Range: 429 to 439 MHz	SSO24	Pb-free Only	Now
ATAM862x-TNz8	Complete UHF ASK/FSK Transmitter, Flash Microcontroller and Transmitter PLL T5750 in One IC, Frequency Range: 868 to 928 MHz	SSO24	Pb-free Only	Now
ATAR862x-yyy-TNz3	Complete UHF Transmitter, ROM Microcontroller and Transmitter PLL T5753 in One IC, Frequency Range: 300 to 330 MHz	SSO24	Pb-free Only	Now
ATAR862x-yyy-TNz4	Complete UHF Transmitter, ROM Microcontroller and Transmitter PLL T5754 in One IC, Frequency Range: 429 to 439 MHz	SSO24	Pb-free Only	Now
ATAR862x-yyy-TNz8	Complete UHF Transmitter, ROM Microcontroller and Transmitter PLL T5750 in One IC, Frequency Range: 868 to 928 MHz	SSO24	Pb-free Only	Now

Note: 1. For full 4-bit microcontroller offer, see **Pages 24-25**.

CAN/VAN Networking

Part Number	Description	Package	RoHS Compliance	Availability
ATA6660	High-speed CAN Transceiver, Fully Compatible with ISO 11898, High-voltage Bus Protection: 40 to +40V (Qualified for Industrial Use Only)	SO8	Pb-free Only	Now
B10011S	Low-speed CAN Transceiver for High Transmission Levels, 2-wire Interface (TWI), Point-to-point Interface Between Trucks and Trailers, Interface Between Dashboard and Engine, Etc., High Reliability, 27V Operation, Hardware Fault Recognition, Immunity Against Electromagnetic Interference, High Noise Immunity, According to ISO WD 11992-1	SO16	Pb-free Only	Now
TSS461F	VAN Data Link Controller	SO24	Yes	Now
TSS463C	VAN Data Link Controller with Serial Interface	SO16	Yes	Now
TSSIO16E	VAN Peripheral Circuit – 16 I/Os	SO28	Yes	Now

AUTOMOTIVE (CONTINUED)

Automotive Standard Products (Continued)

LIN Networking

Part Number	Description	Package	RoHS Compliance	Availability
ATA6612	LIN SiP (System-in-Package) Solution Including LIN Transceiver, 5V/50 mA Voltage Regulator, Window Watchdog and AVR ATmega88 Automotive Microcontroller with 8K Flash Memory	QFN48	Yes	Now
ATA6613	LIN SiP (System-in-Package Solution) Including LIN Transceiver, 5V/50 mA Voltage Regulator, Window Watchdog and AVR ATmega168 Automotive Microcontroller with 16K Flash Memory	QFN48	Yes	Now
ATA6616	LIN SiP (System-in-Package) Solution Including LIN Transceiver, 5V/50 mA Voltage Regulator, Window Watchdog and AVR ATtiny87 Automotive Microcontroller with 8K Flash Memory	QFN38	Yes	March 2009
ATA6617	LIN SiP (System-in-Package) Solution Including LIN Transceiver, 5V/50 mA Voltage Regulator, Window Watchdog and AVR ATtiny167 Automotive Microcontroller with 16K Flash Memory	QFN38	Yes	Feb. 2009
ATA6622	LIN System Basis Chip with LIN Transceiver, Integrated 3.3V/50 mA Voltage Regulator and Window Watchdog	QFN20	Yes	Now
ATA6623	LIN System Basis Chip with LIN Transceiver and Integrated 3.3V/50 mA Voltage Regulator	SO8	Pb-free Only	Now
ATA6624	LIN System Basis Chip with LIN Transceiver, Integrated 5V/50 mA Voltage Regulator and Window Watchdog	QFN20	Yes	Now
ATA6625	LIN System Basis Chip with LIN Transceiver and Integrated 5V/50 mA Voltage Regulator	SO8	Pb-free Only	Now
ATA6626	LIN System Basis Chip with LIN Transceiver and Integrated 5V/50 mA Voltage Regulator without TxD Timeout Timer	QFN20	Yes	Now
ATA6662	LIN Transceiver, Physical Layer According to Specification 2.0 (Backward Compatible)	SO8	Pb-free Only	Now
ATA6663	LIN Transceiver, Physical Layer According to Specification 2.1 (Backward Compatible), Also Supporting Low Baud Rates Down to 1 Kbaud	SO8	Pb-free Only	April 2009
ATA6664	LIN Transceiver, Physical Layer According to Specification 2.1 (Backward Compatible), Supporting Low Baud Rates Down to 1 Kbaud, with Time-out Function	SO8	Pb-free Only	April 2009
Development Boards				
ATA6612-EK	Development Board, LIN SiP (System-in-Package) Solution ATA6612			Now
ATA6613-EK	Development Board, LIN SiP (System-in-Package) Solution ATA6613			Now
ATA6622-EK	Development Board, LIN System Basis Chip ATA6622			Now
ATA6623-EK	Development Board, LIN System Basis Chip ATA6623			Now
ATA6624-EK	Development Board, LIN System Basis Chip for ATA6621 and ATA6624			Now
ATA6625-EK	Development Board, LIN System Basis Chip for ATA6620 and ATA6625			Now
ATA6626-EK	Development Board, LIN System Basis Chip for ATA6626			Now
ATA6662-EK	Development Board, LIN Transceiver for ATA6661 and ATA6662			Now
ATA6663-EK	Development Board, LIN Transceiver for ATA6663			Now
ATA6664-EK	Development Board, LIN Transceiver for ATA6664			Now

AUTOMOTIVE (CONTINUED)

Automotive Standard Products (Continued)

Serial EEPROMs

Part Number	Density (Kbits)	Organization	VCC (V)	Max Speed (MHz)	Package*	Comments	Availability
2-wire Interface							
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
SPI Interface							
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
3-wire Interface							
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 (CONTINUED)

Automotive ASSPs
Broadcast Radio
Audio Receiver ICs

Part Number	Description	Package	RoHS Compliance	Availability
ATR4251-T	Low-noise AM/FM Antenna Amplifier, High Dynamic Range for AM and FM, AGC for AM and FM, High Intercept Point 3rd Order for FM, FM Amplifier Adjustable for Various Cable Impedances, High Intercept Point 2nd and 3rd Order for AM, Low Output Impedance for AM, Low Power Consumption	SSO20	Yes	Now
ATR4251-P	Low-noise AM/FM Antenna Amplifier, High Dynamic Range for AM and FM, AGC for AM and FM, High Intercept Point 3rd Order for FM, FM Amplifier Adjustable for Various Cable Impedances, High Intercept Point 2nd and 3rd Order for AM, Low Output Impedance for AM, Low Power Consumption	QFN24 (4 x 4 mm)	Yes	Now
ATR4254	Low-noise AM/FM Antenna Amplifier, Excellent FM Low-noise Performance, FM Amplifier Overload Protection (AGC), AM Low-noise Output Voltage, High Intercept Point 2nd Order for AM	SO16	Yes	Now
ATR4256	Frequency Synthesizer for Radio Receivers, Three DACs for Automatic Tuner Adjust (e.g., with ATR4255, ATR4258)	SSO20	Yes	Now
ATR4258	AM/FM Car Radio Receiver for a Global Reception Concept with Digital Tuning and Electronic Filter Adjustment, Pin Compatible to U4255BM, Receiving Condition Analyzer and Adjacent Channel/Multipath Noise Cancellation, Superior Noise Suppression by Software-controlled Filter Adjustment, Completely Integrated FM Demodulator, a Variable Bandfilter Replaces Expensive External Ceramic Filter, Automatic Tuner Adjustment with ATR4256	SSO44	No	Now
T4260	AM/FM Tuner Front End for Digital-IF Radio Solutions (Suitable for Standard AM/FM, DRM and IBOC) – Integrated Fast Fractional PLL, Up-/Down-conversion System, IF Frequencies Up to 25 MHz, DACs for Automatic Tuner Alignment, High S/N Ratio, Compatible for 3/5V Microcontrollers	SSO44	No	Now
ATR4262N1	Highly Flexible Multi-standard Broadcast Radio Front-end IC for AM/FM/DRM/HD Radio, World Tuner Concept Incl. Weather Band, Image Rejection Mixer, Flexible and Economic Filter Concept, Features Double Tuner Application, Automotive Version	QFN48	Yes	Now

Digital Audio Broadcasting (DAB) ICs

Part Number	Description	Package	RoHS Compliance	Availability
ATR2730	L-band Down-converter Inclusive PLL for DAB Receivers	SSO28	Yes	Now
ATR2731	DAB One-chip Front-end Receiver for VHF Band III Reception, 8.5V Operation, External VCO	SSO44	Yes	Now
ATR2732M3	Highly Integrated One-chip DAB/DMB Front-end IC for VHF Band III and L-band Reception, 3.3V Operation, Internal VCO, RSSI Indicator	QFN64	Yes	Now
ATR2732M1	Highly Integrated One-chip DAB/DMB Front-end IC for VHF Band III and L-band Reception, 3.3V Operation, Internal VCO, RSSI Indicator; Automotive Compliant Variant	QFN64	Yes	Now
ATR2740-RQHH	DAB Digital Processing Device, Highly Integrated Digital Device for DAB (Eureka147) Radios, Utilizes ARM7TDMI Processor Core and TeakDSPCore, Integrated ADC and RAM, Supports Large Variety of Interfaces Such as USB, SPI, SSO, USART, I2S, SPDIF, Incorporates Audio and Data Decoder for Full Data Rate of 1.8 Mbit/s	LQFP128	Yes	Now
ATR2740M1-RQHH	DAB Digital Processing Device, Highly Integrated Digital Device for DAB (Eureka147) Radios, Utilizes ARM7TDMI Processor Core and TeakDSPCore, Integrated ADC and RAM, Supports Large Variety of Interfaces Such as USB, SPI, SSO, USART, I2S, SPDIF, Incorporates Audio and Data Decoder for Full Data Rate of 1.8 Mbit/s; Automotive Compliant Variant	LQFP129	Yes	Now
ATR2740-7GHG	DAB Digital Processing Device, Highly Integrated Digital Device for DAB (Eureka147) Radios, Utilizes ARM7TDMI Processor Core, Utilizes TeakDSPCore, Integrated ADC and RAM, Supports Large Variety of Interfaces Such as USB, SPI, SSO, USART, I2S, SPDIF, Incorporates Audio and Data Decoder for Full Data Rate of 1.8 Mbit/s	BGA	Yes	Now

Automotive (Continued)

Automotive ASSPs (Continued)

Car Access

Car Components[1]

Part Number	Description	Package	RoHS Compliance	Availability
ATA3741P2	UHF Remote Control Receiver for ASK and FSK Systems, All RF Components Integrated, IF Bandwidth 300 kHz	SO20	Pb-free Only	Now
ATA3741P3	UHF Remote Control Receiver for ASK and FSK Systems, All RF Components Integrated, IF Bandwidth 600 kHz	SO20	Pb-free Only	Now
ATA3742P3	UHF Remote Control Receiver, RSSI Output for ASK and FSK Systems	SO20	Pb-free Only	Now
ATA5278	Programmable Antenna Driver for 1A Peak Current (Regulated), LF Baud Rates Up to 8-Kbaud, SPI	QFN28	Pb-free Only	Now
ATA5279	Six-fold LF Antenna Driver IC	QFN48	Yes	Now
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
ATA5743P3	UHF Remote Control Receiver, High FSK Sensitivity, 5 to 20V Automotive Compatible Data Interface, Data Clock Available for Manchester and Biphase Coded Signals, 300 kHz Bandwidth	SO20, SSO20	Pb-free Only	Now
ATA5743P6	UHF Remote Control Receiver, High FSK Sensitivity, 5 to 20V Automotive Compatible Data Interface, Data Clock Available for Manchester and Biphase Coded Signals, 600 kHz Bandwidth	SO20, SSO20	Pb-free Only	Now
ATA5744N	UHF Remote Control Receiver for ASK Systems/PWM Mode	SO20, 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
ATA5760N3	UHF ASK/FSK Receiver, Frequency Receiving Range: 868 to 870 MHz, Highest Integration Level in Market, IF Bandwidth 300 kHz	SO20	Pb-free Only	Now
ATA5760N	UHF ASK/FSK Receiver, Frequency Receiving Range: 868 to 870 MHz, Highest Integration Level in Market, IF Bandwidth 600 kHz	SO20	Pb-free Only	Now
ATA5761N	UHF ASK/FSK Receiver, Frequency Receiving Range: 902 to 928 MHz, Highest Integration Level in Market	SO20	Pb-free Only	Now
ATA5811	UHF Transceiver for ASK and FSK Systems, 433 to 435 MHz or 868 to 870 MHz	QFN48	Yes	Now

Note: 1. For dedicated microcontrollers, see Automotive 4-bit microcontrollers Page 34.

