

SELECTION GUIDE

FLASH

OTP

ROM

ROMLESS

APPLICATION SPECIFIC



	Program Memory (KB)	EEPROM (KB)	RAM (Bytes)	I/O Pins	UART	Timers	Other Features	Vcc (V)	(5V/3V) Max Speed (MHz)	Packages
ISP FLASH										
AT89S51	4		128	32	1	2	WDT	4.0 - 5.5	33	PDIP40, PLCC44, TQFP44
AT89LS51	4		128	32	1	2	WDT	2.7 - 5.5	16	PDIP40, PLCC44, TQFP44
AT89S52	8		256	32	1	3	WDT	4.0 - 5.5	33	PDIP40, PLCC44, TQFP44
AT89LS52	8		256	32	1	3	WDT	2.7 - 5.5	33	PDIP40, PLCC44, TQFP44
AT89S8252	8	2	256	32	1	3	WDT	3.0 - 6.0	12	PDIP40, PLCC44, TQFP44
AT89S53	12		256	32	1	3	WDT	3.0 - 6.0	24	PDIP40, PLCC44, TQFP44
T89C5115	16	2	512	20	1	3+PCA	WDT, A/D	4.5 - 5.5	40	SOIC28, PLCC28, VQFP32, SOIC24*
T89C5115	16	2	512	20	1	3+PCA	WDT, A/D	2.7 - 3.6	24	SOIC28, PLCC28, VQFP32, SOIC24*
T89C51RB2	16		1280	32	1	3+PCA	WDT, SPI, BRG, KBD	2.7 - 5.5	40	PDIP40, PLCC44, VQFP44
T89C51RB2	16		1280	32	1	3+PCA	WDT, SPI, BRG, KBD	2.7 - 3.6	30	PDIP40, PLCC44, VQFP44
T89C51RC2	32		1280	32	1	3+PCA	WDT, SPI, BRG, KBD	2.7 - 5.5	40	PDIP40, PLCC44, VQFP44
T89C51RC2	32		1280	32	1	3+PCA	WDT, SPI, BRG, KBD	2.7 - 3.6	30	PDIP40, PLCC44, VQFP44
T89C51IC2	32		1280	34	1	3+PCA	WDT, SPI, TWI, RTC, BRG, KBD	2.7 - 5.5	40	PLCC44, VQFP44
T89C51IC2	32		1280	34	1	3+PCA	WDT, SPI, TWI, RTC, BRG, KBD	2.7 - 3.6	30	PLCC44, VQFP44
T89C51AC2	32	2	1280	34	1	3+PCA	WDT, A/D	2.7 - 5.5	40	PLCC44, VQFP44, CA-BGA64*
T89C51AC2	32	2	1280	34	1	3+PCA	WDT, A/D	2.7 - 3.6	20	PLCC44, VQFP44, CA-BGA64*
T89C51RD2	64	2	1280	32/48	1	3+PCA	WDT	3.0 - 5.5	40	PDIP40, PLCC44, VQFP 44, PLCC68, VQFP64
T89C51RD2	64	2	1280	32/48	1	3+PCA	WDT	2.7 - 3.6	25	PDIP40, PLCC44, VQFP 44, PLCC68, VQFP64
FLASH										
AT89C1051U	1		64	15	1	2	Analog Comparator	2.7 - 6.0	24/12	PDIP20, SOIC20
AT89C2051	2		128	15	1	2	Analog Comparator	2.7 - 6.0	24/12	PDIP20, SOIC20
AT89C4051	4		128	15	1	2	Analog Comparator	2.7 - 6.0	24/12	PDIP20, SOIC20
AT89C51 ⁽¹⁾	4		128	32	1	2		4.0 - 6.0	33	PDIP40, PLCC44, TQFP44
AT89LV51 ⁽²⁾	4		128	32	1	2		2.7 - 6.0	16	PDIP40, PLCC44, TQFP44
AT89C52 ⁽³⁾	8		256	32	1	3		4.0 - 6.0	33	PDIP40, PLCC44, TQFP44
AT89LV52 ⁽⁴⁾	8		256	32	1	3		2.7 - 6.0	16	PDIP40, PLCC44, TQFP44
AT89C55WD	20		256	32	1	3	WDT	4.0 - 5.5	33	PDIP40, PLCC44, TQFP44
AT89LV55WD	20		256	32	1	3	WDT	2.7 - 5.5	12	PDIP40, PLCC44, TQFP44
AT89LV55	20		256	32	1	3		2.7 - 5.5	12	PDIP40, PLCC44, TQFP44
AT89C51RC	32		512	32	1	3	WDT	4.0 - 5.5	33	PDIP40, PLCC44, TQFP44
AT89LV51RC	32		512	32	1	3	WDT	2.7 - 5.5	12	PDIP40, PLCC44, TQFP44
OTP										
T87C5111	4		256	21	1	2+PCA	WDT, A/D, RC Osc., Prog. I/O, SPI	4.5 - 5.5	66	SSOP24, SOIC24, DIL24
T87C5111	4		256	21	1	2+PCA	WDT, A/D, RC Osc., Prog. I/O, SPI	2.7 - 5.5	40	SSOP24, SOIC24, DIL24
T87C5112	8		256	40	1	2+PCA	WDT, A/D, RC Osc., Prog. I/O, SPI	4.5 - 5.5	66	LQFP48, PLCC52
T87C5112	8		256	40	1	2+PCA	WDT, A/D, RC Osc., Prog. I/O, SPI	2.7 - 5.5	40	LQFP48, PLCC52
TS87C52X2	8		256	32	1	3		4.5 - 5.5	60	PDIP40, PLCC44, VQFP44
TS87C52X2	8		256	32	1	3		2.7 - 5.5	40	PDIP40, PLCC44, VQFP44
AT87C5103	12		512	19	-	2+PCA	SPI	2.7 - 5.5	16	SSOP16, SOIC24
TS87C54X2	16		256	32	1	3	WDT	4.5 - 5.5	60	PDIP40, PLCC44, VQFP44
TS87C54X2	16		256	32	1	3	WDT	2.7 - 5.5	40	PDIP40, PLCC44, VQFP44
TS87C51U2	16		256	32	2	3	WDT, BRG	4.5 - 5.5	60	PDIP40, PLCC44, VQFP44
TS87C51U2	16		256	32	2	3	WDT, BRG	2.7 - 5.5	40	PDIP40, PLCC44, VQFP44
T87C5101	16		512	22	1	3		4.5 - 5.5	66	SOIC24, SOIC28, SSOP24, PDIL24
T87C5101	16		512	22	1	3		2.7 - 5.5	40	SOIC24, SOIC28, SSOP24, PDIL24
TS87C51RB2	16		512	32	1	3+PCA	WDT	4.5 - 5.5	60	PDIP40, PLCC44, VQFP44
TS87C51RB2	16		512	32	1	3+PCA	WDT	2.7 - 5.5	40	PDIP40, PLCC44, VQFP44
AT87F55WD	20		256	32	1	3	WDT	4.0 - 5.5	33	PDIP40, PLCC44, TQFP44
TS87C58X2	32		256	32	1	3	WDT	4.5 - 5.5	60	PDIP40, PLCC44, VQFP44
TS87C58X2	32		256	32	1	3	WDT	2.7 - 5.5	40	PDIP40, PLCC44, VQFP44

