CMOS single-chip 8-bit microcontrollers 87C51FA/87C51FB

DESCRIPTION

The 87C51FA and 87C51FB Single-Chip 8-Bit Microcontrollers are manufactured in an advanced CMOS process and are derivatives of the 80C51 microcontroller family. The 87C51FA/FB has the same instruction set as the 80C51.

This device provides architectural enhancements that make it applicable in a variety of applications for general control systems. The 87C51FA contains 8k × 8 memory, and the 87C51FB contains 16k × 8 memory. They both contain a volatile 256 × 8 read/write data memory, four 8-bit I/O ports, three 16-bit timer/event counters, a Programmable Counter Array (PCA), a multi-source, two-priority-level, nested interrupt structure, an enhanced UART and on-chip oscillator and timing circuits. For systems that require extra capability, the 87C51FA/FB can be expanded using standard TTL compatible memories and logic.

Its added features make it an even more powerful microcontroller for applications that require pulse width modulation, high-speed I/O and up/down counting capabilities such as motor control. It also has a more versatile serial channel that facilitates multiprocessor communications.

See 83C51FA/83C51FB/83C51FC/80C51FA datasheet for ROM and ROMless devices.

FEATURES

- 80C51 central processing unit
- 87C51FA: 8k × 8 EPROM
  87C51FB: 16k × 8 EPROM
  - expandable externally to 64k bytes
  - Quick Pulse programming algorithm
  - Two level program security system
- 256 × 8 RAM, expandable externally to 64k bytes
- Three 16-bit timer/counters
  - T2 is an up/down counter
- Programmable Counter Array (PCA)
  - High speed output
  - Capture/compare
  - Pulse Width Modulator
  - Watchdog Timer
- Four 8-bit I/O ports
- Full-duplex enhanced UART
  - Framing error detection
  - Automatic address recognition
- Power control modes
  - Idle mode
  - Power-down mode
- Once (On Circuit Emulation) Mode
- Five package styles
- OTP package available

PIN CONFIGURATIONS