C8051F530A

25 MIPS, 8 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)

Programmable Comparator

Precision Internal Voltage Reference

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

Temperature Range: –40 to +125 °C

Supply Voltage: 1.8 to 5.25 V

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

Development Kit: C8051F530ADK

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

- 8 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

Ordering Part Numbers

- C8051F530A-IT, 20-Pin TSSOP (RoHS-compliant), 6x6 mm^2
- C8051F530A-IM, 20-Pin QFN (RoHS-compliant), 4x4 mm^2