

USB

Imaging

ASICs

**ATMEL PRODUCT GUIDE**

Multimedia

Automotive

Aerospace

Programmable Logic

**FEBRUARY 2005**

Microcontrollers

Networking



**Everywhere You Are<sup>SM</sup>**

ASSPs

Communications ICs

Wireless

Memory

Security & Smart Card ICs

Storage

Biometrics

ASIC IP Cores



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**ATMEL** **PRODUCT GUIDE**

**February 2005**



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## ATMEL'S PRODUCTS

Atmel Corporation is a global leader in researching, designing, manufacturing and marketing advanced semiconductors, including microcontroller, nonvolatile memory, logic, secure, mixed analog/digital, radio frequency and sensor integrated circuits (ICs). These functions are marketed as standard products (aimed at a wide range of applications for many customers), ASSPs (a single application for a limited number of customers) and ASICs (implementing a specific application for a single customer). Atmel ICs are fabricated in its own manufacturing facilities using its proprietary industry-leading process technologies that are fine-tuned to the requirements of its products and customers. This gives Atmel's customers flexibility of choice in terms of matching device performance to their product requirements, time-to-market, development cost and unit price in volume. Through its network of R&D, design, manufacturing, engineering, sales and distribution facilities in over 60 countries, Atmel is committed to a customer-oriented approach. By ensuring the timely introduction and total lifecycle support of its customers' products, Atmel enables its customers to lead the markets they serve with electronic products that offer more advanced functionality, while being smaller and less expensive than ever before. Consequently, companies that drive global innovation choose Atmel. Atmel maintains its competitive edge in process technology evolution and product innovation by means of an on-going program of research and development, undertaken in collaboration with leading universities and key clients.

Atmel is focused on high-growth electronic equipment markets across the entire spectrum of applications: consumer, communications, computer/network, security, industrial/medical, automotive, aerospace and military. Particular emphasis is on battery-powered and hand-held systems where maximum performance is required at minimal power consumption.

Atmel is among the industry leaders in the development of CMOS (in particular nonvolatile memory CMOS), BiCMOS and Silicon Germanium (SiGe) process technologies, resulting in consistent levels of product innovation. Current CMOS processes are migrating from a 0.18-micron minimum feature size to 0.13 microns. Ideally suited for advances in wireless technology, Atmel's SiGe technology provides Gigahertz RF performance at costs close to those of CMOS. Atmel's high-voltage BCDMOS and BCD on SOI processes are optimized for high-voltage applications in harsh environments such as automotive and industrial applications. These processes are also available as foundry services.

Atmel has a corporate-wide commitment to quality that extends to every level of its activities. The objective is continuous improvement and total customer satisfaction. All Atmel sites are ISO 9001 V2000 certified, most have QS 9000 automotive/industrial certification, military products are QML-certified, and several sites have the prestigious ISO 14001 qualification for environmental protection. Atmel's quality team cooperates with customers in performing audits to ensure that Atmel conforms to the quality requirements of the customer.

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## APPLICATION SPECIFIC STANDARD PRODUCTS (ASSPs)

### Aerospace

#### Military & Avionics ASICs and FPGAs

Part Number	Description	Availability
MG2	0.5 Micron 350K Used Gates Sea of Gates	Now
MH1	0.35 Micron 1.6M Used Gates Sea of Gates/Embedded Arrays	Now
ATC18M	0.18 Micron 5.5M Gates Cell-based	April 2005
AT40KAL040	FPGA 50K Gates and 18-Kbit SRAM	Now

#### Space Radiation Tolerant/Hard ASICs and FPGAs

Part Number	Description	Availability
MG2RT	Rad Tolerant 0.5 Micron 350K Used Gates Sea of Gates	Now
MG2RTP	Rad Hard 0.5 Micron 200K Used Gates Sea of Gates	Now
MH1RT	Rad Hard 0.35 Micron 1.6M Used Gates Sea of Gates/Embedded Gates	Now
ATC18RHA	Rad Hard 0.18 Micron 5.5M Gates Cell-based	April 2005
AT40KEL040	Rad Hard FPGA 40K Gates and 18-Kbit SRAM	Now

#### Space Radiation Tolerant/Hard Memories

Part Number	Description	Availability
AT61162E	Rad Hard 2-Mbit x 8 SRAM Cube (3.3V, 40 ns, 90 mA)	Now
AT60142E	Rad Hard 512K x 8 Very Low Power CMOS SRAM (3.3V, 15 ns, 150 mA)	Now
AT60142ET	Rad Hard 512K x 8 Very Low Power CMOS SRAM (3.3/5V Tolerant, 17 ns, 150 mA)	Now
M65608E	Rad Tolerant 128K x 8 Very Low Power CMOS SRAM (5V, 30 ns, 130 mA)	Now
M65609E	Rad Hard 128K x 8 Very Low Power CMOS SRAM (3.3V, 40 ns, 50 mA)	Now
M67025E	Rad Tolerant High Speed 8K x 16 Dual Port RAM (5V, 30 ns, 200 mA)	Now
M67206H	Rad Tolerant High Speed 16K x 9 Parallel FIFO (5V, 15 ns, 120 mA)	Now
M672061H	Rad Tolerant High Speed 16K x 9 Parallel FIFO with Programmable Flag (5V, 15 ns, 120 mA)	Now
M67204H	Rad Tolerant High Speed 4K x 9 CMOS Parallel FIFO (5V, 15 ns, 120 mA)	Now
ATC28C010-12DK	128K x 8 EEPROM	Now
ATC17LV010-10DP	1-Mbit EEPROM	Now

#### Space Radiation Tolerant Standard ASICs

Part Number	Description	Availability
29C516E	16-bit Flow through EDAC Error Detection and Correction Unit	Now
T7906E	Single Point-to-Point IEEE 1355 High Speed Controller (SMCS Lite)	Now
TSS901E	Triple Point-to-Point IEEE1355 High Speed Controller (SMCS)	Now
AT7908E	CAN Controller	Now

#### Space Radiation Tolerant/Hard Processors and DSP

Part Number	Description	Availability
80C32E	80C51, Radiation Tolerant 8-bit Microcontroller ROMless	Now
TSC21020F	ADI21020-compatible, Radiation and SEU Hardened 32-bit Floating Point DSP	Now
TSC695F	Radiation Hard 32-bit SPARC® Single-chip V7 Processor	Now
AT697E	Radiation Hard 32-bit SPARC V8 Processor (100 MIPS)	Sampling June 2005

**ASSPs (CONTINUED)**
**High-reliability Microprocessors**
**PowerPC™ Host Microprocessors**

Part Number	Description	Maximum Speed (MHz)	Core Voltage (V)	Package	Availability
PC603R	32-bit RISC Microprocessor	300	2.5	CBGA, CI-CGA, CQFP	Now
				Hi-TCE CBGA	March 2005
PC745	32-bit RISC Microprocessor	350	2.0	PBGA	Now
				Hi-TCE CBGA	March 2005
PC755	32-bit RISC Microprocessor	400	2.0	PBGA, CBGA, CI-CGA, Hi-TCE CBGA	Now
PC7410	32-bit RISC Microprocessor with AltiVec™	500	1.5 or 1.8	CBGA, CI-CGA, Hi-TCE CBGA	Now
PC7447	32-bit RISC Microprocessor with AltiVec, 512-Kbyte On-board L2-cache	1000	1.1 or 1.3	CBGA	Now
PC7447A	32-bit RISC Microprocessor with AltiVec, 512-Kbyte On-board L2-cache	1333	1.1 or 1.3	Hi-TCE CBGA	Now
PC7457	32-bit RISC Microprocessor with AltiVec, 512-Kbyte On-board L2-cache	1000	1.1 or 1.3	CBGA, Hi-TCE CBGA	Now
PC7448	32-bit RISC Microprocessor with AltiVec, 1-Mbyte On-board L2-cache with ECC	1500	1.0 or 1.1	Hi-TCE CBGA	June 2005

**PowerPC Integrated Processors and Peripherals**

Part Number	Description	Maximum Speed (MHz)	Core Voltage (V)	Package	Availability
PC106A	32-bit RISC, PCI Bridge/Memory Controller	83	3.3	CBGA, CI-CGA	Now
PC107A	32-bit RISC, PCI Bridge/Memory Controller	100	2.5	PBGA, Hi-TCE CBGA	Now
PC8240	32-bit RISC Integrated Processor, PCI Bridge/Memory Controller	200	2.5	TBGA	Now
PC8245	32-bit RISC Integrated Processor, PCI Bridge/Memory Controller	333	2.5	TBGA	Now
PC8540	32-bit RISC Integrated Processor, DDR SDRAM Memory Controller, PCI-X, Rapid I/O, Gigabit-Ethernet	800	1.2	Hi-TCE CBGA	2Q2005
PC860SR	32-bit RISC PowerQUICC™ Communication Controller	66	3.3	PBGA	Now
PC8265A	32-bit RISC PowerQUICCII™ Communication Controller	266	2	TBGA	Now

**ASSPs (CONTINUED)****High-reliability Microprocessors (Continued)**

## 68K Family Microprocessors

Part Number	Description	Maximum Speed (MHz)	Core Voltage (V)	Package	Availability
TS68C000	16-bit CISC Microprocessor	12	5	CPGA, CDIL, LCCC, CQFP	Now
TS68020	32-bit CISC Microprocessor	25	5	CPGA, CQFP	Now
TS68040	32-bit CISC Microprocessor	33	5	CPGA, CQFP	Now
TS68882	32-bit CISC Enhanced Floating-point Co-processor	33	5	CPGA, CQFP	Now

## 68K Family Microcontrollers and Peripherals

Part Number	Description	Maximum Speed (MHz)	Core Voltage (V)	Package	Availability
TS68302	16-bit CISC Integrated Multiprotocol Processor (IMP)	16	5	CPGA, CQFP	Now
TS68332	32-bit CISC Integrated Microcontroller	20	5	CPGA, CQFP	Now
TS68EN360	32-bit QUICC™ Integrated Communication Controller	33	5	CPGA, CQFP	Now
TS88915T	Low-Skew CMOS PLL Clock Driver	100	5	CPGA, LDCC	Now

## ARINC Controller Family

Part Number	Description	Maximum Speed (MHz)	Core Voltage (V)	Package	Availability
EF4442	ARINC 429 Multichannel Receiver/Transmitter	2	5	CDIL, PDIP	Now
TS68C429A	CMOS ARINC 429 Multichannel Receiver/Transmitter	20	5	CPGA, CQFP	Now



**AUTOMOTIVE AND CONTROL**
**Automotive Products**
**Automotive Standard Products**

 Automotive RF<sup>(1)</sup>

Part Number	Description	Package	Availability
ATA5811	UHF Transceiver for ASK and FSK Systems, 433 to 435 MHz or 868 to 870 MHz	QFN48	Now
ATA5812	UHF Transceiver for ASK and FSK Systems, 315 MHz	QFN48	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 300 to 330 MHz	SSO24	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	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	Now
T48C862x-R3-TN	Complete UHF Transmitter, Flash Microcontroller and Transmitter PLL T5753 in One IC, Temperature Range -40°C to +125°C, Frequency Range 300 to 330 MHz	SSO24	Now
T48C862x-R4-TN	Complete UHF Transmitter, Flash Microcontroller and Transmitter PLL T5754 in One IC, Temperature Range -40°C to +125°C, Frequency Range 429 to 439 MHz	SSO24	Now
T48C862x-R8-TN	Complete UHF Transmitter, Flash Microcontroller and Transmitter PLL T5750 in One IC, Temperature Range -40°C to +125°C, Frequency Range 868 to 928 MHz	SSO24	Now
T5743P3	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	Now
T5743P6	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	Now
T5744N	UHF Remote Control Receiver for ASK Systems/PWM Mode	SO20, SSO20	Now
T5750	UHF ASK/FSK Transmitter, Frequency Range 868 to 928 MHz, High Output Power	TSSOP8	Now
T5753	UHF ASK/FSK Transmitter, Frequency Range 310 to 330 MHz, High Output Power	TSSOP8	Now
T5754	UHF ASK/FSK Transmitter, Frequency Range 429 to 439 MHz, High Output Power	TSSOP8	Now
T5760N	UHF ASK/FSK Receiver, Frequency Receiving Range 868 to 870 MHz, Highest Integration Level in Market	SO20	Now
T5761N	UHF ASK/FSK Receiver, Frequency Receiving Range 902 to 928 MHz, Highest Integration Level in Market	SO20	Now
U3741BM-P2	UHF Remote Control Receiver for ASK and FSK Systems, All RF Components Integrated, IF Bandwidth 300 kHz	SO20	Now
U3741BM-P3	UHF Remote Control Receiver for ASK and FSK Systems, All RF Components Integrated, IF Bandwidth 600 kHz	SO20	Now
U3742BM	UHF Remote Control Receiver, RSSI Output for ASK and FSK Systems	SO20	Now
U4311B-FS	RF Receiver, 10.7 MHz, IF Amplifier, AM + FM Demodulator, Non-inverting Clamping Comparator, Low Power Consumption, Typically 1.0 mA, 105°C	SSO20 (0.65)	Now

Note: 1. For dedicated microcontrollers, see "4-bit Microcontrollers/MARC4 Family" on pages 66-67.

## AUTOMOTIVE AND CONTROL (CONTINUED)

### Automotive Products (Continued)

#### Automotive Standard Products (Continued)

#### Driver ICs

Part Number	Description	Package	Availability
ATA6821	Single-channel BCDMOS High-speed Driver IC for Power MOSFET/IGBT Control Applications, Able to Drive Peak Currents of Up to 4A	SO14	Now
ATA6830	Intelligent Stepper Motor Driver, Typical Application Headlamp Adjustment	QFN28	Now
T6801	Single-channel Driver, 25 mA Output with Thermal Monitoring, Thermal Shutdown, Short-circuit Protection	SO8	Now
T6816	40V Dual Hexdriver with Serial Input Control, 6 High-side and 6 Low-side Drivers, 600 mA Current Limitation	SO28	Now
T6817	Dual Triple Driver with Serial Input Control, 3 High-side and 3 Low-side Drivers, 600 mA Current Limitation	SSO20	Now
T6818	Triple Half-bridge Driver with Serial Input Control, 3 High-side and 3 Low-side Drivers, 1500 mA Current Limitation	SO14	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	Now
T6828	Triple Half-bridge Driver with Serial Input Control, 3 High-side and 3 Low-side Drivers, 1500 mA Current Limitation	SO14 Heat Slug	Now
T6829	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	Now
U6803B	Triple Driver, 3 x 25 mA Output with Thermal Monitoring, Common Thermal Shutdown, Short-circuit Protection	SO8	Now
U6805B	Hex Driver, 6 x 25 mA Output with Thermal Monitoring, Common Thermal Shutdown, Short-circuit Protection	SO14	Now
U6815BM	Dual Hexdriver with Serial Input Control, 6 High-side and 6 Low-side Drivers, 600 mA Current Limitation	SO28	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	Now

#### Watchdog ICs

Part Number	Description	Package	Availability
ATA6025	Watchdog IC with Fail Safe Output, Voltage Monitors, Low-power Consumption in Standby Mode	SO8	Now
T6020M	Watchdog IC, $\mu$ P Based, Programmable Via Metal Mask (Based on the ATAR080 Microcontroller)	SO20	Now
U5020M	Watchdog Timer, Active and Sleep Mode, 6 Wake-up Inputs, Enable Output	SO16	Now
U5021M	Watchdog Timer, Active and Sleep Mode, 1 Wake-up Input, Enable Output	SO8	Now

**AUTOMOTIVE AND CONTROL (CONTINUED)**
**Automotive Products (Continued)**
**Automotive Standard Products (Continued)**
**Networking/Multiplexing ICs**

Part Number	Description	Package	Availability
ATA6660	High Speed CAN Transceiver, Fully Compatible with ISO 11898, High-Voltage Bus Protection -40 to +40V	SO8	Now
ATA6661	LIN Transceiver, Physical Layer According to Specification 2.0	SO8	Now
B10011S	Low-speed CAN Transceiver for High Transmission Levels, Two-wire Bus Interface, 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	Now
U6812B	Single-ended Bus Transceiver (ISO 9141) with Triple Buffer, Wide Operating-voltage Range, K-interface According to ISO 9141, 250K Baud Rate, 3 x 40 mA Integrated Buffers	SO16	Now
TSS461C	VAN (Vehicle Area Network) Data Link Controller		Last Time Buy End of March 2005
TSS463-AA	VAN Data Link Controller with Serial Interface		Last Time Buy End of March 2005
TSS461E	VAN Data Link Controller		Now
TSS463B	VAN Data Link Controller with Serial Interface		Now
TSSIO16E	VAN Peripheral Circuit – 16 I/Os		Now
AT89C51CC03	80C51 Microcontroller with 64-Kbyte Flash MCU, 15 Message Objects CAN Controller, 2304-byte RAM, 2-Kbyte EEPROM, 10-bit ADC, PCA	PLCC44, VQFP44	Now
AT90CAN128	AVR® Microcontroller with 128-Kbyte Flash MCU, 15 Message Objects CAN Controller, 4-Kbyte RAM, 4-Kbyte EEPROM, 10-bit ADC, 2-wire Interface (TWI), Up to 16 MIPS, LIN-capable UART	QFP64	Now
AT90CAN64	AVR Microcontroller with 64-Kbyte Flash MCU, 15 Message Objects CAN Controller, 4-Kbyte RAM, 2-Kbyte EEPROM, 10-bit ADC, TWI, Up to 16 MIPS, LIN-capable UART	QFP64	4Q2005
AT90CAN32	AVR Microcontroller with 32-Kbyte Flash MCU, 15 Message Objects CAN Controller, 2-Kbyte RAM, 1-Kbyte EEPROM, 10-bit ADC, TWI, Up to 16 MIPS, LIN-capable UART,	QFP64	3Q2005
ATtiny25	AVR Microcontroller with 2-Kbyte Flash MCU, 128-byte RAM, 128-byte EEPROM, 10-bit ADC, Up to 16 MIPS, Internal Calibrated Oscillator	SO8	3Q2005
ATtiny45	AVR Microcontroller with 4-Kbyte Flash MCU, 256-byte RAM, 256-byte EEPROM, 10-bit ADC, Up to 16 MIPS, LIN-capable USI, Internal Calibrated Oscillator	SO8	Sampling 1Q2005
ATtiny85	AVR Microcontroller with 8-Kbyte Flash MCU, 512-byte RAM, 512-byte EEPROM, 10-bit ADC, Up to 16 MIPS, LIN-capable USI, Internal Calibrated Oscillator	SO8	3Q2005
ATmega48	AVR Microcontroller with 4-Kbyte Flash MCU, 512-byte RAM, 256-byte EEPROM, 10-bit ADC, Up to 16 MIPS, LIN-capable UART, Internal Calibrated Oscillator	QFP32	Now
ATmega88	AVR Microcontroller with 8-Kbyte Flash MCU, 1-Kbyte RAM, 512-byte EEPROM, 10-bit ADC, Up to 16 MIPS, LIN-capable UART, Internal Calibrated Oscillator	QFP32	Now
ATmega168	AVR Microcontroller with 16-Kbyte Flash MCU, 1-Kbyte RAM, 512-byte EEPROM, 10-bit ADC, Up to 16 MIPS, LIN-capable USI, Internal Calibrated Oscillator	QFP32	Now

## AUTOMOTIVE AND CONTROL (CONTINUED)

### Automotive Products (Continued)

#### Automotive Standard Products (Continued)

#### LF Components

Part Number	Description	Package	Availability
ATA5277	Programmable Antenna Driver for 1A Peak Current (Regulated), LF Baud Rates Up to 8K Baud	QFN28	Now
ATA5282	Ultra Low Power 125-kHz 3-Dimensional LF Wake-up Receiver with RSSI	TSSOP8	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)	Now
U2270B	Read/Write Base Station IC, 100 to 150 kHz Carrier Frequency, Amplitude Modulation Typically Up to 5K Baud, Manchester/Biphase RF/32, RF/64, RF/128	SO16	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	Now

**AUTOMOTIVE AND CONTROL (CONTINUED)****Automotive Products (Continued)****Automotive ASSPs****Body Electronics**

## Dashboard Dimmer ICs

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

## Flasher ICs

Part Number	Description	Package	Availability
ATA6140	Twin Relay Flasher for 12/24V Applications, Standby Current $< 10$ $\mu$ A	SO16	Now
U2043B	Lamp Load $> 10$ W, 30 m $\Omega$ Shunt, Improved EMC, Pilot Lamp	DIP8, SO8	Now
U2044B	Lamp Load $> 10$ W, 30 m $\Omega$ Shunt, Standby Current $< 10$ $\mu$ A, Twin Relay Flasher	DIP14, SO14	Now
U6043B	Lamp Load $> 1$ W, 18 m $\Omega$ Shunt, Improved EMC, Load-dump Protected	DIP8, SO8	Now
U6432B	Lamp Load $> 1$ W, 18 m $\Omega$ Shunt, Low Current Consumption in Standby Mode $< 10$ $\mu$ A	SO8	Now
U6433B	Lamp Load $> 1$ W, 18 m $\Omega$ Shunt, Improved EMC, Load-dump Protected	SO8	Now
U643B	Lamp Load $> 1$ W, 30 m $\Omega$ Shunt, Improved EMC, Load-dump Protected	DIP8, SO8	Now

## Lamp-Outage Monitoring ICs

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

## Long-Time Timer ICs

Part Number	Description	Package	Availability
U6032B	Toggle IC for Switch-over Function, Defined Status after POR	DIP8, SO8	Now
U6046B	Adjustable Delay Time 4s to 20h, Delay Adjustable with RC Oscillator, $R < 650$ k $\Omega$ , $C < 4700$ pF	DIP8, SO8	Now

## Wiper and Wash Control ICs

Part Number	Description	Package	Availability
U641B	Wipe/Wash Control with Prewash Delay, INT/WIWA Switches to VBATT	DIP8, SO8	Now
U642B	Wipe/Wash Control without Prewash Delay, INT/WIWA Switches to VBATT	DIP8, SO8	Now

## AUTOMOTIVE AND CONTROL (CONTINUED)

### Automotive Products (Continued)

#### Automotive ASSPs (Continued)

##### Car Access<sup>(1)</sup>

Part Number	Description	Package	Availability
ATA5277	Programmable Antenna Driver for 1A Peak Current (Regulated), LF Baud Rates Up to 8K Baud	QFN28	Now
ATA5282	Ultra Low-power 125-kHz 3-Dimensional LF Wake-up Receiver with RSSI	TSSOP8	Now
ATA5811	UHF Transceiver for ASK and FSK Systems, 433 to 435 MHz or 868 to 870 MHz	QFN48	Now
ATA5812	UHF Transceiver for ASK and FSK Systems, 315 MHz	QFN48	Now
ATAR862x-yyy-TNz3	Complete UHF Transmitter, ROM Microcontroller and Transmitter PLL T5753 in One IC, Temperature Range -40°C to +125°C, Frequency Range 300 to 330 MHz	SSO24	Now
ATAR862x-yyy-TNz4	Complete UHF Transmitter, ROM Microcontroller and Transmitter PLL T5754 in One IC, Temperature Range -40°C to +125°C, Frequency Range 429 to 439 MHz	SSO24	Now
ATAR862x-yyy-TNz8	Complete UHF Transmitter, ROM Microcontroller and Transmitter PLL T5750 in One IC, Temperature Range -40°C to +125°C, Frequency Range 868 to 928 MHz	SSO24	Now
T48C862x-R3-TN	Complete UHF Transmitter, Flash Microcontroller and Transmitter PLL T5753 in One IC, Temperature Range -40°C to +125°C, Frequency Range 300 to 330 MHz	SSO24	Now
T48C862x-R4-TN	Complete UHF Transmitter, Flash Microcontroller and Transmitter PLL T5754 in One IC, Temperature Range -40°C to +125°C, Frequency Range 429 to 439 MHz	SSO24	Now
T48C862x-R8-TN	Complete UHF Transmitter, Flash Microcontroller and Transmitter PLL T5750 in One IC, Temperature Range -40°C to +125°C, Frequency Range 868 to 928 MHz	SSO24	Now
T5743P3	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	Now
T5743P6	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	Now
T5744N	UHF Remote Control Receiver for ASK Systems/PWM Mode	SO20, SSO20	Now
T5750	UHF ASK/FSK Transmitter, Frequency Range 868 to 928 MHz, High Output Power	TSSOP8	Now
T5753	UHF ASK/FSK Transmitter, Frequency Range 310 to 330 MHz, High Output Power	TSSOP8	Now
T5754	UHF ASK/FSK Transmitter, Frequency Range 429 to 439 MHz, High Output Power	TSSOP8	Now
T5760N	UHF ASK/FSK Receiver, Frequency Receiving Range 868 to 870 MHz, Highest Integration Level in Market	SO20	Now
T5761N	UHF ASK/FSK Receiver, Frequency Receiving Range 902 to 928 MHz, Highest Integration Level in Market	SO20	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)	Now
U2270B	Read/Write Base Station IC, 100 to 150 kHz Carrier Frequency, Amplitude Modulation Typically Up to 5K Baud, Manchester/Biphase RF/32, RF/64, RF/128	SO16	Now
U2741B	UHF Remote Control Transmitter for ASK and FSK Systems, On-chip PLL Transmitter with Integrated VCO	SSO16	Now
U2745B	UHF ASK Transmitter, Frequency Range 310 to 440 MHz, Supply Voltage 2.2 to 4.0V, Temperature Range -40°C to +85°C	SSO16	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	Now

Note: 1. For dedicated microcontrollers, see "4-bit Microcontrollers/MARC4 Family" on pages 66-67.

## AUTOMOTIVE AND CONTROL (CONTINUED)

### Automotive Products (Continued)

#### Automotive ASSPs (Continued)

##### Car Access (Continued)<sup>(1)</sup>

Part Number	Description	Package	Availability
U3741BM-P2	UHF Remote Control Receiver for ASK and FSK Systems, All RF Components Integrated, IF Bandwidth 300 kHz	SO20	Now
U3741BM-P3	UHF Remote Control Receiver for ASK and FSK Systems, All RF Components Integrated, IF Bandwidth 600 kHz	SO20	Now
U3742BM	UHF Remote Control Receiver, RSSI Output for ASK and FSK Systems	SO20	Now
U3745BM	UHF ASK Receiver, Frequency Range 310 to 440 MHz, Supply Voltage 4.5 to 5.5V, Temperature Range -40°C to 85°C	SO20	Now
U4311B-FS	RF Receiver, 10.7 MHz, IF Amplifier, AM + FM Demodulator, Non-inverting Clamping Comparator, Low Power Consumption, Typically 1.0 mA, 105°C	SSO20 (0.65)	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	Now

#### Evaluation Kits and Tools

ATAB5750-8	Transmitter Board T5750, 868.3 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
ATAB5760-N	Receiver Board T5760N, 868.3 MHz, No SAW Filter	Now
ATAB5760-S	Receiver Board T5760N, 868.3 MHz, SAW Filter	Now
ATAB5761-N	Receiver Board T5761N, 915 MHz, No SAW Filter	Now
ATAK5750-60-N	Design Kit 868 MHz for T5750 and T5760N, No SAW Filter	Now
ATAK5750-60-S	Design Kit 868 MHz for T5750 and T5760N, SAW Filter	Now
ATAK5750-61-N	Design Kit 915 MHz for T5750 and T5761N, No SAW Filter	Now
ATAB5744-N3	Receiver Board T5744, 315 MHz, No SAW Filter	Now
ATAB5744-S3	Receiver Board T5744, 315 MHz, SAW Filter	Now
ATAB5744-N4	Receiver Board T5744, 433.92 MHz, No SAW Filter	Now
ATAB5744-S4	Receiver Board T5744, 433.93 MHz, SAW Filter	Now

Note: 1. For dedicated microcontrollers, see "4-bit Microcontrollers/MARC4 Family" on pages 66-67.

