

## 25 MIPS, 8 kB Flash, 32-Pin Mixed-Signal MCU

## **Analog Peripherals**

#### Two comparators

- Programmable hysteresis
- Configurable to generate interrupts or reset

# V<sub>DD</sub> Monitor and Brown-out Detector

## **On-Chip JTAG Debug**

- On-chip emulation circuitry facilitates full-speed, non-intrusive, in-circuit emulation
- Supports breakpoints, single stepping, watchpoints, inspect/modify memory, and registers
- Superior performance to emulation systems using ICE-chips, target pods, and sockets
- Fully compliant with IEEE 1149.1 specification

#### Supply Voltage: 2.7 to 3.6 V

- Typical operating current: 9 mA at 25 MHz

Typical stop mode current: <0.1 μA</li>

#### Temperature Range: -40 to +85 °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; up to 21 interrupt sources

#### Memory

- 256 bytes data RAM
- 8 kB Flash; in-system programmable in 512 byte sectors (512 bytes are reserved)

#### **Digital Peripherals**

- 22 port I/O; all are 5 V tolerant
- Hardware SPI™ and UART serial ports available concurrently
- 3 general-purpose 16-bit counter/timers
- Dedicated watchdog timer; bidirectional reset

#### **Clock Sources**

- Internal programmable oscillator: 2-16 MHz
- External oscillator: Crystal, RC, C, or Clock
- Can switch between clock sources on-the-fly

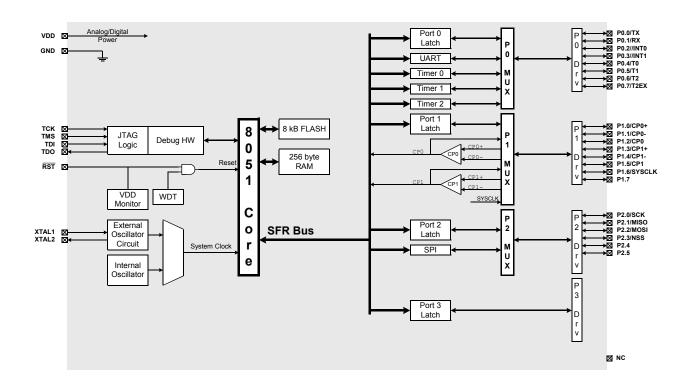
#### **Package**

- 32-pin LQFP (standard lead and lead-free packages)

## Part Ordering Numbers

- Lead-free package: C8051F231-GQ

- Standard package: C8051F231



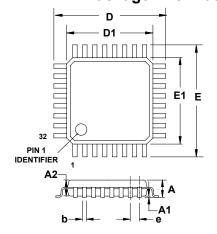


# **Selected Electrical Specifications**

 $(T_A = -40 \text{ to } +85 \text{ C}^{\circ}, V_{DD} = 2.7 \text{ V} \text{ unless otherwise specified unless otherwise specified})$ 

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS			
GLOBAL CHARACTERISTICS								
Supply Voltage		2.7		3.6	V			
Supply Current (CPU	Clock = 25 MHz		9		mA			
active)	Clock = 1 MHz		0.4		mA			
	Clock = 32 kHz; V <sub>DD</sub> Monitor Disabled		11		μA			
Supply Current	Oscillator not running; V <sub>DD</sub> Monitor		10		μA			
(shutdown)	Enabled							
	Oscillator not running; V <sub>DD</sub> Monitor		0.1		μA			
	Disabled							
Clock Frequency Range		DC		25	MHz			
COMPARATORS								
Supply Current	(each comparator)	-	1.5		μA			
Response Time	(CP+) - (CP-) = 100  mV		4.0		μs			

# **Package Information**



		MIN		
Г		(mm)	(mm)	(mm)
	A	-	-	1.60
	<b>A</b> 1	0.05	-	0.15
	A2	1.35	1.40	1.45
	b	0.30	0.37	0.45
	D	-	9.00	-
	D1	-	7.00	-
	е	-	0.80	-
	E	-	9.00	-
	E1	-	7.00	-

# C8051F226DK Development Kit

