C8051F716

25 MIPS, 16 kB Flash, 10-Bit ADC, 32-Pin Mixed-Signal MCU

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

Memory
- 16 kB Flash; in-application programmable in 512-byte sectors
- 512 bytes data RAM

Analog Peripherals
10-Bit Analog to Digital Converter
- Up to 500 ksps
- 3 external inputs
- On-chip voltage reference
- Built-in temperature sensor
- External conversion start input option

Comparator
- Programmable hysteresis and response time
- Configurable as interrupt or reset source

Capacitive Touch Sense
- 16-bit capacitance-to-digital converter
- Superior Noise Immunity and fast 40 µs aquisition time
- Up to 26 external inputs
- Auto-scan and compare
- Auto-accumulate 4x, 8x, and 16x samples

Digital Peripherals
Up to 29 Port I/O with high sink current
- Flexible configuration using digital crossbar
- Many can be configured for analog or digital function
- Every pin can be optimized for its best use

Serial Communications
- HW enhanced UART
- SMBus^{TM} (I^{2}C compatible)

User Programmable Timing Functions
- Four general purpose 16-bit counter/timers
- 16-bit programmable counter array (PCA) with three capture/compare modules and enhanced PWM capability
- Real-time clock mode using enhanced timer and crystal

Clock Sources
- Calibrated Internal programmable oscillator
  - Calibrated to 2% accuracy over temp and V_{DD}
  - 24.5 MHz to allow max speed CPU operation
  - Supports crystal-less UART operation
- External oscillator: RC, C, or Clock
- Can switch between clock sources on-the-fly

Supply Voltage: 1.8 to 3.6 V
- Built-in voltage supply monitor

Temperature Range: –40 to +85 °C
QFN-32 (5x5 mm) Package