## AUTOMOTIVE AND CONTROL (CONTINUED)

### Automotive Products (Continued)

#### Automotive ASSPs (Continued)

##### Chassis ICs

Part Number	Description	Package	Availability
<b>Fail-Safe ICs</b>			
U6808B	Fail-safe IC, Watchdog Timer and Relay Driver	SO8	Now
U6809B	Fail-safe IC, Watchdog Timer, Relay Driver and Lamp Driver	SO20	Now
U6813B	Fail-safe IC, Watchdog Timer, Relay Driver, Lamp Driver and Charge Pump	SO16	Now
<b>Airbag ICs</b>			
U6268B	Side Airbag Sensor Dual Interface (Satellite Interface), 50 mA Sensor Supply, Data Transfer by Current Modulation	SO16	Now

##### Tire Pressure Monitoring ICs<sup>(1)</sup>

Part Number	Description	Package	Availability
ATA5283P-6AQJ	1-D LF Receiver IC for 125 kHz, 1.3 $\mu$ A Current Consumption in Active Listening Mode	TSSOP8	Now
ATA5756-6DQJ	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	Now
ATA5757-6DQJ	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	Now
ATA5743P3-TKQY	Small-outline UHF Remote Control Receiver, High FSK Sensitivity, 5 to 20V Automotive-compatible Data Interface, 300 kHz Bandwidth	SSO20	Now
ATA5743P6-TKQY	Small-outline UHF Remote Control Receiver, High FSK Sensitivity, 5 to 20V Automotive-compatible Data Interface, 600 kHz Bandwidth	SSO20	Now
ATAR862x-yyy-TNz3	Complete UHF Transmitter, ROM Microcontroller and Transmitter PLL T5753 in One IC, Temperature Range -40°C to +125°C, Frequency Range 310 to 330 MHz	SSO24	Now
ATAR862x-yyy-TNz4	Complete UHF Transmitter, ROM Microcontroller and Transmitter PLL T5754 in One IC, Temperature Range -40°C to +125°C, Frequency Range 429 to 439 MHz	SSO24	Now
ATAR862x-yyy-TNz8	Complete UHF Transmitter, ROM Microcontroller and Transmitter PLL T5750 in One IC, Temperature Range -40°C to +125°C, Frequency Range 868 to 928 MHz	SSO24	Now
ATAM862x-yyy-TNz3	Complete UHF Transmitter, Flash Microcontroller and Transmitter PLL T5753 in One IC, Temperature Range -40°C to +125°C, Frequency Range 310 to 330 MHz	SSO24	Now
ATAM862x-yyy-TNz4	Complete UHF Transmitter, Flash Microcontroller and Transmitter PLL T5754 in One IC, Temperature Range -40°C to +125°C, Frequency Range 429 to 439 MHz	SSO24	Now
ATAM862x-yyy-TNz8	Complete UHF Transmitter, Flash Microcontroller and Transmitter PLL T5750 in One IC, Temperature Range -40°C to +125°C, Frequency Range 868 to 928 MHz	SSO24	Now
T5743P3	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	Now
T5743P6	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	Now
T5744	UHF Remote Control Receiver for ASK Systems/PWM Mode	SO20, SSO20	Now
T5753-6AQ	UHF ASK/FSK Transmitter, Frequency Range 310 to 330 MHz, High Output Power	TSSOP8	Now
T5754-6AQ	UHF ASK/FSK Transmitter, Frequency Range 429 to 439 MHz, High Output Power	TSSOP8	Now
U3742BM	UHF Remote Control Receiver, RSSI Output for ASK and FSK Systems	SO20	Now

Note: 1. For dedicated microcontrollers for Tire Pressure Monitoring Applications, see "4-bit Microcontrollers/MARC4 Family" on pages 66-67.



**AUTOMOTIVE AND CONTROL (CONTINUED)**

**Automotive Products (Continued)**

**Automotive ASSPs (Continued)**

**Tire Pressure Monitoring ICs – Evaluation Kits and Tools<sup>(1)</sup>**

Part Number	Description	Availability
ATAB5277	Evaluation Board, LF Antenna Driver	Now
ATAB5283	Evaluation Board, LF Receiver, 1 Channel	Now
ATAB5750-8	Transmitter Board T5750, 868.3 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 T5756, Operation Frequency 315 MHz	April 2005
ATAB5757	Reference Design for UHF Transmitter T5757, Operation Frequency 433 MHz	April 2005
ATAB5760-N	Receiver Board T5760N, 868.3 MHz, No SAW Filter	Now
ATAB5760-S	Receiver Board T5760N, 868.3 MHz, SAW Filter	Now
ATAB5761-N	Receiver Board T5761N, 915 MHz, No SAW Filter	Now
ATAK5275-83	LF Receiver-/1-D Transmitter Board for 125 kHz Channel	Now
ATAK5750-60-N	Design Kit 868 MHz for T5750 and T5760N, No SAW Filter	Now
ATAK5750-61-N	Design Kit 915 MHz for T5750 and T5761N, No SAW Filter	Now
ATAK5756-43P3-S	Development Kit, Supports the Design of Wireless Data Transmission Systems within the ISM Frequency Bands with Atmel's UHF Transmitter IC T5756 and Receiver IC T5743. Operation Frequency 315 MHz, Including SAW Filter, IF Bandwidth 300 kHz. Transmitter and Receiver Development Boards are Also Available as Separate Reference Designs (ATAB57xx)	April 2005
ATAK5757-43P3-S	Development Kit, Supports the Design of Wireless Data Transmission Systems within the ISM Frequency Bands with Atmel's UHF Transmitter IC T5757 and Receiver IC T5743. Operation Frequency 433 MHz, Including SAW Filter, IF Bandwidth 300 kHz. Transmitter and Receiver Development Boards are Also Available as Separate Reference Designs (ATAB57xx)	April 2005
ATAB5744-N3	Receiver Board T5744, 315 MHz, No SAW Filter	Now
ATAB5744-S3	Receiver Board T5744, 315 MHz, SAW Filter	Now
ATAB5744-N4	Receiver Board T5744, 433.92 MHz, No SAW Filter	Now
ATAB5744-S4	Receiver Board T5744, 433.93 MHz, SAW Filter	Now

Note: 1. For dedicated microcontrollers for Tire Pressure Monitoring Applications, see "4-bit Microcontrollers/MARC4 Family" on pages 66-67.

## AUTOMOTIVE AND CONTROL (CONTINUED)

### Industrial

#### Tools

#### Phase Control ICs

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

#### Sensor-Controlled Timer ICs

Part Number	Description	Package	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	Now
U2102B	IGBT/FET Control Timer for Advanced Dimmer and Motion Sensor Applications, Programmable Trigger Window, Reverse Phase Control and Electronic Fuse	DIP16, SO16	Now

#### Zero Crossing Switching IC

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

#### Clock and Watch ICs

Part Number	Description	Package	Availability
e1217X	Standard Low-cost CMOS Watch IC, 32 kHz Crystal, Mask Options Available, High Oscillator Stability	Dice	Now
e1466D	Clock IC with Digital Trimming, 32 kHz Crystal, Integrated Capacitors, Mask Options 1.1 to 2.2V Supply	Dice, DIP8	Now
e1467D	Clock IC with Digital Trimming, 32 kHz Crystal, Same as e1466D, but with Alarm Function	Dice	Now
e5130A	Low Voltage CMOS Driver Circuit, Supply Voltage 1.1 to 3.6V, 4 Non-inverting Tri-stable Drivers	Dice	Now

#### IR Receiver ICs

Part Number	Description	Package	Availability
T2525N	IR Receiver Circuit, 5V, No External Components Required, High Noise Suppression, High Sensitivity	Wafer	Now
T2526N	IR Receiver Circuit, 2.7 to 5.5V, No External Components Required, High Noise Suppression, High Sensitivity	Wafer	Now
U2538B	IR Preamplifier, Typically 0.55 mA Standby Current, 20 kHz to 60 kHz, Only 3 External Components Required	SO8	Now

## COMMUNICATIONS ICs

### Wireless LAN

Part Number	Description	Availability
AT76C504A-OCT176	11-Mbit WLAN Media Access Controller + Baseband (PCMCIA Interface), IEEE 802.11b Standard with Integrated AES, TKIP and 160K Bytes of SRAM. Provides All Processing and Functionality Needed for the Integrated MAC + BB Chip	Now
AT76C505A-OCT144	11-Mbit WLAN Media Access Controller + Baseband (USB Interface), IEEE 802.11b Standard with Integrated AES, TKIP and 160K Bytes of SRAM. Provides All Processing and Functionality Needed for the Integrated MAC + BB Chip	Now
AT76C505AL-OCT144	AT76C505A with SDIO, 64K Bytes of SRAM, and Support for a Real-time Clock	Now
AT76C506A-OCT176	11-Mbit WLAN Media Access Controller + Baseband (PCI/Mini-PCI Interface), IEEE 802.11b Standard with Integrated AES, TKIP and 160K Bytes of SRAM. Provides All Processing and Functionality Needed for the Integrated MAC + BB	Now
AT76C507-OCT144	11-Mbit WLAN Media Access Controller + Baseband (USB Host Interface), IEEE 802.11b Standard with Integrated AES, TKIP and 160K Bytes of SRAM. Provides All Processing and Functionality Needed for the Integrated MAC + BB	Now
AT76C509-OZ208	A Low-cost Access Point Chip for WLAN (802.11b) Applications Based on Single ARM7™ with Integrated MAC + Baseband, 10/100 Ethernet MAC, 160K Bytes of SRAM, AES and TKIP	Now
AT76C514A-OCT208	WLAN MAC + Basebands (CCK + OFDM), Capable of Supporting 802.11a/b/g, Includes Hardware, AES and TKIP for Security (32-bit CardBus Interface)	April 2005
AT76C514P-TBD	WLAN MAC + Basebands (CCK + OFDM), Capable of Supporting 802.11a/b/g, Includes Hardware, AES and TKIP for Security (16-bit PCMCIA Interface)	April 2005
AT76C515-OCT176	WLAN MAC + Basebands (CCK + OFDM), Capable of Supporting 802.11a/b/g, Includes Hardware, AES and TKIP for Security (USB Interface)	Now
AT76C515A-OCT176	WLAN MAC + Basebands (CCK + OFDM), with SDIO, Capable of Supporting 802.11a/b/g, Includes Hardware, AES and TKIP for Security (USB Interface)	April 2005
AT76C516-OCT208	WLAN MAC + Basebands (CCK + OFDM), Capable of Supporting 802.11a/b/g, Includes Hardware, AES and TKIP for Security (PCI/Mini-PCI Interface)	Now
AT76C516A-OCT208	WLAN MAC + Basebands (CCK + OFDM), Capable of Supporting 802.11a/b/g, Includes Hardware, AES and TKIP for Security (PCI/Mini-PCI Interface)	April 2005
AT76C511-OL208	Single-Chip Access Point with Two ARM7 CPUs (InterNetworking ARM® and WLAN ARM), two 10/100 Ethernet MACs, UART, and 32-bit EMI to SDRAM, Interface InterNetworking ARM Runs µCLinux Operating System	Now
AT76C517-OCT100	802.11a/b/g Baseband for Use with the AT76C520 and AT76C902	March 2005
AT76C520-OCT324	Network Processor for Multi-protocol Processing Based on an ARM946E-S™ for InterNetworking and an ARM7 for WLAN, with Multiple Interfaces Including PCI/Mini-PCI, USB Host, Ethernet, PCMCIA and Utopia (L1/2). Hardware Accelerated Security AES, TKIP, and IPSEC (Supporting DES and 3DES)	March 2005
AT76C521-OCT360	ADSL2/2+ Data Pump Plus Network Processor that Includes Multiple Interfaces Such as Two 10/100 Ethernet MACs (One Including PHY), Voice Input, USB 2.0, UART, and PCI 2.2/Mini-PCI, Integrated in a Single Chip	June 2005
ATR3515	SiGe PA for WLAN 802.11a, 4.9 to 5.9 GHz, 2.5% EVM at 19 dBm Output Power, 26.5 dBm P1dB, On-chip Power Detector and Biasing Control, QFN16 4x4 Package	Now
ATR7032	SiGe PA for WLAN 802.11b/g, 2.4 GHz, 30 dB Power Gain, 23 dBm Linear Output Power for 802.11b Mode, 3% EVM at 19 dBm Linear Output Power for 802.11g, On-chip Power Detector and Biasing Control, QFN16 3x3 Package	March 2005
T7031	SiGe PA for WLAN 802.11b/g, 2.4 GHz, 21 dBm Linear Output Power for 802.11b Mode, On-chip Power Detector and Biasing Control, QFN16 4 x 4 Package	Now

#### Evaluation/Development Kits (Available for Prequalified Customers)

Evaluation and Development Kits Available for Most Products

Call Atmel for Availability

## COMMUNICATIONS ICs (CONTINUED)

### Bluetooth

Part Number	Description	Package	Availability
AT76C557-0CT144	Bluetooth® Baseband Controller with Integrated DSP and Voice Codec, UART Interface	MCM (Incl. 8MB Flash)	March 2005
T7024	Bluetooth/ISM 2.4 GHz TX/RX Front End, POUT = 23 dBm, NF = 2 dB	PSSO20 QFN20	Now

#### Evaluation/Development Kits (Available for Prequalified Customers)

Evaluation and Development Kits Available for Most Products Call Atmel for Availability

### Cellular Phone ICs

#### GSM

Part Number	Description	Package	Availability
U2896B	GSM, DCS, PCS Transmitter, Modulation Loop Concept, Symmetrical Inputs/Outputs, Variable Charge-pump Current	SSO36	Now

### Corded Phone ICs

#### High-end Telephone ICs

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

#### Modular Telephone ICs

Part Number	Description	Package	Availability
U4037B	Microcontroller-controlled Speech and Ringer IC, Double Power Supply for Ringer and Speech Function	SO24	Now
U4082B	Voice-switched Circuit, Fast Channel Switching for Quasi Duplex Operation	SO28	Now
U4083B	Low-power Audio Amplifier, Low Current Consumption	SO8	Now

## COMMUNICATIONS ICs (CONTINUED)

### Cordless Phone ICs

#### CT0/900 MHz

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

#### DECT/DCT RF ICs

Part Number	Description	Package	Availability
ATR2806	2.4 GHz Transceiver, Low IF Architecture; VCO and Voltage Regulator On-chip	QFN32	Now
ATR2807	3.3 GHz VCO/PLL; Voltage Regulator	QFN32	Now
ATR2808	2.9 GHz Transceiver, Non-blind-slot Operation, VCO and Voltage Regulator On-chip, Open Loop Modulation	QFN48	Now
ATR2809	5.8 GHz Down-conversion Triple-balanced Mixer with High LO Rejection	QFN16	Now
ATR7035	5.8 GHz PA with 27 dBm Output Power	QFN16	Now
ATR7039	Up-converting Mixer with Buffer Amplifier for 5.8 GHz Applications	QFN16	Now
T2801	Transceiver for DECT Application, Non-blind-slot Solution, VCO and Voltage Regulator Integrated, Few External Components	QFN48	Now
T2802	2.4 GHz Transceiver, Non-blind-slot Operation, VCO and Voltage Regulator On-chip	QFN48	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	Now
T7024	DECT/DCT 2.4 GHz TX/RX Front End IC	PSSO20, QFN20	Now
T7026	2.4 GHz LNA/PA	QFN20	Now
U7004B	SiGe DECT Front End, Power Amplifier and LNA, 2.7 to 4.6V	SSO20	Now
U7006B	High-efficiency SiGe PA/LNA with Control Management of Antenna Switch, Power Amplifier and LNA, 2.7 to 4.6V	PSSOP16	Now

#### ISM Front End ICs

Part Number	Description	Package	Availability
T0930	2W CW Power Amplifier, 2.4V Single Supply Voltage, 47% PAE	PSSOP16	Now
T0980	SiGe Front End for FRS Family Radio, Power Amplifier and LNA (300 to 500 MHz)	PSSO16	Now
T7024	ISM 2.4 GHz TX/RX Front End, POUT = 23 dBm, NF = 2 dB	PSSO20, QFN20	Now
U2766B	900 MHz ISM Band Receiver, Single Conversion, 10.7 MHz IF, PLL Demodulator	SSO28	Now

## COMMUNICATIONS ICs (CONTINUED)

### Infrastructure ICs<sup>(1)</sup>

Part Number	Description	Package	Availability
ATR0797	IF Receiver/Demodulator, 65 to 300 MHz for Infrastructure Digital Communication Systems, Gain Control in 20 dB Steps, Very Low I/Q Amplitude and Phase Error, High Linearity	TSSOP16	Now
T0790	Direct Quadrature Modulator, 800 to 2500 MHz for Infrastructure Digital Communication Systems, Very Good Carrier and Side Band Suppression, Supports Wide Band Base Input, Very Low Noise Floor Performance	TSSOP16	Now
T0905	General-purpose VHF/UHF Power Amplifier (135 to 600 MHz); High Performance with Large Flexibility; Simple Power Ramp Control, Single Supply Voltage, Highly Efficient, Useful in Linear and Compression Mode, Low Current Consumption	SSO28	Now
T0930	2W CW Power Amplifier, 2.4V Single Supply Voltage, 47% PAE	PSSOP16	Now
U2790B	1000 MHz Quadrature Modulator for Digital Cellular Radio Systems, Very Low Power Consumption (Typically 150 mW), 0 dBm O/P Level	SO16	Now
U2793B	30 to 300 MHz Quadrature Modulator for Digital Cellular Radio Systems and Hybrid Fibre Coax Applications, Current Consumption 15 mA at 5V	SSO20	Now
U2794B	1000 MHz Quadrature Demodulator for Cellular Phones and Hybrid Fiber Coax Applications, Low DC Offset f <sub>IN</sub> = 70 to 1000 MHz	SSO20	Now
U2795B	2500 MHz Up- and Down-conversion Mixer for DECT, PCN and WLAN Applications, Supply Voltage 2.7 to 5.5V, Single-ended Output, No Balun Required, Input and Output Impedance Programmable, IP3 Programmable	SO8	Now

Note: 1. Demo boards are available on request.

### Internet Appliances & VoIP

#### Smart Internet Appliance Processors (SIAP<sup>®</sup>)

Part Number	Description	Availability
AT75C221-QI-001	Smart Internet Appliance Processor – Includes an ARM7, an Oak DSP and Two Ethernet MACs	208-lead PQFP Now
AT75C221-CI-001	Smart Internet Appliance Processor – Includes an ARM7, an Oak DSP and Two Ethernet MACs	256-ball PBGA Now
AT76C901-0G217	IP Telephony Chip (VoIP) for Mobile Telephones (Wireless Over 802.11b) Includes Two ARM7s, an Oak DSP and Voice Codec	Now
AT76C902-0CT208	IP Telephony Chip (VoIP) for Mobile Telephones (Wireless Over 802.11a/b/g) Includes an ARM946, an ARM7, a TEAK DSP and Voice Codec	March 2005

#### Development Tools

AT75C221-DK01	Development kit for AT75C221 Device	Now
Evaluation and Development Kits Available for Most Products		Call Atmel for Availability

## COMMUNICATIONS ICs (CONTINUED)

### Smart RF<sup>(1)</sup>

Part Number	Description	Package	Availability
AT86RF211	Single-chip FSK Transceiver for ISM Applications from 400 to 950 MHz. Robust Radio with 2 IF Receiver Structure. Designed for Frequency Hopping. Low-cost BOM. Output power > 12 dBm. Fast Accurate Synthesizer. Simple 100% Digital Interface. Industrial Temperature Range: [-40°C/+85°C]	TQFP48	Now
AT86RF211S	A Shrink of AT86RF211 (100% Compatible). In Addition to Cost Reduction, It Offers Lower Current Consumption, Output Power = 14 to 16 dBm, Reduced Phase Noise, Higher Data Rate, Clock for Companion Microcontroller, Digital Features, etc.	TQFP48	Now
AT86RF401U	RF Wireless Data Transmitter, 315 MHz, OOK/ASK, PLL-based RF Transmitter and 8-bit AVR Microcontroller Core on Single Die, 2-volt Operation, 2-Kbyte Flash Program, 128-byte EEPROM	TSSOP20	Now
AT86RF401E	RF Wireless Data Transmitter, 433 MHz, OOK/ASK, PLL-based RF Transmitter and 8-bit AVR Microcontroller Core on Single Die, 2-volt Operation, 2-Kbyte Flash Program, 128-byte EEPROM	TSSOP20	Now
AT86RF401X	RF Wireless Data Transmitter, 250 to 450 MHz, OOK/ASK, PLL-based RF Transmitter and 8-bit AVR MCU Core on Single Die, 2-volt Operation, 2-Kbyte Flash Program, 128-byte EEPROM	TSSOP20	Now
ATA5423	UHF Transceiver for ASK and FSK Systems, with Programmable Channels, 313 to 317 MHz	QFN44	March 2005
ATA5425	UHF Transceiver for ASK and FSK Systems, with Programmable Channels, 343 to 347 MHz	QFN44	March 2005
ATA5428	UHF Transceiver for ASK and FSK Systems, with Programmable Channels, 433 to 435 MHz or 862 to 870 MHz	QFN44	March 2005
ATA5429	UHF Transceiver for ASK and FSK Systems, with Programmable channels, 913 to 917 MHz	QFN44	March 2005
ATA5811	UHF Transceiver for ASK and FSK Systems, 433 to 435 MHz or 868 to 870 MHz	QFN44	Now
ATA5812	UHF Transceiver for ASK and FSK Systems, 315 MHz	QFN44	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	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	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	Now
ATAM862x-yyy-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	Now
ATAM862x-yyy-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	Now
ATAM862x-yyy-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	Now

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

## COMMUNICATIONS ICs (CONTINUED)

Smart RF (Continued)<sup>(1)</sup>

Part Number	Description	Package	Availability
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	Now
T5743P3	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	Now
T5743P6	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	Now
T5744	UHF Remote Control Receiver for ASK Systems/PWM Mode	SO20, SSO20	Now
T5750	UHF ASK/FSK Transmitter, Frequency Range 868 to 928 MHz, High Output Power	TSSOP8	Now
T5753	UHF ASK/FSK Transmitter, Frequency Range 310 to 350 MHz, High Output Power	TSSOP8	Now
T5754	UHF ASK/FSK Transmitter, Frequency Range 429 to 439 MHz, High Output Power	TSSOP8	Now
T5760N	UHF ASK/FSK Receiver, Frequency Receiving Range 868 to 870 MHz, Highest Integration Level in Market	SO20	Now
T5761N	UHF ASK/FSK Receiver, Frequency Receiving Range 902 to 928 MHz, Highest Integration Level in Market	SO20	Now
U2741B	UHF Remote Control Transmitter for ASK and FSK Systems, On-chip PLL Transmitter with Integrated VCO	SSO16	Now
U2745B	UHF ASK Transmitter, Frequency Range 310 to 440 MHz, Supply Voltage 2.2 to 4.0V, Temperature Range -40°C to +85°C	SSO16	Now
U3741BM-P2	UHF Remote Control Receiver for ASK and FSK Systems, All RF Components Integrated, IF Bandwidth 300 kHz	SO20	Now
U3741BM-P3	UHF Remote Control Receiver for ASK and FSK Systems, All RF Components Integrated, IF Bandwidth 600 kHz	SO20	Now
U3742BM	UHF Remote Control Receiver, RSSI Output for ASK and FSK Systems	SO20	Now
U3745BM	UHF ASK Receiver, Frequency Range 310 to 440 MHz, Supply Voltage 4.5 to 5.5V, Temperature Range -40°C to 85°C	SO20	Now