AUTOMOTIVE (CONTINUED)

Automotive ASSPs (Continued)

Car Access (Continued)

Car Components (Continued)[1]

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
Evaluation Kits and Tools				
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 Page 34.

Automotive (Continued)

Automotive ASSPs (Continued)

Car Access (Continued)

Key Components[1]

Part Number	Description	Package	RoHS Compliance	Availability
ATA5749	Fully Programmable, Fully Integrated Fractional-N PLL RF Transmitter IC Featuring Ultra Low Power Consumption	TSSOP10	Pb-free Only	Now
ATA5756	UHF ASK/FSK Transmitter IC with Integrated FSK Application, Frequency Range: 313 to 317 MHz, 6 dBm, <1 ms Settling Time, High XTO1 Impedance for Crystal Oscillator Start-up	TSSOP10	Pb-free Only	Now
ATA5757	UHF ASK/FSK Transmitter IC with Integrated FSK Application, Frequency Range: 432 to 448 MHz, 6 dBm, <1 ms Settling Time, High XTO1 Impedance for Crystal Oscillator Start-up	TSSOP10	Pb-free Only	Now
ATA5771	Complete Key-fob IC, Including an AVR Microcontroller and an RF Transmitter PLL in One Single IC Package, f_0 = 868 MHz to 928 MHz	QFN 24	Yes	Now
ATA5773	Complete Key-fob IC, Including an AVR Microcontroller and an RF Transmitter PLL in One Single IC Package, f_0 = 310 MHz to 350 MHz	QFN 24	Yes	Now
ATA5774	Complete Key-fob IC, Including an AVR Microcontroller and an RF Transmitter PLL in One Single IC Package, f_0 = 429 MHz to 439 MHz	QFN 24	Yes	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
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
T5750	UHF ASK/FSK Transmitter, Frequency Range: 868 to 928 MHz, High Output Power	TSSOP8	Pb-free Only	Now
T5753	UHF ASK/FSK Transmitter, Frequency Range: 310 to 330 MHz, High Output Power	TSSOP8	Pb-free Only	Now
T5754	UHF ASK/FSK Transmitter, Frequency Range: 429 to 439 MHz, High Output Power	TSSOP8	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
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, T5750/53/54, Integrated Power Management (Battery or RF-field Power Supply)	SSO20	Pb-free Only	Now
Evaluation Kits and Tools				
ATA5749-EK1	Reference Design for Programmable Transmitter IC ATA5749, 315 MHz			Now
ATA5749-EK2	Reference Design for Programmable Transmitter IC ATA5749, 433 MHz			Now
ATAB5749-3	Transmitter Board for ATA5749, Fitting to RF Design Kit 315 MHz			Now
ATAB5749-4	Transmitter Board for ATA5749, Fitting to RF Design Kit 433 MHz			Now
ATAB5750-8	Transmitter Board T5750, 868 MHz			Now
ATAB5750-9	Transmitter Board T5750, 915 MHz			Now
ATAB5753	Transmitter Board T5753, 315 MHz			Now
ATAB5754	Transmitter Board T5754, 433.92 MHz			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
ATA5771-DK1	Transmitter Board for ATA5771, 868 MHz			4Q2008
ATA5771-DK2	Transmitter Board for ATA5771, 915 MHz			4Q2008
ATA5773-DK	Transmitter Board for ATA5773, 315 MHz			4Q2008
ATA5774-DK	Transmitter Board for ATA5774, 433 MHz			4Q2008
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 Unidirectional Communication at 315 MHz			Now
ATAKSTK512-4	Remote Access Control Kit for Unidirectional Communication at 433 MHz			Now
TMEB8704	LF RFID IDIC Evaluation Kit for U2270B and TK5561			Now

Note: 1. For dedicated microcontrollers, see Automotive 4-bit microcontrollers Page 24.

AUTOMOTIVE (CONTINUED)

Automotive ASSPs (Continued)

Drivers/High-Temperature Devices

High-Temperature Drivers

Part Number	Description	Package	RoHS Compliance	Availability
ATA6824	H-Bridge Gate-Driver with Serial Interface, Window Watchdog and Voltage Regulator with $T_{junction}$ Up to 200° C	QFN32	Yes	Now
ATA6827	Same as ATA6826, Dedicated for High Temperature Applications with $T_{junction}$ Up to 200° C	QFN18	Yes	Now
ATA6832	Triple Half-bridge Driver with Serial Input Control and 25 kHz PWM Input, 3 High-side and 3 Low-side Drivers, 1000 mA Current Limitation, Dedicated for High Temperature Applications with $T_{junction}$ Up to 200° C	QFN18	Yes	Now
ATA6834	BLDC Motor System Basis Chip with 3 Half-bridge Gate Drivers, LIN Interface, Window Watchdog and Voltage Regulator, $T_{junction}$ Up to 200° C	QFN48	Yes	Now
ATA6837	Hex Half-bridge Driver with Serial Input Control, 650 mA Current Limitation, Dedicated for High-temperature Applications with $T_{junction}$ Up to 200° C	QFN24	Yes	Now
ATA6839	Hex Half-bridge Driver with Serial Input Control, 1000 mA Current Limitation, Dedicated for High-temperature Applications with $T_{junction}$ Up to 200° C	QFN24	Yes	Now
Evaluation Kits and Tools				
ATA6824-DK	High-temperature Application Board for H-Bridge DC Motor Control, Board with ATA6824 and ATmega88, Including Application Note			Now
ATA6827-DK	Application Board for ATA6827; Loads Can Be Easily Adapted; the Design Software Controls the Application Board's SPI Interface Via the PC Parallel Port; the Kit Contains Everything Necessary to Start: Link Cable to PC 25-lead 1:1 and Corresponding Datasheet			Now
ATA6832-DK	High-temperature Application Board for Fully Integrated BLDC Motor Control, Board with ATA6832, ATA6625 and ATmega88, Including Application Note and BLDC Motor			Now
ATA6833-DK1	Application Board for Fully Integrated BLDC Motor Control with ATA6834 and BLDC Motor			4Q2008
ATA6833-DK2	Control Interface Board for ATA6833-DK1 and ATA6834-DK1 to Allow Stand-alone BLDC Motor Control Operation			4Q2008
ATA6834-DK1	High-temperature Application Board for Fully Integrated BLDC Motor Control, Board with ATA6834 and BLDC Motor			4Q2008

Standard Drivers

Part Number	Description	Package	RoHS Compliance	Availability
ATA6823	H-Bridge Gate-Driver with LIN Transceiver 2.0, Window Watchdog and 3.3/5V Voltage Regulator	QFN32	Yes	Now
ATA6826	Triple Half-bridge Driver with Serial Input Control, 3 High-side and 3 Low-side Drivers, 1000 mA Current Limitation	SO14	Pb-free Only	Now
ATA6828	Triple Half-bridge Driver with Serial Input Control, 3 High-side and 3 Low-side Drivers, 1500 mA Current Limitation	SO14, Heat Slug	Pb-free Only	Now
ATA6829	Dual Triple Driver with Serial Input Control and PWM Input, 3 High-side and 3 Low-side Drivers, 1500 mA Current Limitation	SO16, Heat Slug	Pb-free Only	Now
ATA6831	Triple Half-bridge Driver with Serial Input Control and 25 kHz PWM Input, 3 High-side and 3 Low-side Drivers, 1000 mA Current Limitation	QFN18	Yes	Now
ATA6833	BLDC Motor System Basis Chip with 3 Half-bridge Gate Drivers, LIN Interface, Window Watchdog and Voltage Regulator	QFN48	Yes	Now
ATA6836	Hex Half-bridge Driver with Serial Input Control, 650 mA Current Limitation	SO28, QFN24	Yes	Now
ATA6838	Hex Half-bridge Driver with Serial Input Control, 1000 mA Current Limitation	QFN24	Yes	Now
T6801	Single-channel Driver, 25 mA Output with Thermal Monitoring, Thermal Shutdown, Short-circuit Protection	SO8	Pb-free Only	Now
T6816	40V Dual Hex Driver with Serial Input Control, 6 High-side and 6 Low-side Drivers, 600 mA Current Limitation	SO28	Pb-free Only	Now
T6817	Dual Triple Driver with Serial Input Control, 3 High-side and 3 Low-side Drivers, 600 mA Current Limitation	SSO20	Pb-free Only	Now

AUTOMOTIVE (CONTINUED)

Automotive ASSPs (Continued)

Drivers/High-Temperature Devices (Continued)

Standard Drivers (Continued)

Part Number	Description	Package	RoHS Compliance	Availability
T6818	Triple Half-bridge Driver with Serial Input Control, 3 High-side and 3 Low-side Drivers, 1500 mA Current Limitation	SO14	Pb-free Only	Now
T6819	Dual Triple Driver with Serial Input Control and PWM Input, 3 High-side and 3 Low-side Drivers, 1500 mA Current Limitation	SO16	Pb-free Only	Now
U6803B	Triple Driver, 3 x 25 mA Output with Thermal Monitoring, Common Thermal Shutdown, Short-circuit Protection	SO8	Pb-free Only	Now
U6805B	Hex Driver, 6 x 25 mA Output with Thermal Monitoring, Common Thermal Shutdown, Short-circuit Protection	SO14	Pb-free Only	Now
U6815BM	Dual Hex Driver with Serial Input Control, 6 High-side and 6 Low-side Drivers, 600 mA Current Limitation	SO28	Pb-free Only	Now
U6820BM	Dual Quad Driver with Serial Input Control, 4 High-side Output Stages, 4 Low-side Output Stages, 50 mA Capability, Current Limitation	SO16	Pb-free Only	Now
Evaluation Kits and Tools				
ATAB6816	Application Board for U6815M or T6816; Loads Can Be Easily Adapted; the Design Software Controls the Application Board's SPI Interface Via the PC Parallel Port; the Kit Contains Everything Necessary to Start: Link Cable to PC 25-lead 1:1, Application Note and Corresponding Datasheet			Now
ATAB6817	Application Board for T6817; Loads Can Be Easily Adapted; the Design Software Controls the Application Board's SPI Interface Via the PC Parallel Port; the Kit Contains Everything Necessary to Start: Link Cable to PC 25-lead 1:1, Application Note and Corresponding Datasheet			Now
ATAB6818	Application Board for T6818; Loads Can Be Easily Adapted; the Design Software Controls the Application Board's SPI Interface Via the PC Parallel Port; the Kit Contains Everything Necessary to Start: Link Cable to PC 25-lead 1:1, Application Note and Corresponding Datasheet			Now
ATAB6819	Application Board for T6819; Loads Can Be Easily Adapted; the Design Software Controls the Application Board's SPI Interface Via the PC Parallel Port; the Kit Contains Everything Necessary to Start: Link Cable to PC 25-lead 1:1, Application Note and Corresponding Datasheet			Now
ATA6826-DK	Application Board for ATA6823; Loads Can Be Easily Adapted; the Design Software Controls the Application Board's SPI Interface Via the PC Parallel Port; the Kit Contains Everything Necessary to Start: Link Cable to PC 25-lead 1:1, Application Note and Corresponding Datasheet			Now
ATA6823-DK	Application Board for ATA6823 and ATA6824, Including External FETs, DC Motor, Supply Voltage 8 to 18V; Including Microcontroller Board for Generating PWM and Watchdog Signal, Application Note and Corresponding Datasheet			Now
ATA6831-DK	Application Board for ATA6831; Loads Can Be Easily Adapted; the Design Software Controls the Application Board's SPI Interface Via the PC Parallel Port; the Kit Contains Everything Necessary to Start: Link Cable to PC 25-lead 1:1, Application Note and Corresponding Datasheet			Now
ATA6833-DK1	Application Board for Fully Integrated BLDC Motor Control, Board with ATA6833 and BLDC Motor			4Q2008
ATA6833-DK2	Control Interface Board for ATA6833-DK1 and ATA6834-DK1 to Allow Stand-alone BLDC Motor Control Operation with ATMega32M1 AVR Microcontroller			4Q2008

