



## A. HE83148 Introduction

HE83148 is a member of 8-bit Micro-controller series developed by King Billion Electronics Ltd.

Users can chose any one of combination among 【1024 dots LCD Driver + 8 Bit I/O Port】... 【768 dots LCD Driver + 24 Bit I/O Port】 etc. The 7-bit current-type D/A converter and PWM device provide the complete speech output mechanism. The 256K ROM Size can be used in the storage of speech, graphic, text etc.. It can be applicable to the medium systems such as Small-Scale Dictionary, Data Bank, Pocket Dialer, and Educational Toy etc.

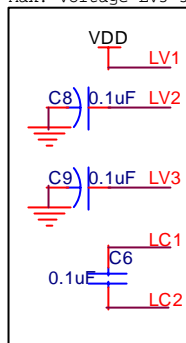
The instruction set of HE83148 are quite easy to learn and simple to use. Only about thirty instructions with four-type addressing mode are provided. Most of instructions take only 3 oscillator clocks (machine cycles). The processing power is enough to most of battery operation system.

## B. HE83148 Feature

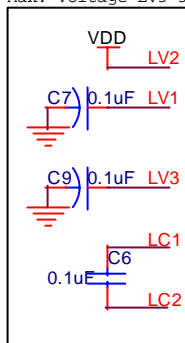
- Operation Voltage : 2.2V – 5.5V
- System Clock : DC ~ 8MHz @ 5.0V  
DC ~ 4MHz @ 2.2V
- Internal ROM : 256K Bytes(64K Program ROM+192K Data ROM)
- Internal RAM : 2K Bytes
- Dual Clock System : Normal (Fast) clock : 32.768K ~ 8MHz  
Slow clock : 32.768KHz
- Operation Mode : DUAL、FAST、SLOW、IDLE、SLEEP Mode.
- 8~24 bit Bi-directional I/O port. Mask Option can select PUSH-PULL or OPEN DRAIN output mode for each I/O pin. 8 of them are shared with LCD segment pins.
- 1024~768 dots LCD driver (A、B TYPE selectable).
- One 7-bit current-type DAC output.
- PWM device.
- Two external interrupts and three internal timer interrupts.
- Two 16-bit timers and one Time-Base timer.
- Instruction set : 32 instructions, 4 addressing mode. 11-bit DATA POINTER for RAM and 18-bit TABLE POINTER for ROM.

## C. Application Circuit

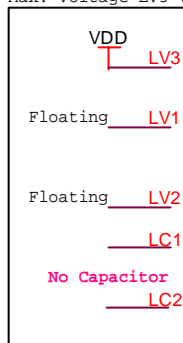
Triple Charge Pump is selected  
LCD Max. Voltage=LV3=3\*VDD



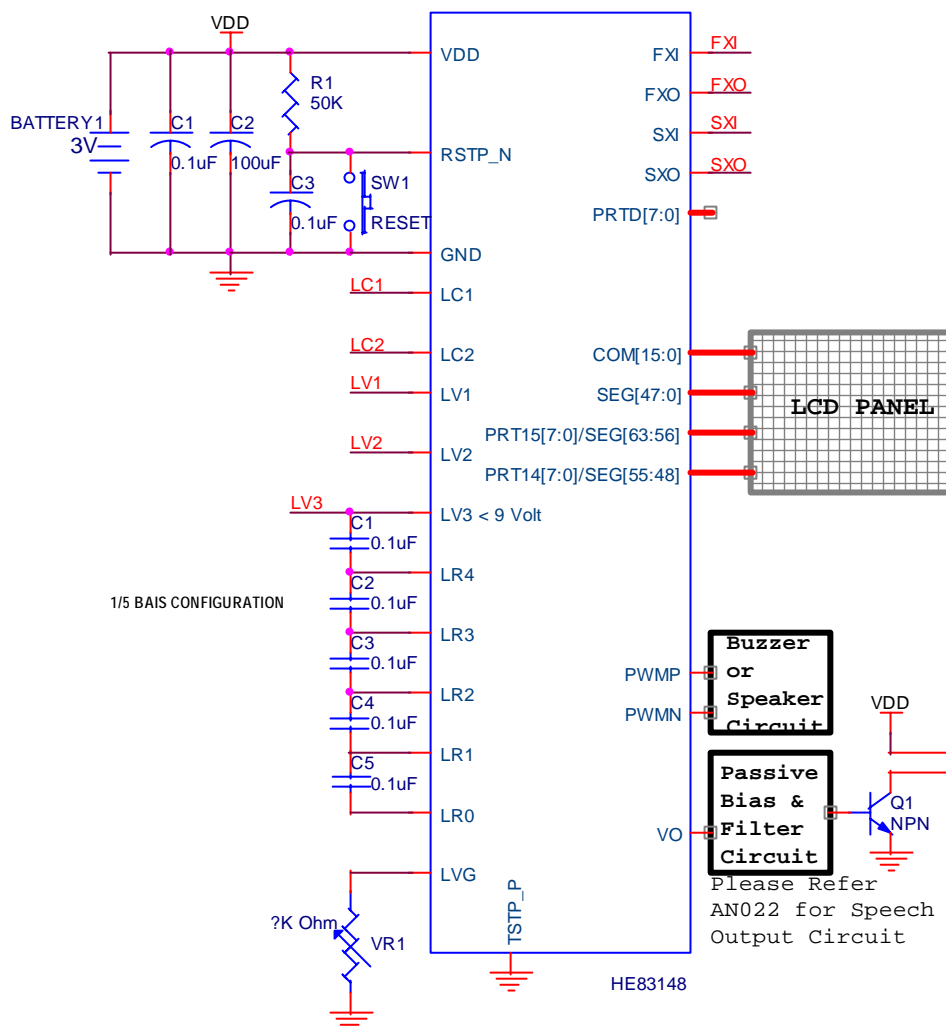
Triple Charge Pump is selected  
LCD Max. Voltage=LV3=3/2\*VDD



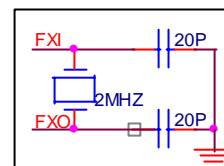
Triple Charge Pump is selected  
LCD Max. Voltage=LV3=VDD



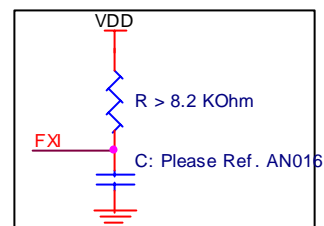
No External Parts is necessary if user adopt Internal Fast RC Clock



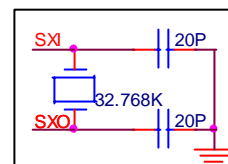
External Fast Clock:  
Crystal osc.



External Fast Clock:  
RC osc.



External Slow Clock:  
Crystal osc.



External Slow Clock:  
RC osc.