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



**COMMUNICATIONS ICs (CONTINUED)**
**Smart RF – Development/Evaluation Kits and Tools<sup>(1)</sup>**

Part Number	Description	Availability
AT86RF211SDK	Two AVR Mother Boards Including LCD Display, Batteries, Power Jack, ISP Port, PC Parallel Port. One Cable for PC Interface + One CD-ROM with User Guide, PC and AVR Software. Three Samples and Embedded Demos for Immediate Use, In-System Programming (ISP). Two RF Daughter Boards Must be Bought as Separate Items	Now
AT86RF211SDB433107	433 MHz Frequency Daughter Board. Full Implementation for Highest Performance and Selectivity (Narrow Band Applications Only). 100% SMD Components. One CD-ROM with User Guide. Performance: 35 kHz Bandwidth (Typ)/-100 dBm Sensitivity (Typ)/19200 Bits/s (Max). Compatible with DK AVR Mother Board	Now
AT86RF211SDB868107	868 MHz Frequency Daughter Board. Full Implementation for Highest Performance and Selectivity (Narrow Band Applications Only). 100% SMD Components. One CD-ROM with User Guide. Performance: 35 kHz Bandwidth (Typ)/-100 dBm Sensitivity (Typ)/19200 Bits/s (Max). Compatible with DK AVR Mother Board	Now
AT86RF211SDB915107	915 MHz Frequency Daughter Board. Full Implementation for Highest Performance and Selectivity (Narrow Band Applications Only). 100% SMD Components. One CD-ROM with User Guide. Performance: 35 kHz Bandwidth (Typ)/-100 dBm Sensitivity (Typ)/19200 Bits/s (Max). Compatible with DK AVR Mother Board	Now
AT86RF211SDB433LT	433 MHz Frequency Daughter Board. Full Implementation with Lead-through Components for Costs Reduction Purpose (Narrow Band Applications Only). Performance: 35 kHz Bandwidth (Typ)/-100 dBm Sensitivity (Typ)/19200 Bits/s (Max). Compatible with DK AVR Mother Board	Now
AT86RF211SDB868LT	868 MHz Frequency Daughter Board. Full Implementation with Lead-through Components for Costs Reduction Purpose (Narrow Band Applications Only). Performance: 35 kHz Bandwidth (Typ)/-100 dBm Sensitivity (Typ)/19200 Bits/s (Max). Compatible with DK AVR Mother Board	Now
AT86RF211SDB915LT	915 MHz Frequency Daughter Board. Full Implementation with Lead-through Components for Costs Reduction Purpose (Narrow Band Applications Only). Performance: 35 kHz Bandwidth (Typ)/-100 dBm Sensitivity (Typ)/19200 Bits/s (Max). Compatible with DK AVR Mother Board	Now
AT86RF211DB-BIBAND	Dual-band Board, Featuring Printed Antenna and Inductors, that Can Be Used at 868 and 915 MHz with the Same Hardware. Performance: 100 kHz Bandwidth (Typ)/-90 dBm Sensitivity (Typ)/64000 Bits/s (Max). Compatible with DK AVR Mother Board	Now, Until Stock Last
AT86RF211SDB868LNA	Working at 868 MHz. Features a LNA, a SAW Filter, Printed Antenna and Inductors. Performance: 100 kHz Bandwidth (Typ)/-100 dBm Sensitivity (Typ)/128000 Bits/s (Max). Compatible with DK AVR Mother Board	Now
AT86RF211SDB915LNA	Working at 915 MHz. Features a LNA, a SAW Filter, Printed Antenna and Inductors. Performance: 100 kHz Bandwidth (Typ)/-100 dBm Sensitivity (Typ)/128000 Bits/s (Max). Compatible with DK AVR Mother Board	Now
AT86RF211DB-433TRI	Tri-band Board, Featuring Printed Antenna, that Can Be Used at 433, 868 and 915 MHz with the Same PCB Layout (Populated in Factory for 433 MHz Use). Performance: 100 kHz Bandwidth (Typ)/-92 dBm Sensitivity (Typ)/64000 Bits/s (Max). Compatible with DK AVR Mother Board	Now, Until Stock Last
AT86RF401U-EK1	315 MHz Transmitter Evaluation Kit for AT86RF401U – Kit Contains: Sample Transmitter PCB, Two Sample Devices, a Programming Dongle/Cable Assembly and CD-ROM Containing All the Tools Necessary to Develop Software for the AT86RF401U	Now
AT86RF401E-EK1	433.92 MHz Transmitter Evaluation Kit for AT86RF401E – Kit Contains: Sample Transmitter PCB, Two Sample Devices, a Programming Dongle/Cable Assembly and CD-ROM Containing All the Tools Necessary to Develop Software for the AT86RF401E	Now
ATAK4015744U	315 MHz RF Control System Evaluation Kit for AT86RF401 and T5744 – Kit Contains: Sample Transmitter and Receiver PCBs, Two Samples of Each Device, a Programming Dongle/Cable Assembly and CD-ROM Containing All the Tools Necessary to Develop Software	Now
ATAK4015744E	433.92 MHz RF Control System Evaluation Kit for AT86RF401 and T5744 – Kit Contains: Sample Transmitter and Receiver PCBs, Two Samples of Each Device, a Programming Dongle/Cable Assembly and CD-ROM Containing All the Tools Necessary to Develop Software	Now
ATAKSTK511-3	AVR-based RF Transmitter & Receiver Starter Kit, 315 MHz, TX using T5753 and RX using T5743	Now
ATAKSTK511-4	AVR-based RF Transmitter & Receiver Starter Kit, 434 MHz, TX using T5754 and RX using T5743	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
ATAB5423	Two Design Boards for ATA5423, 315 MHz	Now
ATAB5425	Two Design Boards for ATA5425, 345 MHz	Now

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

## COMMUNICATIONS ICs (CONTINUED)

Smart RF – Development/Evaluation Kits and Tools (Continued)<sup>(1)</sup>

Part Number	Description	Availability
ATAB5428-4	Two Design Boards for ATA5428, 434 MHz	Now
ATAB5428-8	Two Design Boards for ATA5428, 868 MHz	Now
ATAB5429	Two Design Boards for ATA5429, 915 MHz	Now
ATAB5744-N3	ASK Receiver Board T5744, 315 MHz, No SAW Filter	Now
ATAB5744-N4	ASK Receiver Board T5744, 433.92 MHz, No SAW Filter	Now
ATAB5744-S3	ASK Receiver Board T5744, 315 MHz, SAW Filter	Now
ATAB5744-S4	ASK Receiver Board T5744, 433.93 MHz, SAW Filter	Now
ATAB5743P3-S3	ASK/FSK Receiver Board T5743, 315 MHz, 300 kHz BW, SAW Filter	Now
ATAB5743P3-S4	ASK/FSK Receiver Board T5743, 433.92 MHz, 300 kHz BW, SAW Filter	Now
ATAB5743P6-S3	ASK/FSK Receiver Board T5743, 315 MHz, 600 kHz BW, SAW Filter	Now
ATAB5743P6-S4	ASK/FSK Receiver Board T5743, 433.92 MHz, 600 kHz BW, SAW Filter	Now
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 T5760N, 868.3 MHz, No SAW Filter	Now
ATAB5760-S	ASK/FSK Receiver Board T5760N, 868.3 MHz, SAW Filter	Now
ATAB5761-N	ASK/FSK Receiver Board T5761N, 915 MHz, No SAW Filter	Now
ATAK5750-60-N	ASK/FSK Design Kit 868 MHz with T5750 and T5760N, No SAW Filter	Now
ATAK5750-60-S	ASK/FSK Design Kit 868 MHz with T5750 and T5760N, SAW Filter	Now
ATAK5750-61-N	ASK/FSK Design Kit 915 MHz with T5750 and T5761N, No SAW Filter	Now
ATAK5753-43P3-S	ASK/FSK Design Kit 315 MHz for T5753 and T5743, 300 kHz BW, SAW Filter	Now
ATAK5753-43P6-S	ASK/FSK Design Kit 315 MHz for T5753 and T5743, 600 kHz BW, SAW Filter	Now
ATAK5754-43P3-S	ASK/FSK Design Kit 433.92 MHz for T5754 and T5743, 300 kHz BW, SAW Filter	Now
ATAK5754-43P6-S	ASK/FSK Design Kit 433.92 MHz for T5754 and T5743, 600 kHz BW, SAW Filter	Now
ATAB5811-4L	Two Design Boards for ATA5811, 433.92 MHz, +5 dBm Transmit Power	Now
ATAB5811-4H	Two Design Boards for ATA5811, 433.92 MHz, +10 dBm Transmit Power	Now
ATAB5811-8H	Two Design Boards for ATA5811, 868.3 MHz, +10 dBm Transmit Power	April 2005
ATAB5812-3H	Two Design Boards for ATA5812, 315 MHz, +10 dBm Transmit Power	April 2005
ATR2406-DEV-KIT	RF Development Kit for ATR2406, RF Modules Included	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.

## GPS

Part Number	Description	Package	Availability
ATRO600	GPS RF Receiver, Single IF Front End Concept, Very Low Power, Immune Against RF Interference	QFN28 (5 x 5 mm)	Now
ATRO610	GPS LNA with Integrated Power-up Control and Output Matching (NFmin < 1.6 dB)	PLL (1.6 x 2 mm)	Now
ATRO620	GPS 16-channel Baseband Controller, ARM7TDMI, RAM, ROM, Up to -150 dBm Sensitivity	BGA100 (9 x 9 mm)	Now

**MULTIMEDIA & IMAGING**
**Industrial Cameras**
**CCD Color Linescan Cameras**

Part Number	Description	Availability
<b>AKYLA™</b>		
AKYLAHD20LV1010	3CCD Color Camera LVDS 1024 Pixels 10 µm Pixel Size, Up to 17800 I/s	Now
AKYLAHD20LV1014	3CCD Color Camera LVDS 1024 Pixels 14 µm Pixel Size, Up to 17800 I/s	Now
AKYLAHD20LV2010	3CCD Color Camera LVDS 2048 Pixels 10 µm Pixel Size, Up to 9300 I/s	Now
AKYLAHD20CL1010	3CCD Color Camera, Camera Link 1024 Pixels 10 µm Pixel Size, Up to 17800 I/s	Now
AKYLAHD20CL1014	3CCD Color Camera, Camera Link 1024 Pixels 14 µm Pixel Size, Up to 17800 I/s	Now
AKYLAHD20CL2010	3CCD Color Camera, Camera Link 2048 Pixels 10 µm Pixel Size, Up to 9300 I/s	Now
AKYLAHD25LV1010	3CCD Color Camera LVDS 1024 Pixels 10 µm Pixel Size, Up to 22000 I/s	Now
AKYLAHD25LV1014	3CCD Color Camera LVDS 1024 Pixels 14 µm Pixel Size, Up to 22000 I/s	Now
AKYLAHD25LV2010	3CCD Color Camera LVDS 2048 Pixels 10 µm Pixel Size, Up to 11500 I/s	Now
AKYLAHD25CL1010	3CCD Color Camera, Camera Link 1024 Pixels 10 µm Pixel Size, Up to 22000 I/s	Now
AKYLAHD25CL1014	3CCD Color Camera, Camera Link 1024 Pixels 14 µm Pixel Size, Up to 22000 I/s	Now
AKYLAHD25CL2010	3CCD Color Camera, Camera Link 2048 Pixels 10 µm Pixel Size, Up to 11500 I/s	Now
AKYLAHD33LV1010	3CCD Color Camera LVDS 1024 Pixels 10 µm Pixel Size, Up to 27300 I/s	Now
AKYLAHD33LV1014	3CCD Color Camera LVDS 1024 Pixels 14 µm Pixel Size, Up to 27300 I/s	Now
AKYLAHD33LV2010	3CCD Color Camera LVDS 2048 Pixels 10 µm Pixel Size, Up to 14100 I/s	Now
AKYLAHD33CL1010	3CCD Color Camera, Camera Link 1024 Pixels 10 µm Pixel Size, Up to 27300 I/s	Now
AKYLAHD33CL1014	3CCD Color Camera, Camera Link 1024 Pixels 14 µm Pixel Size, Up to 27300 I/s	Now
AKYLAHD33CL2010	3CCD Color Camera, Camera Link 2048 Pixels 10 µm Pixel Size, Up to 14100 I/s	Now
AKYLAHD40LV1010	3CCD Color Camera LVDS 1024 Pixels 10 µm Pixel Size, Up to 34400 I/s	Now
AKYLAHD40LV1014	3CCD Color Camera LVDS 1024 Pixels 14 µm Pixel Size, Up to 34400 I/s	Now
AKYLAHD40LV2010	3CCD Color Camera LVDS 2048 Pixels 10 µm Pixel Size, Up to 18300 I/s	Now
AKYLAHD40CL1010	3CCD Color Camera, Camera Link 1024 Pixels 10 µm Pixel Size, Up to 34400 I/s	Now
AKYLAHD40CL1014	3CCD Color Camera, Camera Link 1024 Pixels 14 µm Pixel Size, Up to 34400 I/s	Now
AKYLAHD40CL2010	3CCD Color Camera, Camera Link 2048 Pixels 10 µm Pixel Size, Up to 18300 I/s	Now
<b>AVIIVA®</b>		
AVIIVASC2CL4010	CCD Color Camera, 2 Taps Sensor, Camera Link, 4096 Pixels, 10 µm Pixel Size with FFC Function and BG38 Filter Added	Now
AVIIVASC2LV4010	CCD Color Camera, 2 Taps Sensor, LVDS, 4096 Pixels, 10 µm Pixel Size with FFC Function and BG38 Filter Added	Now

## MULTIMEDIA & IMAGING (CONTINUED)

### Industrial Cameras (Continued)

#### CCD Monochrome Linescan Cameras

Part Number	Description	Availability
<b>AVIIVA</b>		
AVIIVAM2LV0514	CCD Monochrome Camera, 2 Taps Sensor, LVDS, 512 Pixels, 14 $\mu$ m Pixel Size	Now
AVIIVAM2LV1010	CCD Monochrome Camera, 2 Taps Sensor, LVDS, 1024 Pixels, 10 $\mu$ m Pixel Size	Now
AVIIVAM2LV1014	CCD Monochrome Camera, 2 Taps Sensor, LVDS, 1024 Pixels, 14 $\mu$ m Pixel Size	Now
AVIIVAM2LV2010	CCD Monochrome Camera, 2 Taps Sensor, LVDS, 2048 Pixels, 10 $\mu$ m Pixel Size	Now
AVIIVAM2LV2014	CCD Monochrome Camera, 2 Taps Sensor, LVDS, 2048 Pixels, 14 $\mu$ m Pixel Size	Now
AVIIVAM2LV4010	CCD Monochrome Camera, 2 Taps Sensor, LVDS, 4096 Pixels, 10 $\mu$ m Pixel Size	Now
AVIIVAM2CL0514	CCD Monochrome Camera, 2 Taps Sensor, Camera Link, 512 Pixels, 14 $\mu$ m Pixel Size	Now
AVIIVAM2CL1010	CCD Monochrome Camera, 2 Taps Sensor, Camera Link, 1024 Pixels, 10 $\mu$ m Pixel Size	Now
AVIIVAM2CL1014	CCD Monochrome Camera, 2 Taps Sensor, Camera Link, 1024 Pixels, 14 $\mu$ m Pixel Size	Now
AVIIVAM2CL2010	CCD Monochrome Camera, 2 Taps Sensor, Camera Link, 2048 Pixels, 10 $\mu$ m Pixel Size	Now
AVIIVAM2CL2014	CCD Monochrome Camera, 2 Taps Sensor, Camera Link, 2048 Pixels, 14 $\mu$ m Pixel Size	Now
AVIIVAM2CL4010	CCD Monochrome Camera, 2 Taps Sensor, Camera Link, 4096 Pixels, 10 $\mu$ m Pixel Size	Now
AVIIVASM2CL0514	CCD Monochrome Camera, 2 Taps Sensor, Camera Link, 512 Pixels, 14 $\mu$ m Pixel Size with FFC Function	Now
AVIIVASM2CL1010	CCD Monochrome Camera, 2 Taps Sensor, Camera Link, 1024 Pixels, 10 $\mu$ m Pixel Size with FFC Function	Now
AVIIVASM2CL1014	CCD Monochrome Camera, 2 Taps Sensor, Camera Link, 1024 Pixels, 14 $\mu$ m Pixel Size with FFC Function	Now
AVIIVASM2CL2010	CCD Monochrome Camera, 2 Taps Sensor, Camera Link, 2048 Pixels, 10 $\mu$ m Pixel Size with FFC Function	Now
AVIIVASM2CL2014	CCD Monochrome Camera, 2 Taps Sensor, Camera Link, 2048 Pixels, 14 $\mu$ m Pixel Size with FFC Function	Now
AVIIVASM2CL4010	CCD Monochrome Camera, 2 Taps Sensor, Camera Link, 4096 Pixels, 10 $\mu$ m Pixel Size with FFC Function	Now
AVIIVASM2LV0514	CCD Monochrome Camera, 2 Taps Sensor, LVDS, 512 Pixels, 14 $\mu$ m Pixel Size with FFC Function	Now
AVIIVASM2LV1010	CCD Monochrome Camera, 2 Taps Sensor, LVDS, 1024 Pixels, 10 $\mu$ m Pixel Size with FFC Function	Now
AVIIVASM2LV1014	CCD Monochrome Camera, 2 Taps Sensor, LVDS, 1024 Pixels, 14 $\mu$ m Pixel Size with FFC Function	Now
AVIIVASM2LV2010	CCD Monochrome Camera, 2 Taps Sensor, LVDS, 2048 Pixels, 10 $\mu$ m Pixel Size with FFC Function	Now
AVIIVASM2LV2014	CCD Monochrome Camera, 2 Taps Sensor, LVDS, 2048 Pixels, 14 $\mu$ m Pixel Size with FFC Function	Now
AVIIVASM2LV4010	CCD Monochrome Camera, 2 Taps Sensor, LVDS, 4096 Pixels, 10 $\mu$ m Pixel Size with FFC Function	Now
AVIIVAM4CL2014	CCD Monochrome Camera, 4 Taps Sensor, Camera Link, 2048 Pixels, 14 $\mu$ m Pixel Size with FFC Function	Now
AVIIVAM4CL6007	CCD Monochrome Camera, 4 Taps Sensor, Camera Link, 6144 Pixels, 7 $\mu$ m Pixel Size with FFC Function	Now
AVIIVAM4CL8007	CCD Monochrome Camera, 4 Taps Sensor, Camera Link, 8192 Pixels, 7 $\mu$ m Pixel Size with FFC Function	Now

## MULTIMEDIA & IMAGING (CONTINUED)

### Industrial Cameras (Continued)

#### CCD Areascan Cameras

Part Number	Description	Availability
<b>Camelia<sup>®</sup></b>		
CAMELIAM18MLV	CCD Monochrome 8 Megapixel Digital Camera, 12-bit Output, 3500 x 2300 Pixels, LVDS	Now
CAMELIAM18MCL	CCD Monochrome 8 Megapixel Digital Camera, 12-bit Output, 3500 x 2300 Pixels, Camera Link	Now
CAMELIAC18MLV	CCD Color 8 Megapixel Digital Camera, 12-bit Output, 3500 x 2300 Pixels, LVDS	Now
CAMELIAC18MCL	CCD Color 8 Megapixel Digital Camera, 12-bit Output, 3500 x 2300 Pixels, Camera Link	Now

#### CMOS Areascan Cameras

Part Number	Description	Availability
<b>Atmos</b>		
ATMOS1M30	CMOS 1.3 Megapixel Monochrome Camera 30 f/s at 1-MPixel, Camera Link	March 2005
ATMOS1M60	CMOS 1.3 Megapixel Monochrome Camera 60 f/s at 1-MPixel, Camera Link	March 2005
ATMOS2M30	CMOS 2 Megapixel Monochrome Camera 30 f/s at 1-MPixel, Camera Link	2Q2005
ATMOS2M60	CMOS 2 Megapixel Monochrome Camera 60 f/s at 1-MPixel, Camera Link	2Q2005

### Digital Camera Solutions

#### Imaging Multimedia and Digital Broadcasting

Part Number	Description	Availability
AT76C112D-JZ208	Flash Card Playback Device, Supports CompactFlash, MMC/SD/SSFPC/Memory Stick™, JPEG Compression	Now
AT76C113	Digital Camera Single-chip, Greater Processing Power, USB Host/Slave, 84 MHz ARM Subsystem with Full Cache Support, DMA Engines to Transfer Data to/from All Peripherals, No Need for External Program Flash, 1.8V Core and 3.3V I/O	Now
	AT76C113S-OZ208: <2-Mpixel, 128-Mbyte Maximum SDRAM, No USB Host	Now
	AT76C113U-OZ208: <2-Mpixel, 128-Mbyte Maximum SDRAM, USB Host	Now
	AT76C113H-OZ208: <2-Mpixel, 512-Mbyte Maximum SDRAM, No USB Host (Lead-Free Option – AT76C113H-JZ208)	Now
AT76C113-Options	AT76C113HU-OZ208: <2-Mpixel, 512-Mbyte Maximum SDRAM, USB Host	Now
	AT76C113P-OZ208: Playback, <2-Mpixel, 512-Mbyte Maximum SDRAM, No USB Host (Lead-Free Option – AT76C113P-JZ208)	Now
	AT76C113PU-OZ208: Playback, <2-Mpixel, 128-Mbyte Maximum SDRAM, USB Host (Lead-Free Option – AT76C113PU-JZ208)	Now
AT76C114-JZ280	Digital Still Camera/Camrecorder Single-chip, Greater Processing Power, 96 MHz ARM9™ Subsystem with MPEG4 Hardware Support at 30 fps VGA Resolution, DMA Engines to Transfer Data to/from All Peripherals 1.8V Core and 3.3V I/O	July 2005
AT76C120-(Options w/wo Playback Device with Optional Full Duplex MPEG4 30 fps CIF and Integrated High Speed MPEG4, w/wo USB Host)	Video DACs Supporting Up to XGA Resolution	Now

#### Imaging Evaluation Kits

Each Product has an Evaluation Kit	Call Atmel for Availability
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## MULTIMEDIA & IMAGING (CONTINUED)

### CCD Image Sensors

#### CCD Linear Arrays

Part Number	Description	Antiblooming	Availability
TH7813A	1024 Pixels, 10 x 10 Pixel Size, 6600 Dynamic Range, 50 MHz Maximum Data Rate, 2 Outputs	Yes	Now
TH7814A	2048 Pixels, 10 x 10 Pixel Size, 6600 Dynamic Range, 50 MHz Maximum Data Rate, 2 Outputs	Yes	Now
TH7815A	4096 Pixels, 10 x 10 Pixel Size, 5300 Dynamic Range, 50 MHz Maximum Data Rate, 2 Outputs	Yes	Now
TH7834C	12000 Pixels, 6.5 x 6.5 Pixel Size, 10000 Dynamic Range, 40 MHz Maximum Data Rate, 4 Outputs	Yes	Now

#### CCD Area Arrays: Frame Transfer Image Sensors

Part Number	Description	TV Standard	Availability
TH7887A	1:1 Image Ratio, 1024 Lines, 1024 Pixels per Line, 10000 Dynamic Range, 80 MHz Maximum Data Rate, 4 Outputs	Progressive	Now
TH7888A	1:1 Image Ratio, 1024 Lines, 1024 Pixels per Line, 10000 Dynamic Range, 40 MHz Maximum Data Rate, 1 or 2 Outputs	Progressive	Now

#### CCD Area Arrays: Full Frame Image Sensors

Part Number	Description	Availability
TH7899M	2048 x 2048 Pixels, 14 x 14 $\mu$ m Square Pixel Size, 4 x 20 MHz Maximum Data Rate	Now
AT71200M	3500 x 2300 Pixels, Monochrome and Color CCD 10 x 10 $\mu$ m Square Pixel Size, 4 x 25 MHz Maximum Data Rate	Now
AT71201M	4096 x 4096 Pixels, Monochrome CCD, 11 x 11 $\mu$ m Square Pixel Size, 4 x 40 MHz Maximum Data Rate	Now

### CMOS Imaging Solutions

#### Eye-On-Si<sup>®</sup>

Part Number	Description	Evaluation Board	Availability
AT76C450BC-MY02BT	CMOS Camera Module, CIF Format, 1/7-inch Optical Format, YUV4:2:2	AT76C450BCMY-EK1EX (European Plug) AT76C450BCMY-EK1KX (UK Plug) AT76C450BCMY-EK1AX (USA/ASIA Plug)	Now
AT76C451BC-MY15AT	CMOS Camera Module, VGA Format, 1/4-inch Optical Format, YUV4:2:2	AT76C451BCMY-EK1X (Universal Plug)	Now

## MULTIMEDIA & IMAGING (CONTINUED)

### Dream Sound Synthesis

#### Dream® Sound Synthesis ICs

Part Number	Description	Package	Availability
ATSAM9703	Professional Integrated Synthesizer	TQFP100	Now
ATSAM9708	128-voice Integrated Sound Synthesizer	TQFP144	Now
ATSAM9743	Single-chip Music System	PQFP100	Now
ATSAM9753	Integrated Digital Musical Instrument	TQFP144	Now
ATSAM2133B	Low-power Synthesizer with Effects and Built-in RAM	TQFP100/ CBGA100	Now
ATSAM2193	Low-power Single-chip Synthesizer with Effects	TQFP44/ TFBGA44	Now
ATSAM3103	Versatile Low-power Audio DSP/Low Cost Effect DSP	TQFP64	Now
ATSAM3303	GM-Lite Synthesizer/Professional Effect DSP	TQFP100	Now
ATSAM3108	8-channel Multiprocessing DSP	TQFP64	Now
ATSAM3308	Combined MIDI-Synthesizer and MP3 Decoder	TQFP100	Now

### MP3 Player

#### MP3 Decoder

Part Number	Description	Availability
AT89C51SND1C	80C51 Microcontroller with 64-Kbyte Flash, 2304-byte RAM and an MP3 Decoder, TWI, USB, SPI, I <sup>2</sup> S, 10-bit ADC, Flash Memory Interfaces	Now
AT83C51SND1C	80C51 Microcontroller with 64-Kbyte ROM, 2304-byte RAM and an MP3 Decoder, TWI, USB, SPI, I <sup>2</sup> S, 10-bit ADC, Flash Memory Interfaces	Now
AT89C51SND2C	80C51 Microcontroller with 64-Kbyte Flash, 2304-byte RAM and an MP3 Decoder, TWI, USB, SPI, I <sup>2</sup> S, 10-bit ADC, Flash Memory Interfaces, 18-bit Audio DAC, Power Amplifier Speaker	Now
AT83C51SND2C	80C51 Microcontroller with 64-Kbyte ROM, 2304-byte RAM and an MP3 Decoder, 2-wire Interface, USB, SPI, I <sup>2</sup> S, 10-bit ADC, Flash Memory Interfaces, 18-bit Audio DAC, Power Amplifier Speaker	Now

#### Development Kits

AT89DVK-04	AT89C51SND1C MP3 Development Kit	Now
AT89RFD-01	AT89C51SND1C Stand-alone MP3 Player Reference Design	Now
AT89RFD-08	AT89C51SND2C Remote MP3 Player Reference Design	Now

## MULTIMEDIA & IMAGING (CONTINUED)

### Audio

#### Broadcast Radio Receiver ICs

Part Number	Description	Package	Availability
U4065B	High-performance FM Front End without RF Preamplifier, Unique Interference Sensor, New AGC Concept with 3 Loops	SO24	Now
U4254BM	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	Now
U4255BM	AM/FM Car Radio Receiver with Digital Tuning and Electronic Filter Adjustment, 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 U4256BM	SSO44	Now
U4256BM	Frequency Synthesizer for Radio Receivers, Three DACs for Automatic Tuner Adjust (e.g., with U4255BM, T4258)	SSO20	Now
U4285BM	AM/FM PLL (for RDS Application), High Signal-to-noise Ratio, 4 Switching Outputs, Integrated Push-pull Stage, Fast Response Time (for RDS)	SSO20	Now
U4289BM	AM/FM PLL (for RDS Application), Reference Oscillator Up to 15 MHz, High Signal-to-noise Ratio, 1 Switching Output, Integrated Loop-push-pull Stage	SO16	Now
TDA1083	AM/FM Receiver and Audio Amplifier, 0.7W AF Output Power, High AM Sensitivity, FM/IF Amplifier	DIP16	Now
T4258	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 U4256BM	SSO44	Now
T4260	AM/FM Tuner Front End for Digital Radio Solutions – 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	Now

#### Digital Audio Broadcasting (DAB) ICs

Part Number	Description	Package	Availability
U2730B	L-band Down-converter Inclusive PLL for DAB Receivers, High Linear Amplifier, AGC Dynamic Range >30 dB, VCO, 4 Reference Divide Factors Selectable, Mixer, Tri-state Phase Detector with Programmable Charge Pump	SSO28	Now
U2731B	DAB One-chip Front-end Receiver with High Integration Level	SSO44	Now
ATR2740	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; I <sup>2</sup> S; SPDIF; Incorporates Audio and Data Decoder for Full Data Rate of 1.8 Mbit/s	LQFP128	Now