Battery Management Systems

Measuring and Monitoring Circuits

Part Number	Description	Package	RoHS Compliance	Availability
ATA6870	Battery Cell Measurement IC for LI-Ion and NiMH Battery Systems	QFN48	Yes	April 2009
ATA6871	Battery Cell Monitoring IC for LI-Ion Battery Systems	QFN28	Yes	Feb. 2009

AUTOMOTIVE (CONTINUED)

Automotive ASSPs (Continued)

GPS for Automotive

Part Number	Description	Package	RoHS Compliance	Availability
ATR0621P1	ANTARIS®4 GPS 16-channel Baseband Controller, ARM7TDMI, RAM, ROM V5, Up to -158 dBm Sensitivity with External Software, Low Power, Automotive Qualification According to AEC-Q100	BGA100 (9 x 9 mm)	Yes	Now
ATR0622P1	ANTARIS4 GPS 16-channel Baseband Controller, ARM7TDMI, RAM, ROM V5, Up to -150 dBm Sensitivity, Low Power, Automotive Qualification According to AEC-Q100	QFN56 (8 x 8 mm)	Green	Now
ATR0625P1	ANTARIS4 GPS 16-channel Baseband Controller, ARM7TDMI, RAM, SuperSense® ROM V5, Up to -158 dBm Sensitivity, Low Power, Automotive Qualification According to AEC-Q100	QFN56 (8 x 8 mm)	Green	Now
ATR0630P1	ANTARIS4 Single-chip, 16-channel GPS Engine, RF-receiver, Baseband Controller, ARM7TDMI, RAM, ROM V5, Up to -150 dBm Sensitivity, Automotive Qualification According to AEC-Q100	BGA96 (7 x 10 mm)	Yes	Now
ATR0635P1	ANTARIS4 Single-chip Device, 16-channel GPS Engine, RF Receiver, Baseband Controller, ARM7TDMI, RAM, SuperSense ROM V5, Up to -158 dBm Sensitivity, Automotive Qualification According to AEC-Q100	BGA96	Yes	Now
Development/Evaluation Kits and Tools				
ATR0625-DK1	ANTARIS4 GPS Design Kit Based on Atmel's ANTARIS4 GPS Module, Chipset ATR0601, ATR0610, ATR0625, 2 Golden Samples Modules, Manufacturing Data, Design Guide			Now
ATR0625-EK1	ANTARIS4 GPS Evaluation Kit/Road Test Kit Based on Atmel's ANTARIS4 GPS Module, Chipset ATR0601, ATR0610, ATR0625			Now

Tire Pressure Monitoring ICs

LF Antenna Driver IC[1]

Part Number	Description	Package	RoHS Compliance	Availability
ATA5276M	Integrated 1.5A Peak Current BCDMOS Antenna Driver IC Dedicated as a 125 kHz Wake-up Channel Transmitter	QFN20	Pb-free Only	Now
Evaluation Kits and Tools				
ATAB5276	Evaluation Board, LF Antenna Driver, Preferred for Tire Pressure Monitoring Systems			Now
ATAB-LFMB76	LF Mainboard with AVR for ATA5276M			Now
ATAB-LFTX-MOD1	Antenna Module for LF TX Systems			Now

RF Transmitter[1]

Part Number	Description	Package	RoHS Compliance	Availability
ATA5749	Fully Programmable, Fully Integrated Fractional-N PLL RF Transmitter IC Featuring Ultra Low Power Consumption	TSSOP10	Pb-free Only	Now

Microcontroller Transmitter ICs[1]

Part Number	Description	Package	RoHS Compliance	Availability
ATA6285	Complete 8-bit Flash AVR Microcontroller with ATA5756, LF Wake-up and Temperature Sensor Integrated On-chip, Suited for Combination with Simple Capacitive MEMS Sensors; Temperature Range: -40° C to +125° C, Frequency: 315 MHz	QFN32	Pb-free Only	Samples
ATA6286	Complete 8-bit Flash AVR Microcontroller with ATA5756, LF Wake-up and Temperature Sensor Integrated On-chip, Suited for Combination with Simple Capacitive MEMS Sensors; Temperature Range: -40° C to +125° C, Frequency: 433 MHz	QFN32	Pb-free Only	Samples
Evaluation Kits and Tools				
ATA6285-EK1	Application Board for ATA6285			Now
ATA6286-EK1	Application Board for ATA6286			Now

Note: 1. For dedicated microcontrollers, see Automotive 4-bit microcontrollers Page 34.

Automotive (Continued)

Automotive ASSPs (Continued)

Tire Pressure Monitoring ICs (Continued)

UHF Receiver/Transceiver ICs[1]

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
Evaluation Kits and Tools				
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[1]

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
Evaluation Kits and Tools				
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 Page 34.

GPS

GPS for Automotive

Part Number	Description	Package	RoHS Compliance	Availability
ATR0621P1	ANTARIS4 GPS 16-channel Baseband Controller, ARM7TDMI, RAM, ROM V5, Up to -158 dBm Sensitivity with External Software, Low Power, Automotive Qualification According to AEC-Q100	BGA100 (9 x 9 mm)	Yes	Now
ATR0622P1	ANTARIS4 GPS 16-channel Baseband Controller, ARM7TDMI, RAM, ROM V5, Up to -150 dBm Sensitivity, Low Power, Automotive Qualification According to AEC-Q100	QFN56 (8 x 8 mm)	Green	Now
ATR0625P1	ANTARIS4 GPS 16-channel Baseband Controller, ARM7TDMI, RAM, SuperSense ROM V5, Up to -158 dBm Sensitivity, Low Power, Automotive Qualification According to AEC-Q100	QFN56 (8 x 8 mm)	Green	Now
ATR0630P1	ANTARIS4 Single-chip, 16-channel GPS Engine, RF-receiver, Baseband Controller, ARM7TDMI, RAM, ROM V5, Up to -150 dBm Sensitivity, Automotive Qualification According to AEC-Q100	BGA96 (7 x 10 mm)	Yes	Now
ATR0635P1	ANTARIS4 Single-chip Device, 16-channel GPS Engine, RF Receiver, Baseband Controller, ARM7TDMI, RAM, SuperSense ROM V5, Up to -158 dBm Sensitivity, Automotive Qualification According to AEC-Q100	BGA96	Yes	Now
Development/Evaluation Kits and Tools				
ATR0625-DK1	ANTARIS4 GPS Design Kit Based on Atmel's ANTARIS4 GPS Module, Chipset ATR0601, ATR0610, ATR0625, 2 Golden Samples Modules, Manufacturing Data, Design Guide			Now
ATR0625-EK1	ANTARIS4 GPS Evaluation Kit/Road Test Kit Based on Atmel's ANTARIS4 GPS Module, Chipset ATR0601, ATR0610, ATR0625			Now

Standard GPS

Part Number	Description	Package	RoHS Compliance	Availability
ATR0601	ANTARIS4 GPS RF Receiver, Single IF Front End Concept, Very Low Power, Immune Against RF Interference	QFN24 (4 x 4 mm)	Green	Now
ATR0603	GPS RF Receiver, Single IF Architecture, 1-bit ADC, Very Low Power, Supply Switch for TCXO	QFN24 (4 x 4 mm)	Green	Now
ATR0610	ANTARIS GPS LNA with Integrated Power-up Control and Output Matching (NF Min <1.6 dB)	PLLP (1.6 x 2 mm)	Green	Now
ATR0621P	ANTARIS4 GPS 16-channel Baseband Controller, ARM7TDMI, RAM, ROM V5, Up to -158 dBm Sensitivity with External Software, Low Power	BGA100 (9 x 9 mm)	Yes	Now
ATR0622P	ANTARIS4 GPS 16-channel Baseband Controller, ARM7TDMI, RAM, ROM V5, Up to -150 dBm Sensitivity, Low Power	QFN56 (8 x 8 mm)	Green	Now
ATR0625P	ANTARIS4 GPS 16-channel Baseband Controller, ARM7TDMI, RAM, SuperSense ROM V5, Up to -158 dBm Sensitivity, Low Power	QFN56 (8 x 8 mm)	Green	Now
ATR0635	ANTARIS4 Single-chip, 16-channel GPS Engine, RF-receiver, Baseband Controller, ARM7TDMI, RAM, SuperSense ROM V5, Up to -158 dBm Sensitivity	BGA96 (7 x 10 mm)	Yes	Now
Development/Evaluation Kits and Tools				
ATR0603-EK1	GPS-Radio Demoboard for Performance Evaluation			Now
ATR0610-EK1	GPS-LNA Demoboard for Performance Evaluation			Now
ATR0625-DK1	ANTARIS4 GPS Design Kit Based on Atmel's ANTARIS4 GPS Module, Chipset ATR0601, ATR0610, ATR0625, 2 Golden Samples Modules, Manufacturing Data, Design Guide			Now
ATR0625-EK1	ANTARIS4 GPS Evaluation Kit/Road Test Kit Based on Atmel's ANTARIS4 GPS Module, Chipset ATR0601, ATR0610, ATR0625			Now
ATR0635-DK1	ANTARIS4 GPS Design Kit Based on Atmel's ANTARIS4 GPS Module, Chipset ATR0610, ATR0635, 2 Golden Samples Modules, Manufacturing Data, Design Guide			Now
ATR0635-EK1	ANTARIS4 GPS Evaluation Kit/Road Test Kit Based on Atmel's ANTARIS4 GPS Module, Chipset ATR0610, ATR0635			Now

Industrial Control

AC/DC Motor/Temperature/Illumination Control ICs

Clock and Watch ICs

Part Number	Description	Package	RoHS Compliance	Availability
e1466D	Clock IC with Digital Trimming, 32 kHz Crystal, Integrated Capacitors, Mask Options 1.1 to 2.2V Supply	DIP8, SO8	Pb-free Only	Now
e5130A	Low Voltage CMOS Driver Circuit, Supply Voltage: 1.1 to 3.6V, 4 Non-inverting Tri-stable Drivers	Die	Pb-free Only	Now

Phase Control ICs

Part Number	Description	Package	RoHS Compliance	Availability
U2008B	Phase Control + Retrigger, Softstart or Shunt Regulation, Line-voltage Compensation, Minimal External Components	DIP8, SO8	Pb-free Only	Now
U2010B	As U2008B + Softstart, Shunt Regulation, Overload Compensation, Overload Indication, Line-voltage Compensation, Programmable Load-current Limitation	DIP16, SO16	Pb-free Only	Now
U209B	Tacho Control IC, as U2008B + f/V Converter, Reference Voltage – Applications: All Tacho Control AC Motors	DIP14, SO16	Pb-free Only	Now
U211B	The Worldwide Standard IC for Tacho AC Motor Control, as U209B + Foldback	DIP18, SO16	Pb-free Only	Now

Sensor-controlled Timer ICs

Part Number	Description	Package	RoHS Compliance	Availability
U2100B	Timer for AC Line Applications: Motion Sensors, Fans, Hand Dryer, Stair Light, 2-wire and 3-wire Applications, Triac and Relay Switching on AC Line	DIP8, SO8	Pb-free Only	Now
U2102B	IGBT/FET Control Timer for Advanced Dimmer and Motion Sensor Applications, Programmable Trigger Window, Reverse Phase Control and Electronic Fuse	DIP16, SO16	Pb-free Only	Now

Zero Crossing Switching IC

Part Number	Description	Package	RoHS Compliance	Availability
T2117	Standard Zero Crossing Switch, Low-cost Application, Adjustable Ramp	DIP8, SO8	Pb-free Only	Now

MILITARY AND AEROSPACE

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

MILITARY AND AEROSPACE (CONTINUED)

Military & Avionics (Continued)

