

## **I. GENERAL DESCRIPTION**

EM78P153E is an 8-bit microprocessor with low-power and high-speed CMOS technology. There is a 512\*13-bit Electrical One Time Programmable Read Only Memory (OTP-ROM) within it. It provides a PROTECTION bit to prevent a user's code in the OTP memory from intruding as well as 15 OPTION bits to match the user's requirements.

Because of the OTP-ROM, the EM78P153E offers users a convenient way to develop and verify their programs. Moreover, a user's developed code can be programmed easily by an EMC writer.

## **II. FEATURES**

- 14-lead package : EM78P153E
- Operating voltage range : 2.2V ~ 6.0V
- Available in temperature range : 0°C ~ 70°C
- Operating frequency range : DC ~ 8 MHz
- Low power consumption :
  - \* less than 1.3  $\mu$ A at 3V/8MHz
  - \* typical of 15  $\mu$ A at 3V/32KHz
  - \* typical of 1  $\mu$ A during the sleep mode
- 512 x 13 bits on chip ROM
- Four built-in calibrated IRC oscillators
- Programmable prescaler of oscillator set-up time
- On-board bit-by-bit programming
- One security register to prevent the code in the OTP memory from intruding
- One configuration register to match the user's requirements
- 32 x 8 bits on chip registers (SRAM)
- 2 bi-directional I/O ports
- 5 level stacks for subroutine nesting
- 8-bit real time clock/counter (TCC) with selective signal sources and trigger edges, and with overflow interrupt
- Power-down mode (SLEEP mode)
- Three available interruptions
  - \* TCC overflow interrupt
  - \* Input-port status changed interrupt (wake up from the sleep mode)
  - \* External interrupt
- Programmable free running watchdog timer
- 7 programmable pull-high I/O pins
- 7 programmable open-drain I/O pins
- 6 programmable pull-down I/O pins
- Two clocks per instruction cycle
- 99.9% single instruction cycle commands
- Package type : SOP, DIP