**MULTIMEDIA & IMAGING (CONTINUED)**

**Video**

Digital Video Broadcast (DVB®)

Part Number	Description	Availability
T90FJR	Dual Common Interface Hardware Controller – CIMaX®	Now

TV/VCR ICs

Part Number	Description	Package	Availability
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**Sound IF ICs**

U2860B	Double FM Demodulator (Stereo), VS = 5V, Completely Alignment-free	DIP14, SO14	Now
U2861B	FM Demodulator (Mono), VS = 5V, Completely Alignment-free	DIP14, SO14	Now
U4468B	QSS + AM Demodulator, VS = 5V, PLL-controlled QSS Mixer	DIP16	Now
U4488B	QSS + AM Demodulator, VS = 5V, PLL-controlled QSS Mixer, Two IF Inputs	DIP16	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, Pin Compatible with TDA4472	SO28, SSO28	Now
TDA4472	Video IF (Neg) and Quasi Parallel Sound Processing (FM, NICAM), VS = 5V, FPLL Detection, AFC, Three IF Inputs, Pin Compatible with TDA4470	SO28	Now

## STORAGE AND NETWORKING

### DVD/CD Storage Chipsets

#### DVD/CD Laser Driver ICs

Part Number	Description	Package	Availability
ATR0801	Five-channel Laser Driver with Voltage Inputs, RF Oscillator and Two Optional Outputs, Total Output Current to 300 mA, Rise Time 1.0 ns, Fall Time 1.1 ns, Control of Frequency and Swing by 4 External Resistors, Gain = 100	SSO24, QFN28	Now
ATR0802	Four-channel Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors	QFN20	Now
ATR0805	Five-channel Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 300 mA, Rise Time 1.0 ns, Fall Time 1.1 ns, Control of Frequency and Swing by 4 External Resistors, Gain = 100	SSO24, QFN28	Now
ATR0808	Three-channel Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 3 External Resistors	SSO16, QFN16	Now
ATR0809	Four-channel Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors	SSO20, QFN20	Now
ATR0811	Three-channel Laser Driver with Voltage Inputs and RF Oscillator, Total Output Current to 300 mA, Rise Time 1.0 ns, Fall Time 1.1 ns, Control of Frequency and Swing by 2 External Resistors, Gain = 40/100/100 mA/V	SSO16, QFN16	Now
ATR0818	Three-channel Laser Driver with RF Oscillator, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Frequency and Swing by 2 External Resistors, Gain = 40/100/100 mA/V	SSO16, QFN16	Now
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	Now
ATR0827	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	SSO16, QFN16	Now
ATR0840	Four-channel LVDS Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors	QFN24	Now
ATR0841	Four-channel LVDS Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors, Internal Termination	QFN24	Now
ATR0842	Four-channel LVDS Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors, High Voltage Option for Blue Laser Diodes	QFN24	Now
ATR0843	Four-channel LVDS Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors, NER Enable	QFN24	Now
ATR0844	Four-channel LVDS Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors, NER Enable, Internal Termination	QFN24	Now

**STORAGE AND NETWORKING (CONTINUED)**
**DVD/CD Storage Chipsets (Continued)**
**DVD/CD Laser Driver ICs (Continued)**

Part Number	Description	Package	Availability
ATRO845	Four-channel LVDS Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors, LVDS Oscillator Enable, External Termination	QFN28	Now
ATRO846	Four-channel LVDS Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors, LVDS Oscillator Enable, Internal Termination	QFN28	Now
ATRO847	Four-channel LVDS Laser Driver with RF Oscillator and Two Optional Outputs for Blue Laser Applications, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors, LVDS Oscillator Enable, External Termination	QFN28	1Q2005
ATRO848	Four-channel LVDS Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors, LVDS NER Enable, Internal Termination	QFN24	Now
ATRO849	Four-channel LVDS Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors, NER Enable, Internal Termination	QFN24	Now
ATRO890	Five-channel SyncDrive Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 500 mA, Rise/Fall Time 0.8 ns, Control of Swing and Frequency by 4 External Resistors	QFN_PUP24	Now
T0800	Five-channel Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 300 mA, Rise Time 1.0 ns, Fall Time 1.1 ns, Control of Frequency and Swing by 4 External Resistors, Gain = 100	SSO24, QFN28	Now
T0806	Three-channel Laser Driver with RF Oscillator and Two Optional Outputs, Total Output Current to 300 mA, Rise Time 1.0 ns, Fall Time 1.1 ns, Control of Frequency and Swing by 3 External Resistors, Gain = 100	SSO16, QFN16	Now
T0815	Three-channel Laser Driver with RF Oscillator and APC Amplifier, Total Output Current to 300 mA, Rise Time 1.0 ns, Fall Time 1.1 ns, Control of Frequency and Swing by 2 External Resistors, Gain = 400	SSO16	Now
T0816	Three-channel Laser Driver with RF Oscillator, Total Output Current to 300 mA, Rise Time 1.0 ns, Fall Time 1.1 ns, Control of Frequency and Swing by 2 External Resistors, Gain = 100 to 250	SSO16, QFN16	Now
T0820	Four-channel Laser Driver with RF Oscillator, Total Output Current to 300 mA, Rise Time 1.0 ns, Fall Time 1.1 ns, Control of Frequency and Swing by 2 External Resistors, Gain = 100 ns	SSO16	Now

## STORAGE AND NETWORKING (CONTINUED)

### DVD/CD/HDD Storage Solutions

#### Optical Storage, Optical Drive DVD Blue Laser

Part Number	Description	Package	Availability
AT78C4050	DVD SoC, High-integration, High-performance Single-chip Solution for DVD-ROM, DVD-R/RW, DVD+R/RW, DVD-RAM, Blue Laser DVD, CD-ROM and CD-R/RW Formats. Integrates All Required Components for DVD and CD Rewritable Drives as Well as for a DVD Recorder	TBD	April 2005
AT78C4060	DVD SoC, High-integration, High-performance Single-chip Solution for DVD-ROM, DVD-R/RW, DVD+R/RW, DVD-RAM, Blue Laser DVD, CD-ROM and CD-R/RW Formats. Integrates All Required Components for DVD and CD Rewritable Drives as Well as for a DVD Recorder, in Addition to Providing Serial ATA Connectivity Solution	TBD	June 2005
AT78C2050	DVD-PRML Channel. A PRML Read Channel for DVD-ROM, DVD-R/RW, DVD+R/RW, DVD-RAM, Blue Laser DVD, CD-ROM and CD-R/RW Formats	TBD	June 2005
AT78C4000	Spindle Motor, an Optional Companion Power Drivers Chip for Spindle Motor Actualators for DVD SoC.	TBD	June 2005

#### Hard Disk Drive: Mobile Form Factors 2.5-inch 1.8-inch, 1-inch and Sub-1-inch (0.85-inch)

Part Number	Description	Package	Availability
<b>Preamplifier Product Family</b>			
AT78C6001	A BiCMOS 1-channel GMR Preamplifier Requiring +3.3V or +5V Supply Voltage. Designed for Use with 4-terminal Magnetoresistive Recording Heads, Providing a Low Noise GMR Head Amplifier, GMR Bias Current Control, Thin Film Write Driver, Write Current Control, Thermal Asperity Detection and Correction. Bandwidth 500 MHz, Rise and Fall Time 1 ns at 5V	Flip-chip, TSSOP, or Customer-Specified	Now
AT78C6002	A BiCMOS 2-channel GMR Preamplifier Requiring +3.3V or +5V Supply Voltage. Designed for Use with 4-terminal Magnetoresistive Recording Heads, Providing a Low Noise GMR Head Amplifier, GMR Bias Current Control, Thin Film Write Driver, Write Current Control, Thermal Asperity Detection and Correction. Bandwidth 500 MHz, Rise and Fall Time 1 ns at 5V	Flip-chip, TSSOP, or Customer-Specified	Now
<b>Spindle/VCM Motor Controller Drivers</b>			
AT78C7005	A CMOS Monolithic Device that Integrates Spindle and VCM Controllers as Well as Power Stages Into One Chip. Operates from 3.3V or 5V Power Supply and is Designed for a Small-form-factor Hard Disk Drive Application	Small Footprint 64TQFP, Flip-chip, or Customer-Specified	Now
AT78C7015	A CMOS Monolithic Device that Integrates Spindle and VCM Controllers as Well as Power Stages Into One Chip. Operates from 3.3V Power Supply and is Designed for a Small-form-factor Hard Disk Drive Application	Small Footprint 64TQFP, Flip-chip, or Customer-Specified	Now

## STORAGE AND NETWORKING (CONTINUED)

### Networking

#### Ethernet: Level 2 Switches

Part Number	Description	Package	Availability
AT79C1030	An 8-port Unmanaged Switch, an Inexpensive Alternative Solution to Fiber-optic, Designed for Home and SOHO (Small Office/Home Office)	TBD	June 2005

#### Data Storage and Networking Connectivity

Part Number	Description	Package	Availability
AT78C5001	PCI-X Serial-ATA I Host Bus Adapters. Provides High-performance Serial-ATA Host Interface with Automatic DMA Engine in PCI-X Local Bus	PBGA	June 2005
AT78C5010	An IDE/Serial-ATA Bridge Chip	TQFP	June 2005
AT78C5051	PCI-X Serial-ATA II Host Bus Adapters. The AT78C5051 is a 4-port Serial ATA II Host Controller that Provides a 64-bit PCI-Xbus Interface with an Automatic DMA Engine	TBD	July 2005

### Serial ATA Physical Layer (PHY)

Part Number	Description	Package	Availability
AT78C5090	Dual-Port Stand-alone Serial ATA Physical Layer, Low-power Dual-channel PHY, Compliant to Generation 1 Serial ATA Standard, Supports a 10-bit or a 20-bit Data Bus	TQFP	June 2005

## SECURITY AND SMART CARD ICs

### RF Identification

#### RF Identification/Immobilization – 125 kHz

Part Number	Description	Organization	Availability
<b>Transponder ICs 125 kHz (100 to 150 kHz)</b>			
e5530	RFID Read-only IDIC®, Up to 128-bit ROM, Different Codings/Modulations and Bitrates FDX-B, ISO 11784/11785 Compatible	DOW, Noncut, DIT, SO8	Now
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 Bitrates	DOW Noncut	Now
T5554	RFID Read/Write IDIC for Contactless Operation – Suited for Direct Coil Connection, Compatible to x5551, Capacitance On-chip (Up to 220 pF), Au-Mega Pads for Thermo Compression Bonding Method	Die on Stick, Tape	Now
T5557	RFID Read/Write IDIC for Contactless Identification, Backward Compatible to x5551 (330- bit R/W Memory), 64-bit Unique TAG ID, Improved Operating Performance, High Temperature Data Retention, Optional 75 pF Capacitor On-chip, ISO 11784/11785, Programmable	DOW Noncut, DIT, SO8, Micromodule	Now
<b>Reader IC</b>			
U2270B	Read/Write Base Station IC, 100 to 150 kHz Carrier Frequency, Amplitude Modulation Typically Up to 5K Baud, Manchester/Biphase RF/32, RF/64, RF/128	SO16	Now
<b>Transponders</b>			
TK5530	Read-only Transponder, 125 kHz, Low-power/Low-voltage CMOS, No Battery Supply, Small Size, 128-bit ROM, RF/32, Manchester, Defined Header	Plastic Package (PP)	Now
TK5551	Read/Write Transponder, Option Configurable, 125 kHz, AOR Feature for Multi-tag Access	Plastic Package (PP)	Now
TK5552	125 kHz Read/Write Transponder, Manchester RF/16, RF/32, 1-Kbit EEPROM	Plastic Package (PP)	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)	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	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	Now
<b>Transponder Module</b>			
T5552	Read/Write Transponder Module with 1-Kbit Memory, Options Configurable, 435 pF Capacitor Integrated	Module	Now
T5557	NOA2 Module, RFID Read/Write IDIC for Contactless Identification, Backward Compatible to e5551 (330 bit R/W Memory), 64-bit Unique TAG ID	Module	Now
<b>Development/Evaluation Kits and Tools</b>			
TMEB8704	Design Kit for 125 kHz, Supports the x55xx RFID Product Family		Now
ATAK2270	Design Kit for 125 kHz, Supports the T5557 Extended Mode		Now

### UHF RF Identification

#### Transponder ICs 860 – 960 MHz

Part Number	Description	Availability
ATA5590	RFID Read/Write IDIC for Contactless Identification (1024-bit User R/W Memory, 320-bit Read/Write System Memory), Anticollision, Support of EPC 64/96-bit Data Structures, AFI (Application Field Identifier)	Now

## SECURITY AND SMART CARD ICs (CONTINUED)

### Secure RF Memories Smart Card ICs

Smart Card ICs – CryptoRF™ Memory (ISO14443 Type B 13.56 MHz)

Part Number	Description	Organization	Availability
AT88SC0104CRF	Contactless 1-Kbit User Memory with Authentication and Encryption	4 x 32 Bytes	Now
AT88SC0204CRF	Contactless 2-Kbit User Memory with Authentication and Encryption	4 x 64 Bytes	Now
AT88SC0404CRF	Contactless 4-Kbit User Memory with Authentication and Encryption	4 x 128 Bytes	Now
AT88SC0808CRF	Contactless 8-Kbit User Memory with Authentication and Encryption	8 x 128 Bytes	Now
AT88SC1616CRF	Contactless 16-Kbit User Memory with Authentication and Encryption	16 x 128 Bytes	Now
AT88SC3216CRF	Contactless 32-Kbit User Memory with Authentication and Encryption	16 x 256 Bytes	Now
AT88SC6416CRF	Contactless 64-Kbit User Memory with Authentication and Encryption	16 x 512 Bytes	Now

#### Evaluation/Development Kits

AT88SC6416CRF-DK	CryptoRF Development Kit	1K to 64K	Now
AT88SC6416CRF-EK	CryptoRF Evaluation Kit	1K to 64K	Now

### Smart Card ICs – Secure RF Memory

Part Number	Features	EEPROM Memory	Availability
AT88RF020	13.56 MHz, ISO 14443B Compliant RFID Transponder	2K Bits	Now
AT88RF001	13.56 MHz RFID External Memory Interface Chip	256 Bits	Now

#### Evaluation/Development Kit

AT88RF020-DK	Secure RF Evaluation and Development Kit		Now
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## Embedded Security

### PC Security

Part Number	Description	I/O Interface	Availability
AT97SC3201	Fully V1.1b TCG/TCPA Compliant Security Processor, Secure Key Storage (10+ Keys), RNG, SHA-1, Software Auditing, 1024/RSA Sign-in 100 ms	LPC	Now
AT97SC3201S	Fully V1.1b TCG/TCPA Compliant Security Processor, Secure Key Storage (10+ Keys), RNG, SHA-1, Software Auditing, 1024/RSA Sign-in 100 ms	SMBus	Now
AT97SC3202	Fully V1.2 TCG Compliant Security Processor, Secure Key Storage (10+ Keys), RNG, SHA-1, Software Auditing, 1024/RSA Sign-in 100 ms	LPC	Now

## SECURITY AND SMART CARD ICs (CONTINUED)

### Crypto & Secure Memories

Smart Card ICs – CryptoMemory (Asynchronous Secure Memory)

Embedded ICs – CryptoMemory (Synchronous 2-wire Secure Memory)

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

#### Evaluation/Development Kits

AT88SC25616C-EK	1K to 256K CryptoMemory® Evaluation Kit			Now
AT88SC25616C-DK	1K to 256K CryptoMemory Development Kit for Windows-based Smart Card Applications			Now
AT88SC25616C-SDT	1K to 256K CryptoMemory Software Development Toolkit, Including AVR Library for Commands and Crypto Algorithm			Now

### Smart Card ICs – Secure Memory

Part Number	Description	Organization	Voltage	Availability
<b>Secure Memory ICs with Password</b>				
AT88SC102	1K EEPROM with Password Security, Two 512-bit Zones	2 (512 x 1)	2.7 - 5.5V	Now
AT88SC1003	1K EEPROM with Password Security, Three Zones	2 (256 x 1) + 512 x 1	4.5 - 5.5V	Now

#### Secure Memory ICs with Password and Authentication

AT88SC153	1.5K EEPROM with Authentication, Three 512-bit Zones	3 (512 x 1)	2.7 - 5.5V	Now
AT88SC1608	16K EEPROM with Authentication, Eight 2-Kbit Zones	8 (2K x 1)	2.7 - 5.5V	Now

#### Evaluation/Development Kits

AT88SC153-EK	AT88SC153 Evaluation Kit and Application Examples			Now
AT88SC153-DK	AT88SC153 Development Kit Including Secure Function			Now
AT88SC1608-EK	AT88SC1608 Evaluation Kit and Application Examples			Now
AT88SC1608-DK	AT88SC1608 Development Kit Including Secure Function			Now



**SECURITY AND SMART CARD ICs (CONTINUED)**

**Secure Microcontrollers**

Secure Microcontrollers for Smart Card Applications – AT90SC Family<sup>(1)</sup>

Part Number	RAM	ROM	Flash	EEPROM	Voltage	Asym. Crypto Engine	Other Features	Availability
<i>secureAVR™-based</i>								
AT90SC6404RT	2K	64K	0	4K	2.7 - 5.5V	No	Hardware DES/TDES, CRC, Common Criteria EAL4+ and VL3 <sup>(2)</sup>	Now
AT90SC9608RC	3K	96K	0	8K	2.7 - 5.5V	Yes	Hardware DES/TDES, CRC, Common Criteria EAL4+ and VL3 <sup>(2)</sup> Target	Now
AT90SC9616RC	3K	96K	0	16K	2.7 - 5.5V	Yes	Hardware DES/TDES, CRC, Common Criteria EAL4+ and VL3 <sup>(2)</sup> Target	Now
AT90SC9618RCT	4K	96K	0	18K	2.7 - 5.5V	Yes	Hardware DES/TDES, CRC, Common Criteria EAL4+ and VL3 <sup>(2)</sup> Target	2Q2005
AT90SC12836RCT	5K	128K	0	36K	2.7 - 5.5V	Yes	Hardware DES/TDES, CRC, Common Criteria EAL4+ and VL3 <sup>(2)</sup> Target	Now
AT90SC19236RT	4K	192K	0	36K	1.62 - 5.5V	No	Hardware DES/TDES, CRC	Now
AT90SC7272C	6K	0	72K	72K	2.7 - 5.5V	Yes	Hardware DES/TDES, CRC, Common Criteria EAL4+ and VL3 <sup>(2)</sup> Target	Now
AT90SC12872RCFT	5K	128K	0	72K	1.62 - 5.5V	Yes	Hardware DES/TDES, CRC, Common Criteria EAL4+ and VL3 <sup>(2)</sup> Target, Contact and ISO14443 A and B Contactless Interfaces	2Q2005
AT90SC19272RC	4K	192K	0	72K	2.7 - 5.5V	Yes	Hardware DES/TDES, Crypto Library, CRC, Common Criteria EAL4+ Awarded	Now
AT90SC25672RT	6K	256K	0	72K	1.62 - 5.5V	No	Hardware DES/TDES, CRC	Now
AT90SC25672RCT	8K	256K	0	72K	1.62 - 5.5V	Yes	USB Full-speed Interface, Hardware DES/TDES, CRC, Common Criteria EAL4+ and VL3 <sup>(2)</sup> Target	2Q2005
AT90SC144144CT	8K	144K	0	144K	1.62 - 5.5V	Yes	Hardware DES/TDES, CRC, Common Criteria EAL4+ and VL3 <sup>(2)</sup> Target + SPI	Now
AT90SC288144RT	6K	288K	0	144K	1.62 - 5.5V	No	Hardware DES/TDES, CRC	2Q2005
AT90SC320288RCT	8K	320K	0	288K	1.62 - 5.5V	Yes	Hardware DES/TDES, CRC, Common Criteria EAL4+ and VL3 <sup>(2)</sup> Target + SPI	Now
<i>Secure MCUs</i>								
AT90SC4816RS	1.5K	48K	0	16K	2.7 - 5.5V	No		Now
AT90SC4818RT	2K	48K	0	18K	2.7 - 5.5V	No		2Q2005
AT90SC6436RT	2K	64K	0	36K	2.7 - 5.5V	No		Now
AT90SC6464C-USB	3K	0	64K	64K	2.7 - 5.5V	Yes	On-chip USB Full-speed Interface, CRC, Hardware DES/TDES, ECC Accelerator, Crypto Library (AES 128/128, SHA256)	Now

Notes: 1. All AT90SC family products have OTP (One Time Programmable) EEPROM area, RNG, "out of bounds" detectors and side channel attack countermeasures.  
 2. VL3: Visa Level 3.

## SECURITY AND SMART CARD ICs (CONTINUED)

### Secure Microcontrollers (Continued)

Secure Microcontrollers for Smart Card Applications – Development Tools: AT90SC Family<sup>(1)</sup>

Part Number	Description	Availability
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#### Emulation Platform Support

ATV4-xxxx	Voyager Development Tool Base Platform for the AT90SC and AT91SC Families Microprocessors	Now
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#### USB Evaluation Board

AT90SC6464C	ATDONGLE-EV1 – USB Full-speed Evaluation Board	Now
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Notes: 1. All AT90SC family products have OTP (One Time Programmable) EEPROM area, RNG, “out of bounds” detectors and side channel attack countermeasures.  
2. VL3: Visa Level 3.

Secure Microcontrollers for Smart Card Applications – AT91SC/SO Family<sup>(1)</sup>

Part Number	RAM	ROM	Flash	EEPROM	Voltage	Asym. Crypto Engine	Other Features	Availability
AT91SC25672RC	10K	256K	0	72K	2.7 - 5.5V	Yes	Hardware DES/TDES, CRC, Common Criteria EAL5+ Target	Now

#### Development Tools

#### Emulation Platform Support

ATV4-xxxx	Voyager Development Tool Base Platform for the AT90SC and AT91SC Families Microprocessors	Now
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Note: 1. ARM 32-bit RISC SecurCore™ family-based product. All AT91SC family products have OTP (One Time Programmable) EEPROM area, RNG, “out of bounds” detectors, memory encryption and side channel attack countermeasures.

## SECURITY AND SMART CARD ICs (CONTINUED)

### Smart Card Reader ICs

#### Smart Card Reader ICs – 8051 Microcontrollers

Part Number	Description	Program Memory	Availability
T89C5121	Microcontroller with Multi-protocol Smart Card Interface, 512-byte RAM, ISO7816, DC/DC, UART	16-Kbyte Flash	Now
T83C5121	Microcontroller with Multi-protocol Smart Card Interface, 512-byte RAM, ISO7816, DC/DC, UART	16-Kbyte ROM	Now
T85C5121	Microcontroller with Multi-protocol Smart Card Interface, 512-byte RAM, ISO7816, DC/DC, UART	16-Kbyte Code RAM, 16-Kbyte Bootloader	Now
AT83C5122	Microcontroller with Multi-protocol Smart Card Interface, 768-byte RAM, ISO7816, DC/DC, USB2.0 (12 Mbps), SPI	32-Kbyte ROM	Now
AT85C5122	Microcontroller with Multi-protocol Smart Card Interface, 768-byte RAM, ISO7816, DC/DC, USB2.0 (12 Mbps), SPI	32-Kbyte Code RAM	Now
AT85EC5122	Microcontroller with Multi-protocol Smart Card Interface, 768-byte RAM, ISO7816, DC/DC, USB2.0 (12 Mbps), SPI	32-Kbyte Code RAM, 0.5-Kbyte EEPROM	Now
AT89C5122	Microcontroller with Multi-protocol Smart Card Interface, 768-byte RAM, ISO7816, DC/DC, USB2.0 (12 Mbps), SPI	32-Kbyte Flash	Now
AT83C5123	Microcontroller with Multi-protocol Smart Card Interface, 768-byte RAM, ISO7816, DC/DC, USB2.0 (12 Mbps), Optional EEPROM 256 Bytes	16-Kbyte ROM	Now
<b>Evaluation/Development Kit</b>			
T89C5121-SK1	Starter Kit for T89C5121 Smart Card Reader Microcontroller		Now
AT89STK-03	Starter Kit for AT8xC522/23 USB Smart Card Reader Microcontrollers		Now

#### Smart Card Reader ICs – Interface

Part Number	Description	Availability
AT83C24	Level Shifter, DC/DC, TWI	Now
<b>Evaluation/Development Kit</b>		
AT89STK-07	Starter Kit for the AT83C24 Level Shifter	Now
AT89EVK-01	Evaluation Kit of the AT83C24 for TDA8004/8024 Replacement	Now

#### Smart Card Reader ICs – Pre-Certified Solutions

Part Number	Description	Availability
AT83C25OK	Pre-certified Smart Card Reader Solution for PCMCIA Link with OMNIKEY® EMV2000 Firmware	Now
AT83C21GC	Pre-certified Smart Card Reader Solution for Serial Link with 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
<b>Evaluation/Development Kit</b>		
AT89RFD-02	USB Smart Card Reader Reference Design with OMNIKEY Firmware for AT83C5122OK/23OK	Now
AT89RFD-05	Serial Smart Card Reader Reference Design with GemCore Software for AT83C5121GC	Now
AT89RFD-06	PCMCIA Smart Card Reader Reference Design with OMNIKEY Firmware for AT83C5125OK	Now

## SECURITY AND SMART CARD ICs (CONTINUED)

### Biometrics

#### FingerChip®

Part Number	Description	Voltage	Evaluation Board	Availability
FCXD4B14C	500 dpi, 0.4 mm x 14.0 mm Digital Fingerprint Linear Sensor, 2240 Pixels (8 x 280) Image Array, Digital Output (On-chip ADC) 20-lead DIL Package, Prototype	3.0 to 5.5V	"Sweepsee" USB Scanner	Obsolete, 23.6K Units Left on Stock
FCD4B14CB	500 dpi, 0.4 mm x 14.0 mm Digital Fingerprint Linear Sensor, 2240 Pixels (8 x 280) Image Array, Digital Output (On-chip ADC) 20-lead COB Package	3.0 to 5.5V	"Sweepsee" USB Scanner	Obsolete, 110K Units Left on Stock
FCD4B14CC	500 dpi, 0.4 mm x 14.0 mm Digital Fingerprint Linear Sensor, 2240 Pixels (8 x 280) Image Array, Digital Output (On-chip ADC) 20-lead DIL Package	3.0 to 5.5V	"Sweepsee" USB Scanner	Obsolete, 2.5K Units Left on Stock
AT77C101B-CB01V	500 dpi, 0.4 mm x 14.0 mm Digital Fingerprint Linear Sensor, 2240 Pixels (8 x 280) Image Array, Digital Output (On-chip ADC) Chip-on-board Packaging with Elastomer Connections -40°C to +85°C Operating Temperature Range	3.0 to 5.5V	BIOK101 External USB Fingerprint Reader	Now
AT77C101B-CB02V	500 dpi, 0.4 mm x 14.0 mm Digital Fingerprint Linear Sensor, 2240 Pixels (8 x 280) Image Array, Digital Output (On-chip ADC) Chip-on-board Packaging with Connector for Flex Cable -40°C to +85°C Operating Temperature Range	3.0 to 5.5V		Now
AT77C104B-CB08V	500 dpi, 0.4 mm x 14.0 mm Digital Fingerprint Linear Sensor, 1856 Pixels (8 x 232) Image Array, Digital Output (On-chip ADC) Menu Navigation and Item Selection Features Optimized Chip-on-board Packaging with Elastomer Connections -40°C to +85°C Operating Temperature Range	2.3 to 3.6V	AT77C104B-EK2	Now
AT77SM0101BCB02VKE	ARM9-based Biometric Standalone Module with Authentication Software Included	3.0 to 3.6V	AT77SM0101BCB02VEK	Now

