

## Product List

OB39A16D2W48VP

## Description

The OB39A16D2 is a 1T (one machine cycle per clock) single-chip 8-bit microcontroller. It has 16KB embedded Flash for program, and executes all ASM51 instructions fully compatible with MCS-51.

OB39A16D2 contains 512B on-chip RAM, up to 39 GPIOs, 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 OB39A16D2 has a memory mapping LCD driver with RTC function embedded. The display segments of the device are 128 patterns (27 segments and 4 commons) display. The software configuration feature of OB39A16D2 makes it suitable for multiple LCD applications such like LCD modules and display subsystems.

Low-current real-time clocks (RTCs) function provide an extremely low standby current, which permits longer life from a power supply.

The clock/calendar of RTC provides seconds, minutes, hours, day, date, month, and year information. The date at the end of the month is automatically adjusted for months with fewer than 31 days, including corrections for leap year.

## Ordering Information

OB39A16D2 ihhkL YWW

i: process identifier { W = 2.2V ~ 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)

## Features

- Operating Voltage:2.2V ~ 5.5V
- 1~8T can be switched on the fly.
- Instruction-set compatible with MCS-51.
- 22.1184MHz Internal RC oscillator, with programmable clock divider
- 16KB on-chip program memory and 512B RAM.
- Dual 16-bit Data Pointers (DPTR0 & DPTR1).
- Three 16-bit Timer/Counters. (Timer 0,1,2)
- External interrupt 0, four priority levels
- Programmable watchdog timer.
- One IIC interface. (Master/Slave mode)
- One SPI interface (Master mode)
- 4-channel PWM
- 4-channel 16-bit PCA for compare(PWM) / capture / reload functions
- 7-channel 10-bit analog-to-digital converter (ADC) and 1-channel ADC0 connect to internal reference voltage
- One serial peripheral interfaces in full duplex mode.
- Additional Baud Rate Generator for Serial port.
- 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)
- Power management unit for IDLE and power down modes.
- LCD 1/2 bias or 1/3 bias
- LCD selectable duty : 1/4 , 1/3 , 1/2 or full-duty
- Internal bias generator with voltage follower buffer
- For selectable LCD frame rate : 64Hz, 85.3Hz, 128Hz, 170.6Hz
- Up to 27 x 4 bits RAM for display data storage
- Versatile blinking modes
- Automatic R/W address increment for display RAM access
- Internal 16-step voltage adjustment to adjust LCD voltage
- RTC Counts Seconds, Minutes, Hours, Day, Date, Month, and Year with Leap Year Compensation  
Valid Through 2099

Postfix	Package
V	LQFP

## Pin Configuration

### 48 Pin LQFP