Space Radiation Tolerant/Hard Memories

Part Number	Description	RoHS Compliance	Availability
AT61162E	Rad Hard 2-Mbit x 8 SRAM Cube (3.3V, 40 ns, 90 mA)	Yes	Now
AT60142F	Rad Hard 512K x 8 Very Low Power CMOS SRAM (3.3V, 15 ns, 180 mA)	Yes	Now
AT60142G	Rad Hard 512K x 8 Very Low Power CMOS SRAM (3.3V, <15 ns, 180 mA)	Yes	2H2009
AT60142FT	Rad Hard 512K x 8 Very Low Power CMOS SRAM (3.3/5V Tolerant, 17 ns, 170 mA)	Yes	Now
AT68166F	Rad Hard 16-Mbit SRAM Multi-chip Module (3.3V, 20 ns, 180 mA/Byte)	Yes	Now
AT68166F	Rad Hard 16-Mbit SRAM Multi-chip Module (3.3V, 18 ns, 180 mA/Byte)	Yes	Now
AT68166G	Rad Hard 16-Mbit SRAM Multi-chip Module (3.3V, <18 ns, 180 mA/Byte)	Yes	2H2009
AT68166FT	Rad Hard 16-Mbit SRAM Multi-chip Module (3.3V/5V Tolerant, 25 ns, 170 mA/Byte)	Yes	Now
AT68166FT	Rad Hard 16-Mbit SRAM Multi-chip Module (3.3V/5V Tolerant, 20 ns, 170 mA/Byte)	Yes	Now
M65608E	Rad Tolerant 128K x 8 Very Low Power CMOS SRAM (5V, 30 ns, 130 mA)	Yes	Now
M65609E	Rad Hard 128K x 8 Very Low Power CMOS SRAM (3.3V, 40 ns, 50 mA)	Yes	Now
M67025E	Rad Tolerant High-speed 8K x 16 Dual-port RAM (5V, 30 ns, 200 mA)	Yes	Now
M67206H	Rad Tolerant High-speed 16K x 9 Parallel FIFO (5V, 15 ns, 120 mA)	Yes	Now
M672061H	Rad Tolerant High-speed 16K x 9 Parallel FIFO with Programmable Flag (5V, 15 ns, 120 mA)	Yes	Now
M67204H	Rad Tolerant High-speed 4K x 9 CMOS Parallel FIFO (5V, 15 ns, 120 mA)	Yes	Now
AT28C010-12DK	Rad Tolerant 128K x 8 EEPROM (5V, 120 ns, 50 mA)	Yes	Now
AT17LV010-10DP	Rad Tolerant 1-Mbit Serial EEPROM (FPGA Configurator) (3.3V, 100 ns, 5 mA Read)	Yes	Now
AT69170E	Rad Tolerant 4-Mbit Serial EEPROM (FPGA Configurator) (3.3V, 70 ns, 70 mA Write, 5 mA Read)	Yes	1Q2009

Space Radiation Tolerant/Hard Processors and DSP

Part Number	Description	RoHS Compliance	Availability
80C32E	80C51, Radiation Tolerant 8-bit Microcontroller ROMless	Yes	Now
TSC21020F	ADI21020-compatible, Radiation and SEU Hardened 32-bit Floating Point DSP	Yes	Now
TSC695F	Radiation Hard 32-bit SPARC® Single-chip V7 Processor (5V, 20 MIPS)	Yes	Now
TSC695FL	Radiation Hard 32-bit SPARC Single-chip V7 Processor (3.3V, 12 MIPS)	Yes	Now
AT697E	Radiation Hard 32-bit SPARC V8 Processor (90 MIPS)	Yes (Except for MCGA Package)	Now
AT697F	Radiation Hard 32-bit SPARC V8 Processor (90 MIPS)	Yes (Except for MCGA Package)	1Q2009

MULTIMEDIA

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

MULTIMEDIA (CONTINUED)

IR Control ICs

Part Number	Description	Package	RoHS Compliance	Availability
ATA2525R	IR Receiver IC Optimized for Standard Remote Control Solutions, Supply Voltage 5V	Wafer	N/A	Now
ATA2526P	IR Receiver IC Optimized for Standard Remote Control Solutions, Supply Voltage 3 - 5V	Wafer	N/A	Now
T2525N	IR Receiver IC with Extensive Range of Options to Meet Special Remote Control Requirements, Supply Voltage 5V	Wafer	N/A	Now
T2526N	IR Receiver IC with Extensive Range of Options to Meet Special Remote Control Requirements, Supply Voltage 3 - 5V	Wafer	N/A	Now
U2538B	IR Preamplifier, Typically 0.55 mA Standby Current, 20 to 60 kHz, Only 3 External Components Required, Packaged	SO8	Pb-free Only	Now

Video – TV/VCR ICs

Part Number	Description	Package	RoHS Compliance	Availability
Sound IF ICs				
U2860B	Double FM Demodulator (Stereo), VS = 5V, Completely Alignment-free	SO14	Pb-free Only	Now
U2861B	FM Demodulator (Mono), VS = 5V, Completely Alignment-free	SO14	Pb-free Only	Now
Video and Sound IF ICs				
TDA4470	Multi-standard Video IF (Neg/Pos) and Quasi Parallel Sound Processing (FM, NICAM, AM), VS = 5V, FPLL Detection, AFC, Alignment-free AM Demodulator, Three IF Inputs	SO28, SSO28	Pb-free Only	Now

NONVOLATILE MEMORY

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.

NONVOLATILE MEMORY (CONTINUED)

Flash Memory

Part Number	Density (Mbit)	Organization	VCC (V)	Speeds (ns)	Package	Description	Availability
AT29LV512	0.5	64K x 8	3.0-3.6	120	32PLCC, 32TSOP	–	Now
AT29C512	0.5	64K x 8	4.5-5.5	70, 90	32PLCC, 32TSOP	–	Now
AT29BV010A	1	128K x 8	2.7-3.6	120, 150	32PLCC, 32TSOP	–	Now
AT29C010A	1	128K x 8	4.5-5.5	70, 90	32PLCC, 32TSOP	–	Now
AT29BV020	2	256K x 8	2.7-3.6	120, 150	32PLCC, 32TSOP	–	Now
AT29LV020	2	256K x 8	3.0-3.6	100, 200	32PLCC, 32TSOP	–	Now
AT29C020	2	256K x 8	4.5-5.5	70, 120	32PLCC, 32TSOP	–	Now
AT29BV040A	4	512K x 8	2.7-3.6	200	32PLCC, 32TSOP	–	Now
AT29LV040A	4	512K x 8	3.0-3.6	150	32PLCC, 32TSOP	–	Now
AT29C040A	4	512K x 8	4.5-5.5	90, 120	32PLCC, 32TSOP	–	Now
AT49LV1024A	1	64K x 16	3.0-3.6	45	40VSOP	–	Now
AT49F1024A	1	64K x 16	4.5-5.5	45	40VSOP	–	Now
AT49BV040B	4	512K x 8	2.7-3.6	70	32PLCC, 32TSOP, 32VSOP	Bottom Boot (5V and 2.7V Tolerant)	Now
AT49BV040B	4	512K x 8	4.5-5.5	55	32PLCC, 32TSOP	Bottom Boot (5V and 2.7V Tolerant)	Now
AT49BV802D(T)	8	512K x 16/1M x 8	2.7-3.6	70	48CBGA, 48TSOP	(T) – Top Boot	Now
AT49SV163D(T)	16	1M x 16	1.65-1.95	80	48CBGA, 48TSOP	(T) – Top Boot	Now
AT49BV160D(T)	16	1M x 16	2.7-3.6	70	48TSOP	(T) – Top Boot	Now
AT49BV160S(T)	16	1M x 16	2.7-3.6	70	64CBGA	(T) – Top Boot	Now
AT49BV163D(T)	16	1M x 16/2M x 8	2.7-3.6	70	48CBGA, 48TSOP	(T) – Top Boot	Now
AT49SV322D(T)	32	2M x 16	1.65-1.95	80	48CBGA, 48TSOP	(T) – Top Boot	Now
AT49BV320D(T)	32	2M x 16	2.7-3.6	70	47CBGA, 48TSOP	(T) – Top Boot	Now
AT49BV320S(T)	32	2M x 16	2.7-3.6	70	64CBGA	(T) – Top Boot	Now
AT49BV322D(T)	32	2M x 16/4M x 8	2.7-3.6	70	48CBGA, 48TSOP	(T) – Top Boot	Now
AT49BV640D(T)	64	4M x 16	2.7-3.6	70	48CBGA	(T) – Top Boot	Now
AT49BV642D(T)	64	4M x 16	2.7-3.6	70	48TSOP	(T) – Top Boot	Now
AT49BV640S(T)	64	4M x 16	2.7-3.6	70	64CBGA	(T) – Top Boot	Now

All Flash Parts are RoHS Compliant.

NONVOLATILE MEMORY (CONTINUED)

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(1)(2)	256-Kbit	4.5 - 5.5	200
AT28HC256-DFWM(1)(2)	256-Kbit	4.5 - 5.5	120
AT28C010-DFWM(1)(2)	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.

NONVOLATILE MEMORY (CONTINUED)

Serial EEPROMs – Automotive

Part Number	Density (Kbits)	Organization	VCC (V)	Max Speed (MHz)	Package*	Comments	Availability
2-wire Interface							
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
SPI Interface							
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
3-wire Interface							
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.

NONVOLATILE MEMORY (CONTINUED)

Serial EEPROMs Standard Products

Part Number	Density (Kbits)	Organization	VCC (V)	Max Speed (MHz)	Package	Comments	Availability
2-wire Interface							
AT24C01B	1	128 x 8	1.8	1	PDIP, SOIC, TSSOP, SOT23, dBGA2, DFN (MAP), XDFN*, Die/Wafer	Full Array Write Protection Cascade Up to 8 Devices	Now
AT24C02B	2	256 x 8	1.8	1	PDIP, SOIC, TSSOP, SOT23, dBGA2, DFN (MAP), XDFN*, Die/Wafer	Full Array Write Protection Cascade Up to 8 Devices	Replaces AT24C02
AT24HC02B	2	256 x 8	1.8	1	PDIP, SOIC, TSSOP, Die/Wafer	1/2 Array Write Protection Cascade Up to 8 Devices	Replaces AT24C02A
AT34C02C	2	256 x 8	1.7	0.4	SOIC, TSSOP, dBGA2, DFN (MAP), Die/Wafer	Lower Half SW Write Protect with Reversible SW Protection	Replaces AT34C02/ AT34C02B
AT24C04B	4	512 x 8	1.8	1	PDIP, SOIC, TSSOP, SOT23, dBGA2, DFN (MAP), XDFN*, Die/Wafer	Full Array Write Protection Cascade Up to 4 Devices	Replaces AT24C04
AT24HC04B	4	512 x 8	1.8	1	PDIP, SOIC, TSSOP, Die/Wafer	1/2 Array Write Protection Cascade Up to 4 Devices	Replaces AT24C04A
AT24C08B	8	1024 x 8	1.8	1	PDIP, SOIC, TSSOP, SOT23, dBGA2, DFN (MAP), XDFN*, Die/Wafer	Full Array Write Protection Cascade Up to 2 Devices	Replaces AT24C08A
AT24C16B	16	2048 x 8	1.8	1	PDIP, SOIC, TSSOP, SOT23, dBGA2, DFN (MAP), XDFN*, Die/Wafer	Full Array Write Protection	Replaces AT24C16/ AT24C164
AT24C32C	32	4096 x 8	1.8	1	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), XDFN*, Die/Wafer	Full Array Write Protection Cascade Up to 8 Devices	Replaces AT24C32A
AT24C64B	64	8192 x 8	1.8, 2.7	0.4	PDIP, SOIC, TSSOP, Die/Wafer	1/4 Array Write Protection, Cascadable Up to 8 Devices	Now
AT24C64C	64	8192 x 8	1.8	1	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), XDFN*, Die/Wafer	Full Array Write Protection Cascade Up to 8 Devices	Replaces AT24C64A
AT24C128B	128	16384 x 8	1.8	1	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), XDFN*, Die/Wafer	Full Array Write Protection Cascade Up to 8 Devices	Replaces AT24C128
AT24C256B	256	32768 x 8	1.8	1	PDIP, SOIC, TSSOP, dBGA2, DFN (MAP), Die/Wafer	Full Array Write Protection Cascade Up to 8 Devices	Replaces AT24C256
AT24C512B	512	65536 x 8	1.8, 2.5	1	PDIP, SOIC, TSSOP, dBGA2, DFN (SAP), Die/Wafer	Full Array Write Protection Cascade Up to 8 Devices	Replaces AT24C512
AT24C1024B	1-Mbit	131072 x 8	1.8, 2.5	1	PDIP, SOIC, TSSOP, DFN (SAP), dBGA2, Die/Wafer	Full Array Write Protection Cascade Up to 4 Devices	Replaces AT24C1024
SPI Interface							
AT25010A	1	128 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
AT25010B	1	128 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 AT25010A)
AT25020A	2	256 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
AT25020B	2	256 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 AT25020A)

* Available on Request

All Serial EEPROMs Parts are RoHS Compliant.

