



General Description

The DL8993 series is a family of low-cost, high speed, high noise immunity, EPROM/ROM-based 8-bit CMOS microcontrollers. It employs a RISC architecture with only 42 instructions. All instructions are single cycle except for program branches which take two cycles. The easy to use and easy to remember instruction set reduces development time significantly.

DL8993XX series consists of Power-on Reset (POR), Brown-out Reset (BOR), Power-up Reset Timer (PWRT), Oscillator Start-up Timer (OST), Watchdog Timer, EPROM/ROM, SRAM, tri-state I/O port, I/O pull-high/open-drain/pull-down control, Power saving SLEEP mode, real time programmable clock/counter, Interrupt, Wake-up from SLEEP mode, and Code Protection for EPROM products. There are three oscillator configurations to choose from, including the power-saving LP (Low Power) oscillator and cost saving RC oscillator.

The DL8993 address 1K×13 of program memory.

DL8993XX can directly or indirectly address its register files and data memory. All special function registers including the program counter are mapped in the data memory.

FEATURES

- Only 42 single word instructions
- All instructions are single cycle except for program branches which are two-cycle
- 13-bit wide instructions
- All ROM/EPROM area GOTO instruction
- All ROM/EPROM area subroutine CALL instruction
- 8-bit wide data path
- 5-level deep hardware stack
- Operating speed: DC-20 MHz clock input
DC-100 ns instruction cycle
- Direct, indirect addressing modes for data accessing
- 8-bit real time clock/counter (Timer0) with 8-bit programmable prescaler
- Internal Power-on Reset (POR)
- Built-in Low Voltage Detector (LVD) for Brown-out Reset (BOR)
- Power-up Reset Timer (PWRT) and Oscillator Start-up Timer (OST)
- On chip Watchdog Timer (WDT) with internal oscillator for reliable operation and soft-ware watch-dog enable/disable control
- Two I/O ports IOA and IOB with independent direction control
- Soft-ware I/O pull-high/pull-down or open-drain control
- One internal interrupt source: Timer0 overflow; Two external interrupt source: INT pin, Port B input change
- Wake-up from SLEEP by INT pin or Port B input change
- Power saving SLEEP mode
- Built-in 8MHz, 4MHz, 1MHz, and 455KHz internal RC oscillator
- Programmable Code Protection
- Built-in internal RC oscillator
- Selectable oscillator options:
 - ERC: External Resistor/Capacitor Oscillator
 - HF: High Frequency Crystal/Resonator Oscillator
 - XT: Crystal/Resonator Oscillator
 - LF: Low Frequency Crystal Oscillator
 - IRC: Internal Resistor/Capacitor Oscillator
 - ERIC: External Resistor/Internal Capacitor Oscillator
- Wide-operating voltage range:
 - EPROM : 2.3V to 5.5V
 - ROM : 2.3V to 5.5V

SOP8

工作电压: 5.0VDC
12路流星闪灯模
上电一直工作



应用线路图:

