

## Product List

OB38S003W20,

## Description

The OB38S003 is a 1T (one machine cycle per clock) single-chip 8-bit microcontroller. It has 8KB embedded program memory, and executes all ASM51 instructions fully compatible with MCS-51.

OB38S003 contains 512B on-chip RAM, up to 18 GPIOs (20L package), various serial interfaces and many peripheral functions as described below. It can be programmed via writers. Its on-chip ICE is convenient for users in verification during development stage.

The high performance of OB38S003 can achieve complicated manipulation within short time. About one third of the instructions are pure 1T, and the average speed is 8 times of traditional 8051, the fastest one among all the 1T 51-series. Its excellent EMI and ESD characteristics are advantageous for many different applications.

## Ordering Information

OB38S003 ihhKL

YWW

i: process identifier { W = 2.4V ~ 5.5V }

hh: pin count

k: package type postfix {as table below }

L:PB Free identifier

{No text is Non-PB free, "P" is PB free}

Y: Year Code

WW: Week Code (01-52)

Postfix	Package
E	TSSOP(173mil)

## Features

- Operating Voltage: 2.4V ~ 5.5V
- High speed architecture of 1 clock/machine cycle runs up to 16MHz.
- 1~8T can be switched on the fly.
- Instruction-set compatible with MCS-51.
- 16MHz Internal RC oscillator, with programmable clock divider
- 8KB on-chip program memory.
- 512B RAM as standard 8052,
- Dual 16-bit Data Pointers (DPTR0 & DPTR1).
- One serial peripheral interfaces in full duplex mode.
- Additional Baud Rate Generator
- Three 16-bit Timer/Counters. (Timer 0,1,2)
- 8 ~18 GPIOs(10L ~ 20L package)
- External interrupt 0,1 with four priority levels
- Programmable watchdog timer.
- One IIC interface. (Master/Slave mode)
- One SPI interface (Master/Slave mode)
- 4-channel PWM
- 4-channel 16-bit PCA for compare(PWM) / capture / reload functions
- 8-channel 12-bit analog-to-digital converter (ADC)
- CMP x1 Set (2 devices)
- ISP/IAP/ICP functions.
- ISP service program space configurable in N\*128 byte (N=0 to 8) size.
- EEPROM function.
- On-Chip in-circuit emulator (ICE) functions with On-Chip Debugger (OCD).
- Keyboard interface (KBI) for four more interrupts.
- LVI/LVR (LVR deglitch 500ns)
- IO PAD ESD over 4KV
- Enhance user code protection.
- Power management unit for IDLE and power down modes.

## Pin Configuration

### 20 Pin TSSOP

