Chipsmall

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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C8051F536

25 MIPS, 2 kB Flash, 12-Bit ADC, 20-Pin Automotive MCU

Analog Peripherals

12-Bit ADC, 5 V input signal; up to 16 external inputs

- ±1 LSB INL; guaranteed monotonic
- Programmable throughput up to 200 ksps
- Data-dependent windowed interrupt generator
- Programmable gain maximizes input signal span

Built-in Temperature Sensor (±3 °C)

One Comparator

Internal Voltage Reference

Precision V_{DD} Monitor/Brown-out Detector

On-Chip Debug

- On-chip debug circuitry facilitates full speed, non-intrusive in-system debug (no emulator required)
- Provides breakpoints, single stepping, watch-points
- Inspect/modify memory, registers, and stack
- Superior performance to emulation systems using ICE-chips, target pods, and sockets

Supply Voltage: 2.7 to 5.25 V

- Typical operating current: 7 mA at 25 MHz at 5.0 V
- Multiple power saving sleep and shutdown modes

Temperature Range: –40 to +125 °C

High-Speed 8051 µC Core

- Pipelined instruction architecture; executes 70% of instructions in 1 or 2 system clocks
- Up to 25 MIPS throughput with 25 MHz system clock
- Expanded interrupt handler

Memory

- 2 kB Flash; in-system programmable; flexible security features
- 256 bytes data RAM

LIN 2.0

- Master or slave operation using dedicated hardware (not software implementation with UART)

Digital Peripherals

- Up to 16 digital I/O; all are 5 V push-pull
- Programmable 16-bit counter array with three capture/compare modules
- Three general-purpose 16-bit counter/timers
- Dedicated watchdog timer; bidirectional reset
- Real-time clock mode using timer 3 or PCA
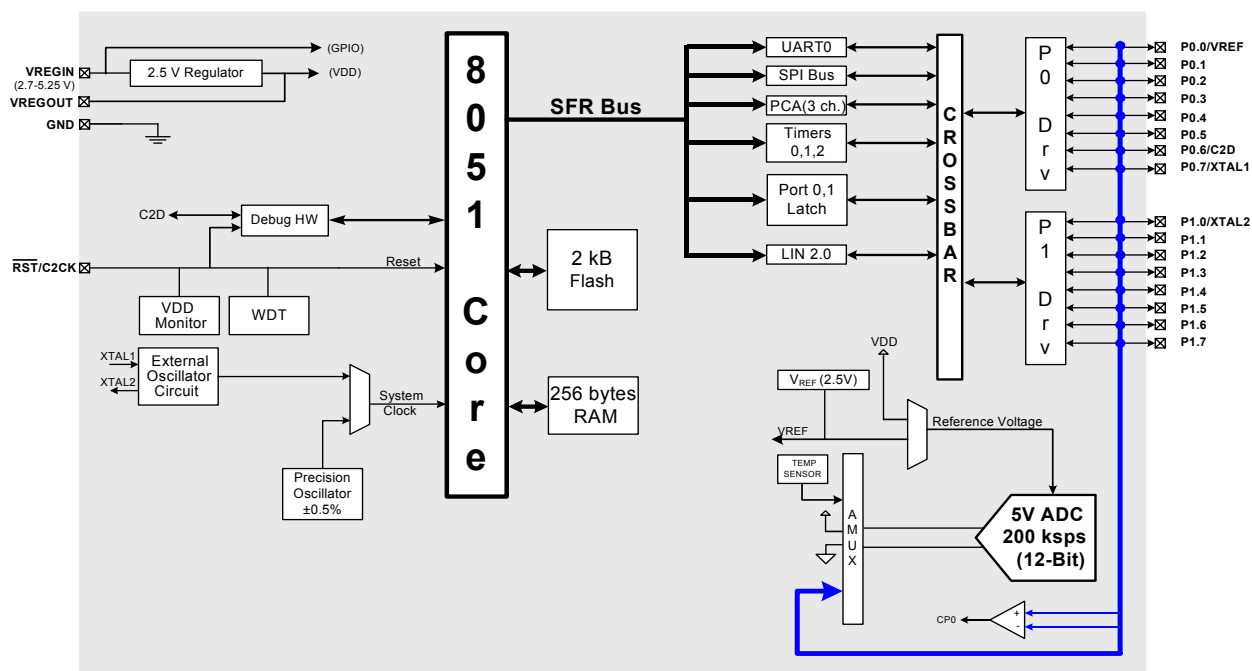
Clock Sources