* Check for availability

1, 2, 3, 4: may be replaced by AT89S51 (1), AT89LS51 (2), AT89S52 (3), AT89LS52 (4)

	Program Memory (KB)	EEPROM (KB)	RAM (Bytes)	I/O Pins	UART	Timers	Other Features	Vcc (V)	Max Speed (MHz)	Packages
OTP (continued)										
AT87F51RC	32	512	32	1	3		WDT	3.0 - 5.5	33	PDIP40, PLCC44, TQFP44
TS87C51RC2	32	512	32	1	3+PCA		WDT	4.5 - 5.5	60	PDIP40, PLCC44, VQFP44
TS87C51RC2	32	512	32	1	3+PCA		WDT	2.7 - 5.5	40	PDIP40, PLCC44, VQFP44
TSC87251G2D	32	1024	32	1	3+EWC		C251 Core, SPI, TWI	4.5 - 5.5	24	PDIP40, PLCC44, VQFP44
TSC87251G2D	32	1024	32	1	3+EWC		C251 Core, SPI, TWI	2.7 - 5.5	16	PDIP40, PLCC44, VQFP44
TS87C51RD2	64	1024	32/48	1	3+PCA		WDT	4.5 - 5.5	60	PDIP40, PLCC44, VQFP44, PLCC68, VQFP64
TS87C51RD2	64	1024	32/48	1	3+PCA		WDT	2.7 - 5.5	40	PDIP40, PLCC44, VQFP44, PLCC68, VQFP64
ROM										
T83C5111	4	256	21	1	2+PCA		WDT, A/D	4.5 - 5.5	66	SSOP24, SOIC24, DIL24
T83C5111	4	256	21	1	2+PCA		WDT, A/D	2.7 - 5.5	40	SSOP24, SOIC24, DIL24
T83C5112	8	256	40	1	2+PCA		WDT, A/D	4.5 - 5.5	66	LQFP48, PLCC52
T83C5112	8	256	40	1	2+PCA		WDT, A/D	2.7 - 5.5	40	LQFP48, PLCC52
TS80C52X2	8	256	32	1	3			4.5 - 5.5	60	PDIL40, PLCC44, VQFP44
TS80C52X2	8	256	32	1	3			2.7 - 5.5	40	PDIL40, PLCC44, VQFP44
T83C5102	8	512	22	1	3			4.5 - 5.5	66	SOIC24, SOIC28, SSOP24, PDIL24
T83C5102	8	512	22	1	3			2.7 - 5.5	40	SOIC24, SOIC28, SSOP24, PDIL24
AT83C5103	12	512	19		2+PCA		SPI	2.7 - 5.5	16	SSOP16, SOIC24
TS80C54X2	16	256	32	1	3		WDT	4.5 - 5.5	60	PDIL40, PLCC44, VQFP44
TS80C54X2	16	256	32	1	3		WDT	2.7 - 5.5	40	PDIL40, PLCC44, VQFP44
TS83C51U2	16	256	32	2	3		WDT, BRG	4.5 - 5.5	60	PDIP40, PLCC44, VQFP44
TS83C51U2	16	256	32	2	3		WDT, BRG	2.7 - 5.5	40	PDIP40, PLCC44, VQFP44
T83C5101	16	512	22	1	3			4.5 - 5.5	66	SOIC24, SOIC28, SSOP24, PDIL24
T83C5101	16	512	22	1	3			2.7 - 5.5	40	SOIC24, SOIC28, SSOP24, PDIL24
TS83C51RB2	16	512	32	1	3+PCA		WDT	4.5 - 5.5	60	PDIP40, PLCC44, VQFP44
TS83C51RB2	16	512	32	1	3+PCA		WDT	2.7 - 5.5	40	PDIP40, PLCC44, VQFP44
