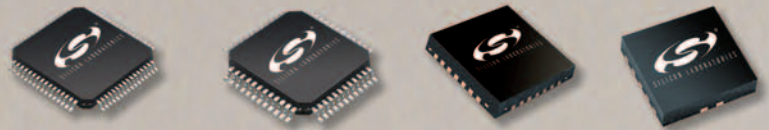
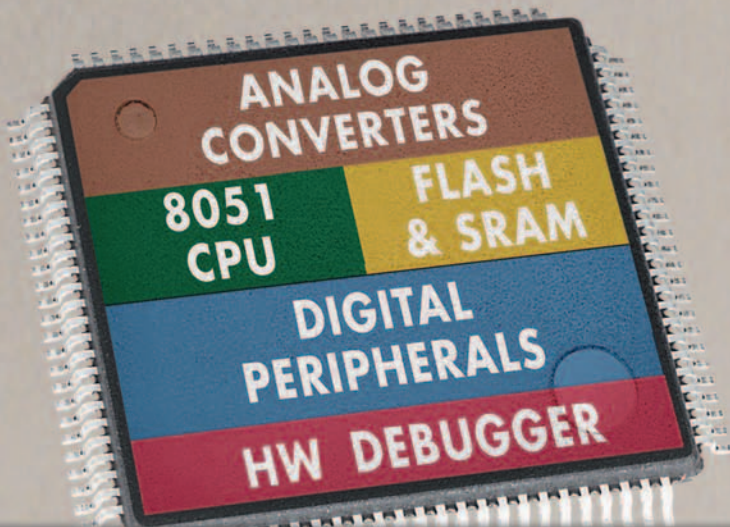


Silicon Laboratories

Mixed-Signal MCU Selector Guide



www.silabs.com

High-Performance 8051 Mixed-Signal Microcontrollers

- Highest Performance Integrated Analog
 - Up to 24-bit
 - Up to 1 Msps ADCs
- World's Fastest 8-bit MCU
 - Up to 100 MIPS
- Smallest MCU Footprint
 - 3 x 3 mm
- Comprehensive, Low Cost Development Tools



