SM3513

4-Bit Single-Chip Microcomputer (For Data Bank Use)

DESCRIPTION

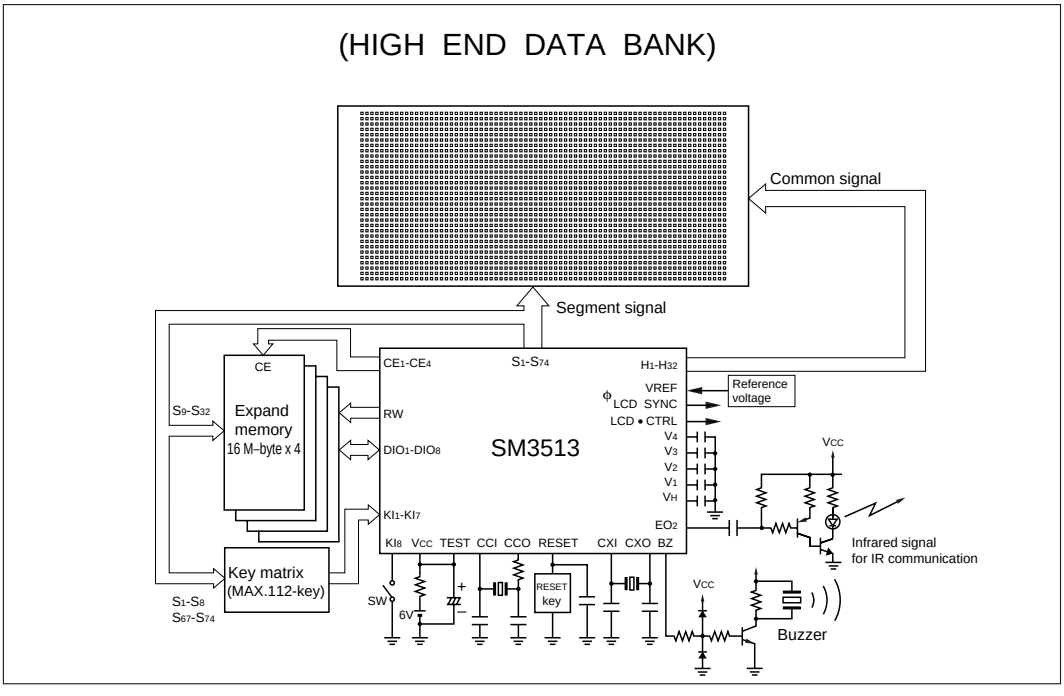
The SM3513 is a CMOS 4-bit single-chip microcomputer for databank incorporating data memory RAM, LCD driver (the output is adjustable in 16 steps for various contrast), key/switch input circuit, 8-bit parallel I/O port, 3 output ports, external memory control circuit, buzzer circuit and voltage detector circuit. One of three ports contains special output circuit for infrared (IR) communication. It is easy to realize timer function by timer signal interrupt since the oscillator circuit is built-in.

FEATURES

- ROM capacity :
  - Program ROM 24 k x 23 bits
  - Character ROM 6 x 8 x 256 bits
  - Constant ROM 1 k x 4 bits
- RAM capacity :
  - Working RAM 256 x 4 bits
  - Display RAM 74 x 32 bits
  - Data RAM 512 x 8 bits
- Memory expansion (external) : 16 M x 8 bits x 4
- Buil-in battery detector
- LCD display : 74-segment x 32-common
- I/O ports :
  - Parallel I/O 8 bits
  - Input 2 bits
  - Output 3 bits
  - Buzzer output 1 bit (4 kHz)
  - Key input 6 bits
- Standby release : 2 events (Timer signal, key input)
- LCD contrast adjustable : 16 levels
- Built-in oscillator :
  - System clock (built-in CR oscillator) 1 MHz
  - (external ceramic resonator) 1 MHz
  - Timer (built-in CR oscillator) 32.8 kHz
  - (external crystal) 32.768 kHz
- Instruction cycle time : 3 µs
- Operating temperature : –10 to +60°C
- Supply voltage : 3.8 to 6.0 V
- Package : 160-pin QFP (QFP160-P-2828) [Test Sample only]

In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.

SYSTEM COMFIGURATION EXAMPLE



160 QFP (QFP160-P-2828)