T83C51RB2	16	1280	32	1	3+PCA		WDT, SPI, BRG, KBD	2.7 - 5.5	40	PDIP40, PLCC44, VQFP44
T83C51RB2	16	1280	32	1	3+PCA		WDT, SPI, BRG, KBD	2.7 - 3.6	30	PDIP40, PLCC44, VQFP44
T83C51IB2	16	1280	34	1	3+PCA		WDT, SPI, TWI, RTC, BRG, KBD	2.7 - 5.5	40	PLCC44, VQFP44
T83C51IB2	16	1280	34	1	3+PCA		WDT, SPI, TWI, RTC, BRG, KBD	2.7 - 3.6	30	PLCC44, VQFP44
TSC83251G1D	16	1024	32	1	3+EWC		C251 Core, SPI, TWI	4.5 - 5.5	24	PDIL40, PLCC44, VQFP44
TSC83251G1D	16	1024	32	1	3+EWC		C251 Core, SPI, TWI	2.7 - 5.5	12	PDIL40, PLCC44, VQFP44
TS80C58X2	32	256	32	1	3		WDT	4.5 - 5.5	60	PDIL40, PLCC44, VQFP44
TS80C58X2	32	256	32	1	3		WDT	2.7 - 5.5	40	PDIL40, PLCC44, VQFP44
TS83C51RC2	32	512	32	1	3+PCA		WDT	4.5 - 5.5	60	PDIP40, PLCC44, VQFP44
TS83C51RC2	32	512	32	1	3+PCA		WDT	2.7 - 5.5	40	PDIP40, PLCC44, VQFP44
T83C51RC2	32	1280	32	1	3+PCA		WDT, SPI, BRG, KBD	2.7 - 5.5	40	PDIP40, PLCC44, VQFP44
T83C51RC2	32	1280	32	1	3+PCA		WDT, SPI, BRG, KBD	2.7 - 3.6	30	PDIP40, PLCC44, VQFP44
T83C51C2	32	1280	34	1	3+PCA		WDT, SPI, TWI, RTC, BRG, KBD	2.7 - 5.5	40	PLCC44, VQFP44
T83C51C2	32	1280	34	1	3+PCA		WDT, SPI, TWI, RTC, BRG, KBD	2.7 - 3.6	30	PLCC44, VQFP44
TSC83251G2D	32	1024	32	1	3+EWC		C251 Core, SPI, TWI	4.5 - 5.5	24	PDIL40, PLCC44, VQFP44
TSC83251G2D	32	1024	32	1	3+EWC		C251 Core, SPI, TWI	2.7 - 5.5	16	PDIL40, PLCC44, VQFP44
TS83C51RD2	64	1024	32/48	1	3+PCA		WDT	4.5 - 5.5	60	PDIP40, PLCC44, VQFP44, PLCC68, VQFP64
TS83C51RD2	64	1024	32/48	1	3+PCA		WDT	2.7 - 5.5	40	PDIP40, PLCC44, VQFP44, PLCC68, VQFP64
ROMLESS										
TS80C31X2		128	32	1	2			4.5 - 5.5	60	PDIL40, PLCC44, VQFP44
TS80C31X2		128	32	1	2			2.7 - 5.5	40	PDIL40, PLCC44, VQFP44
TS80C32X2		256	32	1	3			4.5 - 5.5	60	PDIL40, PLCC44, VQFP44
TS80C32X2		256	32	1	3			2.7 - 5.5	40	PDIL40, PLCC44, VQFP44
TS80C51U2		256	32	2	3		WDT, BRG	4.5 - 5.5	60	PDIL40, PLCC44, VQFP44
TS80C51U2		256	32	2	3		WDT, BRG	2.7 - 5.5	40	PDIL40, PLCC44, VQFP44
T80C5112		256	40	1	2+PCA		WDT, SPI	4.5 - 5.5	66	LQFP48, PLCC52
T80C5112		256	40	1	2+PCA		WDT, SPI	2.7 - 5.5	40	LQFP48, PLCC52

