

CMOS single-chip 8-bit EPROM microcontroller**87C51/87C51-16****FEATURES**

- 8031/8051/80C51 compatible
 - 4K × 8 EPROM
 - 128 × 8 RAM
 - Two 16-bit counter/timers
 - Full duplex serial channel
 - Boolean processor
- Memory addressing capability
 - 64K ROM and 64K RAM
- Power control modes:
 - Idle mode
 - Power-down mode
- CMOS and TTL compatible
- 87C51-16 part available at 16MHz

DESCRIPTION

The Philips Semiconductors 87C51 is a high-performance microcontroller fabricated with Philips high-density CMOS technology. The CMOS 87C51 is functionally compatible with the NMOS 8031/8051 and 80C51 microcontrollers. The Philips CMOS technology combines the high speed and density characteristics of HMOS with the low power attributes of CMOS. Philips epitaxial substrate minimizes latch-up sensitivity.

The 87C51 contains a 4K × 8 EPROM, a 128 × 9 RAM, 32 I/O lines, two 16-bit counter/ timers, a five-source, two priority level nested interrupt structure, a serial I/O port for either multiprocessor communications, I/O expansion or full duplex UART, and on-chip oscillator and clock circuits.

In addition, the 87C51 has two software selectable modes of power reduction—idle mode and power-down mode. The idle mode freezes the CPU while allowing the RAM, timers, serial port, and interrupt system to continue functioning. The power-down mode saves the RAM contents but freezes the oscillator, causing all other chip functions to be inoperative.

ORDERING INFORMATION

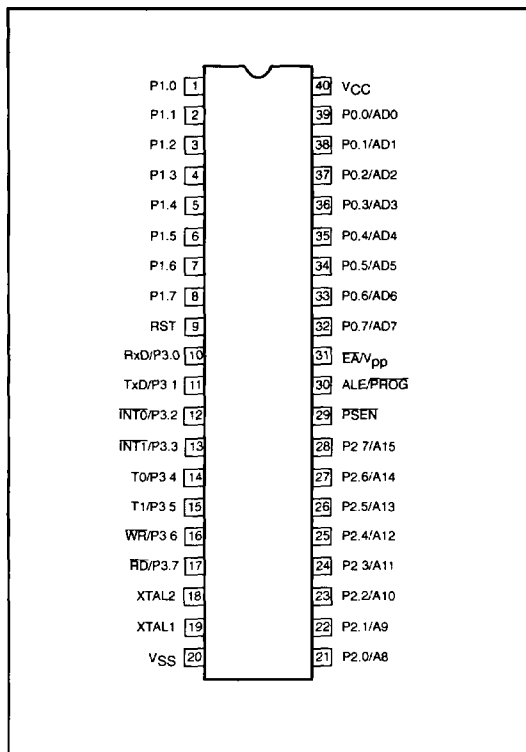
DESCRIPTION	ORDER CODE	PACKAGE DESIGNATOR*
40-pin Ceramic DIP	87C51/BQA 87C51-16/BQA	GDIP1-T40
44-pin Ceramic LLCC	87C51/BUA 87C51-16/BUA	CQCC1-N44
40-pin Ceramic DIP	87C51/BQA OT 87C51-16/BQA OT	GDIP1-T40
44-pin Ceramic LLCC	87C51/BUA OT 87C51-16/BUA OT	CQCC1-N44
44-pin J-Bend Quad Flat Pack	87C51/BMA 87C51-16/BMA	CQCC1-J44

* MIL-STD 1835 or Appendix A of 1995 Military Data Handbook

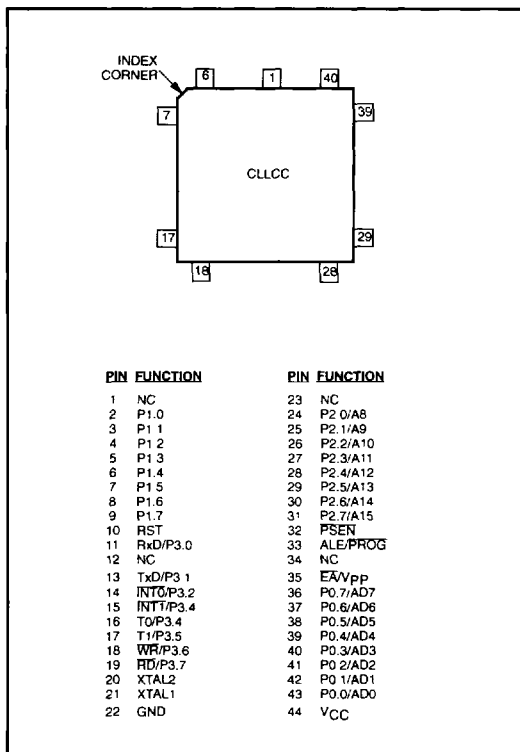
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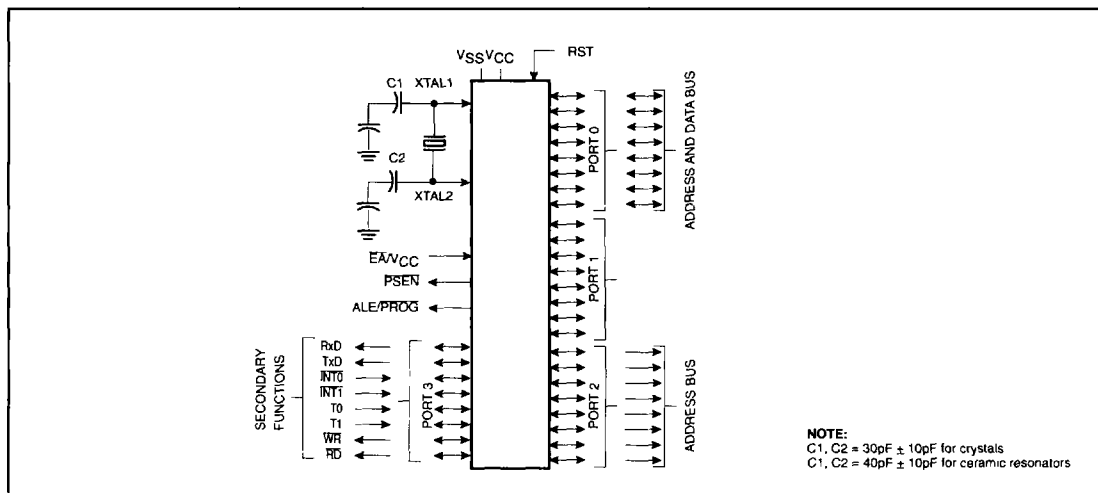
PIN CONFIGURATION



LCC LEAD CONFIGURATION



LOGIC SYMBOL



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ELECTRICAL PERFORMANCE CHARACTERISTICS AND TEST REQUIREMENTS

For Absolute Maximum Ratings, Recommended Operating Conditions, and Electrical Test Requirements, refer to the following documents: Military Drawing 5962-8768401 or 5962-8768402
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