**OTHER ASSPs**
**Power Management**

Product	Description	Availability
AT73C201	Power, Battery Management and Audio Amplifier Unit for Wireless Devices	Now
AT73C202	Power and Battery Management Unit for Wireless Devices	Now
AT73C203	Power Management IC for Datacom Platforms	Now
AT73C204	Power Management IC for Smartphones and PDAs	Now
AT73C207	Power Management for Digital Still Cameras	Now
AT73C209	Analog Companion Chip for Portable Music Players	Now
AT73C211	Small Integration Power Management Unit	Now
AT73C212	Medium Integration Power Management Unit	Now
AT73C213	Audio Interface for Portable Devices	Now
AT73C220	Stereo DAC with Headset Amplifier and Stereo Line IN/OUT	Now
AT73C221	Power Management for Wireless Handset	Now
AT73C226	Stereo DAC	Now
AT73C230	Power Management with Embedded EEPROM	June 2005
AT73C239	Tiny Power Management for Wireless Modules	Now
AT73C242	Power and Battery Management for Portable Multimedia Players	Now

**Intellectual Property (IP)**

AC001	Differential-differential Audio Amplifier/Differential-single Audio Converter	Now
BG023	Main Trimmable Band Gap Reference	Now
CH001	Analog Front End Interface for Microcontroller Driven Battery Charger	Now
CH002	Battery Charger with Standalone Pre-charge for Deep Discharged State, Programmable Pre-charge Current, Current Regulation Loop	Now
CPP02	5V/30 mA Charge Pump	Now
DA052	8-bit DAC with Buffer	Now
DCDC004	Synchronous Buck DCDC Regulator Controller 1.7V, 1.75V, 1.8V, 1.85V, 2.3V, 2.4V, 2.5V and 2.6V Programmable Output Voltage 1.2A Maximum Load Current	Now
DCDC005	Asynchronous Step UP/DOWN DCDC Regulator Controller 3.1V, 3.2V, 3.3V and 3.4V Programmable Output Voltage 520 mA Maximum Load Current	Now
DCDC010	Synchronous Buck DCDC Regulator Controller 1.1V, 1.2V, 1.3V, 1.5V, 1.65V, 1.7V and 1.8V Programmable Output Voltage 1.2A Maximum Load Current	Now
DCDC011	Synchronous Buck DCDC Regulator Controller 0.87V, 0.9V, 1.1V and 1.2V Programmable Output Voltage 1.2A Maximum Load Current	Now
DCDC012	Synchronous Buck DCDC Regulator Controller 1.8V and 2.5V Programmable Output Voltage 300 mA Maximum Load Current with Integrated Switches	Now

## OTHER ASSPs (CONTINUED)

## Power Management (Continued)

Product	Description	Availability
DCDC014	Synchronous Buck DCDC Regulator Controller 5.3 to 6.0V Programmable Output Voltage 1A Maximum Load Current with Integrated Switches	Now
DCDC015	High Supply Voltage PWM Buck DCDC Regulator Controller 5.5 to 11V Supply Operation 3.6V and 5.2V Output Voltage and 800 mA of Max Load Current	Now
DCDC016	PWM Buck DCDC Regulator Controller with Internal Switches 3 to 5V Supply Operation 2.0 to 2.3V Output Voltage @ 300 mA of Max Load Current	Now
FC001	Fuse Block for Internal Trimming	Now
PA001	500 mW on 8 Ohms Audio Power Amplifier for Speaker Low-power Mode for Earpiece	Now
PA005	High-supply Voltage 750 mW/28 Ohms Power Amplifier 5.5 to 11V Supply Operation 16 Ohms Speaker Load Accepted	Now
PIO01	Power I/Os: Vibrator Driver, Backlight, Backkey, Open Drains	Now
PIO02	Dual Mode Programmable Current Source and Digital I/O	Now
RC014	Continuous Time Very Low Drift 32 kHz RC Network Oscillator	Now
RC017	500 kHz Integrated RCO	Now
RC019	Low Power 10 kHz Trimmable Integrated RCO	Now
RC023	900 kHz Oscillator RC Integrated Very Low Temperature Spread (Absolute Value Trimmable by Fuses to Guarantee Very Accurate Frequency)	Now
RE023	2.6V/160 mA LDO Voltage Regulator	Now
RE024	2.8V/160 mA Dual-mode LDO Voltage Regulator	Now
RE025	Programmable 2.8V or 2.9V/30 mA Low-noise LDO Voltage Regulator	Now
RE027	2.8V/130 mA Low-noise LDO Voltage Regulator	Now
RE028	4.5V/30 mA LDO Voltage Regulator	Now
RE029	1.8V/80 mA Dual-mode LDO Voltage Regulator	Now
RE030	1.75 to 2.1V 180 mA Dual-mode LDO Voltage Regulator	Now
RE031	2.5V/5 mA Low Quiescent Current LDO Voltage Regulator	Now
RE056	4V/35 mA Up to 15V Input Voltage LDO Voltage Regulator	Now
RE057	3.3V/20 mA Up to 15V Input Voltage LDO Voltage Regulator	Now
RE058	3.3V/30 mA Up to 15V Input Voltage LDO Voltage Regulator	Now
RE059	2.5V/0.5 mA Up to 15V Input Voltage LDO Voltage Regulator	Now
SM026	Quadruple Low-power Voltage Monitor	Now
VOCODEC	Voice Codec	Now
AUDDAC	Audio Stereo DAC	Now
TS005	Temperature Supervisor	Now

**OTHER ASSPs (CONTINUED)**
**Broadband Communications**
**Broadband Data Converters**

Part Number	Description	Evaluation Board	Availability
TS83102G0BGL	10-bit Resolution, 2 Gsps Sampling Rate, 3.3 GHz Input Bandwidth Analog-to-Digital Converter (ADC) in 152-ball CBGA Package	TSEV83102G0BGL	Now
TS83102G0BGS	10-bit Resolution, 2 Gsps Sampling Rate, 3.3 GHz Input Bandwidth ADC in 152-ball CI-CGA Package	TSEV83102G0BGL	Now
AT84AS008GL	10-bit 2.2 Gsps ADC in 152-ball CBGA Package, Pin-to-pin Compatible with TS83102G0BGL	AT84AS008GLEB	Samples
AT84AS003TP	10-bit Resolution, 1.5 Gsps Sampling Rate ADC with 1:4 Demultiplexer, in 317-ball EBGA Package	AT84AS003TP-EB	Samples
AT84AD001BTD	8-bit Resolution, 1 Gsps Sampling Rate, 1.5 GHz Input Bandwidth Dual ADC with Integrated 1:2 Demultiplexer, in 144-lead LQFP Package	AT84AD001TD-EB	Now
AT84AD004TD	8-bit Resolution, 500 Msps Sampling Rate, 1 GHz Input Bandwidth Dual ADC with Integrated 1:2 Demultiplexer, in 144-lead LQFP Package	AT84AD004TD-EB	Now
TS8388BG	8-bit Resolution, 1 Gsps Sampling Rate, 1.8 GHz Input Bandwidth ADC in 68-ball CBGA Package	TSEV8388BGL	Now
TS8388BF	8-bit Resolution, 1 Gsps Sampling Rate, 1.5 GHz Input Bandwidth ADC in 68-lead CQFP Package	TSXEV8388BF	Now
TS8308500GL	8-bit Resolution, 500 Msps Sampling Rate, 1 GHz Input Bandwidth ADC in 68-ball CBGA Package	TSEV8308500GL	Now
TS86101G2BGL	10-bit Resolution, 1.2 Gsps Sampling Rate DAC with Integrated 4:1 Multiplexer, in 255-ball CBGA Package	TSEV86101G2BGL	Now

**DMUX for Broadband ADC**

Part Number	Description	Evaluation Board	Availability
TS81102G0TP	8 to 10-bit Resolution, 2 Gsps Maximum Input Rate, 1:8/1:4 Speed Ratio Demultiplexer in 240-ball TBGA Package	TSEV81102G0TPZR3	Now
TS81102G0FS	8 to 10-bit Resolution, 2 Gsps Maximum Input Rate, 1:8/1:4 Speed Ratio Demultiplexer in 196-lead CQFP Package	TSEV81102G0FS	Now
AT84CS001TP	Low Power, LVDS output, 8 to 10-bit Resolution, 2.2 Gsps Maximum Input Rate, 1:4/1:2 Speed Ratio Demultiplexer in 240-ball EBGA Package	AT84CS001TP-EB	Samples

## OTHER ASSPs (CONTINUED)

### USB Controllers

#### AT43 Series Host/OTG Processor, Hub Controller and AVR USB Controllers

Part Number	Description	Package	Availability
<b>USB Microcontrollers and Hubs</b>			
AT43301	Low-cost, Self- and Bus-powered, Full-speed Hub Controller with Ganged Port Power Switching and Global Overcurrent Protection	24-lead SOIC, 32-lead LQFP	Now
AT43312A	Self- and Bus-powered, Full-speed Hub Controller with Individual Port Power Switching and Overcurrent Protection	32-lead SOIC, 32-lead LQFP	Now
AT43USB325E	Multimedia Keyboard Controller with Embedded 4-port Hub, 16K Bytes of Program RAM and Support for 20 x 8 Keyboard Matrix	64-lead LQFP	Now
AT43USB326	Multimedia Keyboard Controller with Embedded 2-port Hub, 16K Bytes of Program ROM and Support for 18 x 8 Keyboard Matrix	48-lead LQFP	Now
AT43USB353M	Full-speed USB Controller with an 12/24 MIPS AVR, 4-function Endpoints, Embedded 2-port Hub, 12-channel 10-bit ADC, PWM and 24K Bytes of Program ROM	48-lead LQFP	Now
AT43USB355E	Full-speed USB Microcontroller with a 12 MIPS AVR, 4-function Endpoints, 2-port Hub, 12-channel 10-bit ADC, PWM and 24K Bytes of Program RAM	64-lead LQFP	Now
AT43USB355M	Full-speed USB Microcontroller with a 12 MIPS AVR, 4-function Endpoints, 2-port Hub, 12-channel 10-bit ADC, PWM and 24K Bytes of Program ROM	64-lead LQFP	Now
AT43USB351M	Low-/Full-speed Configurable USB Microcontroller with a 1.5/12/24 MIPS AVR, 5-function Endpoints, 12-channel 10-bit ADC, PWM and 24K Bytes of Program ROM	48-lead LQFP	Now
<b>USB Dual Role (Host/Function)</b>			
AT43USB380E	Full-speed USB 2.0 Compliant OTG/Host/Function Processor with Embedded USB Host, Function and OTG Firmware Stack	100-lead LQFP	Now
<b>Evaluation/Development Kits</b>			
AT43DK301	Evaluation Kit for AT43301		Now
AT43DK312A	Evaluation Kit for AT43312A		Now
AT43DK325	Development Kit for AT43USB325/AT43USB326		Now
AT43DK355	Development Kit for AT43USB355E/AT43USB355M/AT43USB353M/ AT43USB351M		Now
AT43DK380-BD2	The Complete Development Kit for the AT43USB380, Including the AT43USB380 Reference Board and the Atmel AT91R40008 ARM7 Daughter Card		Now
AT43DK380-PDC2	Atmel AT91R40008 ARM7 Daughter Card with 16-bit External Bus for AT43USB380 Development Kit		Now



**OTHER ASSPs (CONTINUED)****USB Controllers (Continued)**

## AT76 Series AVR USB Microcontrollers

Part Number	Description	Availability
AT76C712-JT064	USB to UART Bridge Only, Based on an 8-bit AVR Microcontroller Running Up to 48 MHz, Includes Integrated SRAM for both Program and Data	Now
AT76C713-0T100	Based on AT76C712, Allowing the Bridging of USB to Other Interfaces, Contains Two UARTs, Device Firmware Upgrade Protocol in ROM that Enables this Device to Work without EPROM or Flash, Full Support of USB Suspend Mode, and GPIO's Supporting Different Alternate Functions, Customer Wanting to Develop their Own Custom Application Can Do So with the AT76C713 Along with the AVR Studio® Development Suite	Now

**Evaluation/Development Kits**

AT76C713-DK	Evaluation Kit Includes: Board, Cable, Firmware, Drivers, Schematics, Demo Software and Manual	Now
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## AT89 (8051) Series AVR USB Microcontrollers

Part Number	Description	Availability
AT89C5130A	16-Kbyte Flash Microcontroller with 1280-byte RAM, 1-Kbyte EEPROM and USB 2.0 (12 Mbps), SPI, TWI, PCA	Now
AT89C5131A	32-Kbyte Flash Microcontroller with 1280-byte RAM, 1-Kbyte EEPROM and USB 2.0 (12 Mbps), SPI, TWI, PCA	Now
AT89C5132	64-Kbyte Flash Microcontroller with 2304-byte RAM, 2-wire Interface, USB, SPI, I <sup>2</sup> S, 10-bit ADC, Flash Memory Interfaces	Now

**Evaluation/Development Kits**

AT89DVK-04	AT89C5132 Development Kit	Now
AT89STK-05	Starter Kit for AT89C5130A/AT89C5131A USB Microcontrollers	Now

## ASICs

### ASICs

Technology	Description	Process Name	Libraries	Availability
0.13 μm	Core Supply: 1.2V Options: Low Leakage, Mixed, 3V, MIM Capacitance	AT59K	ATC13	Now
0.18 μm	Core Supply: 1.8V Options: Low Leakage, Mixed, 3V, MIM Capacitance Embedded EEPROM and Flash	AT58K	ATC18	Now
		AT58.8K	ATC18/EE	Now
0.21 μm	Core Supply: 1.8V Options: Low Leakage, Mixed, 3V, Double Poly Capacitance	AT57.5K	ATC20	Now
0.25 μm	Core Supply: 2.5V Options: Mixed, 3V	AT57K	ATL25	Now
0.35 μm	Core Supply 3.3V Options: Mixed, 5V Embedded EEPROM and Flash	AT56K	ATL35	Now
		AT56.8K	ATC35/EE, ATL35/EE	Now

### ASIC IP Cores

Part Number	Description	Availability
Memory Blocks	SRAM, Dual-port SRAM, Register File RAM, FIFO, Diffusion Mask ROM, Metal Mask ROM, Flash, EEPROM	Now
MCU/DSP Cores	ARM920T™, ARM946-ES™, ARM926-ES™, ARM7TDMI® (ARM Thumb®), MIPS64®, AVR, OakDSPCore®, PalmDSPCore®, TeakDSPCore®, mAgic Modular VLIW Computation Core, AT8032 MCU, 5KF™	Now
ARM System Bus Peripherals	Bus Interface, Arbiter, Bridge, Cache Memory and Bus Interface Unit, Decoder, Embedded Flash Controllers	Now
ARM Peripherals	<b>Communication:</b> AC97 Controller, CAN2.0 A/B, 10T/100 Ethernet MAC, 1394 (FireWire), Image Sensor Interface, Multimedia Card Interface, 32/64-bit PCI, Pulse Width Modulator, Serial Peripheral Interface, Synchronous Serial Controller, 2-wire Interface, USART, USART IrDA, USART ISO7816, USB V1.1 Host, Hub and Device, USB 2.0 High-speed Device <b>Memory Controllers:</b> Burst Flash Controller, SDRAM Controller, Static Memory Controller <b>Crypto Engines:</b> 128-bit Advanced Encryption Standard, Secure Hash Algorithm 1, Triple DES <b>System Peripherals:</b> Advanced Interrupt Controller, Advanced Power Management Controller, Debug Unit, Parallel Input/Output, Peripheral DMA Controller, Real-time Clock, System Timer, Timer/Counter	Now
AVR-compatible 8-bit Peripherals	Real-time Clock, Serial Peripheral Interface, Timer/Counter, UART, USB V1.1 Device, Watchdog Timer	Now
Analog Cells	General-purpose, High-speed & Audio ADCs, Bandgap Reference, Voltage Regulator, Comparator, General-purpose, High-speed & Audio DACs, LCD Driver, OpAmp, Oscillator, PLL, POR, Brown-out Detector, Analog Mux	Now
Wireless Baseband	GSM Voice Codec 10-bit 100 Ksps Telecom A/D Converter 13 to 26 MHz Clock Squarer Precision Voltage Reference Generator 10-bit 1 Msps Telecom D/A Converter	Now
Macrocells	AT40K FPGA	Now
IO Pads	General-purpose, PCI, LVDS, SSTL, USB 1.1 LS & FS, USB2.0 HS	Now

### FPGA/CPLD Conversion: ULCs

Part Number	Technology	Max Kgates	Max I/Os	Supply (Volts)			Availability
				Core	I/O Tolerant	Other	
UG2	0.5 μm	360	420	5	5		Now
UA1	0.35 μm	1400	700	3.3	5		Now
UA1E	0.35 μm	780	976	3.3	5	Embedded DPRAM Up to 390-Kbit	Now
ATU18	0.18 μm	1575	700	1.8	3.3	Embedded DPRAM Up to 1195-Kbit	Now

MEMORY

DataFlash

Part Number	Description	Speed (MHz)	Density	Availability
<b>Battery-Voltage (2.7 to 3.6V)</b>				
AT45DB011B	2.7-volt Serial Flash (SPI Bus) with One 264-byte SRAM Buffer	20	1-Mbit	Now
AT45DB021B	2.7-volt Serial Flash (SPI Bus) with Two 264-byte SRAM Buffers	20	2-Mbit	Now
AT45DB041B	2.7-volt Serial Flash (SPI Bus) with Two 264-byte SRAM Buffers	20	4-Mbit	Now
AT45DB081B	2.7-volt Serial Flash (SPI Bus) with Two 264-byte SRAM Buffers	20	8-Mbit	Now
AT45DB161B	2.7-volt Serial Flash (SPI Bus) with Two 528-byte SRAM Buffers	20	16-Mbit	Now
AT45DB161C	2.7-volt Serial Flash (SPI Bus) with Two 528-byte SRAM Buffers	40	16-Mbit	2Q2005
AT45DB321C	2.7-volt Serial Flash (SPI Bus) with Two 528-byte SRAM Buffers	40	32-Mbit	Now
AT45DB642	2.7-volt Dual-interface Flash with Two 1,056-byte SRAM Buffers	20/5	64-Mbit	Now
AT45DB642D	2.7-volt Dual-interface (RapidS™, Rapid8™) Flash with Two 1,056-byte SRAM Buffers	66/50	64-Mbit	2Q2005
AT45DB1282D	2.7-volt Dual-interface (RapidS, Rapid8) Flash with Two 1,056-byte SRAM Buffers	66/50	128-Mbit	August 2005
<b>Low Battery-Voltage (2.5 to 3.6V)</b>				
AT45DB041B-2.5	2.5-volt Serial Flash (SPI Bus) with Two 264-byte SRAM Buffers	15	4-Mbit	Now
AT45DB081B-2.5	2.5-volt Serial Flash (SPI Bus) with Two 264-byte SRAM Buffers	15	8-Mbit	Now
AT45DB161B-2.5	2.5-volt Serial Flash (SPI Bus) with Two 512-byte SRAM Buffers	15	16-Mbit	Now
<b>DataFlash® Cards</b>				
AT45DCB002	2.7-volt Serial DataFlash Card (SPI Bus)	20	2M-byte	Now
AT45DCB004	2.7-volt Serial DataFlash Card (SPI Bus)	20	4M-byte	Now
AT45DCB008	2.7-volt Serial DataFlash Card (SPI Bus)	20	8M-byte	Now

## MEMORY (CONTINUED)

## Flash Memory

Part Number	Description	Organization	Speeds	Availability
<b>1.8V Flash (1.65 to 1.9V Single-voltage Read and Write)</b>				
AT49SV802A(T)	8-Mbit, 1.8-volt Sected Flash (Top Boot)	512K x 16/ 1M x 8	90 ns	Now
AT49SV322A(T)	32-Mbit, 1.8-volt Sected Flash (Top Boot)	2M x 16/ 4M x 8	80 ns	Now
AT49SN6416(T)	64-Mbit, 1.8-volt Sected/Concurrent Flash with Burst and Page Mode (Top Boot)	4M x 16	54 MHz Burst Mode/ 70 ns, 20 ns Page Mode	Now
AT49SV12804	128-Mbit, 1.8-volt Sected/Concurrent Flash with Burst and Page Mode	8M x 16	66 MHz Burst mode/ 70 ns, 25 ns Page Mode	Now
AT49SQ12804	128-Mbit, 1.8-volt (Core)/2.7V (I/O's) Sected/ Concurrent Flash with Burst and Page Mode	8M x 16	66 MHz Burst mode/ 70 ns, 25 ns Page Mode	Now
<b>Battery-Voltage (2.7 to 3.6V Single-voltage Read and Write)</b>				
AT29BV010A	1-Mbit, 2.7-volt Small Sected Flash	128K x 8	120 - 150 ns	Now
AT29BV020	2-Mbit, 2.7-volt Small Sected Flash	256K x 8	120 - 150 ns	Now
AT29BV040A	4-Mbit, 2.7-volt Small Sected Flash	512K x 8	200 - 250 ns	Now
AT49BV512	512-Kbit, 2.7-volt Boot Flash	64K x 8	90 - 120 ns	Now
AT49BV001A(N)(T)	1-Mbit, 2.7-volt Parametric Flash (No Reset) (Top Boot)	128K x 8	55 ns	Now
AT49BV002A(N)(T)	2-Mbit, 2.7-volt Parametric Flash (No Reset) (Top Boot)	256K x 8	70 ns	Now
AT49BV040A	4-Mbit, 2.7-volt Boot Flash	512K x 8	70 - 90 ns	Now
AT49BV4096A	4-Mbit, 2.7-volt Parametric Flash	256K x 16/ 512K x 8	90 ns	Now
AT49BV802A(T)	8-Mbit, 3.0-volt Sected Flash (Top Boot)	512K x 16/ 1M x 8	70 ns	Now
AT49BV160C(T)	16-Mbit, 2.7-volt Sected Flash (Top Boot)	1M x 16	70 ns	Now
AT49BV163A(T)	16-Mbit, 2.7-volt Sected Flash (Top Boot)	1M x 16/ 2M x 8	55 ns	Now
AT49BV162A(T)	Not Recommended for New Designs, Use AT49BV163A(T)			
AT49BV320C(T)	32-Mbit, 2.7-volt Sected (Top Boot)	2M x 16	70 ns	Now
AT49BV322A(T)	32-Mbit, 2.7-volt Sected (Top Boot)	2M x 16/ 4M x 8	70 ns	Now
AT49BV6416(T)	64-Mbit, 2.7-volt Sected/Concurrent Flash with Page Mode (Top Boot)	4M x 16	70 ns, 20 ns Page Mode	Now
AT49BV6416C(T)	64-Mbit, 2.7-volt Sected/Concurrent Flash with Page Mode (Top Boot)	4M x 16	70 ns, 20 ns Page Mode	Now

## MEMORY (CONTINUED)

### Flash Memory (Continued)

Part Number	Description	Organization	Speeds	Availability
<b>Low-voltage (3.0 to 3.6V Single-voltage Read and Write)</b>				
AT29LV256	256-Kbit, 3.0-volt Small Sectored Flash	32K x 8	150 - 200 ns	Now
AT29LV512	512-Kbit, 3.0-volt Small Sectored Flash	64K x 8	120 - 150 ns	Now
AT29LV010A	1-Mbit, 3.0-volt Small Sectored Flash	128K x 8	120 - 150 ns	Now
AT29LV1024	1-Mbit, 3.0-volt Small Sectored Flash	64K x 16	150 - 250 ns	Now
AT29LV020	2-Mbit, 3.0-volt Small Sectored Flash	256K x 8	100 - 120 ns	Now
AT29LV040A	4-Mbit, 3.0-volt Small Sectored Flash	512K x 8	120 - 150 ns	Now
AT49LV001(N)(T)	Not Recommended for New Designs, Use AT49BV001A(N)(T)			
AT49LV1024	1-Mbit, 3.0-volt Boot Flash	64K x 16	55 - 90 ns	Now
AT49LV1025	1-Mbit, 3.0-volt Boot Flash	64K x 16	55 - 90 ns	Now
AT49LV002(N)(T)	Not Recommended for New Designs, Use AT49BV002A(N)(T)			
AT49LV040	Not Recommended for New Designs, Use AT49BV040A(N)			
AT49LV4096A	4-Mbit, 3.0-volt Parametric Flash	256K x 16/ 512K x 8	70 ns	Now
AT49LV008A(T)	Not Recommended for New Designs, Use AT49BV802A(T)			
AT49LV8192A(T)	Not Recommended for New Designs, Use AT49BV802A(T)			
<b>Standard Voltage (4.5 to 5.5V Single-voltage Read and Write)</b>				
AT29C256	256-Kbit, 5.0-volt Small Sectored Flash	32K x 8	70 - 120 ns	Now
AT29C257	256-Kbit, 5.0-volt Small Sectored Flash	32K x 8	70 - 120 ns	Now
AT29C512	512-Kbit, 5.0-volt Small Sectored Flash	64K x 8	70 - 90 ns	Now
AT29C010A	1-Mbit, 5.0-volt Small Sectored Flash	128K x 8	70 - 120 ns	Now
AT29C1024	1-Mbit, 5.0-volt Small Sectored Flash	64K x 16	70 - 120 ns	Now
AT29C020	2-Mbit, 5.0-volt Small Sectored Flash	256K x 8	90 - 120 ns	Now
AT29C040A	4-Mbit, 5.0-volt Small Sectored Flash	512K x 8	90 - 150 ns	Now
AT49F512	512-Kbit, 5.0-volt Boot Flash	64K x 8	50 - 70 ns	Now
AT49F001A(N)(T)	1-Mbit, 5.0-volt Parametric Flash (No Reset) (Top Boot)	128K x 8	55 ns	Now
AT49F1024A	1-Mbit, 5.0-volt Boot Flash	64K x 16	45 ns	Now
AT49F002A(N)(T)	2-Mbit, 5.0-volt Parametric Flash (No Reset) (Top Boot)	256K x 8	55 ns	Now
AT49F040A	4-Mbit, 5.0-volt Bottom Boot Flash	512K x 8	55 ns	Now
AT49F4096A	4-Mbit, 5.0-volt Parametric Flash	256K x 16/ 512K x 8	90 ns	Now

## MEMORY (CONTINUED)

## Serial EEPROM

Part Number	Organization	Density	V <sub>CC</sub>	Interface Type	Package Options	Other	Availability
AT24C01	Not Recommended for New Designs, Use AT24C11						
AT24C11	128 x 8	1K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP, SOT23, Mini MAP	Non-Cascadable, Non-Standard 2-wire Protocol	Now
AT24C01A	128 x 8	1K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP, MAP, Mini MAP, SOT23, dBGA2	Full Array Write Protection, Standard 2-wire Protocol	Now
AT24C02	256 x 8	2K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP, MAP, Mini MAP, SOT23, dBGA2	Full Array Write Protection	Now
AT24C02A	256 x 8	2K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP, dBGA2	Upper Half Array Write Protection	Now
AT24C04	512 x 8	4K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP, MAP, Mini MAP, SOT23, dBGA2	Full Array Write Protection	Now
AT24C04A	512 x 8	4K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP, dBGA2	Upper Half Array Write Protection	Now
AT24C08	Not Recommended for New Designs, Use AT24C08A						
AT24C08A	1024 x 8	8K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP, MAP, Mini MAP, SOT23, dBGA2	Full Array Write Protection	Now
AT24C128	16384 x 8	128K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP, MAP, dBGA2	Full Array Write Protection	Now
AT24C16	Not Recommended for New Designs, Use AT24C16A						
AT24C16A	2048 x 8	16K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP, MAP, Mini MAP, dBGA2	Full Array Write Protection	Now
AT24C164	2048 x 8	16K	1.8, 2.7	2-wire	PDIP, SOIC	Cascadable Feature	Now
AT24C21	Not Recommended for New Designs, EOL						
AT24C256	32768 x 8	256K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP, MAP, dBGA2	Full Array Write Protection	Now
AT24C256B	32768 x 8	256K	1.8-3.6	2-wire	PDIP, SOIC, TSSOP, dBGA2	Full Array Write Protection, Cascadable Feature	2Q2005
AT24C32	Not Recommended for New Designs, Use AT24C32A						
AT24C32A	4096 x 8	32K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP, MAP, dBGA2	Full Array Write Protection	Now
AT24C512	65536 x 8	512K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP, LAP, dBGA2 <sup>(1)</sup>	Cascadable Feature	Now

Note: 1. Available upon request. Tooling charge required.

**MEMORY (CONTINUED)**
**Serial EEPROM (Continued)**

Part Number	Organization	Density	V <sub>CC</sub>	Interface Type	Package Options	Other	Availability
AT24C64	Not Recommended for New Designs, Use AT24C64A						
AT24C64A	8192 x 8	64K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP, MAP, dBGA2	Full Array Write Protection, Cascadable	Now
AT24C64B	8192 x 8	64K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP	1/4 Array Write Protection, Cascadable	Now
AT24CS128	16384 x 8	128K	1.8, 2.7	2-wire	PDIP, SOIC	Cascadable Feature, Permanent Software Write Protection	Now
AT25010	Not Recommended for New Designs, Use AT25010A						
AT25010A	128 x 8	1K	1.8, 2.7	SPI	PDIP, SOIC, TSSOP, MAP, Mini MAP, dBGA2	Supports SPI Mode 0 and 3, Software/Hardware Write Protect	Now
AT25020	Not Recommended for New Designs, Use AT25020A						
AT25020A	256 x 8	2K	1.8, 2.7	SPI	PDIP, SOIC, TSSOP, MAP, Mini MAP, dBGA2	Supports SPI Mode 0 and 3, Software/Hardware Write Protect	Now
AT25040	Not Recommended for New Designs, Use AT25040A						
AT25040A	512 x 8	4K	1.8, 2.7	SPI	PDIP, SOIC, TSSOP, MAP, Mini MAP, dBGA2	Supports SPI Mode 0 and 3, Software/Hardware Write Protect	Now
AT25080	Not Recommended for New Designs, Use AT25080A						
AT25080A	1024 x 8	8K	1.8, 2.7	SPI	PDIP, SOIC, TSSOP, MAP, Mini MAP, dBGA2	Supports SPI Mode 0 and 3, Software/Hardware Write Protect	Now
AT25128	Not Recommended for New Designs, Use AT25128A						
AT25128A	16384 x 8	128K	1.8, 2.7	SPI	PDIP, SOIC, TSSOP, dBGA2	Supports SPI Mode 0 and 3, Software/Hardware Write Protect	Now
AT25160	Not Recommended for New Designs, Use AT25160A						
AT25160A	2048 x 8	16K	1.8, 2.7	SPI	PDIP, SOIC, TSSOP, MAP, Mini MAP, dBGA2	Supports SPI Mode 0 and 3, Software/Hardware Write Protect	Now
AT25256	Not Recommended for New Designs, Use AT25256A						
AT25256A	32768 x 8	256K	1.8, 2.7	SPI	PDIP, SOIC, TSSOP, dBGA2	Supports SPI Mode 0 and 3, Software/Hardware Write Protect	Now
AT25HP256	32768 x 8	256K	1.8, 2.7	SPI	PDIP, SOIC, LAP	Supports SPI Mode 0 and 3, Page Write Only	Now
AT25320	Not Recommended for New Designs, Use AT25320A						
AT25320A	4096 x 8	32K	1.8, 2.7	SPI	PDIP, SOIC, TSSOP, MAP, dBGA2	Supports SPI Mode 0 and 3, Software/Hardware Write Protect	Now
AT25640	Not Recommended for New Designs, Use AT25640A						

**MEMORY (CONTINUED)**
**Serial EEPROM (Continued)**

Part Number	Organization	Density	V <sub>CC</sub>	Interface Type	Package Options	Other	Availability
AT25640A	8192 x 8	64K	1.8, 2.7	SPI	PDIP, SOIC, TSSOP, MAP, dBGA2	Supports SPI Mode 0 and 3, Software/ Hardware Write Protect	Now
AT25HP512	65536 x 8	512K	1.8, 2.7	SPI	PDIP, SOIC, LAP	Supports SPI Mode 0 and 3, Page Write Only	Now
AT25F512	Not Recommended for New Designs, Use AT25F512A						
AT25F512A	65536 x 8	512K	2.7	SPI	SOIC, SAP	Supports SPI Mode 0 and 3, High Speed, Byte Writable	Now
AT25F1024	Not Recommended for New Designs, Use AT25F1024A						
AT25F1024A	131072 x 8	1M	2.7	SPI	SOIC, SAP	Supports SPI Mode 0 and 3, High Speed, Byte Writable	Now
AT25P1024	131072 x 8	1M	2.7	SPI	SOIC, LAP	Supports SPI Mode 0 and 3, Page Write Only	Now
AT25F2048	262144 x 8	2M	2.7	SPI	SOIC, SAP	Supports SPI Mode 0 and 3, Page Write Only	Now
AT25F4096	524288 x 8	4M	2.7	SPI	EIAJ SOIC, SAP	Supports SPI Mode 0 and 3, Page Write Only	1Q2005
AT34C02	256 x 8	2K	1.8, 2.7	2-wire	PDIP, SOIC, TSSOP, MAP, Mini MAP, dBGA2	Lower Half Permanent Software Write Protect	Now
AT34C02B	256 x 8	2K	1.7	2-wire	SOIC, Mini-MAP, TSSOP, dBGA2	Lower Half Permanent Software Write Protect with Reversible Software Protection	Now
AT93C46	64 x 16/ 128 x 8	1K	1.8, 2.7	3-wire	PDIP, SOIC, TSSOP, MAP, Mini MAP, dBGA2	x8 or x16 Organization	Now
AT93C46A	64 x 16	1K	2.5, 2.7	3-wire	PDIP, SOIC, TSSOP	x16 Organization	Now
AT93C46C	64 x 16	1K	2.5, 2.7	3-wire	PDIP, SOIC	x16 Organization, Schmitt Trigger	Now
AT93C56	Not Recommended for New Designs, Use AT93C56A						
AT93C56A	128 x 16/ 256 x 8	2K	1.8, 2.7	3-wire	PDIP, SOIC, TSSOP, MAP, Mini MAP, dBGA2	x8 or x16 Organization with Sequential Read	Now
AT93C66	Not Recommended for New Designs, Use AT93C66A						
AT93C66A	256 x 16/ 512 x 8	4K	1.8, 2.7	3-wire	PDIP, SOIC, TSSOP, MAP, Mini MAP, dBGA2	x8 or x16 Organization with Sequential Read	Now
AT93C86	Not Recommended for New Designs, Use AT93C86A						
AT93C86A	1024 x 16/ 2048 x 8	16K	1.8, 2.7	3-wire	PDIP, SOIC, TSSOP, MAP, Mini MAP	Schmitt Trigger and Sequential Read	Now
AT24C1024	131072 x 8	1M	2.7	2-wire	PDIP, SOIC, LAP, dBGA2 <sup>(1)</sup>	Cascadable Feature	Now

Note: 1. Available upon request. Tooling charge required.



**MEMORY (CONTINUED)**
**Parallel EEPROMs**

Part Number	Description	Organization	Speeds	Availability
AT28HC64B	64-Kbit EEPROM with 64-byte Page and Software Data Protection, Commercial/Industrial/Automotive	8K x 8	70 - 120 ns	Now
AT28BV64B	64-Kbit EEPROM with 64-byte Page and Software Data Protection, 2.7-volt, Commercial/Industrial/Automotive	8K x 8	200 ns	Now
AT28C64	NOT FOR NEW DESIGNS: Use AT28C64B for New Designs (Reference AT28C64B Datasheet for Compatible Characteristics and Performance)	8K x 8	120 - 250 ns	Now
AT28C64E	NOT FOR NEW DESIGNS: Use AT28C64B for New Designs (Reference AT28C64B Datasheet for Compatible Characteristics and Performance)	8K x 8	120 - 250 ns	Now
AT28C64X	NOT FOR NEW DESIGNS: Use AT28C64B for New Designs (Reference AT28C64B Datasheet for Compatible Characteristics and Performance)	8K x 8	120 - 250 ns	Now
AT28C64B	64-Kbit EEPROM with 64-byte Page and Software Data Protection, Commercial/Industrial/Automotive	8K x 8	150, 200 ns	Now
AT28HC256	256-Kbit EEPROM with 64-byte Page and Software Data Protection, Commercial/Industrial/Military/Automotive	32K x 8	70 - 120 ns	Now
AT28HC256E	256-Kbit EEPROM with Extended Endurance, Commercial/Industrial/Military	32K x 8	70 - 120 ns	Now
AT28HC256F	256-Kbit EEPROM with Fast Write, Commercial/Industrial/Military/Automotive	32K x 8	70 - 120 ns	Now
AT28HC256N	256-Kbit EEPROM, Commercial/Industrial/Military/Automotive (Ref. Datasheet for Pin 1 = NC)	32K x 8	90,120 ns	Now
AT28BV256	256-Kbit EEPROM with 64-byte Page and Software Data Protection, 2.7-volt, Commercial/Industrial/Automotive	32K x 8	200 - 250 ns	Now
AT28C256F	256-Kbit EEPROM with Fast Write, Commercial/Industrial/Military/Automotive	32K x 8	150 - 250 ns	Now
AT28C256	256-Kbit EEPROM with 64-byte Page and Software Data Protection, Commercial/Industrial/Military/Automotive	32K x 8	150 - 250 ns	Now
AT28C256E	256-Kbit EEPROM with Extended Endurance, Commercial/Industrial/Military	32K x 8	150 - 250 ns	Now
AT28LV010	1-Mbit EEPROM with 128-byte Page and Software Data Protection, 3.0-volt, Commercial/Industrial/Automotive	128K x 8	200 ns	Now
AT28C010	1-Mbit EEPROM with 128-byte Page and Software Data Protection, Commercial/Industrial/Military/Automotive	128K x 8	120, 150 ns	Now
AT28C010E	1-Mbit EEPROM with 128-byte Page, Extended Endurance and Software Data Protection, Commercial/Industrial/Military/Automotive	128K x 8	120, 150 ns	Now
AT28C040	4-Mbit EEPROM with 256-byte Page and Software Data Protection	512K x 8	200 - 250 ns	Now
5962-88525	Reference SMD	32K x 8	Reference SMD	Now
5962-88634	Reference SMD	32K x 8	Reference SMD	Now
5962-38267	Reference SMD	128K x 8	Reference SMD	Now

**MEMORY (CONTINUED)****Parallel EEPROM Die Product**

Part Number	V <sub>CC</sub>	Device TAA	Package Configuration
AT28BV64B-W	2.7 - 3.6V	250 ns	Die
AT28BV64B-DWF	2.7 - 3.6V	250 ns	Wafer
AT28BV256-W	2.7 - 3.6V	250 ns	Die
AT28BV256-DWF	2.7 - 3.6V	250 ns	Wafer
AT28C64B-W	4.5 - 5.5V	200 ns	Die
AT28C64B-DWF	4.5 - 5.5V	200 ns	Wafer
AT28HC64B-W	4.5 - 5.5V	120 ns	Die
AT28HC64B-DWF	4.5 - 5.5V	120 ns	Wafer
AT28C256-WM <sup>(1)</sup>	4.5 - 5.5V	200 ns	Die
AT28C256-DFWM <sup>(1)</sup>	4.5 - 5.5V	200 ns	Wafer
AT28HC256-WM <sup>(1)</sup>	4.5 - 5.5V	120 ns	Die
AT28HC256-DFWM <sup>(1)</sup>	4.5 - 5.5V	120 ns	Wafer
AT28C010-WM <sup>(1)</sup>	4.5 - 5.5V	200 ns	Die
AT28C010-DFWM <sup>(1)</sup>	4.5 - 5.5V	200 ns	Wafer

- Notes:
1. To be used for Military Applications only.
  2. Die Product Form needs to be completed and submitted for each die product order. Contact Atmel.

## MEMORY (CONTINUED)

### EPROMs

Part Number	Description	Organization	Speeds	Availability
<b>Battery-Voltage (2.7 to 3.6V)</b>				
AT27BV256	256-Kbit, 2.7-volt to 3.6-volt EPROM	32K x 8	70, 90 ns	Now
AT27BV512	512-Kbit, 2.7-volt to 3.6-volt EPROM	64K x 8	70, 90 ns	Now
AT27BV010	1-Mbit, 2.7-volt to 3.6-volt EPROM	128K x 8	90, 120 ns	Now
AT27BV1024	1-Mbit, 2.7-volt to 3.6-volt EPROM	64K x 16	90, 120 ns	Now
AT27BV020	2-Mbit, 2.7-volt to 3.6-volt EPROM	256K x 8	90, 120 ns	Now
AT27BV040	4-Mbit, 2.7-volt to 3.6-volt EPROM	512K x 8	120, 150 ns	Now
AT27BV4096	4-Mbit, 2.7-volt to 3.6-volt EPROM	256K x 16	120, 150 ns	Now
<b>Low-voltage (3.0 to 3.6V)</b>				
AT27LV256A	256-Kbit, 3.0-volt EPROM	32K x 8	55, 70 ns	Now
AT27LV512A	512-Kbit, 3.0-volt EPROM	64K x 8	55, 70 ns	Now
AT27LV520	512-Kbit, Latched 3.0-volt EPROM	64K x 8	70, 90 ns	Now
AT27LV010A	1-Mbit, 3.0-volt EPROM	128K x 8	70, 90 ns	Now
AT27LV020A	2-Mbit, 3.0-volt EPROM	256K x 8	90, 120 ns	Now
AT27LV040A	4-Mbit, 3.0-volt EPROM	512K x 8	90, 120 ns	Now
<b>Standard Voltage (5.0V)</b>				
AT27C256R	256-Kbit, 5.0-volt EPROM	32K x 8	45, 55, 70 ns	Now
AT27C512R	512-Kbit, 5.0-volt EPROM	64K x 8	45, 55, 70 ns	Now
AT27C516	512-Kbit, 5.0-volt EPROM	32K x 16	45 - 100 ns	Now
AT27C010	1-Mbit, 5.0-volt EPROM Standard and Low-power	128K x 8	45, 70, 90 ns	Now
AT27C1024	1-Mbit, 5.0-volt EPROM	64K x 16	45, 70, 90 ns	Now
AT27C020	2-Mbit, 5.0-volt EPROM	256K x 8	55, 90 ns	Now
AT27C2048	2-Mbit, 5.0-volt EPROM	128K x 16	55, 90 ns	Now
AT27C040	4-Mbit, 5.0-volt EPROM	512K x 8	70, 90 ns	Now
AT27C4096	4-Mbit, 5.0-volt EPROM	256K x 16	55, 70, 90 ns	Now
AT27C080	8-Mbit, 5.0-volt EPROM	1M x 8	90, 120 ns	Now
<b>Automotive Grade (-40°C to +125°C)</b>				
AT27C256R	256-Kbit, 5.0-volt EPROM	32K x 8	70 ns	Now
AT27C512R	512-Kbit, 5.0-volt EPROM	64K x 8	70 ns	Now
AT27C010	1-Mbit, 5.0-volt EPROM	128K x 8	90 ns	Now
AT27C1024	1-Mbit, 5.0-volt EPROM	64K x 16	90 ns	Now
AT27C020	2-Mbit, 5.0-volt EPROM	256K x 8	90 ns	Now

## MICROCONTROLLERS

### 80C51 8-bit Microcontrollers

#### In-System Programmable (ISP) Flash

Part Number	Description	Memory Size	Availability
AT89S51	In-System Programmable Microcontroller with 4-Kbyte Flash	4K x 8	Now
AT89LS51	2.7-volt, In-System Programmable Microcontroller with 4-Kbyte Flash	4K x 8	Now
AT89S52	In-System Programmable Microcontroller with 8-Kbyte Flash	8K x 8	Now
AT89LS52	2.7-volt, In-System Programmable Microcontroller with 8-Kbyte Flash	8K x 8	Now
AT89S8253	In-System Programmable Microcontroller with 12-Kbyte Flash and 2-Kbyte EEPROM	12K x 8	Now
T89C5115	Low-pin Count, In-System Programmable Microcontroller with 16-Kbyte Flash and 2-Kbyte EEPROM, 512-byte RAM, 10-bit ADC, PCA	16K x 8	Now
AT89C51RB2	In-System Programmable Microcontroller with 16-Kbyte Flash and 1280-byte RAM, SPI, PCA	16K x 8	Now
AT89C51RC2	In-System Programmable Microcontroller with 32-Kbyte Flash and 1280-byte RAM, SPI, PCA	32K x 8	Now
AT89C51IC2	In-System Programmable Microcontroller with 32-Kbyte Flash and 1280-byte RAM, TWI, SPI, PCA	32K x 8	Now
T89C51AC2	In-System Programmable Microcontroller with 32-Kbyte Flash and 1280-byte RAM, 2-Kbyte EEPROM, 10-bit ADC, PCA	32K x 8	Now
AT89C51AC3	In-System Programmable Microcontroller with 64-Kbyte Flash and 2048-byte RAM, 2-Kbyte EEPROM, 10-bit ADC, PCA	64K x 8	Now
AT89C51RD2	In-System Programmable Microcontroller with 64-Kbyte Flash and 2048-byte RAM, PCA, SPI	64K x 8	Now
AT89C51ED2	In-System Programmable Microcontroller with 64-Kbyte Flash and 2048-byte RAM, 2-Kbyte EEPROM, PCA, SPI	64K x 8	Now
AT89C51ID2	In-System Programmable Microcontroller with 64-Kbyte Flash and 2048-byte RAM, 2-Kbyte EEPROM, PCA, TWI, SPI	64K x 8	Now

#### Flash

Part Number	Description	Memory Size	Availability
AT89C55WD	Microcontroller with 20-Kbyte Flash Including Watchdog Timer	20K x 8	Now
AT89LV55	2.7-volt, Microcontroller with 20-Kbyte Flash	20K x 8	Now
AT89C51RC	Microcontroller with 32-Kbyte Flash and 512-byte RAM	32K x 8	Now

**MICROCONTROLLERS (CONTINUED)**
**80C51 8-bit Microcontrollers (Continued)**
**One Time Programmable (OTP)**

Part Number	Description	Memory Size	Availability
TS87C52X2	Microcontroller with 8-Kbyte OTP	8K x 8	Now
AT87C5103	Low-pin Count Microcontroller with 12-Kbyte OTP, 512-byte RAM, SPI, PCA	12K x 8	Now
TS87C54X2	Microcontroller with 16-Kbyte OTP	16K x 8	Now
TS87C51RB2	Microcontroller with 16-Kbyte Flash and 512-byte RAM, PCA	16K x 8	Now
TS87C58X2	Microcontroller with 32-Kbyte OTP	32K x 8	Now
TS87C51RC2	Microcontroller with 32-Kbyte OTP and 512-byte RAM, PCA	32K x 8	Now
TSC87251G2D	C251 Microcontroller with 32-Kbyte OTP, 1024-byte RAM, SPI, 2-wire Interface, EWC	32K x 8	Now
TS87C51RD2	Microcontroller with 64-Kbyte OTP and 1024-byte RAM, PCA	64K x 8	Now

**ROM**

Part Number	Description	Memory Size	Availability
TS80C52X2	Microcontroller with 8-Kbyte ROM	8K x 8	Now
AT83C5103	Low-pin Count, Microcontroller with 12-Kbyte ROM, 512-byte RAM, SPI, PCA	12K x 8	Now
TS80C54X2	Microcontroller with 16-Kbyte ROM	16K x 8	Now
AT83C51RB2	Microcontroller with 16-Kbyte ROM and 1280-byte RAM, PCA, SPI, Keyboard Interface	16K x 8	Now
TSC83251G1D	C251 Microcontroller with 16-Kbyte ROM, 1024-byte RAM, SPI, 2-wire Interface, EWC	16K x 8	Now
TS80C58X2	Microcontroller with 32-Kbyte ROM	32K x 8	Now
TS83C51RC2	Microcontroller with 32-Kbyte ROM and 512-byte RAM	32K x 8	Now
AT83C51RC2	Microcontroller with 32-Kbyte ROM and 1280-byte RAM, PCA, SPI, Keyboard Interface	32K x 8	Now
AT83C51IC2	Microcontroller with 32-Kbyte ROM and 1280-byte RAM, PCA, SPI, TWI Keyboard Interface	32K x 8	Now
TSC83251G2D	C251 Microcontroller with 32-Kbyte ROM, 1024-byte RAM, SPI, TWI, EWC	32K x 8	Now
TS83C51RD2	Microcontroller with 64-Kbyte ROM and 1024-byte RAM	64K x 8	Now

**ROMless**

Part Number	Description	Availability
TS80C31X2	Microcontroller with 128 Bytes of RAM	Now
TS80C32X2	Microcontroller with 256 Bytes of RAM	Now
TS80C51RA2	Microcontroller with 512 Bytes of RAM and PCA	Now
AT80C51RD2	Microcontroller with 1280 Bytes of RAM, SPI and PCA	Now
TSC80251G2D	C251 Microcontroller with 1024 Bytes of RAM and SPI, TWI, EWC	Now
AT80C51ID2	Microcontroller with 1280 Bytes of RAM and SPI, TWI, PCA	Now

## MICROCONTROLLERS (CONTINUED)

### 80C51 8-bit Microcontrollers (Continued)

#### Application Specific

Part Number	Description	Program Memory	Availability
<b>MP3 Decoder</b>			
AT89C51SND1C	Microcontroller with 2304-byte RAM and an MP3 Decoder, 2-wire Interface, USB, SPI, I <sup>2</sup> S, 10-bit ADC, Flash Memory Interfaces	64-Kbyte Flash, 4-Kbyte Bootloader	Now
AT83C51SND1C	Microcontroller with 2304-byte RAM and an MP3 Decoder, 2-wire Interface, USB, SPI, I <sup>2</sup> S, 10-bit ADC, Flash Memory Interfaces	64-Kbyte ROM	Now
AT89C51SND2C	Microcontroller with 2304-byte RAM and an MP3 Decoder, TW, USB, SPI, I <sup>2</sup> S, 10-bit ADC, Flash Memory Interfaces, 18-bit Audio DAC, Power Amplifier Speaker	64-Kbyte Flash, 4-Kbyte Bootloader	Now
AT83C51SND2C	Microcontroller with 2304-byte RAM and an MP3 Decoder, 2-wire Interface, USB, SPI, I <sup>2</sup> S, 10-bit ADC, Flash Memory Interfaces, 18-bit Audio DAC, Power Amplifier Speaker	64-Kbyte ROM	Now
T85C5121	Microcontroller with Multi-protocol Smart Card Interface, 512-byte RAM, ISO7816, DC/DC, UART	16-Kbyte Code RAM, 16-Kbyte Bootloader	Now
T89C5121	Microcontroller with Multi-protocol Smart Card Interface, 512-byte RAM, ISO7816, DC/DC, UART	16-Kbyte Flash, 16-Kbyte Bootloader	Now
AT83C5122	Microcontroller with Multi-protocol Smart Card Interface, 768-byte RAM, ISO7816, DC/DC, USB2.0 (12 Mbps), SPI	32-Kbyte ROM	Now
AT85C5122	Microcontroller with Multi-protocol Smart Card Interface, 768-byte RAM, ISO7816, DC/DC, USB2.0 (12 Mbps), SPI	32-Kbyte Code RAM	Now
AT85EC5122	Microcontroller with Multi-protocol Smart Card Interface, 768-byte RAM, ISO7816, DC/DC, USB2.0 (12 Mbps), SPI	32-Kbyte Code RAM, 0.5-Kbyte EEPROM	Now
AT89C5122	Microcontroller with Multi-protocol Smart Card Interface, 768-byte RAM, ISO7816, DC/DC, USB2.0 (12 Mbps), SPI	32-Kbyte Flash	Now
AT83C5123	Microcontroller with Multi-protocol Smart Card Interface, 768-byte RAM, ISO7816, DC/DC, USB2.0 (12 Mbps), Optional EEPROM 256 Bytes	16-Kbyte ROM	Now
AT83C24	Level Shifter, DC/DC, TWI	N/A	Now
AT83C25OK	Pre-certified Smart Card Reader Solution for PCMCIA Link with OMNIKEY EMV2000 Firmware	N/A	Now
AT83C21GC	Pre-certified Smart Card Reader Solution for Serial Link with GemCore EMV2000 Firmware	N/A	Now
AT83C22OK	Pre-certified Smart Card Reader Keyboard Solution for USB Link with OMNIKEY EMV2000 Firmware	N/A	Now
AT83C23OK	Low-Pin Count Pre-certified Smart Card Reader Solution for USB Link with OMNIKEY EMV2000 Firmware	N/A	Now
<b>CAN Networking</b>			
T89C51CC02	8-bit Microcontroller with 4-Channel CAN Controller and 16-Kbyte of Flash, 512-byte RAM, 2-Kbyte EEPROM, 10-bit ADC, PCA	16-Kbyte Flash	Now
T89C51CC01	8-bit Microcontroller with 15-Channel CAN Controller and 32-Kbyte Flash, 1280-byte RAM, 2-Kbyte EEPROM, 10-bit ADC, PCA	32-Kbyte Flash	Now
AT89C51CC03	8-bit Microcontroller with 15-Channel CAN Controller and 64-Kbytes Flash, 2304-byte RAM, 2-Kbyte EEPROM, 10-bit ADC, PCA	64-Kbyte Flash	Now