SILICON LABORATORIES

Midyear Update 2005

Precision Mixed-Signal MCUs

Part Number	MIPS (peak)	Flash (bytes)	RAM (bytes)	Ext Mem I/F	Digital Port I/O Pins	Serial Buses	Timers (16-bit)	PCA Chnls	Internal Osc	ADC1	ADC2	DAC	Temp Sensor	VREF	Comparators	Other	Package	Eval Kit
C8051F120	100	128 kB	8448	Y	64	2 UARTs, SMBus, SPI	5	6	±2%	12-bit, 8-ch., 100 ksps	8-bit, 8-ch., 500 ksps	12-bit, 2-ch.	Y	Y	2	16x16 MAC	TQFP100	C8051F120DK
C8051F121	100	128 kB	8448	Y	32	2 UARTs, SMBus, SPI	5	6	±2%	12-bit, 8-ch., 100 ksps	8-bit, 8-ch., 500 ksps	12-bit, 2-ch.	Y	Y	2	16x16 MAC	TQFP64	C8051F120DK
C8051F122	100	128 kB	8448	Y	64	2 UARTs, SMBus, SPI	5	6	±2%	10-bit, 8-ch., 100 ksps	8-bit, 8-ch., 500 ksps	12-bit, 2-ch.	Y	Y	2	16x16 MAC	TQFP100	C8051F120DK
C8051F123	100	128 kB	8448	Y	32	2 UARTs, SMBus, SPI	5	6	±2%	10-bit, 8-ch., 100 ksps	8-bit, 8-ch., 500 ksps	12-bit, 2-ch.	Y	Y	2	16x16 MAC	TQFP64	C8051F120DK
C8051F130	100	128 kB	8448	Y	64	2 UARTs, SMBus, SPI	5	6	±2%	10-bit, 8-ch., 100 ksps	-	-	Y	Y	2	16x16 MAC	TQFP100	C8051F120DK
C8051F131	100	128 kB	8448	Y	32	2 UARTs, SMBus, SPI	5	6	±2%	10-bit, 8-ch., 100 ksps	-	-	Y	Y	2	16x16 MAC	TQFP64	C8051F120DK
C8051F132	100	64 kB	8448	Y	64	2 UARTs, SMBus, SPI	5	6	±2%	10-bit, 8-ch., 100 ksps	-	-	Y	Y	2	16x16 MAC	TQFP100	C8051F120DK
C8051F133	100	64 kB	8448	Y	32	2 UARTs, SMBus, SPI	5	6	±2%	10-bit, 8-ch., 100 ksps	-	-	Y	Y	2	16x16 MAC	TQFP64	C8051F120DK
C8051F124	50	128 kB	8448	Y	64	2 UARTs, SMBus, SPI	5	6	±2%	12-bit, 8-ch., 100 ksps	8-bit, 8-ch., 500 ksps	12-bit, 2-ch.	Y	Y	2	-	TQFP100	C8051F120DK
C8051F125	50	128 kB	8448	Y	32	2 UARTs, SMBus, SPI	5	6	±2%	12-bit, 8-ch., 100 ksps	8-bit, 8-ch., 500 ksps	12-bit, 2-ch.	Y	Y	2	-	TQFP64	C8051F120DK
C8051F126	50	128 kB	8448	Y	64	2 UARTs, SMBus, SPI	5	6	±2%	10-bit, 8-ch., 100 ksps	8-bit, 8-ch., 500 ksps	12-bit, 2-ch.	Y	Y	2	-	TQFP100	C8051F120DK
C8051F127	50	128 kB	8448	Y	32	2 UARTs, SMBus, SPI	5	6	±2%	10-bit, 8-ch., 100 ksps	8-bit, 8-ch., 500 ksps	12-bit, 2-ch.	Y	Y	2	-	TQFP64	C8051F120DK
C8051F020	25	64 kB	4352	Y	64	2 UARTs, SMBus, SPI	5	5	±20%	12-bit, 8-ch., 100 ksps	8-bit, 8-ch., 500 ksps	12-bit, 2-ch.	Y	Y	2	-	TQFP100	C8051F020DK
C8051F021	25	64 kB	4352	Y	32	2 UARTs, SMBus, SPI	5	5	±20%	12-bit, 8-ch., 100 ksps	8-bit, 8-ch., 500 ksps	12-bit, 2-ch.	Y	Y	2	-	TQFP64	C8051F020DK
C8051F022	25	64 kB	4352	Y	64	2 UARTs, SMBus, SPI	5	5	±20%	10-bit, 8-ch., 100 ksps	8-bit, 8-ch., 500 ksps	12-bit, 2-ch.	Y	Y	2	-	TQFP100	C8051F020DK
C8051F023	25	64 kB	4352	Y	32	2 UARTs, SMBus, SPI	5	5	±20%	10-bit, 8-ch., 100 ksps	8-bit, 8-ch., 500 ksps	12-bit, 2-ch.	Y	Y	2	-	TQFP64	C8051F020DK