- High-precision internal programmable oscillator up to 25 MHz
- External oscillator: Crystal, RC, C, or Clock

Packages

- 20-Pin TSSOP and 20-Pin QFN (4x4 mm)

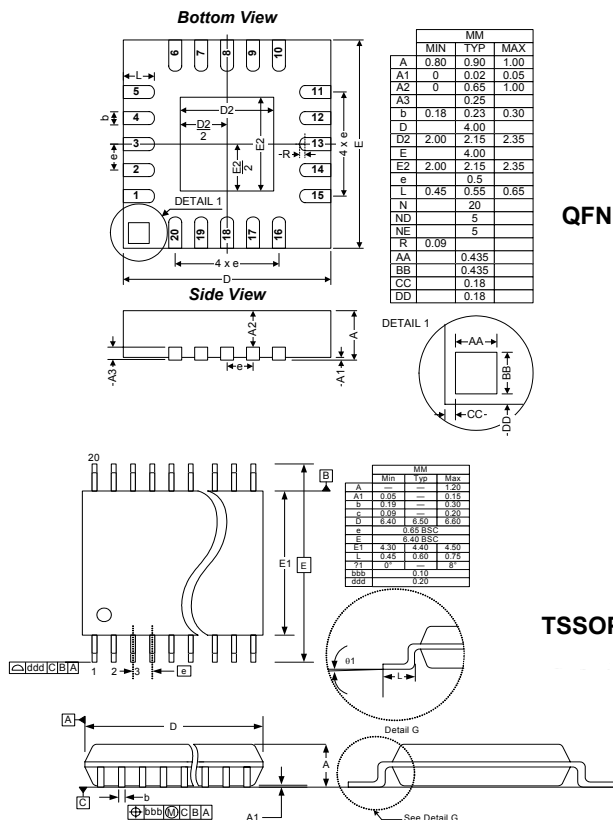### Ordering Part Numbers

- C8051F536-IT (TSSOP)
- C8051F536-IM (QFN)

Selected Electrical Specifications

(T_A = –40 to +125 C°, V_{REGIN} = 2.7 V unless otherwise specified)

Parameter	Conditions	Min	Typ	Max	Units
Global Characteristics					
Supply Voltage (V_{REGIN})		2.7	—	5.25	V
Supply Current (CPU active) V_{REGIN} = 2.7–5.0 V	Clock = 25 MHz	—	7	—	mA
	Clock = 1 MHz	—	0.8	—	mA
	Clock = 32 kHz; V_{DD} monitor enabled	—	33	—	µA
Supply Current (shutdown)	Oscillator not running; V_{DD} monitor disabled	—	0.2	—	µA
Clock Frequency Range		dc	—	25	MHz
A/D Converter					
Resolution			12		bits
Integral Nonlinearity		—	—	±1	LSB
Differential Nonlinearity	Guaranteed monotonic	—	—	±1	LSB
Signal-to-Noise Plus Distortion		—	68	—	dB
Throughput Rate		—	—	200	ksps
Input Voltage Range		0	—	V_{REF}	V
Flash					
Endurance		40K	150K	—	E/W cycles
Erase Cycle Time		10	12	14	ms
Write Cycle Time		40	50	60	µs

Package Information

QFN

TSSOP

	MM		
	MIN	TYP	MAX
A	0.80	0.90	1.00
A1	0	0.02	0.05
A2	0	0.65	1.00
A3		0.25	
b	0.18	0.23	0.30
D		4.00	
D2	2.00	2.15	2.35
E		4.00	
E2	2.00	2.15	2.35
e		0.5	
L	0.45	0.55	0.65
N		20	
ND		5	
NE		5	
R	0.09		
AA		0.435	
BB		0.435	
CC		0.18	
DD		0.18	

	MM		
	Min	Typ	Max
A			1.20
A1	0.05	—	0.15
b	0.19		0.30
c	0.09		0.20
D	6.40	6.50	6.60
e		0.65 BSC	
E		6.40 BSC	
E1	4.30	4.40	4.50
L	0.45	0.60	0.75
?1	0°		8°
bbb		0.10	
ddd		0.20	

C8051F530DK Development Kit