**MICROCONTROLLERS (CONTINUED)**
**80C51 8-bit Microcontrollers (Continued)**
**Application Specific (Continued)**

Part Number	Description	Program Memory	Availability
<b>USB Controllers</b>			
AT89C5131A	Microcontroller with 1280-byte RAM, 1-Kbyte EEPROM and USB 2.0 (12 Mbps), SPI, TWI, PCA	32-Kbyte Flash	Now
AT89C5130A	Microcontroller with 1280-byte RAM, 1-Kbyte EEPROM and USB 2.0 (12 Mbps), SPI, TWI, PCA	16-Kbyte Flash	Now
AT89C5132	Microcontroller with 2304-byte RAM, 2-wire Interface, USB, SPI, I <sup>2</sup> S, 10-bit ADC, Flash Memory Interfaces	64-Kbyte Flash	Now
<b>Lighting</b>			
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	Now
<b>@Web TCP/IP Modules</b>			
ATWebSEG-32	For RS-232 to Ethernet Gateway 10/100 Base-T, Support TCP, UDP, IP, ARP, ICMP, Ethernet MAC	N/A	Now
ATWebCEG-32	For CAN to Ethernet Gateway 10/100 Base-T, Support TCP, UDP, IP, ARP, ICMP, Ethernet MAC	N/A	Now

**Development Kits and Tools for the 8051 Family**

Part Number	Description	Availability
FLIP	Flexible In-System Programmer – PC-based Software for In-System Programming of C51-based Flash Microcontrollers – Available in Microsoft® Windows® (Support RS-232, CAN, USB Interfaces) and Linux® (RS-232 Interface)	Now
AT89STK-08	Starter Kit for In-System Programming Flash Microcontrollers	Now
ATWEBEVK-01	@Web PSTN51S Evaluation Kit for PSNT/GPRS Modem TCP/IP Software Solution Royalty-free TCP/IP Stack for C51 Flash Microcontrollers	Now
ATWEBEVK-05	@Web TCP/IP RS-232 to Ethernet Gateway Evaluation Kit	Now
ATWEBEVK-06	@Web TCP/IP CAN to Ethernet Gateway Evaluation Kit	Now
ATWEBDVK-02	@Web LAN51H Development Kit for Hardwired TCP/IP Ethernet Solutions – Optional Modules Including: Remote Control (RC), VoIP, Network Web Cam (WC)	Now
AT89DVK-03	In-circuit Emulation and Development Kit for AT83C5111 and AT87C5111	Now
T89C5121-SK1	Starter Kit for T89C5121 Smart Card Reader Microcontroller	Now
AT89STK-06	Starter Kit for CAN Microcontrollers T89C51CC01, T89C51CC02 and AT89C51CC03	Now
CANADAPT28	PLCC28 Adapter for T89C51CC02 to T89C51CC02 PLCC44 Socket	Now
AT89DVK-04	AT89C51SND1 MP3 and AT89C5132 Development Kit	Now
AT89EVK-01	Evaluation Kit of the AT83C24 for TDA8004/8024 Replacement	Now
AT89RFD-01	AT89C51SND1C Stand-alone MP3 Player Reference Design	Now
AT89RFD-08	AT89C51SND2C Remote MP3 Player Reference Design	Now
AT89RFD-02	USB Smart Card Reader Reference Design with OMNIKEY Firmware for AT83C5122OK/23OK	Now
AT89RFD-05	Serial Smart Card Reader Reference Design with GemCore Software for AT83C5121GC	Now
AT89RFD-06	PCMCIA Smart Card Reader Reference Design with OMNIKEY Firmware for AT83C5125OK	Now
AT89STK-03	Starter Kit for AT8xC522/23 USB Smart Card Reader Microcontrollers	Now
AT89STK-05	Starter Kit for AT89C5130A/AT89C5131A USB Microcontroller	Now
AT89STK-07	Starter Kit for the AT83C24 Level Shifter	Now
AT89ISP	In-System Programmer for AT89S Series	Now

## MICROCONTROLLERS (CONTINUED)

### AT91 Smart Microcontroller

#### AT91 Series

Part Number	Description	Availability
<b>ARM7-based</b>		
AT91SAM7X256	256-Kbyte Flash, 64-Kbyte SRAM, EMAC 10/100, CAN, USB 2.0 Full-speed Device, 2 SPIs, 2 USARTs, 1 UART, 1 TWI, 1 SSC, 11-channel Peripheral DMA, 3 Timers, 1 Period Interval Timer, 1 Real Time Timer, 1 Watchdog Timer, 4 PWM, 8-channel 10-bit ADC, AES/3DES, High Drive Pads, POR, BOD, Crystal Oscillator, On-Chip RC Oscillator, PLL, Advanced Clock and Power Management, Single 3 to 3.6V Supply, 100-lead QFP Package, Industrial Temperature	August 2005
AT91SAM7X128	128-Kbyte Flash, 32-Kbyte SRAM, EMAC 10/100, CAN, USB 2.0 Full-speed Device, 2 SPIs, 2 USARTs, 1 UART, 1 TWI, 1 SSC, 11-channel Peripheral DMA, 3 Timers, 1 Period Interval Timer, 1 Real Time Timer, 1 Watchdog Timer, 4 PWM, 8-channel 10-bit ADC, AES/3DES, High Drive Pads, POR, BOD, Crystal Oscillator, On-Chip RC Oscillator, PLL, Advanced Clock and Power Management, Single 3 to 3.6V Supply, 100-lead QFP Package, Industrial Temperature	August 2005
AT91SAM7S256	256-Kbyte Flash, 64-Kbyte SRAM, USB 2.0 Full-speed Device, 1 SPIs, 2 USARTs, 1 UART, 1 TWI, 1 SSC, 11-channel Peripheral DMA, 3 Timers, 1 Period Interval Timer, 1 Real Time Timer, 1 Watchdog Timer, 4 PWM, 8-channel 10-bit ADC, High Drive Pads, POR, BOD, Crystal Oscillator, On-Chip RC Oscillator, PLL, Advanced Clock and Power Management, Single 3 to 3.6V Supply, 64-lead QFP Package, Industrial Temperature	Now
AT91SAM7S128	128-Kbyte Flash, 32-Kbyte SRAM, USB 2.0 Full-speed Device, 1 SPIs, 2 USARTs, 1 UART, 1 TWI, 1 SSC, 11-channel Peripheral DMA, 3 Timers, 1 Period Interval Timer, 1 Real Time Timer, 1 Watchdog Timer, 4 PWM, 8-channel 10-bit ADC, High Drive Pads, POR, BOD, Crystal Oscillator, On-Chip RC Oscillator, PLL, Advanced Clock and Power Management, Single 3 to 3.6V Supply, 64-lead QFP Package, Industrial Temperature	Now
AT91SAM7S64	64-Kbyte Flash, 16-Kbyte SRAM, USB 2.0 Full-speed Device, 1 SPIs, 2 USARTs, 1 UART, 1 TWI, 1 SSC, 11-channel Peripheral DMA, 3 Timers, 1 Period Interval Timer, 1 Real Time Timer, 1 Watchdog Timer, 4 PWM, 8-channel 10-bit ADC, High Drive Pads, POR, BOD, Crystal Oscillator, On-Chip RC Oscillator, PLL, Advanced Clock and Power Management, Single 3 to 3.6V Supply, 64-lead QFP Package, Industrial Temperature	Now
AT91SAM7S32	32-Kbyte Flash, 8-Kbyte SRAM, 1 SPIs, 1 USARTs, 1 UART, 1 TWI, 1 SSC, 9-channel Peripheral DMA, 3 Timers, 1 Period Interval Timer, 1 Real Time Timer, 1 Watchdog Timer, 4 PWM, 8-channel 10-bit ADC, High Drive Pads, POR, BOD, Crystal Oscillator, On-Chip RC Oscillator, PLL, Advanced Clock and Power Management, Single 3 to 3.6V Supply, 48-lead QFP Package, Industrial Temperature	Now
AT91SAM7A3	256-Kbyte Flash, 32-Kbyte SRAM, 2 CANs, MMC Interface, USB 2.0 Full-speed Device, 2 SPIs, 3 USARTs, 1 UART, 1 TWI, 2 SSCs, 19-channel Peripheral DMA, 9 Timers, 1 Period Interval Timer, 1 Real Time Timer, Battery Backup module, 1 Watchdog Timer, 8 PWM, 16-channel 10-bit ADC, High Drive Pads, POR, Crystal Oscillator, On-Chip RC Oscillator, PLL, Advanced Clock and Power Management, Single 3 to 3.6V Supply, 100-lead QFP Package, Industrial Temperature	August 2005
AT91SAM7A2	16-Kbyte SRAM, 4 CANs, 2 USARTs, 1 SPI, 10-channel Peripheral DMA, 10 Timers, 1 Watchdog Timer, 4 PWM, 16-channel 10-bit ADC, Dual Crystal Oscillator, PLL, Advanced Clock and Power Management, 176-lead QFP Package, Industrial Temperature	Now
AT91SAM7A1	4-Kbyte SRAM, 1 CAN, 3 USARTs, 1 SPI, 11-channel Peripheral DMA, 9 Timers, 4 PWM, 8-channel 10-bit ADC, Dual Crystal Oscillator, PLL, Advanced Clock and Power Management, 144-lead QFP Package, Industrial Temperature	Now
AT91C140	16-Kbyte SRAM, 1-Kbyte BootROM, Dual EMAC 10/100 with Bridge, SDRAM Interface, 2 USARTs, 1 SPI, 6-channel Peripheral DMA, 3 Timers, Crystal Oscillator, PLL, 208-lead QFP Package, Industrial Temperature	Now
AT91RM3400	96-Kbyte SRAM, 256-Kbyte ROM, USB 2.0 Full-speed Device, MMC Interface, 1 SPI, 4 USARTs, 1 UART, 1 TWI, 3 SSCs, 8 Timers, 1 Watchdog Timer, RTC, 20-channel Peripheral DMA, Dual Crystal Oscillator, Dual PLL, Advanced Clock and Power Management, 100-lead QFP Package, Industrial Temperature	Now



**MICROCONTROLLERS (CONTINUED)**
**AT91 Smart Microcontroller (Continued)**
**AT91 Series (Continued)**

Part Number	Description	Availability
AT91M55800A	8-Kbyte SRAM, 1 SPI, 3 USARTs, RTC with Battery Backup, Dual Crystal Oscillator, PLL, 6 Timers, 1 Watchdog Timer, 8-channel Peripheral DMA, 8-channel 10-bit ADC, 2-channel 10-bit DAC, Shutdown Mode, Advanced Clock and Power Management, 176-lead QFP or 176-ball BGA Package, Industrial Temperature	Now
AT91M42800A	8-Kbyte SRAM, 2 SPIs, 2 USARTs, Crystal Oscillator, Dual PLL, 6 Timers, 1 Watchdog Timer, 1 Real Time Timer, 8-channel Peripheral DMA, Advanced Clock and Power Management, 144-lead QFP or 144-ball BGA Package, Industrial Temperature	Now
AT91FR40162	2-Mbyte Flash, 256-Kbyte SRAM, 2 USARTs, 3 Timers, 1 Watchdog Timer, 4-channel Peripheral DMA, Advanced Clock and Power Management, 121-ball BGA, Industrial Temperature	Now
AT91FR4042	512-Kbyte Flash, 256-Kbyte SRAM, 2 USARTs, 3 Timers, 1 Watchdog Timer, 4-channel Peripheral DMA, Advanced Clock and Power Management, 121-ball BGA, Industrial Temperature	Now
AT91R40008	256-Kbyte SRAM, 2 USARTs, 3 Timers, 1 Watchdog Timer, 4-channel Peripheral DMA, Advanced Clock and Power Management, 100-lead QFP, Industrial Temperature	Now
AT91M40800	8-Kbyte SRAM, 2 USARTs, 3 Timers, 1 Watchdog Timer, 4-channel Peripheral DMA, Advanced Clock and Power Management, 100-lead QFP, Industrial Temperature	Now
<b>ARM9-based</b>		
AT91RM9200	ARM920T Core, Two 16-Kbyte I & D Caches, MMU, 16-Kbyte SRAM, 128-Kbyte ROM, 10/100 EMAC with DMA, USB 2.0 Full-speed Host and Device, CompactFlash®, SmartMedia® and MMC Interface, 4 USARTs, 1 UART, 1 TWI, 1 SPI, 3 SSC, 8 Timers, RTC, Watchdog Timer, 20-channel Peripheral DMA, Dual Crystal Oscillator, Dual PLL, Advance Clock and Power Management, Embedded Trace, 208-lead QFP or 256-ball BGA Package, Industrial Temperature	Now
AT91SAM9261	ARM926EJ-S™ Core, Two 16-Kbyte I & D Caches, MMU, 160-Kbyte SRAM, 32-Kbyte ROM, LCD Controller, USB 2.0 Full-speed Host and Device, CompactFlash, SmartMedia and MMC Interface, 3 USARTs, 1 UART, 1 TWI, 2 SPIs, 3 SSCs, 3 Timers, 1 Period Interval Timer, 1 Real Time Timer, 1 Watchdog Timer, 20-channel Peripheral DMA, Dual Crystal Oscillator, Dual PLL, Shutdown Mode, Advance Clock and Power Management, Embedded Trace, 208-lead QFP or 256-ball BGA Package, Industrial Temperature	August 2005
<b>Evaluation/Development Kits</b>		
AT91SAM7S64-IAR	Evaluation Kit for AT91SAM7S Products (SAM7S32 to SAM7S256) Including IAR Toolchain (32 KB Limited Compiler) and USB JTAG ICE	Now
AT91RM9200-EK	Evaluation Kit for AT91RM9200	Now
AT91SAM7A2-EK	Evaluation Kit for AT91SAM7A2	Now
AT91SAM7A1-EK	Evaluation Kit for AT91SAM7A1	Now
AT75C221-DK	Development Kit for AT91C140	Now
AT91RM3400-DK	Development Kit for AT91RM3400	Now
AT91EB55	Evaluation Kit for AT91M55800A	Now
AT91EB42	Evaluation Kit for AT91M42800A	Now
AT91EB40A	Evaluation Kit for AT91FR40162, AT91FR4042, AT91R40008 and AT91M40800	Now

## MICROCONTROLLERS (CONTINUED)

### AVR Flash Microcontrollers

#### ATtiny Series

Part Number	Flash (Kbytes)	EEPROM (Bytes)	RAM (Bytes)	I/O Pins	USI*	UART	8-bit Timer	16-bit Timer	10-bit ADC	BOD	On-Chip Debugging	In-System(I)/Self-Prog. (S)	Package	VCC (V)	Speed (MHz)	Availability
ATtiny11	1	–	32 Registers	6	–	–	1	–	–	–	–	–	PDIP, SOIC, DIE	4.0 - 5.5	0 - 6	Now
ATtiny11L	1	–	32 Registers	6	–	–	1	–	–	–	–	–	PDIP, SOIC, DIE	2.7 - 5.5	0 - 2	Now
ATtiny12	1	64	32 Registers	6	–	–	1	–	–	Yes	–	I	PDIP, SOIC, DIE	4.0 - 5.5	0 - 8	Now
ATtiny12L	1	64	32 Registers	6	–	–	1	–	–	Yes	–	I	PDIP, SOIC, DIE	2.7 - 5.5	0 - 4	Now
ATtiny12V	1	64	32 Registers	6	–	–	1	–	–	Yes	–	I	PDIP, SOIC, DIE	1.8 - 5.5	0 - 1	Now
ATtiny13	1	64	64	6	–	–	1	–	4	Yes	debug-WIRE	S	PDIP, SOIC, Narrow SOIC, DIE	2.7 - 5.5	0 - 20	Now
ATtiny13V	1	64	64	6	–	–	1	–	4	Yes	debug-WIRE	S	PDIP, SOIC, Narrow SOIC, DIE	1.8 - 5.5	0 - 10	Now
ATtiny15L	1	64	32 Registers	6	–	–	2	–	4	Yes	–	I	PDIP, SOIC, DIE	2.7 - 5.5	1.6	Now
ATtiny26	2	128	128	16	1	–	2	–	11	Yes	–	I	PDIP, SOIC, QFN, DIE	4.5 - 5.5	0 - 16	Now
ATtiny26L	2	128	128	16	1	–	2	–	11	Yes	–	I	PDIP, SOIC, QFN, DIE	2.7 - 5.5	0 - 8	Now
ATtiny2313	2	128	128	18	1	1	1	1	–	Yes	debug-WIRE	S	PDIP, SOIC, QFN, DIE	2.7 - 5.5	0 - 20	Now
ATtiny2313V	2	128	128	18	1	1	1	1	–	Yes	debug-WIRE	S	PDIP, SOIC, QFN, DIE	1.8 - 5.5	0 - 10	Now
ATtiny28L	2	–	32 Registers	20	–	–	1	–	–	–	–	–	PDIP, SOIC, QFN, DIE	2.7 - 5.5	0 - 4	Now
ATtiny28V	2	–	32 Registers	20	–	–	1	–	–	–	–	–	PDIP, SOIC, QFN, DIE	1.8 - 5.5	0 - 1	Now
ATtiny45	4	256	256	6	1	–	2	–	4	Yes	debug-WIRE	s	PDIP, SOIC, QFN, DIE	2.7 - 5.5	0 - 20	2Q2005
ATtiny45V	4	256	256	6	1	–	2	–	4	Yes	debug-WIRE	s	PDIP, SOIC, QFN, DIE	1.8 - 5.5	0 - 10	2Q2005

Note: \*USI = Universal Serial Interface.

**MICROCONTROLLERS (CONTINUED)**  
**AVR Flash Microcontrollers (Continued)**  
 ATmega Series

Part Number	Flash (Kbytes)	EEPROM (Bytes)	RAM (Bytes)	I/O Pins	USI	UART	SPI	TWI	8-bit Timer	16-bit Timer	10-bit ADC	BOD	On-Chip Debugging	Self-Prog.	Package	VCC (V)	Speed (MHz)	Other	Availability
ATmega48	4	256	512	23	-	1	2*	1	2	1	8	Yes	debug-WIRE	Yes	PDIP, TQFP, QFN, DIE	2.7 - 5.5	0 - 20		Now
ATmega48V	4	256	512	23	-	1	2*	1	2	1	8	Yes	debug-WIRE	Yes	PDIP, TQFP, QFN, DIE	1.8 - 5.5	0 - 10		Now
ATmega8	8	512	1K	23	-	1	1	1	2	1	8	Yes	-	Yes	PDIP, TQFP, QFN, DIE	4.5 - 5.5	0 - 16		Now
ATmega8L	8	512	1K	23	-	1	1	1	2	1	8	Yes	-	Yes	PDIP, TQFP, QFN, DIE	2.7 - 5.5	0 - 8		Now
ATmega88	8	512	1K	23	-	1	2*	1	2	1	8	Yes	debug-WIRE	Yes	PDIP, TQFP, QFN, DIE	2.7 - 5.5	0 - 20		Now
ATmega88V	8	512	1K	23	-	1	2*	1	2	1	8	Yes	debug-WIRE	Yes	PDIP, TQFP, QFN, DIE	1.8 - 5.5	0 - 10		Now
ATmega8515	8	512	512	35	-	1	1	-	1	1	-	Yes	-	Yes	PDIP, PLCC, TQFP, QFN, DIE	4.5 - 5.5	0 - 16	XRAM	Now
ATmega8515L	8	512	512	35	-	1	1	-	1	1	-	Yes	-	Yes	PDIP, PLCC, TQFP, QFN, DIE	2.7 - 5.5	0 - 8	XRAM	Now
ATmega8535	8	512	512	32	-	1	1	1	2	1	8	Yes	-	Yes	PDIP, PLCC, TQFP, QFN, DIE	4.5 - 5.5	0 - 16		Now
ATmega8535L	8	512	512	32	-	1	1	1	2	1	8	Yes	-	Yes	PDIP, PLCC, TQFP, QFN, DIE	2.7 - 5.5	0 - 8		Now
ATmega168	16	512	1K	23	-	1	2*	1	2	1	8	Yes	debug-WIRE	Yes	PDIP, TQFP, QFN, DIE	2.7 - 5.5	0 - 20		Now
ATmega168V	16	512	1K	23	-	1	2*	1	2	1	8	Yes	debug-WIRE	Yes	PDIP, TQFP, QFN, DIE	1.8 - 5.5	0 - 10		Now
ATmega162	16	512	1K	35	-	2	1	-	2	2	-	Yes	JTAG	Yes	PDIP, TQFP, QFN, DIE	2.7 - 5.5	0 - 16	XRAM	Now
ATmega162V	16	512	1K	35	-	2	1	-	2	2	-	Yes	JTAG	Yes	PDIP, TQFP, QFN, DIE	1.8 - 5.5	0 - 8	XRAM	Now
ATmega16	16	512	1K	32	-	1	1	1	2	1	8	Yes	JTAG	Yes	PDIP, TQFP, QFN, DIE	4.5 - 5.5	0 - 16		Now
ATmega16L	16	512	1K	32	-	1	1	1	2	1	8	Yes	JTAG	Yes	PDIP, TQFP, QFN, DIE	2.7 - 5.5	0 - 8		Now
ATmega169	16	512	1K	54	1	1	1	-	2	1	8	Yes	JTAG	Yes	PDIP, TQFP, QFN, DIE	2.7 - 5.5	0 - 16	LCD	Now
ATmega169V	16	512	1K	54	1	1	1	-	2	1	8	Yes	JTAG	Yes	PDIP, TQFP, QFN, DIE	1.8 - 5.5	0 - 8	LCD	Now

Note: \*One is Master only.

## MICROCONTROLLERS (CONTINUED)

### AVR Flash Microcontrollers (Continued)

#### ATmega Series (Continued)

Part Number	Flash (Kbytes)	EEPROM (Bytes)	RAM (Bytes)	I/O Pins	USI	UART	SPI	I <sup>2</sup> C	8-bit Timer	16-bit Timer	10-bit ADC	BOD	On-Chip Debugging	Self-Prog.	Package	VCC (V)	Speed (MHz)	Other	Availability
ATmega165	16	512	1K	54	1	1	1	-	2	1	8	Yes	JTAG	Yes	PDIP, TQFP, QFN, DIE	2.7 - 5.5	0 - 16		Now
ATmega165V	16	512	1K	54	1	1	1	-	2	1	8	Yes	JTAG	Yes	PDIP, TQFP, QFN, DIE	1.8 - 5.5	0 - 8		Now
ATmega32	32	1K	2K	32	-	1	1	1	2	1	8	Yes	JTAG	Yes	PDIP, TQFP, QFN, DIE	4.5 - 5.5	0 - 16		Now
ATmega32L	32	1K	2K	32	-	1	1	1	2	1	8	Yes	JTAG	Yes	PDIP, TQFP, QFN, DIE	2.7 - 5.5	0 - 8		Now
ATmega329	32	1K	2K	54	1	1	1	-	2	1	8	Yes	JTAG	Yes	TQFP, QFN, DIE	2.7 - 5.5	0 - 16	LCD	Now
ATmega329V	32	1K	2K	54	1	1	1	-	2	1	8	Yes	JTAG	Yes	TQFP, QFN, DIE	1.8 - 5.5	0 - 8	LCD	Now
ATmega325	32	1K	2K	54	1	1	1	-	2	1	8	Yes	JTAG	Yes	TQFP, QFN, DIE	2.7 - 5.5	0 - 16		Now
ATmega325V	32	1K	2K	54	1	1	1	-	2	1	8	Yes	JTAG	Yes	TQFP, QFN, DIE	1.8 - 5.5	0 - 8		Now
ATmega3290	32	1K	2K	68	1	1	1	-	2	1	8	Yes	JTAG	Yes	TQFP, DIE	2.7 - 5.5	0 - 16	LCD	Now
ATmega3290V	32	1K	2K	68	1	1	1	-	2	1	8	Yes	JTAG	Yes	TQFP, DIE	1.8 - 5.5	0 - 8	LCD	Now
ATmega3250	32	1K	2K	68	1	1	1	-	2	1	8	Yes	JTAG	Yes	TQFP, DIE	2.7 - 5.5	0 - 16		Now
ATmega3250V	32	1K	2K	68	1	1	1	-	2	1	8	Yes	JTAG	Yes	TQFP, DIE	1.8 - 5.5	0 - 8		Now
ATmega64	64	2K	4K	53	-	2	1	1	2	2	8	Yes	JTAG	Yes	TQFP, QFN, DIE	4.5 - 5.5	0 - 16	XRAM	Now
ATmega64L	64	2K	4K	53	-	2	1	1	2	2	8	Yes	JTAG	Yes	TQFP, QFN, DIE	2.7 - 5.5	0 - 8	XRAM	Now
ATmega128	128	4K	4K	53	-	2	1	1	2	2	8	Yes	JTAG	Yes	TQFP, QFN, DIE	4.5 - 5.5	0 - 16	XRAM	Now
ATmega128L	128	4K	4K	53	-	2	1	1	2	2	8	Yes	JTAG	Yes	TQFP, QFN, DIE	2.7 - 5.5	0 - 8	XRAM	Now
ATmega2561	256	4K	8K	54	-	2	1	1	2	2	8	Yes	JTAG	Yes	TQFP, QFN, DIE	2.7 - 5.5	0 - 16	XRAM	3Q2005
ATmega2561V	256	4K	8K	54	-	2	1	1	2	2	8	Yes	JTAG	Yes	TQFP, QFN, DIE	1.8 - 5.5	0 - 8	XRAM	3Q2005
ATmega2560	256	4K	8K	68	-	2	1	1	2	2	8	Yes	JTAG	Yes	TQFP, DIE	2.7 - 5.5	0 - 16	XRAM	3Q2005
ATmega2560V	256	4K	8K	68	-	2	1	1	2	2	8	Yes	JTAG	Yes	TQFP, DIE	1.8 - 5.5	0 - 8	XRAM	3Q2005
AT90CAN128	128	4K	4K	54	-	2	1	1	2	2	8	Yes	JTAG	Yes	TQFP, QFN, DIE	2.7 - 5.5	0 - 16	CAN, XRAM	Now