C8051F064	25	64 kB	4352	Y	59	2 UARTs, SMBus, SPI	5	6	±2%	16-bit, 1-ch., 1 Msps	16-bit, 1-ch., 1 Msps	-	-	Y	3	DMA	TQFP100	C8051F060DK
C8051F065	25	64 kB	4352	-	24	2 UARTs, SMBus, SPI	5	6	±2%	16-bit, 1-ch., 1 Msps	16-bit, 1-ch., 1 Msps	-	-	Y	3	DMA	TQFP64	C8051F060DK
C8051F066	25	32 kB	4352	Y	59	2 UARTs, SMBus, SPI	5	6	±2%	16-bit, 1-ch., 1 Msps	16-bit, 1-ch., 1 Msps	-	-	Y	3	DMA	TQFP100	C8051F060DK
C8051F067	25	32 kB	4352	-	24	2 UARTs, SMBus, SPI	5	6	±2%	16-bit, 1-ch., 1 Msps	16-bit, 1-ch., 1 Msps	-	-	Y	3	DMA	TQFP64	C8051F060DK
C8051F000	20	32 kB	256	-	32	UART, SMBus, SPI	4	5	±20%	12-bit, 8-ch., 100 ksps	-	12-bit, 2-ch.	Y	Y	2	-	TQFP64	C8051F005DK
C8051F001	20	32 kB	256	-	16	UART, SMBus, SPI	4	5	±20%	12-bit, 8-ch., 100 ksps	-	12-bit, 2-ch.	Y	Y	2	-	TQFP48	C8051F005DK
C8051F002	20	32 kB	256	-	8	UART, SMBus, SPI	4	5	±20%	12-bit, 4-ch., 100 ksps	-	12-bit, 2-ch.	Y	Y	1	-	LQFP32	C8051F005DK
C8051F005	25	32 kB	2304	-	32	UART, SMBus, SPI	4	5	±20%	12-bit, 8-ch., 100 ksps	-	12-bit, 2-ch.	Y	Y	2	-	TQFP64	C8051F005DK
C8051F006	25	32 kB	2304	-	16	UART, SMBus, SPI	4	5	±20%	12-bit, 8-ch., 100 ksps	-	12-bit, 2-ch.	Y	Y	2	-	TQFP48	C8051F005DK
C8051F007	25	32 kB	2304	-	8	UART, SMBus, SPI	4	5	±20%	12-bit, 4-ch., 100 ksps	-	12-bit, 2-ch.	Y	Y	1	-	LQFP32	C8051F005DK
C8051F010	20	32 kB	256	-	32	UART, SMBus, SPI	4	5	±20%	10-bit, 8-ch., 100 ksps	-	12-bit, 2-ch.	Y	Y	2	-	TQFP64	C8051F005DK
C8051F011	20	32 kB	256	-	16	UART, SMBus, SPI	4	5	±20%	10-bit, 8-ch., 100 ksps	-	12-bit, 2-ch.	Y	Y	2	-	TQFP48	C8051F005DK
C8051F012	20	32 kB	256	-	8	UART, SMBus, SPI	4	5	±20%	10-bit, 4-ch., 100 ksps	-	12-bit, 2-ch.	Y	Y	1	-	LQFP32	C8051F005DK
C8051F015	25	32 kB	2304	-	32	UART, SMBus, SPI	4	5	±20%	10-bit, 8-ch., 100 ksps	-	12-bit, 2-ch.	Y	Y	2	-	TQFP64	C8051F005DK
C8051F016	25	32 kB	2304	-	16	UART, SMBus, SPI	4	5	±20%	10-bit, 8-ch., 100 ksps	-	12-bit, 2-ch.	Y	Y	2	-	TQFP48	C8051F005DK
C8051F017	25	32 kB	2304	-	8	UART, SMBus, SPI	4	5	±20%	10-bit, 4-ch., 100 ksps	-	12-bit, 2-ch.	Y	Y	1	-	LQFP32	C8051F005DK
C8051F018	25	16 kB	1280	-	32	UART, SMBus, SPI	4	5	±20%	10-bit, 8-ch., 100 ksps	-	-	Y	Y	2	-	TQFP64	C8051F005DK
C8051F019	25	16 kB	1280	-	16	UART, SMBus, SPI	4	5	±20%	10-bit, 8-ch., 100 ksps	-	-	Y	Y	2	-	TQFP48	C8051F005DK
C8051F350	50	8 kB	768	-	17	UART, SMBus, SPI	4	3	±2%	24-bit, 8-ch., 1 ksps	-	8-bit, 2-ch.	Y	-	1	-	LQFP32	C8051F350DK
C8051F351	50	8 kB	768	-	17	UART, SMBus, SPI	4	3	±2%	24-bit, 8-ch., 1 ksps	-	8-bit, 2-ch.	Y	-	1	-	QFN28	C8051F350DK
C8051F352	50	8 kB	768	-	17	UART, SMBus, SPI	4	3	±2%	16-bit, 8-ch., 1 ksps	-	8-bit, 2-ch.	Y	-	1	-	LQFP32	C8051F350DK
C8051F353	50	8 kB	768	-	17	UART, SMBus, SPI	4	3	±2%	16-bit, 8-ch., 1 ksps	-	8-bit, 2-ch.	Y	-	1	-	QFN28	C8051F350DK

USB to UART Bridge

Part Number	MIPS (peak)	EEPROM (bytes)	RAM (bytes)	Ext Mem I/F	Digital Port I/O Pins	Serial Buses	Timers (16-bit)	PCA Chnls	Internal Osc	ADC1	ADC2	DAC	Temp Sensor	VREF	Comparators	Other	Package	Eval Kit
CP2103	-	1024	1 kB	-	4	UART to USB Bridge	-	-	Y	-	-	-	-	-	-	Volt Reg, RS485, Split V _{DDIO}	QFN28	CP2103EK
CP2102	-	1024	1 kB	-	-	UART to USB Bridge	-	-	Y	-	-	-	-	-	-	Volt Reg, host I/O	QFN28	CP2102EK
CP2101	-	512	1 kB	-	-	UART to USB Bridge	-	-	Y	-	-	-	-	-	-	Volt Reg	QFN28	CP2101EK

USB Mixed-Signal MCUs

Part Number	MIPS (peak)	Flash (bytes)	RAM (bytes)	Ext Mem I/F	Digital Port I/O Pins	Serial Buses	Timers (16-bit)	PCA Chnls	Internal Osc	ADC1	ADC2	DAC	Temp Sensor	VREF	Comparators	Other	Package	Eval Kit
C8051F320	25	16 kB	2304	-	25	USB 2.0, UART, SMBus, SPI	4	5	±1.5%	10-bit, 17-ch., 200 ksp/s	-	-	Y	Y	2	-	LQFP32	C8051F320DK
C8051F321	25	16 kB	2304	-	21	USB 2.0, UART, SMBus, SPI	4	5	±1.5%	10-bit, 13-ch., 200 ksp/s	-	-	Y	Y	2	-	QFN28	C8051F320DK

Small Form Factor Mixed-Signal MCUs

Part Number	MIPS (peak)	Flash (bytes)	RAM (bytes)	Ext Mem I/F	Digital Port I/O Pins	Serial Buses	Timers (16-bit)	PCA Chnls	Internal Osc	ADC1	ADC2	DAC	Temp Sensor	VREF	Comparators	Other	Package	Eval Kit
C8051F310	25	16 kB	1280	-	29	UART, SMBus, SPI	4	5	±2%	10-bit, 21-ch., 200 ksp/s	-	-	Y	-	2	-	LQFP32	C8051F310DK
C8051F311	25	16 kB	1280	-	25	UART, SMBus, SPI	4	5	±2%	10-bit, 17-ch., 200 ksp/s	-	-	Y	-	2	-	QFN28	C8051F310DK
C8051F206	25	8 kB	1280	-	32	UART, SPI	3	-	±20%	12-bit, 32-ch., 100 ksp/s	-	-	-	-	2	-	TQFP48	C8051F206DK
C8051F226	25	8 kB	1280	-	32	UART, SPI	3	-	±20%	8-bit, 32-ch., 100 ksp/s	-	-	-	-	2	-	TQFP48	C8051F226DK
C8051F236	25	8 kB	1280	-	32	UART, SPI	3	-	±20%	-	-	-	-	-	2	-	TQFP48	C8051F226DK
C8051F312	25	8 kB	1280	-	29	UART, SMBus, SPI	4	5	±2%	10-bit, 21-ch., 200 ksp/s	-	-	Y	-	2	-	LQFP32	C8051F310DK
C8051F313	25	8 kB	1280	-	25	UART, SMBus, SPI	4	5	±2%	10-bit, 17-ch., 200 ksp/s	-	-	Y	-	2	-	QFN28	C8051F310DK
C8051F314	25	8 kB	1280	-	29	UART, SMBus, SPI	4	5	±2%	-	-	-	Y	-	2	-	LQFP32	C8051F310DK
C8051F315	25	8 kB	1280	-	25	UART, SMBus, SPI	4	5	±2%	-	-	-	Y	-	2	-	QFN28	C8051F310DK
C8051F330	25	8 kB	768	-	17	UART, SMBus, SPI	4	3	±2%	10-bit, 16-ch., 200 ksp/s	-	10-bit, 1-ch.	Y	Y	1	-	QFN20	C8051F330DK
C8051F330D	25	8 kB	768	-	17	UART, SMBus, SPI	4	3	±2%	10-bit, 16-ch., 200 ksp/s	-	10-bit, 1-ch.	Y	Y	1	-	PDIP20	C8051F330DK
C8051F331	25	8 kB	768	-	17	UART, SMBus, SPI	4	3	±2%	-	-	-	-	-	1	-	QFN20	C8051F330DK
C8051F220	25	8 kB	256	-	32	UART, SPI	3	-	±20%	8-bit, 32-ch., 100 ksp/s	-	-	-	-	2	-	TQFP48	C8051F226DK
C8051F221	25	8 kB	256	-	22	UART, SPI	3	-	±20%	8-bit, 32-ch., 100 ksp/s	-	-	-	-	2	-	LQFP32	C8051F226DK
C8051F230	25	8 kB	256	-	32	UART, SPI	3	-	±20%	-	-	-	-	-	2	-	TQFP48	C8051F226DK
C8051F231	25	8 kB	256	-	22	UART, SPI	3	-	±20%	-	-	-	-	-	2	-	LQFP32	C8051F226DK
C8051F300	25	8 kB	256	-	8	UART, SMBus	3	3	±2%	8-bit, 8-ch., 500 ksp/s	-	-	Y	-	1	-	QFN11	C8051F300DK
C8051F301	25	8 kB	256	-	8	UART, SMBus	3	3	±2%	-	-	-	-	-	1	-	QFN11	C8051F300DK
C8051F302	25	8 kB	256	-	8	UART, SMBus	3	3	±20%	8-bit, 8-ch., 500 ksp/s	-	-	Y	-	1	-	QFN11	C8051F300DK
C8051F303	25	8 kB	256	-	8	UART, SMBus	3	3	±20%	-	-	-	-	-	1	-	QFN11	C8051F300DK
C8051F332	25	4 kB	768	-	17	UART, SMBus, SPI	4	3	±2%	10-bit, 16-ch., 200 ksp/s	-	-	Y	Y	1	-	QFN20	C8051F330DK
C8051F333	25	4 kB	768	-	17	UART, SMBus, SPI	4	3	±2%	-	-	-	-	-	1	-	QFN20	C8051F330DK
C8051F304	25	4 kB	256	-	8	UART, SMBus	3	3	±20%	-	-	-	-	-	1	-	QFN11	C8051F300DK
C8051F334	25	2 kB	768	-	17	UART, SMBus, SPI	4	3	±2%	10-bit, 16-ch., 200 ksp/s	-	-	Y	Y	1	-	QFN20	C8051F330DK
C8051F335	25	2 kB	768	-	17	UART, SMBus, SPI	4	3	±2%	-	-	-	-	-	1	-	QFN20	C8051F330DK
C8051F305	25	2 kB	256	-	8	UART, SMBus	3	3	±20%	-	-	-	Y	-	1	-	QFN11	C8051F300DK