NONVOLATILE MEMORY (CONTINUED)

Serial EEPROMs Standard Products (Continued)

Part Number	Density (Kbits)	Organization	VCC (V)	Max Speed (MHz)	Package	Comments	Availability
SPI Interface (Continued)							
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)
3-wire Interface							
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.

NONVOLATILE MEMORY (CONTINUED)

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
Page-erase, Byte-alterable, 2.7 to 3.6V – Industrial Temperature Grades										
AT45DB011D	1-Mbit	2.7	Serial (SPI Bus)	66	1 (256/264 Bytes)	Individual Sector	x	x	S(8S2)-SS(8S1)-M(8MA1)	Now
AT45DB021D	2-Mbit	2.7	Serial (SPI Bus)	66	1 (256/264 Bytes)	Individual Sector	x	x	S(8S2)-SS(8S1)-M(8MA1)	Now
AT45DB041D	4-Mbit	2.7	Serial (SPI Bus)	66	2 (256/264 Bytes Each)	Individual Sector	x	x	S(8S2)-SS(8S1)-M(8M1-A)	Now
AT45DB081D	8-Mbit	2.7	Serial (SPI Bus)	66	2 (256/264 Bytes Each)	Individual Sector	x	x	S(8S2)-SS(8S1)-M(8M1-A)	Now
AT45DB161D	16-Mbit	2.7	Serial (SPI Bus)	66	2 (512/528 Bytes Each)	Individual Sector	x	x	S(8S2)-M(8M1-A)-T(28T)-C(24C1)	Now
AT45DB321D	32-Mbit	2.7	Serial (SPI Bus)	66	2 (512/528 Bytes Each)	Individual Sector	x	x	S(8S2)-MW(8MW)-M(8M1-A)-T(28T)-C(24C1)	Now
AT45DB642D	64-Mbit	2.7	Dual/SPI/Rapid8®	66/50	2 (1024/1056 Bytes Each)	Individual Sector	x	x	CN(8CN3)-T(28T)	Now
Page-erase, Byte-alterable, Low Battery Voltage, 2.5 to 3.6V – Industrial Temperature Grades										
AT45DB041D-2.5	4-Mbit	2.5	Serial (SPI Bus)	50	2 (256/264 Bytes Each)	Individual Sector	x	x	S(8S2)-SS(8S1)-M(8M1-A)	Now
AT45DB081D-2.5	8-Mbit	2.5	Serial (SPI Bus)	50	2 (256/264 Bytes Each)	Individual Sector	x	x	S(8S2)-SS(8S1)-M(8M1-A)	Now
AT45DB161D-2.5	16-Mbit	2.5	Serial (SPI Bus)	50	2 (512/528 Bytes Each)	Individual Sector	x	x	S(8S2)-M(8M1-A)-T(28T)	Now
DataFlash Cards										
Page-erase, Byte-alterable, 2.7 to 3.6V – Industrial Temperature Grades										
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
Uniform Block Erase Serial Flash, 2.7 to 3.6 – Industrial Temperature Grades											
AT25F512A	0.5	2.7	Serial (SPI Bus)	33	32	Full Array				SS(8S1)-Y4(8Y4)	Now
AT25F512B	0.5	2.7	Serial (SPI Bus)	70	4	Full Array		x		SS(8S1)-MA(8MA3)	Now
AT25FS010	1	2.7	Serial (SPI Bus)	50	4	1/32, 1/16, 1/8, 1/4, 1/2, Full Array				SS(8S1)-Y7(8Y7)	Now
AT25F2048	2	2.7	Serial (SPI Bus)	33	64	1/4, 1/2, Full Array				SS(8S1)-Y7(8Y7)	Now
AT25DF021	2	2.7	Serial (SPI Bus	70	4	Individual Sector		x		SS(8S1)-M(8MA1)	Now
AT25DF041A	4	2.7/2.3	Serial (SPI Bus)	70	4	Individual Sector				S(8S2)-SS(8S1)-M(8MA1)	Now
AT26DF081A	8	2.7	Serial (SPI Bus)	70	4	Individual Sector				S(8S2)-SS(8S1)	Now
AT25DF081	8	1.65	Serial (SPI Bus)	66	4	Individual Sector				SS(8S1)-M(8MA1)-U(11U1)	Now
AT26DF161A	16	2.7	Serial (SPI Bus)	70	4	Individual Sector				S(8S2)-SS(8S1)-M(8M1-A)	Now
AT25DF161	16	2.7	Serial (SPI Bus)/Dual I/O	100	4	Individual Sector	x	x	x	S(8S2)-SS(8S1)-M(8MA1)	4Q2008
AT25DF321	32	2.7	Serial (SPI Bus)	70	4	Individual Sector				S(8S2)-S3(16S)	Now
AT25DF321A	32	2.7	Serial (SPI Bus)/Dual I/O	100	4	Individual Sector	x	x	x	S(8S2)-S3(16S)-M(8MA1)	1Q2009
AT25DF641	64	2.7	Serial (SPI Bus)/Dual I/O	100	4	Individual Sector	x	x	x	MW(8MW)-S3(16S)	Now

Notes:
1. Package Designator: **C – CBGA**: 9C1, 9-ball, 5 x 5 x 1.2 mm; 24C1, 24-ball, 6 x 8 x 1.4 mm. **CN – CASON**: 8CN3, 8-pad, 6 x 8 mm (Footprint Compatible with 8-pin SOIC, EIAJ). **M**, **MA**, **MW – MLF/UDFN/VDFN**: 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). **R – SOIC**: 28R, 28-lead, 0.330 Wide (Not Recommended for New Designs). **SS – SOIC (Narrow)**: 8S1, 8-lead, 0.150" Wide. **S – SOIC**: 8S2, 8-lead, 0.208 Wide. **S3 – SOIC**: 16S, 16-lead, 0.300" Wide Body. **T – TSOP** (Type 1): 28T, 28-lead, 8 x 13.4 mm. **11U1 – WLCSP**, 11-ball. **Y7 – UTSAP**: 8Y7, 8-lead, 6 x 4.90 mm Body. **7DF1 – 7**-pad, 2.5 mm Pitch, 24 x 32 x 1.4 mm Body DataFlash Card.
2. **Green (RoHS Compliance)** Packaging Available for All Serial Flash Memory Products.

POWER MANAGEMENT

Power Management

Part Number	Description	RoHS Compliance	Availability
AT73C202	Power and Battery Management Unit for Wireless Devices	Yes	Now
AT73C203	Power Management IC for Datacom Platforms	Yes	Now
AT73C204	Power Management IC for Smartphones and PDAs	Yes	Now
AT73C205	Smart Battery Charger	Yes	Now
AT73C206	Audio and Power Management IC with Battery Charger for Smartphones	Yes	Now
AT73C209	Power Management and Audio Interface for Portable Devices	Yes	Now
AT73C211	Small Integration Power Management Unit	Yes	Now
AT73C212	Medium Integration Power Management Unit	Yes	Now
AT73C213	Audio Interface for Portable Devices	Yes	Now
AT73C214	Small Integration Power Management Unit with Battery Charger	Yes	Now
AT73C221	Power Management IC for 1.8V IO Chipset	Yes	Now
AT73C224	Universal PMU for Li-Ion and Alkaline Battery Powered Device	Yes	Now
AT73C236	5V Input Supply Tiny Power Management for Wireless Modules	Yes	Now
AT73C237	5V Input Supply Tiny Power Management for Wireless Modules with Hibernate Mode	Yes	Now
AT73C238	Tiny Power Management for Wireless Modules with Hibernate Mode	Yes	Now
AT73C239	Tiny Power Management for Wireless Modules	Yes	Now

PROGRAMMABLE LOGIC

Field Programmable Gate Arrays (FPGAs)

AT40K Series

Part Number	Description	Registers	Usable Gates	Frequency (MHz)	RAM (bits)	RoHS Compliance	Availability
Standard Voltage (5V)							
AT40K05	128 I/O Pins, 5-volt, Very Low Power	256	5-10K	250	2,048	No	Now
AT40K10	192 I/O Pins, 5-volt, Very Low Power	576	10-20K	250	4,096	No	Now
AT40K20	256 I/O Pins, 5-volt, Very Low Power	1,024	20-30K	250	8,192	No	Now
AT40K40	384 I/O Pins, 5-volt, Very Low Power	2,304	40-50K	250	18,432	No	Now
Low-voltage Enhanced Performance (3.3V)							
AT40K05AL	128 I/O Pins, 3.3-volt, Very Low Power	512	5-10K	250	2,048	Contact Atmel	Now
AT40K10AL	192 I/O Pins, 3.3-volt, Very Low Power	896	10-20K	250	4,096	Yes	Now
AT40K20AL	256 I/O Pins, 3.3-volt, Very Low Power	1,440	20-30K	250	8,192	Yes	Now
AT40K40AL	384 I/O Pins, 3.3-volt, Very Low Power	2,690	40-50K	250	18,432	Pb-free Only	Now
Software/Hardware Tools							
Hardware							
ATDH40M	AT40K Prototyping Board, 1 Daughter Board						Now
ATDH40D84	Daughter Board – 84PLCC						Now
ATDH40D100	Daughter Board – 100VQFP						Now
ATDH40D144	Daughter Board – 144TQFP						Now
ATDH40D208	Daughter Board – 208PQFP						Now

FPGA Configuration Memory

FPGA Serial Configuration EEPROM

Part Number	Description	Memory Size	RoHS Compliance	Availability
Standard (3.3 – 5V)				
AT17LV65	65-Kbit FPGA Configuration EEPROM	65,536 x 1	Yes[1]	Now
AT17LV128	128-Kbit FPGA Configuration EEPROM	131,072 x 1	Yes[1]	Now
AT17LV256	256-Kbit FPGA Configuration EEPROM	262,144 x 1	Yes	Now
AT17LV512	512-Kbit FPGA Configuration EEPROM	524,288 x 1	Yes	Now
AT17LV512A	512-Kbit FPGA Configuration EEPROM, Altera Pinout	524,288 x 1	Yes	Now
AT17LV010	1-Mbit FPGA Configuration EEPROM	1,048,576 x 1	Yes	Now
AT17LV010A	1-Mbit FPGA Configuration EEPROM, Altera Pinout	1,048,576 x 1	Yes	Now
AT17LV002	2-Mbit FPGA Configuration EEPROM	2,097,152 x 1	Yes	Now
AT17LV002A	2-Mbit FPGA Configuration EEPROM, Altera Pinout	2,097,152 x 1	Yes	Now
AT17LV040	4-Mbit FPGA Configuration EEPROM	4,194,304 x 1	Yes	Now

Note: 1. Replacement RoHS is the AT17LV256.

