

CY7C68013A, CY7C68014A CY7C68015A, CY7C68016A

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EZ-USB

®

FX2LP™ USB Microcontroller

High-Speed USB Peripheral Controller

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EZ-USB FX2LP™ USB Microcontroller High Speed USB Peripheral Controller

Features

- USB 2.0 USB IF Hi-Speed certified (TID # 40460272)
- Single-chip integrated USB 2.0 transceiver, smart SIE, and enhanced 8051 microprocessor
- Fit-, form-, and function-compatible with the FX2
- Pin-compatible
- Object-code-compatible
- Functionally compatible (FX2LP is a superset)
- Ultra-low power: I

CC

no more than 85 mA in any mode

- Ideal for bus- and battery-powered applications
- Software: 8051 code runs from:
 - Internal RAM, which is downloaded through USB
 - Internal RAM, which is loaded from EEPROM
 - External memory device (128-pin package)
- 16 KB of on-chip code/data RAM
- Four programmable BULK, INTERRUPT, and ISOCHRONOUS endpoints
- Buffering options: Double, triple, and quad
- Additional programmable (BULK/INTERRUPT) 64-byte

endpoint

- 8-bit or 16-bit external data interface
- Smart media standard ECC generation
- GPIF™ (general programmable interface)
 - Enables direct connection to most parallel interfaces
 - Programmable waveform descriptors and configuration registers to define waveforms
 - Supports multiple ready (RDY) inputs and control (CTL) outputs
- Integrated, industry-standard, enhanced 8051
 - 48-MHz, 24-MHz, or 12-MHz CPU operation
 - Four clocks per instruction cycle
 - Two USARTs
 - Three counter/timers
 - Expanded interrupt system
 - Two data pointers
- 3.3-V operation with 5-V tolerant inputs
- Vectored USB interrupts and GPIF/FIFO interrupts
- Separate data buffers for the setup and data portions of a CONTROL transfer
- Integrated I

2

C controller; runs at 100 or 400 kHz

- Four integrated FIFOs
 - Integrated glue logic and FIFOs lower system cost
 - Automatic conversion to and from 16-bit buses
 - Master or slave operation
 - Uses external clock or asynchronous strobes
 - Easy interface to ASIC and DSP ICs
- Available in commercial and industrial temperature grades (all packages except VFBGA)

Features (CY7C68013A/14A only)

- CY7C68014A: Ideal for battery-powered applications
 - Suspend current: 100 μ A (typ)
- CY7C68013A: Ideal for nonbattery-powered applications
 - Suspend current: 300 μ A (typ)
- Available in five Pb-free packages with up to 40 GPIOs

□ 128-pin TQFP (40 GPIOs), 100-pin TQFP (40 GPIOs), 56-pin QFN (24 GPIOs), 56-pin SSOP (24 GPIOs), and 56-pin VFBGA (24 GPIOs)

Features (CY7C68015A/16A only)

■ CY7C68016A: Ideal for battery-powered applications

□ Suspend current: 100 μ A (typ)

■ CY7C68015A: Ideal for nonbattery-powered applications

□ Suspend current: 300 μ A (typ)

■ Available in Pb-free 56-pin QFN package (26 GPIOs)

■ Two more GPIOs than CY7C68013A/14A enabling additional

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