CAN Mixed-Signal MCUs

Part Number	MIPS (peak)	Flash (bytes)	RAM (bytes)	Ext Mem I/F	Digital Port I/O Pins	Serial Buses	Timers (16-bit)	PCA Chnls	Internal Osc	ADC1	ADC2	DAC	Temp Sensor	VREF	Comparators	Other	Package	Eval Kit
C8051F040	25	64 kB	4352	Y	64	CAN2.0B, 2 UARTs, SMBus, SPI	5	6	±2%	12-bit, 13-ch., 100 ksp/s	8-bit, 8-ch., 500 ksp/s	12-bit, 2-ch.	Y	Y	3	±60 V PGA	TQFP100	C8051F040DK
C8051F041	25	64 kB	4352	Y	32	CAN2.0B, 2 UARTs, SMBus, SPI	5	6	±2%	12-bit, 13-ch., 100 ksp/s	8-bit, 8-ch., 500 ksp/s	12-bit, 2-ch.	Y	Y	3	±60 V PGA	TQFP64	C8051F040DK
C8051F042	25	64 kB	4352	Y	64	CAN2.0B, 2 UARTs, SMBus, SPI	5	6	±2%	10-bit, 13-ch., 100 ksp/s	8-bit, 8-ch., 500 ksp/s	12-bit, 2-ch.	Y	Y	3	±60 V PGA	TQFP100	C8051F040DK
C8051F043	25	64 kB	4352	Y	32	CAN2.0B, 2 UARTs, SMBus, SPI	5	6	±2%	10-bit, 13-ch., 100 ksp/s	8-bit, 8-ch., 500 ksp/s	12-bit, 2-ch.	Y	Y	3	±60 V PGA	TQFP64	C8051F040DK
C8051F044	25	64 kB	4352	Y	64	CAN2.0B, 2 UARTs, SMBus, SPI	5	6	±2%	10-bit, 13-ch., 100 ksp/s	-	-	Y	Y	3	±60 V PGA	TQFP100	C8051F040DK
C8051F045	25	64 kB	4352	Y	32	CAN2.0B, 2 UARTs, SMBus, SPI	5	6	±2%	10-bit, 13-ch., 100 ksp/s	-	-	Y	Y	3	±60 V PGA	TQFP64	C8051F040DK
C8051F060	25	64 kB	4352	Y	59	CAN2.0B, 2 UARTs, SMBus, SPI	5	6	±2%	16-bit, 1-ch., 1 Msp/s	16-bit, 1-ch., 1 Msp/s	12-bit, 2-ch.	Y	Y	3	10-bit, 8-ch., 200 ksp/s	TQFP100	C8051F060DK
C8051F061	25	64 kB	4352	-	24	CAN2.0B, 2 UARTs, SMBus, SPI	5	6	±2%	16-bit, 1-ch., 1 Msp/s	16-bit, 1-ch., 1 Msp/s	12-bit, 2-ch.	Y	Y	3	10-bit, 8-ch., 200 ksp/s	TQFP64	C8051F060DK
C8051F062	25	64 kB	4352	Y	59	CAN2.0B, 2 UARTs, SMBus, SPI	5	6	±2%	16-bit, 1-ch., 1 Msp/s	16-bit, 1-ch., 1 Msp/s	12-bit, 2-ch.	Y	Y	3	10-bit, 8-ch., 200 ksp/s	TQFP100	C8051F060DK
C8051F063	25	64 kB	4352	-	24	CAN2.0B, 2 UARTs, SMBus, SPI	5	6	±2%	16-bit, 1-ch., 1 Msp/s	16-bit, 1-ch., 1 Msp/s	12-bit, 2-ch.	Y	Y	3	10-bit, 8-ch., 200 ksp/s	TQFP64	C8051F060DK
C8051F046	25	32 kB	4352	Y	64	CAN2.0B, 2 UARTs, SMBus, SPI	5	6	±2%	10-bit, 13-ch., 100 ksp/s	-	-	Y	Y	3	±60 V PGA	TQFP100	C8051F040DK
C8051F047	25	32 kB	4352	Y	32	CAN2.0B, 2 UARTs, SMBus, SPI	5	6	±2%	10-bit, 13-ch., 100 ksp/s	-	-	Y	Y	3	±60 V PGA	TQFP64	C8051F040DK