PROGRAMMABLE LOGIC (CONTINUED)

FPGA Configuration Memory (Continued)

FPGA Serial Configuration EEPROM (Continued)

Part Number	Description	Memory Size	RoHS Compliance	Availability
Low-cost NTP (3.3V)				
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
Flash-based (3.3V)				
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
In-System Programmable and Flash-based (3.3V)				
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
Software/Hardware Tools				
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

PROGRAMMABLE LOGIC (CONTINUED)

Programmable Logic Devices (PLDs)

SPLDs/CPLDs

Part Number	Description	Packages	Speeds (ns)	RoHS Compliance	Availability
5-volt Electrically Erasable					
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
5-volt Electrically Erasable for Military and Aerospace Applications					
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
Low-voltage (3.3V) Electrically Erasable					
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
Low-voltage, 3.3V Low Power					
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
5-volt EPROM-based					
ATV750B(L)	20 FFs, 10 I/O Pins, Standard and Low-power	24-, 28-lead	15-10	Yes	Military Only
1.8-volt, Low Power CPLD					
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

PROGRAMMABLE LOGIC (CONTINUED)

Programmable Logic Devices (PLDs) (Continued)

SPLDs/CPLDs (Continued)

Part Number	Description	Availability
Software		
ATDS1500PC	Licensed Version of Altium® Tools (VHDL, CUPL® Schematic) for ProChip Designer®	Now
ATDS1000PC	Atmel – WinCUPL (Includes CUPL, Compiler, Place and Route)	Now
ATDS15xxKSW1	Annual License for Mentor Graphics® Precision® Synthesis and ModelSim® Tools for ProChip Designer	Now
Hardware		
ATDH1150VPC	Atmel – ISP Kit Software and Cable (3 or 5V)	Now
ATF15xxDK3-SAJ44	Atmel – 44-lead PLCC Adapter for ATF15xx-DK3 Kit	Now
ATF15xxDK3-SAJ84	Atmel – 84-lead PLCC Adapter for ATF15xx-DK3 Kit	Now
ATF15xxDK3-SAA100	Atmel – 100-lead TQFP Adapter for ATF15xx-DK3 Kit	Now
ATF15xxDK3-SAA128	Atmel – 128-lead LQFP Adapter for ATF15xx-DK3 Kit	Now
Development Kits		
ATF15xx-DK3	CPLD Development Programming Kit (Includes Software, 2 Sample PLDs, 44-lead TQFP Socket Adapter and ISP Cable)	Now

Field Programmable System-Level Integration Circuits (FPSLIC®) – AVR, FPGA & SRAM on a Single Chip

AT94K Series

Part Number	FPGA Gates	FreeRAM (Bits)	FPGA I/O(1)	Program/Data SRAM (Bytes)	RoHS Compliance	Availability
AT94K05AL Micro FPSLIC	5K	2,048	Up to 96	4-16K/4-16K	Yes	Now
AT94K10AL	10K	4,096	Up to 192	20-32K/4-16K	Yes	Now
AT94K40AL	40K	18,432	Up to 384	20-32K/4-16K	Yes	Now
Software						
ATDS94KSW1	AT94K Series Design System Annual Subscription					Now
Hardware						
ATSTK94	FPSLIC Starter Kit, Cable, Software (4-month Software License)					Now
ATSTK594	FPSLIC Add-on Card to STK500					Now
ATDH2225	ISP Download Cable (For Configurator, Included in FPSLIC Starter Kit)					Now
ATDH94DNG	Hardware Dongle (If No Network Card to Key License Off)					Now

Note: 1. There are up to 16 AVR programmable I/Os on each device, plus several dedicated AVR I/Os.

AT94S Secure Series

Part Number	FPGA Gates	FreeRAM (Bits)	FPGA I/O	Program/Data SRAM (Bytes)	RoHS Compliance	Availability
AT94S05AL Micro FPSLIC	5K	2,048	Up to 95	4-16K/4-16K	Yes	Now
AT94S10AL	10K	4,096	Up to 120	20-32K/4-16K	Yes	Now
AT94S40AL	40K	18,432	Up to 384	20-32K/4-16K	Yes(1)	Now

Note: 1. Available in lead-free; not RoHS compliant.

Radio Frequency (RF) ICs

Communications

Cellular/Infrastructure ICs[1]

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

Radio Frequency (RF) ICs (Continued)

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

Radio Frequency (RF) ICs (Continued)

Smart RF[1]

Part Number	Description	Package	RoHS Compliance	Availability
ATA5423	UHF Transceiver for ASK and FSK Systems, 315 MHz	QFN44	Yes	Now
ATA5425	UHF Transceiver for ASK and FSK Systems, 345 MHz	QFN44	Yes	Now
ATA5428	UHF Transceiver for ASK and FSK Systems, 433 MHz or 868 MHz	QFN44	Yes	Now
ATA5429	UHF Transceiver for ASK and FSK Systems, 915 MHz	QFN44	Yes	Now
ATAR862x-yyy-TNz3	Complete UHF ASK/FSK Transmitter, ROM Microcontroller and Transmitter PLL T5753 in One IC, 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, 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, Frequency Range: 868 to 928 MHz	SSO24	Pb-free Only	Now
ATAM862x-TNz3	Complete UHF ASK/FSK Transmitter, Flash Microcontroller and Transmitter PLL T5753 in One IC, Frequency Range: 310 to 330 MHz	SSO24	Pb-free Only	Now
ATAM862x-TNz4	Complete UHF ASK/FSK Transmitter, Flash Microcontroller and Transmitter PLL T5754 in One IC, Frequency Range: 429 to 439 MHz	SSO24	Pb-free Only	Now
ATAM862x-TNz8	Complete UHF ASK/FSK Transmitter, Flash Microcontroller and Transmitter PLL T5750 in One IC, Frequency Range: 868 to 928 MHz	SSO24	Pb-free Only	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
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
ATA5743P3	UHF Remote Control Receiver, High FSK Sensitivity, 5 to 20V Automotive Compatible Data Interface, Data Clock Available for Manchester and Biphase Coded Signals, 300 kHz Bandwidth	SO20 SSO20	Pb-free Only	Now
ATA5743P6	UHF Remote Control Receiver, High FSK Sensitivity, 5 to 20V Automotive Compatible Data Interface, Data Clock Available for Manchester and Biphase Coded Signals, 600 kHz Bandwidth	SO20 SSO20	Pb-free Only	Now
ATA5744N	UHF Remote Control Receiver for ASK Systems/PWM Mode	SO20, SSO20	Pb-free Only	Now
ATA8201	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 FSK Sensitivity (-114 dBm at 2.4 Kbits/s), High Blocking Capability, 315 MHz	QFN24	Pb-free Only	Now
ATA8202	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 FSK Sensitivity (-114 dBm at 2.4 Kbits/s), High Blocking Capability, 433 MHz	QFN24	Pb-free Only	Now
ATA8401	UHF ASK/FSK Transmitter, Frequency Range: 310 to 350 MHz, High Output Power	TSSOP8	Pb-free Only	Now
ATA8402	UHF ASK/FSK Transmitter, Frequency Range: 429 to 439 MHz, High Output Power	TSSOP8	Pb-free Only	Now
ATA8403	UHF ASK/FSK Transmitter, Frequency Range: 868 to 928 MHz, High Output Power	TSSOP8	Pb-free Only	Now
ATA5760N3	UHF ASK/FSK Receiver, Frequency Receiving Range: 868 to 870 MHz, Highest Integration Level in Market, IF Bandwidth 300 kHz	SO20	Pb-free Only	Now
ATA5760N	UHF ASK/FSK Receiver, Frequency Receiving Range: 868 to 870 MHz, Highest Integration Level in Market, IF Bandwidth 600 kHz	SO20	Pb-free Only	Now

Note: 1. For Other Smart RF Products, see "Car Access" and "Tire Pressure Monitoring" sections.

Radio Frequency (RF) ICs (Continued)

Smart RF (Continued)[1]

Part Number	Description	Package	RoHS Compliance	Availability
ATA5761N	UHF ASK/FSK Receiver, Frequency Receiving Range: 902 to 928 MHz, Highest Integration Level in Market	SO20	Pb-free Only	Now
U2741B	UHF Remote Control Transmitter for ASK and FSK Systems, On-chip PLL Transmitter with Integrated VCO	SSO16	Pb-free Only	Now
ATA2745	UHF ASK Transmitter, Frequency Range: 310 to 440 MHz, Supply Voltage: 2.2 to 4V, Temperature Range: -40° C to +85° C	SSO16	Pb-free Only	Now
ATA3741P2	UHF Remote Control Receiver for ASK and FSK Systems, All RF Components Integrated, IF Bandwidth 300 kHz	SO20	Pb-free Only	Now
ATA3741P3	UHF Remote Control Receiver for ASK and FSK Systems, All RF Components Integrated, IF Bandwidth 600 kHz	SO20	Pb-free Only	Now
ATA3742P3	UHF Remote Control Receiver, RSSI Output for ASK and FSK Systems	SO20	Pb-free Only	Now
ATA3745	UHF ASK Receiver, Frequency Range: 310 to 440 MHz, Supply Voltage: 4.5 to 5.5V, Temperature Range: -40° C to 85° C	SO20	Pb-free Only	Now
Evaluation Kits and Tools				
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
ATA8201-EK	Evaluation Board for Flexible RF Receiver ATA8201, 315 MHz			Now
ATA8202-EK	Evaluation Board for Flexible RF Receiver ATA8202, 433 MHz			Now
ATAB-SPI-LPT	SPI to Parallel Port (LPT) Interface Board			Now
ATAB5423-3-B	UHF ASK/FSK Transceiver Basestation Board for 315 MHz			Now
ATAB5428-4-B	UHF ASK/FSK Transceiver Basestation Board for 433.92 MHz			Now
ATAB5428-8-B	UHF ASK/FSK Transceiver Basestation Board for 868.3 MHz			Now
ATAB5429-9-B	UHF ASK/FSK Transceiver Basestation Board for 915 MHz			Now
ATAB5423-3-WB	UHF TRx Application Board, 315 MHz			Now
ATAB5428-4-WB	UHF TRx Application Board, 433 MHz			Now
ATAB5428-8-WB	UHF TRx Application Board, 868 MHz			Now
ATAB5429-9-WB	UHF TRx Application Board, 915 MHz			Now
ATAB-RFMB	RF Mainboard with AVR Microcontroller and Interfaces			Now
ATAKSTK511-8	AVR-based RF Transmitter & Receiver Starter Kit, 868 MHz, Tx Using T5750 and Rx Using T5760			Now
ATAKSTK511-9	AVR-based RF Transmitter & Receiver Starter Kit, 915 MHz, Tx Using T5750 and Rx Using T5761			Now
ATAKSTK512-3	AVR-based RF Transmitter & Receiver Starter Kit with AES Encryption, 315 MHz, Tx Using T5753 and Rx Using T5743			Now
ATAKSTK512-4	AVR-based RF Transmitter & Receiver Starter Kit with AES Encryption, 434 MHz, Tx Using T5754 and Rx Using T5743			Now
ATAB5744-N3	ASK Receiver Board ATA5744N, 315 MHz, No SAW Filter			Now
ATAB5744-N4	ASK Receiver Board ATA5744N, 433.92 MHz, No SAW Filter			Now
ATAB5744-S3	ASK Receiver Board ATA5744N, 315 MHz, SAW Filter			Now
ATAB5744-S4	ASK Receiver Board ATA5744N, 433.93 MHz, SAW Filter			Now
ATAB5743P3-S3	ASK/FSK Receiver Board ATA5743, 315 MHz, 300 kHz BW, SAW Filter			Now
ATAB5743P3-S4	ASK/FSK Receiver Board ATA5743, 433.92 MHz, 300 kHz BW, SAW Filter			Now
ATAB5743P6-S3	ASK/FSK Receiver Board ATA5743, 315 MHz, 600 kHz BW, SAW Filter			Now
ATAB5743P6-S4	ASK/FSK Receiver Board ATA5743, 433.92 MHz, 600 kHz BW, SAW Filter			Now

Note: 1. For Other Smart RF Products, see "Car Access" and "Tire Pressure Monitoring" sections.

RADIO FREQUENCY (RF) ICS (CONTINUED)

Smart RF (Continued)[1]

Part Number	Description	Availability
Evaluation Kits and Tools (Continued)		
ATAB5750-8	ASK/FSK Transmitter Board T5750, 868.3 MHz	Now
ATAB5750-9	ASK/FSK Transmitter Board T5750, 915 MHz	Now
ATAB5753	ASK/FSK Transmitter Board T5753, 315 MHz	Now
ATAB5754	ASK/FSK Transmitter Board T5754, 433.92 MHz	Now
ATAB5760-N	ASK/FSK Receiver Board ATA5760N, 868.3 MHz, No SAW Filter	Now
ATAB5760-S	ASK/FSK Receiver Board ATA5760N, 868.3 MHz, SAW Filter	Now
ATAB5761-N	ASK/FSK Receiver Board ATA5761N, 915 MHz, No SAW Filter	Now
ATAB8401	RF Transmitter Board ATA8401, 315 MHz	Now
ATAB8402	RF Transmitter Board ATA8402, 433 MHz	Now
ATAB8403-8	RF Transmitter Board ATA8403, 868 MHz	Now
ATAB8403-9	RF Transmitter Board ATA8403, 915 MHz	Now
ATR2406-DEV-KIT2	RF Evaluation Kit for ATR2406 Includes Reference Design Based on ATR2406 and ATmega88	Now
ATR2406-DEV-BOARD	Low-cost Reference Design Board for ATR2406	Now

Note: 1. For Other Smart RF Kits and Tools, see "Car Access" and "Tire Pressure Monitoring" sections.

