# SM3512

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

## DESCRIPTION

The SM3512 is a CMOS 4-bit single-chip micro-computer for databank incorporating data memory RAM, LCD driver, key/switch input circuit, 8-bit parallel I/O port, 2 output ports, external memory control circuit, and buzzer output circuit.

## FEATURES

• ROM capacity :

|  |  |
|---|---|
| Program ROM | 8 k x 23 bits |
| Character ROM | 5 x 9 x 128 bits |
| Constant ROM | 208 x 4 bits |

• RAM capacity :

|  |  |
|---|---|
| Working RAM | 256 x 4 bits |
| Display RAM | 60 x 9 bits |
| Data RAM | 8 k x 8 bits |

• Memory expansion (external) : 8 k x 8 bits

• LCD display : 60-segment x 9-common

• I/O ports :

|  |  |
|---|---|
| Parallel I/O | 8 bits |
| Input | 1 bit |
| Output | 2 bits |
| Buzzer output | 1 bit (4 kHz) |
| Key input | 6 bits |

• Standby release : 2 events (2 Hz signal, key input)

• Built-in oscillator :

|  |  |
|---|---|
| System clock (built-in CR oscillator) | 250 kHz |
| Timer (built-in CR oscillator) | 32.8 kHz |
| (external crystal) | 32.768 kHz |

• Instruction cycle time : 12 μs

• Operating temperature : –10 to +60°C

• Supply voltage : 2.5 to 3.4 V

• Package : 100-pin QFP (QFP100-P-1420)

## SYSTEM COMFIGURATION EXAMPLE

## 100 QFP (QFP100-P-1420)