USB to UART Bridge in a Single Chip



Easily update legacy RS-232 and RS-485 designs to USB. The CP210x single-chip solution provides a full-speed USB to UART bridge in a 5x5 mm package with no crystal, voltage regulator, EEPROM, or other external components required. System development is simplified by the Evaluation Kit, which includes a complete evaluation board and royalty-free device drivers.

Microcontroller Development Tools

Development Kits

Complete development/prototyping system includes the following:

- Prototyping/demonstration board
- Serial adapter for in system programming and debugging
- Silicon Laboratories IDE
- MCU configuration wizard

Buy online at www.silabs.com/DevKits.

IDE

4 kB C compiler included
Unlimited assembler
Source code editor
Project manager
Keil 8051 macro assembler and linker
Flash programmer
Supports full-speed, non-intrusive, in-circuit debug logic

Source-level debug
Variable watch window
Real-time breakpoints
Conditional memory watchpoints
Memory and register inspect/modify
Supports third-party development tools
Single-step and animated execution modes



Third Party Tool Support

A broad range of third-party compilers and development tools are available. A free Small Device C Compiler (SDCC) supported by App Note 198, "Integrating SDCC 8051 Tools into the Silicon Labs IDE." Flash programming and source-level debug of OMF-51 object files is fully supported.

Design Support at www.silabs.com/MCU

Silicon Laboratories' Reference Designs, Application Notes and Source Code Examples address a wide range of applications and markets. Visit our website at www.silabs.com/MCU for complete access to all of our design resources.

Product Support at www.silabs.com/support

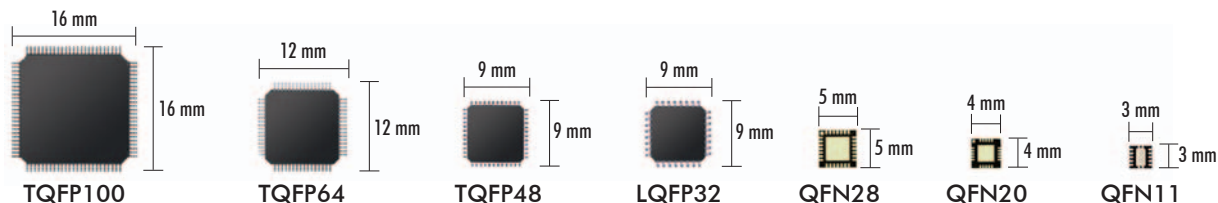
💡 MCU Knowledge Base: answers to common technical questions about the MCU product line and product use.

MCU User's Forum: where C8051F MCU users can share experiences and technical questions with other users.

Microcontroller support email: mcuapps@silabs.com

Europe only: eumcuapps@silabs.com

Development Kit or IDE support email: mcutools@silabs.com



Pricing and availability:
www.silabs.com/sales

Corporate Headquarters

4635 Boston Lane
Austin, TX 78735
512.416.8500
877.444.3032 (toll free)
Fax: 512.416.9669