**MICROCONTROLLERS (CONTINUED)**
**AVR Flash Microcontrollers (Continued)**
**CAN AVR™**

Part Number	Description	Package	Availability
AT90CAN128	AVR Microcontroller with 128-Kbyte Flash MCU, 15 Message Objects CAN Controller, 4-Kbyte RAM, 4-Kbyte EEPROM, 10-bit ADC, TWI, Up to 16 MIPS, LIN-capable UART	TQFP64, QNF64, CABGA64	Now
AT90CAN64	AVR Microcontroller with 64-Kbyte Flash MCU, 15 Message Objects CAN Controller, 4-Kbyte RAM, 2-Kbyte EEPROM, 10-bit ADC, TWI, Up to 16 MIPS, LIN-capable UART	TQFP64, QNF64, CABGA64	Sampling June 2005
AT90CAN32	AVR Microcontroller with 32-Kbyte Flash MCU, 15 Message Objects CAN Controller, 2-Kbyte RAM, 1-Kbyte EEPROM, 10-bit ADC, TWI, Up to 16 MIPS, LIN-capable UART	TQFP64, QNF64, CABGA64	Sampling September 2005

**Lighting/Pulse Width Modulation AVR**

Part Number	Description	Package	Availability
AT90PWM3	AVR Microcontroller with 8-Kbyte Flash MCU, 512-byte RAM, 512-byte EEPROM, 10-bit 11-channel ADC, 10-bit DAC, 8-, 12- & 16-bit Timers, Analog Comparator, RC Oscillators, Amplifier, 64 MHz PLL, Supports DALI Protocol	SO32, QFN32	Now
AT90PWM2	AVR Microcontroller with 8-Kbyte Flash MCU, 512-byte RAM, 512-byte EEPROM, 10-bit 8-channel ADC, 8-, 12- & 16-bit Timers, Analog Comparator, RC Oscillators, Amplifier, 64 MHz PLL, Supports DALI Protocol	SO24	Now
AT90PWM1	AVR Microcontroller with 4-Kbyte Flash MCU, 256-byte RAM, 10-bit 8-channel ADC, 8- & 12-bit Timers, Analog Comparator, RC Oscillators, Amplifier, 64 MHz PLL	SO24	3Q2005

**Evaluation Kits and Tools (AVR, tinyAVR®, megaAVR, LCD AVR, CAN AVR)**

Part Number	Description	Availability
ATSTK500	STK®500 AVR Starter Kit with AVR Studio Interface	Now
ATSTK501	STK501 Expansion of STK500 to Support 64-pin megaAVR® Devices	Now
ATSTK502	STK502 Expansion of STK500 for 64-pin LCD AVR Devices	Now
ATSTK503	STK503 Expansion of STK500 for 100-pin megaAVR Devices	Now
ATSTK504	STK504 Expansion of STK500 for 100-pin LCD AVR Devices	Now
ATSTK520	STK520 Expansion for STK500 to support 90PWM Devices	Now
AT90EIT1	AVR Embedded Internet Toolkit	Now
ATAVRISP	AVRISP ISP Programmer for All AVR ISP Devices	Now
ATAVRBFLY	AVR Butterfly, ATmega169 Demo Board with LCD and Speaker	Now
ATICE40	ICE40 AVR In-Circuit Emulator for ATtiny26 and ATmega8	Now
ATICE50	ICE50 AVR In-Circuit Emulator for All megaAVR and New tinyAVR Devices	Now
ATICE50PROBE	ICE40/50 Probe Including Flex Cables	Now
ATICE50MEM	ICE50 Memory Extension Card for 100-pin megaAVR Devices	Now
ATJTAGIC2	AVR Low-cost In-Circuit Emulator Supporting All AVR with Debugwire or JTAG Interface	Now
ATJTAGPROBE	JTAG ICE Probe Including Flex Cables	Now
ATASICICE	ASICICE Embedded AVR Core Development System	Now
ATADAP128_TOP	Replacement: ICE50 mega64/128 TQFP Personality Adapter (Top Module); Requires One AT64PSKT_BOT as the Bottom Module	Now
ATADAP169_TOP	Replacement: ICE50 mega169 TQFP Personality Adapter (Top Module); Requires One AT64PSKT_BOT as the Bottom Module	Now

## MICROCONTROLLERS (CONTINUED)

### Evaluation Kits and Tools (AVR, tinyAVR, megaAVR, LCD AVR, CAN AVR) (Continued)

Part Number	Description	Availability
ATADAPMEGA32	Replacement: ICE50 mega8535/16/32 PDIP Personality Adapter	Now
ATADAPMEGA162	Replacement: ICE50 mega8515/162 PDIP Personality Adapter	Now
ATADAPMEGA8	Replacement: ICE50 mega8 PDIP Personality Adapter	Now
ATADAPTINY26	Replacement: ICE50 tiny26 PDIP Personality Adapter	Now
ATADAPTINY13	Replacement: ICE50 tiny13 PDIP Personality Adapter	Now
ATADAPT2313	Replacement: ICE50 tiny23 13 PDIP Personality Adapter	Now
ATADAPCAN01	Replacement: STK500/501 90CAN128 CAN Adapter	Now
ATADAPTEST	Replacement: ICE50 Test Adapter	Now
64PSKT_TOP	Replacement: ICE30 64-pin TQFP Emulator Adapter (Top Module)	Now
64PSKT_BOT	Replacement: ICE30 and ICE50 64-pin TQFP Emulator Adapter (Bottom Module)	Now
ATPOD200	Replacement: ICE200 POD Replacement with Cable (Top Module)	Now
ATADAP200	Replacement: ICE200 PDIP Emulator Adapter Kit (Bottom Module)	Now
ATAVRSMD	Add-on: ICE200 SOIC/PLCC/TQFP Emulator Adapter Kit (Bottom Module)	Now
AT90ADCPOD	Replacement: ICEPRO POD Replacement Kit	Now
AT90ADCUG	Upgrade: AVRICE/ICEPRO Analog Upgrade Kit	Now
ATMEGAPOD	Replacement: megaICE, ICE30 mega103 POD Replacement Kit	Now
ATMEG163POD	Replacement: ICE30 mega163 POD Replacement Kit	Now
ATtiny15POD	Replacement: ICE10 POD Replacement Kit	Now

## Radio AVR

Part Number	Description	Package	Availability
AT86RF401U	RF Wireless Data Transmitter, 315 MHz, OOK/ASK, PLL-based RF Transmitter and 8-bit AVR Microcontroller Core on Single Die, 2-volt Operation, 2-Kbyte Flash Program, 128-byte EEPROM	TSSOP20	Now
AT86RF401E	RF Wireless Data Transmitter, 433 MHz, OOK/ASK, PLL-based RF Transmitter and 8-bit AVR Microcontroller Core on Single Die, 2-volt Operation, 2-Kbyte Flash Program, 128-byte EEPROM	TSSOP20	Now
AT86RF401X	RF Wireless Data Transmitter, 250 to 450 MHz, OOK/ASK, PLL-based RF Transmitter and 8-bit AVR MCU Core on Single Die, 2-volt Operation, 2-Kbyte Flash Program, 128-byte EEPROM	TSSOP20	Now

### Evaluation Kits

AT86RF401U-EK1	315 MHz Transmitter Evaluation Kit for AT86RF401U – Kit Contains: Sample Transmitter PCB, Two Sample Devices, a Programming Dongle/Cable Assembly and CD-ROM Containing All the Tools Necessary to Develop Software for the AT86RF401U	Now
AT86RF401E-EK1	433.92 MHz Transmitter Evaluation Kit for AT86RF401E – Kit Contains: Sample Transmitter PCB, Two Sample Devices, a Programming Dongle/Cable Assembly and CD-ROM Containing All the Tools Necessary to Develop Software for the AT86RF401E	Now
ATAK4015744U	315 MHz RF Control System Evaluation Kit for AT86RF401 and T5744 – Kit Contains: Sample Transmitter and Receiver PCBs, Two Samples of Each Device, a Programming Dongle/Cable Assembly and CD-ROM Containing All the Tools Necessary to Develop Software	Now
ATAK4015744E	433.92 MHz RF Control System Evaluation Kit for AT86RF401 and T5744 – Kit Contains: Sample Transmitter and Receiver PCBs, Two Samples of Each Device, a Programming Dongle/Cable Assembly and CD-ROM Containing All the Tools Necessary to Develop Software	Now

**MICROCONTROLLERS (CONTINUED)**
**MARC4 4-bit Architecture Microcontrollers**
**4-bit Microcontrollers/MARC4 Family**

Part Number	Description	Package	Availability
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 $T_{AMB} = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$	SSO20	Now
ATAR080-D	See ATAR080, Operating Temperature Range $T_{AMB} = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$	SSO20	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 $<1\ \mu\text{A}$ , 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 $T_{AMB} = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$	SSO20	Now
ATAR090-C	See ATAR090, Operating Temperature Range $T_{AMB} = -40^{\circ}\text{C}$ to $+105^{\circ}\text{C}$	SSO20	Now
ATAR090-D	See ATAR090, Operating Temperature Range $T_{AMB} = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$	SSO20	Now
ATAR890	See ATAR090, Additional 512-bit EEPROM (64 Bytes) On-chip, Operating Temperature Range $T_{AMB} = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$	SSO20	Now
ATAR890-C	See ATAR090, Additional 512-bit EEPROM (64 Bytes) On-chip, Operating Temperature Range $T_{AMB} = -40^{\circ}\text{C}$ to $+105^{\circ}\text{C}$	SSO20	Now
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 $<1\ \mu\text{A}$ , Watchdog Timer, POR and Brown-out Function, 3 x Multifunction Timer/Counter with Remote Control Carrier Generation and Biphase, Manchester and Pulsewidth 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)	SSO20	Now
ATAR092-C	See ATAR092, Operating Temperature Range $T_{AMB} = -40^{\circ}\text{C}$ to $+105^{\circ}\text{C}$	SSO20	Now
ATAR092-D	See ATAR092, Operating Temperature Range $T_{AMB} = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$	SSO20	Now
ATAR892	See ATAR092, Additional 512-bit EEPROM (64 Bytes) On-chip	SSO20	Now
ATAR892-C	See ATAR092, Additional 512-bit EEPROM (64 Bytes) On-chip, Operating Temperature Range $T_{AMB} = -40^{\circ}\text{C}$ to $+105^{\circ}\text{C}$	SSO20	Now
ATAM893-D (Multi-programmable EEPROM Version)	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 $<1\ \mu\text{A}$ , Watchdog Timer and Coded Reset, 3 x Multifunction Timer/Counter with Remote Control Carrier	SSO20	Now

## MICROCONTROLLERS (CONTINUED)

### MARC4 4-bit Architecture Microcontrollers (Continued)

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

Part Number	Description	Package	Availability
ATAR510	2.4 to 6V Low-power Microcontroller, PC-keyboards/Wireless Keyboards, Motor Control with PWM, Embedded Applications Requiring Small LED- or LCD-displays Like E-cash Chip-card Reader, 4096-byte ROM + 1024 Byte for Test Purposes, 256 Nibbles RAM, 32 Bi-directional I/Os: 24 Standard I/Os, Bitwise Programmable, 8 I/Os 20 mA Push/Pull (5V) (2.4V → 4.3 mA), 4 Internal, 10 External Interrupts, 32 kHz Quartz Oscillator as Optional Sub-clock, 4 MHz Oscillator (Internal RC, External R, Quartz or Ceramic Resonator, External Clock), <1 μA (5V) Operating Current, Sleep Current <1 μA with 32 kHz Oscillator, Watchdog Timer and CodedReset, 2 x 8-bit Timer/Counter with 8-bit Prescaler, 2 Complementary Buzzer Outputs	DIT, SSO44	Now
ATAM510 (MTP Multi-time Programmable Version of ATAR510)	2.4 to 6V Low-power Microcontroller, PC-keyboards/Wireless Keyboards, Motor Control with PWM, Embedded Applications Requiring Small LED- or LCD-Displays Like E-cash Chip-card Reader, Stack-oriented 4-bit Harvard Architecture, High-level-language Programming in qFORTH, 4096-byte ROM + 1024 Bytes for Test Purposes, 256 Nibbles RAM, 32 Bi-directional I/Os: 24 Standard I/Os, Bitwise Programmable, 8 I/Os 20 mA Push/Pull (5V) (2.4V → 4.3 mA), 4 Internal, 10 External Interrupts, 32 kHz Quartz Oscillator as Optional Subclock, 4 MHz Oscillator (Internal RC, External R, Quartz or Ceramic Resonator, External Clock), <1 μA (5V) Operating Current, Sleep Current <1 μA with 32 kHz Oscillator, Watchdog Timer and Coded Reset, 2 x 8-bit Timer/Counter with 8-bit Prescaler, 2 Complementary Buzzer Outputs	SSO44	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	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	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	Now
ATAM862x-yyy-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	Now
ATAM862x-yyy-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	Now
ATAM862x-yyy-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	Now
<b>Evaluation Kits and Tools</b>			
TMEB893	MARC4 Starter Kit Includes Core Simulator, Programmer and ATAM893 Samples		Now
M4EMU510	MARC4 Development System for ATAR510 and ATAM510		Now
M4EMUX9X	MARC4 Development System for the ATAR090, ATAR092, ATAR892, ATAR890 and ATAR080 Series, Including the Flash Part ATAM893 and the U9280M		Now



**PROGRAMMABLE LOGIC**

**Field Programmable Gate Arrays (FPGAs)**

**AT40K Series**

Part Number	Description	Registers	Usable Gates	Frequency (MHz)	RAM	Availability
<b>Standard Voltage (5.0V)</b>						
AT40K05	128 I/O Pins, 5.0-volt, Very Low Power	256	5K - 10K	250	2,048 Bits	Now
AT40K10	192 I/O Pins, 5.0-volt, Very Low Power	576	10K - 20K	250	4,096 Bits	Now
AT40K20	256 I/O Pins, 5.0-volt, Very Low Power	1,024	20K - 30K	250	8,192 Bits	Now
AT40K40	384 I/O Pins, 5.0-volt, Very Low Power	2,304	40K - 50K	250	18,432 Bits	Now

**Low-voltage Enhanced Performance (3.3V)**

AT40K05AL	128 I/O Pins, 3.3-volt, Very Low Power	512	5K - 10K	250	2,048 Bits	Now
AT40K10AL	192 I/O Pins, 3.3-volt, Very Low Power	896	10K - 20K	250	4,096 Bits	Now
AT40K20AL	256 I/O Pins, 3.3-volt, Very Low Power	1,440	20K - 30K	250	8,192 Bits	Now
AT40K40AL	384 I/O Pins, 3.3-volt, Very Low Power	2,690	40K - 50K	250	18,432 Bits	Now

**Software/Hardware Tools**

**Software**

ATDS2100PC	Place and Route Tools (Ordering Also Available from the Web)					Now
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**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
ATDH40D240	Daughter Board – 240PQFP					Now

**AT6000 Series**

Part Number	Description	Registers	Usable Gates	Frequency (MHz)	Availability
<b>Standard Voltage (5.0V)</b>					
AT6002	96 I/O Pins, 5.0-volt, Very Low Power	1,024	6K	350	Now
AT6003	120 I/O Pins, 5.0-volt, Very Low Power	1,600	9K	350	Now
AT6005	140 I/O Pins, 5.0-volt, Very Low Power	3,136	15K	350	Now
AT6010	204 I/O Pins, 5.0-volt, Very Low Power	6,400	30K	350	Now

## PROGRAMMABLE LOGIC (CONTINUED)

### FPGA Configuration Memory

#### FPGA Serial Configuration EEPROM

Part Number	Description	Memory Size	Availability
<b>Standard (3.3 - 5.0V)</b>			
AT17LV65	65-Kbit FPGA Configuration EEPROM	65,536 x 1	Now
AT17LV65A	65-Kbit FPGA Configuration EEPROM, Altera Pinout	65,536 x 1	Now
AT17LV128	128-Kbit FPGA Configuration EEPROM	131,072 x 1	Now
AT17LV128A	128-Kbit FPGA Configuration EEPROM, Altera Pinout	131,072 x 1	Now
AT17LV256	256-Kbit FPGA Configuration EEPROM	262,144 x 1	Now
AT17LV256A	256-Kbit FPGA Configuration EEPROM, Altera Pinout	262,144 x 1	Now
AT17LV512	512-Kbit FPGA Configuration EEPROM	524,288 x 1	Now
AT17LV512A	512-Kbit FPGA Configuration EEPROM, Altera Pinout	524,288 x 1	Now
AT17LV010	1-Mbit FPGA Configuration EEPROM	1,048,576 x 1	Now
AT17LV010A	1-Mbit FPGA Configuration EEPROM, Altera Pinout	1,048,576 x 1	Now
AT17LV002	2-Mbit FPGA Configuration EEPROM	2,097,152 x 1	Now
AT17LV002A	2-Mbit FPGA Configuration EEPROM, Altera Pinout	2,097,152 x 1	Now
AT17LV040	4-Mbit FPGA Configuration EEPROM	4,194,304 x 1	Now
<b>Low-cost NTP (3.3V)</b>			
AT17N256	256-Kbit FPGA Configuration Memory	262,144 x 1	Now
AT17N512	512-Kbit FPGA Configuration Memory	524,288 x 1	Now
AT17N010	1-Mbit FPGA Configuration Memory	1,048,576 x 1	Now
AT17N002	2-Mbit FPGA Configuration Memory	2,097,152 x 1	Now
AT17N040	4-Mbit FPGA Configuration Memory	4,194,304 x 1	Now
<b>Flash-based (3.3V)</b>			
AT17F040	4-Mbit FPGA Configuration Flash	4,194,304 x 1	Now
AT17F040A	4-Mbit FPGA Configuration Flash, Altera Pinout	4,194,304 x 1	Now
AT17F080	8-Mbit FPGA Configuration Flash	8,388,608 x 1	Now
AT17F080A	8-Mbit FPGA Configuration Flash, Altera Pinout	8,388,608 x 1	Now
AT17F16	16-Mbit FPGA Configuration Flash	16,777,216 x 1	Now
AT17F16A	16-Mbit FPGA Configuration Flash, Altera Pinout	16,777,216 x 1	Now
AT17F32	32-Mbit FPGA Configuration Flash	33,554,432 x 1	Now
AT17F32A	32-Mbit FPGA Configuration Flash, Altera Pinout	33,554,432 x 1	Now
<b>Software/Hardware Tools</b>			
ATDH2200E	Configurator Programming Kit, CPS ISP Software, 8-lead LAP and 20 PLCC Adapter		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	Availability
<b>5.0-volt Electrically Erasable</b>				
ATF16V8B	8 FFs, 8 I/O Pins, Standard-power	20-lead	10 - 15 ns	Now
ATF16V8BQ(L)	8 FFs, 8 I/O Pins, Quarter-power, Low-power	20-lead	10 - 15 ns	Now
ATF16V8C	8 FFs, 8 I/O Pins, Standard-power	20-lead	5 - 7.5 ns	Now
ATF16V8CZ	8 FFs, 8 I/O Pins, Zero-power	20-lead	12 - 15 ns	Now
ATF20V8B	8 FFs, 8 I/O Pins, Standard-power	24-, 28-lead	7.5 - 15 ns	Now
ATF20V8BQ(L)	8 FFs, 8 I/O Pins, Quarter-power, Low-power	24-, 28-lead	10 - 15 ns	Now
ATF22V10B	10 FFs, 10 I/O Pins, Standard-power	24-, 28-lead	10 - 15 ns	Military Only
ATF22V10C	10 FFs, 10 I/O Pins, Standard-power	24-, 28-lead	5 - 15 ns	Now
ATF22V10CQ(Z)	10 FFs, 10 I/O Pins, Quarter-power, Zero-power	24-, 28-lead	15 - 20 ns	Now
ATF22V10CZ	10 FFs, 10 I/O Pins, Zero-power	24-, 28-lead	12 - 15 ns	Now
ATF750C(L)	20 FFs, 10 I/O Pins, Standard and Low-power	24-, 28-lead	7.5 - 15 ns	Now
ATF2500C	48 FFs, 24 I/O Pins, Standard-power	40-, 44-lead	15 - 20 ns	Now
ATF1500A(L)	32 Macrocell, Standard and Low-power, 5V	44-lead	7.5 - 20 ns	Now
ATF1502AS(L)	32 Macrocell with ISP, Standard and Low-power, 5V	44-lead	7.5 - 25 ns	Now
ATF1504AS(L)	64 Macrocell with ISP, Standard and Low-power, 5V	44-, 68-, 84-, 100-lead	7.5 - 20 ns	Now
ATF1508AS(L)	128 Macrocell with ISP, Standard and Low-power, 5V	84-, 100-, 160-lead	7.5 - 20 ns	Now
<b>Low-voltage (3.3V) Electrically Erasable</b>				
ATF16LV8C	8 FFs, 8 I/O Pins, Low-voltage	20-lead	10 - 15 ns	Now
AT22LV10(L)	10 FFs, 10 I/O Pins, Low-voltage and Low-power (EPROM-based)	24-, 28-lead	20 - 25 ns	Now
ATF22LV10C	10 FFs, 10 I/O Pins, Low-voltage	24-, 28-lead	10 - 15 ns	Now
ATF22LV10CZ	10 FFs, 10 I/O Pins, Low-voltage, Zero-power	24-, 28-lead	25 ns	Now
ATF22LV10CQZ	10 FFs, 10 I/O Pins, Low-voltage, Quarter-power, Zero-power	24-, 28-lead	30 ns	Now
ATF750LVC	20 FFs, 10 I/O Pins, 3.3V Standard Power	24-, 28-lead	15 ns	Now
ATF1500ABV	32 FFs, 32 I/O Pins, Low-voltage, 2.7V (Battery Voltage)	44-lead	15 ns	Now
ATF1502ASV	32 Macrocells with ISP, 32 I/O Pins	44-lead	15 ns	Now
<b>Low-voltage, 3.3V Low Power</b>				
ATF1504ASV(L)	64 Macrocells with ISP, Low-voltage and Low-power, 3.3V	44-, 68-, 84-, 100-lead	15 - 20 ns	Now
ATF1508ASV(L)	128 Macrocells with ISP, Low-voltage and Low-power, 3.3V	84-, 100-, 160-lead	15 - 20 ns	Now
<b>5.0-volt EPROM-based</b>				
ATV750B(L)	20 FFs, 10 I/O Pins, Standard and Low-power	24-, 28-lead	10 - 15 ns	Military Only

**PROGRAMMABLE LOGIC (CONTINUED)****Programmable Logic Devices (Continued)**

## SPLDs/CPLDs Software/Hardware Tools

Part Number	Description	Availability
ATDS1500PC	Atmel – ProChip Designer® (Includes CUPL, VHDL, Schematic Entry, Synthesis, Functional and Timing Simulation, Place and Route)	Now
ATDS1000PC	Atmel – WinCUPL (Includes CUPL, Compiler, Place and Route)	Now
ATF15xx-DK2	CPLD Development Programming Kit (Includes Software, 2 Sample PLDs, 84-lead PLCC Adapter Demo Board and ISP Cable)	Now
ATDH1150VPC	Atmel – ISP Kit Software and Cable (3V or 5V)	Now
ATDH1160VPC	Atmel – ISP Programming Board (3V or 5V)	Now
ATDH1161PC	Atmel – 44-lead PLCC Adapter Board for ISP Programming Board	Now
ATDH1162PC	Atmel – 44-lead TQFP Adapter Board for ISP Programming Board	Now
ATDH1163PC	Atmel – 68-lead PLCC Adapter Board for ISP Programming Board	Now
ATDH1164PC	Atmel – 100-lead PQFP Adapter Board for ISP Programming Board	Now
ATDH1165PC	Atmel – 100-lead TQFP Adapter Board for ISP Programming Board	Now
ATDH1166PC	Atmel – 160-lead PQFP Adapter Board for ISP Programming Board	Now
ATF15xx-SAA44	Atmel – 44-lead TQFP Adapter for ATF15xx-DK2	Now
ATF15xx-SAJ44	Atmel – 44-lead PLCC Adapter for ATF15xx-DK2	Now
ATF15xx-SAJ68	Atmel – 68-lead PLCC Adapter for ATF15xx-DK2	Now
ATF15xx-SAA100	Atmel – 100-lead TQFP Adapter for ATF15xx-DK2	Now
ATF15xx-SAQ100	Atmel – 100-lead PQFP Adapter for ATF15xx-DK2	Now
ATF15xx-SAQ160	Atmel – 160-lead PQFP Adapter for ATF15xx-DK2	Now

**PROGRAMMABLE SLI****Field Programmable System-Level Integration Circuits (FPSLIC®) – AVR, FPGA and SRAM on a Single Chip****AT94K Series**

Part Number	FPGA Gates	FreeRAM	FPGA I/O <sup>(1)</sup>	Program/Data SRAM	Availability
AT94K05AL Micro FPSLIC	5K	2,048 Bits	Up to 96	4K - 16K Bytes/4K - 16K Bytes	Now
AT94K10AL	10K	4,096 Bits	Up to 192	20K - 32K Bytes/4K - 16K Bytes	Now
AT94K10AX (0.18 μm)	10K	4,096 Bits	Up to 192	20K - 32K Bytes/4K - 16K Bytes	2Q2005
AT94K40AL	40K	18,432 Bits	Up to 384	20K - 32K Bytes/4K - 16K Bytes	Now

**Software/Hardware Tools****Software**

ATDS94KSW1	AT94K Series Design System Annual Subscription	Now
ATDS94KSW2	AT94K Series Design System Perpetual License	Now
ATDM94KSW2	AT94K Series Design System Annual Maintenance	Now

**Hardware**

ATSTK94	FPSLIC Starter Kit, Cable, Software (4-month Software License)	Now
ATSTK594	FPSLIC Add-on Card to STK500	Now
ATDH94STKB	FPSLIC Starter Kit Board, Cable (Hardware Only – No Software)	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

**Training**

AT94TRAIN	FPSLIC Training Course, Including Starter Kit	Now
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**University Program**

ATSTK94U	FPSLIC University Laboratory Kit (12-month License)	Now
ATDS94KSWU	AT94K Series University Annual Subscription Fee	Now
ATDH94STKBU	FPSLIC University Laboratory Board, Cable (Hardware Only – No Software)	Now
AT94KINST	FPSLIC University Instructor Package (Includes Laboratory Kit, Documentation and Presentations)	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	FPGA I/O	Program/Data SRAM	Availability
AT94S05AL Micro FPSLIC	5K	2,048 Bits	Up to 95	4K - 16K Bytes/4K - 16K Bytes	Now
AT94S10AL	10K	4,096 Bits	Up to 120	20K - 32K Bytes/4K - 16K Bytes	Now
AT94S40AL	40K	18,432 Bits	Up to 384	20K - 32K Bytes/4K - 16K Bytes	Now

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