* Check for availability

ROMLESS (continued)	Program Memory (KB)	EEPROM (KB)	RAM (Bytes)	I/O Pins	UART	Timers	Other Features	Vcc (V)	Max Speed (MHz)	Packages
TS80C51RA2	512		32	1	3+PCA		WDT	4.5 - 5.5	60	PDIL40, PLCC44, VQFP44
TS80C51RA2	512		32	1	3+PCA		WDT	2.7 - 5.5	40	PDIL40, PLCC44, VQFP44
TS80C51RD2	1024		32/48	1	3+PCA		WDT	4.5 - 5.5	60	PDIL40, PLCC44, VQFP44, PLCC68, VQFP64
TS80C51RD2	1024		32/48	1	3+PCA		WDT	2.7 - 5.5	40	PDIL40, PLCC44, VQFP44, PLCC68, VQFP64
TSC80251G2D	1024		32	1	3+EWC		C251 Core, SPI, TWI, WDT	4.5 - 5.5	24	PDIL40, PLCC44, VQFP44
TSC80251G2D	1024		32	1	3+EWC		C251 Core, SPI, TWI, WDT	2.7 - 5.5	16	PDIL40, PLCC44, VQFP44
T80C51ID2	1280		32/34	1	3+PCA		WDT, SPI, BRG, KBD, TWI	2.7 - 5.5	40	PDIL40, PLCC44, VQFP44
T80C51ID2	1280		32/34	1	3+PCA		WDT, SPI, BRG, KBD, TWI	2.7 - 3.6	20	PDIL40, PLCC44, VQFP44