Z-Link® – 802.15.4/ZigBee Solutions

Part Number	Description	RoHS Compliance	Availability
AT86RF230	Fully Integrated, Low-power 2.4 GHz Transceiver Designed for Low-cost IEEE 802.15.4-based as Well as Wireless Networks Application, Including ZigBee; Receive Sensitivity Better than -101 dBm, Programmable Transmit Power Up to +3 dBm, Integrated Crystal Oscillator, LNA, Tx/Rx Switch, PLL-loop Filter; Automatic VCO & Filter Calibration, SPI Interface; Offering Easy System Design in Approach; Residing in a 32 Low Profile, Lead-free QFN Package	Yes	Now
AT86RF212	The AT86RF212 is a Low-power, Low-voltage 800/900 MHz Transceiver Specially Designed for Low-cost IEEE 802.15.4, ZigBee, and High Data Rate ISM Applications. The AT86RF212 is a True SPI-to-Antenna Solution. RF-critical Components Except the Antenna, Crystal, and De-coupling Capacitors are Integrated On-chip. MAC and AES Hardware Accelerators Improve Overall System Power Efficiency and Timing	Yes	Now
AT86RF236	The AT86RF231 is a Feature-rich, Low-power 2.4 GHz Radio Transceiver Designed for Industrial and Consumer ZigBee/IEEE 802.15.4 and High Data Rate 2.4 GHz ISM Band Applications. The Radio Transceiver is a True SPI-to-antenna Solution. All RF-critical Components Except the Antenna, Crystal and De-coupling Capacitors are Integrated On-chip.	Yes	Now
Evaluation Kits			
Evaluation Kits are Available for Pre-qualified Customers			Contact Atmel for Availability

Note: 1. Additional Z-Link products can be found in the "MCU Wireless – 802.15.4/6LoWPAN/ZigBee® Solutions" section on page 15.

Security Solutions ICs

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
Evaluation/Development Kits					
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

SECURITY SOLUTIONS ICS (CONTINUED)

Crypto & Secure Memories (Continued)

Secure Memory – Smart Cards (ISO 7816-3, T = 0)

Part Number	Description	Organization	Voltage	RoHS Compliance	Availability
Secure Memory ICs with Password					
AT88SC102	1K EEPROM with Password Security, Two 512-bit Zones	2 (512 x 1)	2.7 - 5.5	Yes	Now[1]
AT88SC1003	1K EEPROM with Password Security, Three Zones	2 (256 x 1) + 512 x 1	2.7 - 5.5	Yes	Now[1]
Secure Memory ICs with Password and Authentication					
AT88SC153	1.5K EEPROM with Authentication, Three 512-bit Zones	3 (512 x 1)	2.7 - 5.5	Yes	Now[1]
AT88SC1608	16K EEPROM with Authentication, Eight 2-Kbit Zones	8 (2K x 1)	2.7 - 5.5	Yes	Now[1]

Note: 1. Not Recommended for New Designs.

CryptoCompanion (Host Side Security IC, 2-wire Interface) for CryptoMemory and CryptoRF

Part Number	Features	EEPROM Memory (Kbits)	Voltage	RoHS Compliance	Availability
AT88SC016	Secure Host Side Key Storage and Management for CryptoMemory and Crypto RF, RNG, SHA-1	4	2.7 - 3.3	Yes	Now

Embedded Security

Trusted Platform Module (TPM)/PC Security

Part Number	Description	I/O Interface	RoHS Compliance	Availability
AT97SC3203	Fully V1.2 TCG-compliant Security Processor, Microsoft Windows Vista® Logo Compliant, Secure Key Generation and Storage (15 to 21 RSA® Keys, Depending on Key Mix and Size), RNG, SHA-1, 2048/RSA Sign-in 500 ms	LPC	Yes	Now
AT97SC3203S	Fully V1.2 TCG-compliant Security Processor, Optimized for Embedded Systems, Secure Key Generation and Storage (15 to 21 RSA Keys, Depending on Key Mix and Size), RNG, SHA-1, 2048/RSA Sign-in 500 ms	SMBus	Yes	Now
AT97SC3204	Fully V1.2 TCG-compliant Security Processor, Microsoft Windows Vista Logo Compliant, Secure Key Generation and Storage (15 to 21 RSA Keys, Depending on Key Mix and Size), RNG, SHA-1, 2048/RSA Sign-in 200 ms	LPC	Yes	Now
AT97SC3204T	Fully V1.2 TCG-compliant Security Processor, Optimized for Embedded Systems, Secure Key Generation and Storage (15 to 21 RSA Keys, Depending on Key Mix and Size), RNG, SHA-1, 2048/RSA Sign-in 200 ms, I2C-compatible	TWI	Yes	Now
AT97SC3204P	Fully V1.2 TCG-compliant Security Processor, Optimized for Embedded Systems, Secure Key Generation and Storage (15 to 21 RSA Keys, Depending on Key Mix and Size), RNG, SHA-1, 2048/RSA Sign-in 200 ms	SPI	Yes	Now

SECURITY SOLUTIONS ICS (CONTINUED)

RF Identification

RF Identification/Immobilization – 100 - 150 kHz

Part Number	Description	Package	RoHS Compliance	Availability
Transponder ICs 125 kHz (100 to 150 kHz)				
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
Reader IC				
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
Transponders				
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

Security Solutions ICs (Continued)

RF Identification (Continued)

RF Identification/Immobilization – 100 - 150 kHz (Continued)

Part Number	Description	Package	RoHS Compliance	Availability
Micromodule				
ATA5567	NOA3 Module, RFID Read/Write IDIC for Contactless Identification, Backward Compatible to 5551 and 5557, 64-bit Unique TAG ID	Micromodule	Pb-free Only	Now
ATA5577M1	NOA3 Module, RFID Read/Write IDIC Module 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, 330 pF Capacitor Integrated in Module	Micromodule	Pb-free Only	4Q2008
Development/Evaluation Kits and Tools				
TMEB8704	Design Kit for 125 kHz, Supports the x55xx Family Including the 5561 Authentication			Now
ATAK2270	Design Kit for 125 kHz, Supports the x55xx Family Including the ATA5567 Extended Mode			Now
ATAK2270UG	Kit for Upgrade from TMEB8704 to ATAK2270			Now
ATA2270-EK1	Evaluation Kit for 125 kHz, Supports the ATA5567 Extended Mode, ATA5577, ATA5558, Animal-ID, Stand-alone and PC-operated			Now
ATAB5570	Development Board for 125 kHz, Supports the ATA5570			Now

SECURITY SOLUTIONS ICS (CONTINUED)

Secure Microcontrollers

Secure Microcontrollers – AT90SC Family[1]

Part Number	RAM (Kbytes)	ROM (Kbytes)	Flash (Kbytes)	EEPROM (Kbytes)	Voltage (V)	Asym. Crypto Engine	Other Features	Availability
AVR-based								
AT90SC6418RU	2	64	N/A	18	2.7 - 5.5	No	RNG, One Timer	Now
AT90SC12036RU	3	120	N/A	36	2.7 - 5.5	No	RNG, One Timer	Now
secureAVR®-based								
AT90SC9604RU	2	96	N/A	4	2.7 - 5.5	No	Hardware DES/TDES, CRC, Common Criteria EAL4+, EMVCo Approval	Now
AT90SC9608RT	4	96	N/A	8	2.7 - 5.5	No	Hardware DES/TDES, CRC, Common Criteria EAL4+, EMVCo Approval	Now
AT90SC9618RT	4	96	N/A	18	2.7 - 5.5	No	Hardware DES/TDES, CRC, Common Criteria EAL4+, EMVCo Approval	Now
AT90SC16018RU	4	160	N/A	18	2.7 - 5.5	No	Hardware DES/TDES, CRC, EMVCo Target	1Q2009
AT90SC19236RU	4	192	N/A	36	1.62 - 5.5	No	Hardware DES/TDES, CRC	Now
AT90SC3636U	6	N/A	36	36	1.62 - 5.5V	No	Hardware DES/TDES, CRC	Now
AT90SC25672RU	6	256	N/A	72	1.62 - 5.5	No	Hardware DES/TDES, CRC	Now
AT90SC128112RU	4	128	N/A	112	1.62 - 5.5	No	RNG, CRC	Now
AT90SC288144RU	6	288	N/A	144	1.62 - 5.5	No	Hardware DES/TDES, CRC	Now
secureAVR-based with PKI								
AT90SC1818CT	5	N/A	18	18	2.7 - 5.5	Yes	Hardware DES/TDES, CRC	Now
AT90SC3636CT-USB	8	N/A	36	36	1.62 - 5.5	Yes	On-chip USB V2.0 Full-speed Interface, Hardware DES/TDES, CRC	Now
AT90SC9618RCT	4	96	N/A	18	2.7 - 5.5	Yes	Hardware DES/TDES, CRC, Common Criteria EAL4+, EMVCo	Now
AT90SC12836RCT	5	128	N/A	36	2.7 - 5.5	Yes	Hardware DES/TDES, CRC, Common Criteria EAL4+, ZKA, EMVCo Approvals	Now
AT90SC13612RCU	4.5	136	N/A	12	2.7 - 5.5	Yes	Hardware DES/TDES, CRC, SPI, Common Criteria EAL5+, EMVCo and ZKA Targets	Now
AT90SC20818RCU	4.5	208	N/A	18	2.7 - 5.5	Yes	Hardware DES/TDES, CRC, Common Criteria EAL5+ and EMVCo Targets	Now
AT90SC24036RCU	6	240	N/A	36	2.7 - 5.5	Yes	Hardware DES/TDES, CRC, Common Criteria EAL5+ and EMVCo Targets	1Q2009
AT90SC25672RCT	8	256	N/A	72	1.62 - 5.5	Yes	Hardware DES/TDES, CRC, Common Criteria EAL4+, EMVCo Targets	Now
AT90SC25672RCT-USB	8	256	N/A	72	1.62 - 5.5	Yes	On-chip USB V2.0 Full-speed Interface, Hardware DES/TDES, CRC, Common Criteria EAL4+	Now
AT90SC28848RCU	8	288	N/A	48	2.7 - 5.5	Yes	Hardware DES/TDES, CRC, SPI, Common Criteria EAL5+, ZKA Approval, EMVCo Target	Now
AT90SC28872RCU	8	288	N/A	72	2.7 - 5.5	Yes	Hardware DES/TDES, CRC, SPI, Common Criteria EAL5+, ZKA Approval, EMVCo Target	Now
AT90SC144144CT	8	N/A	144	144	1.62 - 5.5	Yes	Hardware DES/TDES, CRC, SPI, Common Criteria EAL4+ Target	Now
AT90SC320288RCT	8	320	N/A	288	1.62 - 5.5	Yes	Hardware DES/TDES, CRC, SPI, Common Criteria EAL4+ Target	Now

Note: 1. Green (RoHS Compliance) Packaging Available for All AT90SC Products.

SECURITY SOLUTIONS ICS (CONTINUED)

Secure Microcontrollers (Continued)

Secure Microcontrollers – AT90SC Family (Continued)[1]

Part Number	RAM (Kbytes)	ROM (Kbytes)	Flash (Kbytes)	EEPROM (Kbytes)	Voltage (V)	Asym. Crypto Engine	Other Features	Availability
secureAVR-based, Contactless								
AT90SC6404RFT	1.2	64	N/A	4	N/A	No	ISO 14443 B Contactless Interface, Hardware DES/TDES, CRC, EMVCo Approval	Now
AT90SC6408RFT	1.2	64	N/A	8	2.7 - 5.5	No	Hardware DES/TDES, CRC, Common Criteria EAL4+, EMVCo Approval, Contact and ISO 14443 B Contactless Interfaces	Now
AT90SC12872RCFT	5.2	128	N/A	72	2.7 - 5.5	Yes	Hardware DES/TDES, CRC, Common Criteria EAL5+, EMVCo Approval, Contact and ISO 14443 B Contactless Interfaces	Now
AT90SC256144RCFT	8.2	256	N/A	144	2.7 - 5.5	Yes	Hardware DES/TDES, CRC, Common Criteria EAL5+ Target, Contact and ISO 14443 B Contactless Interfaces	Now
Evaluation/Development Kits: Emulation Platform Support								
ATV™ 2/ATV4/ATV4P-xxxx	Voyager™ Development Tool Base Platform for AT90SC Family Microprocessors							Now

Note: 1. Green (RoHS Compliance) Packaging Available for All AT90SC Products.

