

USB Function Controller

- USB specification 2.0 compliant
- Full-speed (12 Mbps) or low-speed (1.5 Mbps) operation
- Integrated clock recovery; no external crystal required for either full-speed or low-speed operation
- Supports two fixed-function endpoints
- Dedicated 256 byte USB buffer memory
- Integrated transceiver; no external resistors required

POR/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
- Inspect/modify memory, registers, and USB memory
- Superior performance to emulation systems using ICE-chips, target pods, and sockets

Separate I/O Supply Pin (V_{DDIO})

- Enables interfacing to external logic that operates between 2.0 V and V_{DD} without the need for external circuitry

Temperature Range: -40 to 85 °C

High-Speed 8051 μ C Core

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

Memory

- 1280 bytes internal data RAM (256 + 1K)
- 16 kB bytes in-system programmable Flash program memory

Digital Peripherals

- 15 port I/O; all 5 V tolerant with high sink current
- Hardware enhanced UART (up to 3 Mbps)
- Two general purpose 16-Bit counter/timers

Clock Sources

- Internal clock: 0.25% accuracy with clock recovery enabled. Supports all USB and UART modes
- On-Chip Clock Multiplier for USB Controller
- Internal 22 kHz Clock for low power suspend modes

Voltage Regulator

- On-chip voltage regulator supports USB bus-powered operation
- Regulator bypass mode supports USB self-powered operation

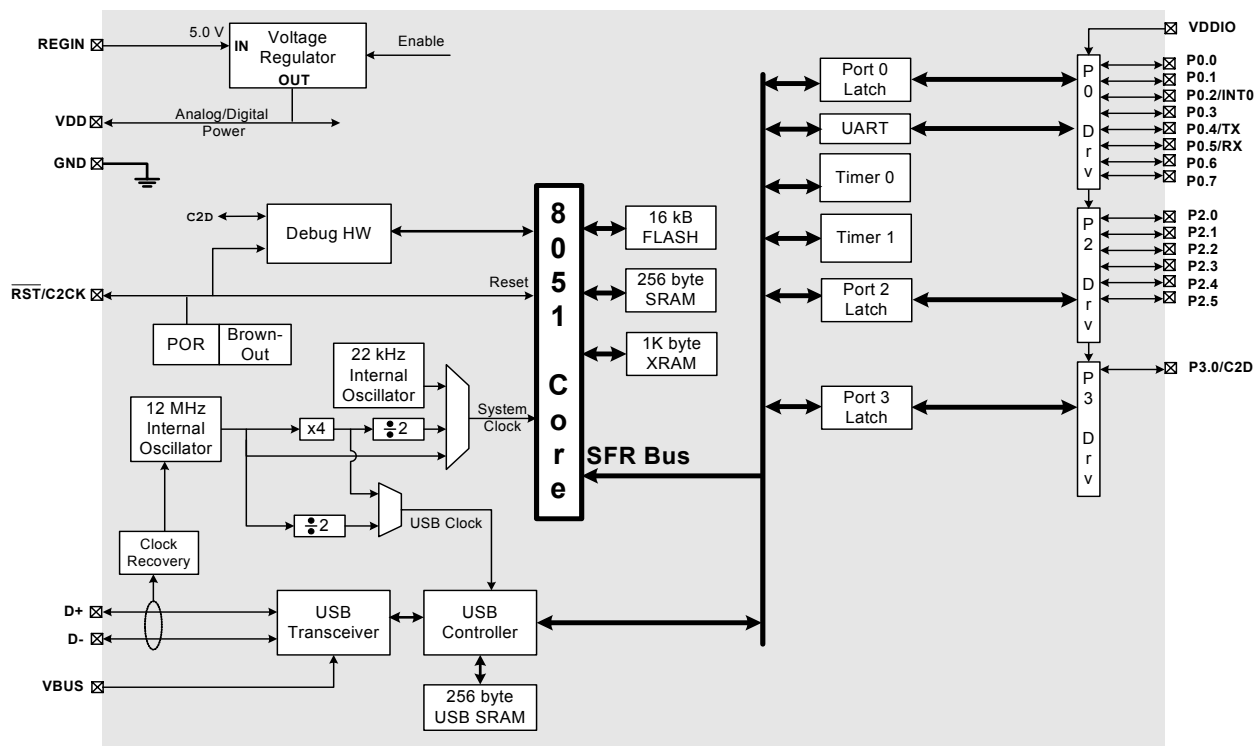
Operating Voltage: 2.7 to 5.25 V

Package

- 28-Pin QFN (lead-free package)

Ordering Part Number

- C8051F326-GM

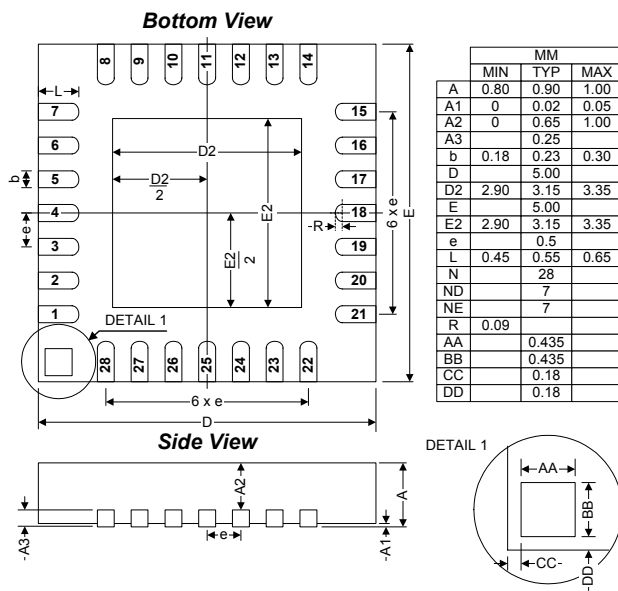


Selected Electrical Specifications

($T_A = 40$ to $+70$ C°, $V_{REG} = 5.0$ V unless otherwise specified)

Parameter	Conditions	Min	Typ	Max	Units
Global Characteristics					
Regulator Input Voltage (REGIN)		4.0	—	5.25	V
V_{DD} (V_{REG} Output)		3.0	3.3	3.6	V
V_{REG} Bias Current	V_{REG} Enabled	—	75	—	μ A
Supply Current with CPU and USB active	CPU Clock=24 MHz, USB Clock=48 MHz CPU Clock=12 MHz, USB Clock=6 MHz	—	18 9	—	mA mA
Supply Current (suspend mode, oscillator off)	V_{DD} Monitor Enabled; V_{REG} Disabled V_{DD} Monitor Disabled; V_{REG} Disabled	—	30 <0.1	—	μ A μ A
CPU System Clock Range		DC	—	25	MHz
Internal Oscillator and Clocks					
Frequency	Clock Recovery Enabled	11.97	12.0	12.03	MHz
	Clock Recovery Disabled	11.82	12.0	12.18	MHz
USB Clock	Full-Speed Operation	47.88	48.0	48.12	MHz
	Low-Speed Operation	5.91	6.0	6.09	MHz

Package Information



C8051F326DK Development Kit