ATMEL APPLICATION SPECIFIC C51

	FLASH	CRAM	ROM	Bootloader	EEPROM (KB)	RAM (Bytes)	I/O Pins	UART	Timers	Other Features	Vcc (V)	(5V/3V) Max Speed (MHz)	Packages
MP3 Decoder													
AT89C51SND1A	64			4	2304	44	1	2		MP3 Decoder, TWI, MMC ADC, USB, SPI, I2S	2.7 - 3.6	20	TQFP80, DIE
AT83SND1Axxx			64		2304	44	1	2		MP3 Decoder, TWI, MMC ADC, USB, SPI, I2S	2.7 - 3.6	20	TQFP80, DIE
Data Acquisition													
AT89S4D12	4				128	256	5			SPI	3.0 - 3.6	12	PLCC28, SO28, PLCC32
Card Reader													
T83C5121		16			512	14/30	1	2		ISO7816, DC/DC, WTD	2.85 - 5.5	16	SSOP24, PLCC52, LQFP48*
T85C5121		16	16		512	14/30	1	2		ISO7816, DC/DC, WTD	2.85 - 5.5	16	SSOP24, PLCC52, LQFP48*
T89C5121	16		16		512	14/30	1	2		ISO7816, DC/DC, WTD	2.85 - 5.5	16	SSOP24, LQFP48*
CAN Multiplexing													
T89C51CC02	16			2	2	512	20	1	3+PCA	A/D, CAN 4 Chan., WTD	2.7 - 5.5	40/24	SOIC24*, SOIC28 PLCC28, VQFP32
T89C51CC01	32			2	2	1280	34	1	3+PCA	A/D, CAN 15 Chan., WTD	2.7 - 5.5	40/20	VQFP44, PLCC44, CA-BGA64*

* Check for availability

A/D: Analog-to-Digital Converter, **BRG:** Baud Rate Generator, **CRAM:** Code RAM, **KBD:** Keyboard, **MMC:** Multi-Media Card, **RC Osc.:** Resistor Capacity Oscillator, **RTC:** Real Time Clock, **SPI:** Serial Peripherals Interface, **TWI:** Two-wire Interface, **USB:** Universal Serial Bus, **WDT:** Watchdog Timer.

Corporate Headquarters

2325 Orchard Parkway
San Jose, CA 95131, USA
TEL.: (1)(408) 441-0311
FAX.: (1)(408) 487-2600

Europe

Atmel SarL
Route des Arsenaux 41
Casa Postale 80
CH-1705 Fribourg
Switzerland
TEL.: (41) 26-426-5555
FAX.: (41) 26-426-5500

Asia

Atmel Asia, Ltd.
Room 1219
Chinachem Golden Plaza
77 Mody Road Tsimshatsui
East Kowloon
Hong Kong
TEL.: (852) 2721-9778
FAX.: (852) 2722-1369

Japan

Atmel Japan K.K.
9F, Tonetsu Shinkawa Bldg.
1-24-8 Shinkawa
Chuo-ku, Tokyo 104-0033
Japan
TEL.: (81) 3-3523-3551
FAX.: (81) 3-3523-7581

Atmel Nantes

La Chantrerie
BP 70602
44306 Nantes Cedex 3
France
TEL.: (33) 2 40 18 18 18
FAX.: (33) 2 40 18 19 60

e-mail

literature@atmel.com

Web Site

http://www.atmel.com

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