Secure Microcontrollers – AT90M Family[1]

Part Number	RAM (Kbytes)	ROM (Kbytes)	Flash (Kbytes)	EEPROM (Kbytes)	Voltage (V)	Asym. Crypto Engine	Other Features	Availability
secureAVR-based, Machine to Machine								
AT90M19236RU	4	192	N/A	36	1.62 - 5.5	No	Hardware DES/TDES, CRC, Extended Temperature Range -40° C/+105° C	4Q2008
AT90M25672RU	6	256	N/A	72	1.62 - 5.5	No	Hardware DES/TDES, CRC, Extended Temperature Range -40° C/+105° C	Now
AT90M288144RU	6	288	N/A	144	1.62 - 5.5	No	Hardware DES/TDES, CRC, Extended Temperature Range -40° C/+105° C	4Q2008

Note: 1. Green (RoHS Compliance) Packaging Available for All AT90SC Products.

Secure Microcontrollers – AT91SC Family[1]

Part Number	RAM (Kbytes)	ROM (Kbytes)	Flash (Kbytes)	EEPROM (Kbytes)	Voltage (V)	Asym. Crypto Engine	Other Features	Availability
AT91SC512384RCT	24	512	N/A	384	1.62 - 5.5	Yes	Hardware DES/TDES, CRC 16 and 32, SPI, USB 2.0 Full Speed or USB IC, NAND Flash Interface, SWP Interface	Now
AT91SC512384RCT-8M	24	512	N/A	384	1.62 - 5.5	Yes	Hardware DES/TDES, CRC 16 and 32, SPI, USB 2.0 Full Speed or USB IC, External Flash, SWP Interface	Now
AT91SC512384RCT-128M	24	512	N/A	384	1.62 - 5.5	Yes	Hardware DES/TDES, CRC 16 and 32, SPI, USB 2.0 Full Speed or USB IC, External Flash, SWP Interface	Now
AT91SC192192CT-USB	24	N/A	192	192	1.62 - 5.5	Yes	Hardware DES/TDES, CRC 16 and 32, SPI, USB 2.0 Full Speed or USB IC, NAND Flash Interface, SWP Interface	Now
AT91SC464384RCU	18	464	N/A	384	1.62 - 5.5	Yes	Hardware DES/TDES, SWP Interface, Common Criteria EAL4+, EMVCo Approval	Now
Evaluation/Development Kits: Emulation Platform Support								
ATV4P-xxxx	Voyager Development Tool Base Platform for AT91SC Family Microprocessors							Now

Note: 1. Green (RoHS Compliance) Packaging Available for All AT91SC Products.

SECURITY SOLUTIONS ICS (CONTINUED)

Secure Microcontrollers (Continued)

Secure Microcontrollers – AT91SO Family[1]

Part Number	RAM (Kbytes)	ROM (Kbytes)	ADC	EEPROM (Kbytes)	Voltage (V)	Package	Other Features	Availability
AT91SO110	100	32	Yes	256	2.7 - 3.3	BGA 256	GPIOs, USARTs, Smart Card Reader Interfaces, USB, SPI High Speed, Timers, RTC, Hardware DES/TDES and AES, SHAn, CRC	1Q2009
AT91SO111	100	32	Yes	256	2.7 - 3.3	BGA 256	Single Package-solution Embedding 2 Chips: the AT91SO110 and the AT83C26 Analog Interface	1Q2009
AT91SO100	100	32	No	256	2.7 - 3.3	BGA 256	GPIOs, USARTs, Smart Card Reader Interfaces, USB, SPI, Timers, RTC, Hardware DES/TDES and AES, SHAn, CRC, Common Criteria EAL4+	Now
AT91SO101	100	32	No	256	2.7 - 3.3	BGA 256	Single Package-solution Embedding 2 Chips: the AT91SO100 and the AT83C26 Analog Interface	Now
AT91SO50	100	32	No	256	2.7 - 3.3	BGA 208	AT91SO100 with Secure External Bus Disconnected (Smaller Package)	Now
AT91SO51	100	32	No	256	2.7 - 3.3	BGA 208	AT91SO50 with AT83C26 Analog Interface	Now
AT91SO25	100	32	No	256	2.7 - 3.3	BGA 144	AT91SO50 in Smaller Package	Now
Evaluation/Development Kits								
AT91SO101-DB1	Development Board							Now
AT91SO101-MEZ	Mezzanine Board (External Memory Board: 4 Mbytes of Flash/512 Kbytes of RAM)							Now
AT91SO101-ICE	JTAG Board (External CPLD to Decrypt Communication Between SO101 and JTAG)							Now
AT91SO101-DBMEZ	AT91SO101-DB1 + AT91SO101-MEZ							Now
AT91SO101-DBICE	AT91SO101-DB1 + AT91SO101-ICE							Now
AT91SO101-KITAM	AT91SO101-DB1 + AT91SO101-MEZ + AT91SO101-ICE							Now

Note: 1. Green (RoHS Compliance) Packaging Available for All AT91SO Products.

Secure ASSP – AT98SC Family[1]

Part Number	RAM	ROM	Com	EEPROM (Kbytes)	Voltage (V)	Package	Other Features	Availability
Secure Turnkey Solutions								
AT98SC004U	N/A	N/A	SPI, I2C-compatible, ISO 7816	4	2.7 - 5.5	SOIC-8, DFN8	Secure Flexible Data Storage Management, High Level Cryptographic Services (3DES, RSA, AES, ECC)	4Q2008
AT98SC016CU	N/A	N/A	SPI, TWI, ISO 7816	16	1.62 - 5.5	QFN20, SOIC-8	Secure Flexible Data Storage Management, High Level Cryptographic Services (3DES, RSA, AES, ECC)	Now
AT98SC032CT-USB	N/A	N/A	USB 2.0, CCID	32	1.62 - 5.5	QFN44, SOIC-8	Secure Flexible Data Storage Management, High Level Cryptographic Services (3DES, RSA, AES, ECC)	Now
AT98SC064CT-USB	N/A	N/A	USB 2.0, CCID, ISO 7816	64	1.62 - 5.5	QFN44, SOIC-8	Secure Flexible Data Storage Management, High Level Cryptographic Services (3DES, RSA, AES, ECC)	4Q2008
Starter Kits								
AT98SC-STK01-004R	Starter Kit for AT98SC004U with Samples in SOIC8 Package							4Q2008
AT98SC-STK01-016Z	Starter Kit for AT98SC016CU with Samples in QFN20 Package							Now
AT98SC-STK01-016R	Starter Kit for AT98SC016CU with Samples in SOIC8 Package							Now
AT98SC-STK01-032Z	Starter Kit for AT98SC032CT-USB with Samples in QFN44 Package							Now
AT98SC-STK01-032R	Starter Kit for AT98SC032CT-USB with Samples in SOIC8 Package							Now
AT98SC-STK01-064R	Starter Kit for AT98SC064CT-USB with Samples in SOIC8 Package							Now
AT98SC-STK01-064Z	Starter Kit for AT98SC064CT-USB with Samples in QFN44 Package							Now

Note: 1. Green (RoHS Compliance) Packaging Available for All AT98SC Products.

SECURITY SOLUTIONS ICS (CONTINUED)

Secure RF Memory

CryptoRF (ISO 14443 Type B 13.56 MHz) – Secure RF Memory

Part Number	Description	Organization (Bytes)	RoHS Compliance	Availability
AT88SC0404CRF	Contactless 4-Kbit User Memory with Authentication and Encryption	4 x 128	Yes	Now
AT88SC0808CRF	Contactless 8-Kbit User Memory with Authentication and Encryption	8 x 128	Yes	Now
AT88SC1616CRF	Contactless 16-Kbit User Memory with Authentication and Encryption	16 x 128	Yes	Now
AT88SC3216CRF	Contactless 32-Kbit User Memory with Authentication and Encryption	16 x 256	Yes	Now
AT88SC6416CRF	Contactless 64-Kbit User Memory with Authentication and Encryption	16 x 512	Yes	Now
Evaluation/Development Kits				
AT88SC6416CRF-DK	1K to 64K CryptoRF Development Kit – Replaced by AT88SCRF-ADK2 Keen+ in November 2008			Now
AT88SCRF-ADK1 Yuma+	1K to 64K CryptoRF Development Kit			Now
AT88SCRF-ADK2 Keen+	Low-cost Development Kit for CryptoMemory and CryptoCompanion Chips on an AVR Platform			Nov. 2008
AT88CRF-S7DK2P	CryptoRF Demonstration Kit with SkyeTek® Reader and Software Technology			Now

13.56 MHz Reader IC (ISO 14443 Type B, SPI and 2-wire Interface)

Part Number	Features	Voltage	RoHS Compliance	Availability
AT88RF1354	13.56 MHz Reader IC Performs Encoding, Timing, and Protocol Functions	3.3V, 5.0V	Yes	Now

SECURITY SOLUTIONS ICs (CONTINUED)

Smart Card Reader ICs

Part number	RAM (Bytes)	ROM (Kbytes)	Flash (Kbytes)	Code RAM (Kbytes)	EEPROM (Bytes)	Voltage	Com Interface	Other features	Availability
8051 Microcontrollers									
AT83C5121	512	16	–	–	N/A	2.85 - 5.5	UART	Support Cards Class A/B/C	Now
AT85C5121	512	–	–	16	N/A	2.85 - 5.5	UART	CRAM = Executable RAM for Debug and Development Support Cards Class A/B/C	Now
AT89C5121	512	–	16	–	N/A	2.85 - 5.5	UART	Support Cards Class A/B/C	Now
AT83R5122	768	32	–	–	N/A	3.0 - 5.5	UART, USB 2.0, SPI	Support Cards Class A/B/C, Keyboard Interface, SPI, External Program Memory	Now
AT85C5122	768	–	–	32	N/A	3.0 - 5.5	UART, USB 2.0, SPI	CRAM = Executable RAM for Debug and Development Support Cards Class A/B/C, Keyboard Interface, SPI, External Program Memory	Now
AT89C5122	768	–	32	–	N/A	3.0 - 5.5	UART, USB 2.0, SPI	Support Cards Class A/B/C, Keyboard Interface, SPI, External Program Memory	Now
AT83C5123	768	30	–	–	512	3.0 - 5.5	UART, USB 2.0	Support Cards Class A/B/C	Now
AT83C5127	768	16	–	–	512	3.0 - 5.5	UART, USB 2.0	Support Cards Class A/B/C	Now
AVR-based									
AT90SCR100	4K	–	64K	–	4K	2.7 - 5.5	UART, USB 2.0, 2SPI, TWI	Support Cards Class A/B/C and USB Cards, Keyboard Interface, SPI, High-speed SPI	4Q2008
Starter Kit									
T89C5121-SK1	Starter Kit for T89C5121 Smart Card Reader Microcontroller								Now
AT89STK-03	Starter Kit for AT8xC5122/23/27 USB Smart Card Reader Microcontrollers								Now
AT90SCR-STK01	Starter Kit for AT90SCR100 Smart Card Reader Microcontroller								4Q2008

Smart Card Reader ICs – Interface

Part Number	Description	RoHS Compliance	Availability
AT83C26	Multiple Smart Card Interface (2 Full Smart Cards and 3 SAMs)	Yes	Now
Starter Kits			
AT89STK-09	Starter Kit for the AT83C26 Multiple Smart Card Interface		Now

Smart Card Reader ICs – Ready-to-Use Solutions

Part Number	Description	Availability
AT83C25OK	Pre-certified Smart Card Reader Solution for PMCIA Link with Omnikey® EMV2000 Firmware	Now
AT83C21GC	Pre-certified Smart Card Reader Solution for Serial Link with Gemalto™ GemCore® EMV2000 Firmware	Now
AT83C22OK	Pre-certified Smart Card Reader Keyboard Solution for USB Link with Omnikey EMV2000 Firmware	Now
AT83C23OK	Low-pin Count Pre-certified Smart Card Reader Solution for USB Link with Omnikey EMV2000 Firmware	Now
Evaluation/Development Kits		
AT89RFD-02	USB Smart Card Reader Reference Design with Omnikey Firmware for AT83C22OK/23OK	Now
AT89RFD-05	Serial Smart Card Reader Reference Design with Gemalto GemCore Software for AT83C21GC	Now
AT89RFD-06	PCMCIA Smart Card Reader Reference Design with Omnikey Firmware for AT83C25OK	Now

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Rev.: 3271I-MISC-Winter2008/25M

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