

### 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  $\mu$ A

#### Temperature Range: -40 to +85 °C

### High-Speed 8051 $\mu$ C 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

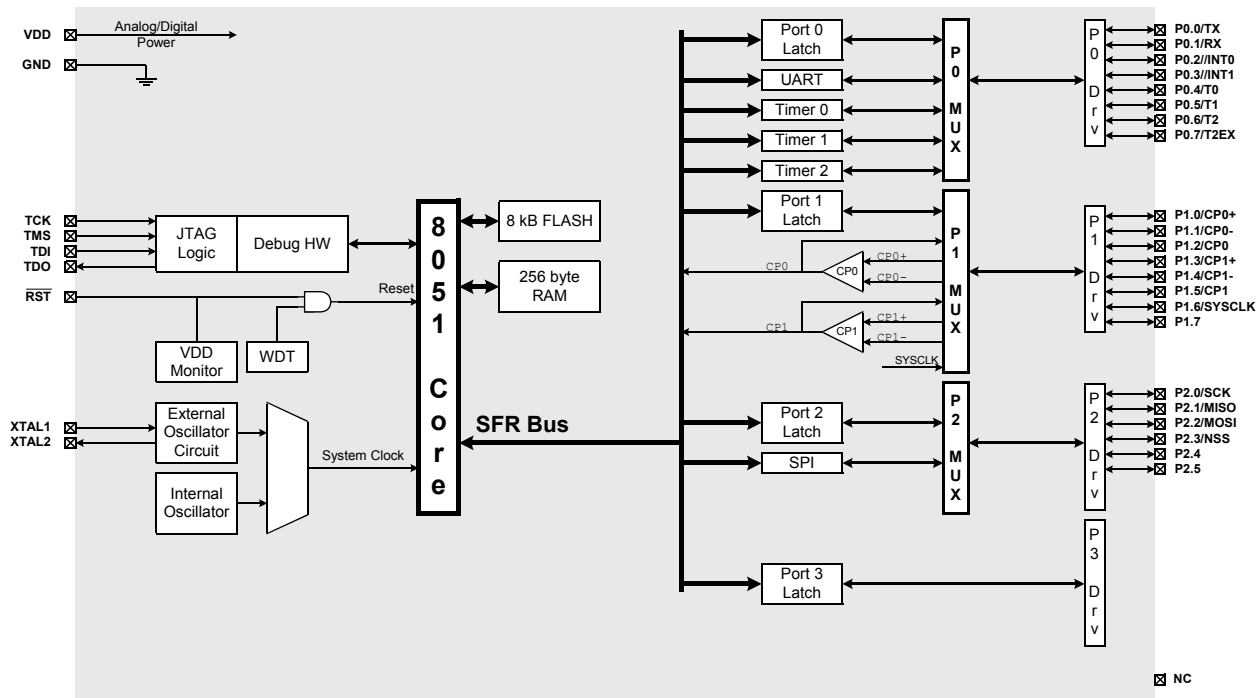
- Internal programmable oscillator: 2–16 MHz
- External oscillator: Crystal, RC, C, or Clock
- Can switch between clock sources on-the-fly

### Package

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

### Part Ordering Numbers

- Lead-free package: C8051F231-GQ
- Standard package: C8051F231

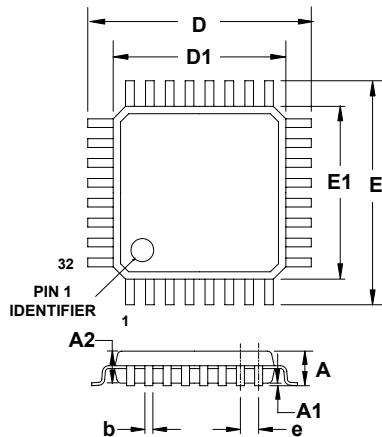


### Selected Electrical Specifications

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

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

### Package Information



	MIN (mm)	NOM (mm)	MAX (mm)
A	-	-	1.60
A1	0.05	-	0.15
A2	1.35	1.40	1.45
b	0.30	0.37	0.45
D	-	9.00	-
D1	-	7.00	-
e	-	0.80	-
E	-	9.00	-
E1	-	7.00	-

### C8051F226DK Development Kit

