



## A. HE83760 Introduction

HE83760 is a member of 8-bit Micro-controller series developed by King Billion Electronics Ltd. This IC build-in 3072-dot LCD driver, and also have 32-bit I/O port. Also built-in OP comparator can be used with (light, voice, temperature, humidity) sensor and used as battery low detection. The 7-bit current-type D/A converter and PWM device provide the complete speech output mechanism. The 2M byte ROM and 16K byte RAM can be used in the storage of speech, graphic, text etc.. The built-in DTMF generator can generate the PSTN dialing tone directly.

HE83760 can be used in Translatox, Data Bank, Pocket Dialer, Educational Toy, Digital Voice Recording System etc.

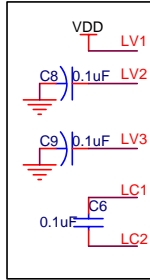
The instruction set of HE83760 are quite easy to learn and simple to use. Only about thirty instructions with four-type addressing mode are provided. Most of instructions take 3 oscillator clocks (machine cycles). The processing power is enough to most of battery operation system.

## B. HE83760 Features

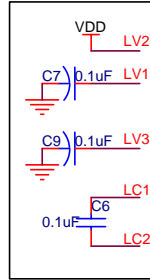
- Operation Voltage : 2.4V – 5.5V
- System Clock : DC ~ 8MHz @ 5.0V  
DC ~ 4MHz @ 2.4V
- Internal ROM : 2M Bytes(64K Program ROM+1984K Data ROM)
- Internal RAM : 16K Bytes
- Dual Clock System : Normal (Fast) clock : 32.768K ~ 8MHz  
Slow clock : 32.768KHz
- Operation Mode : DUAL、FAST、SLOW、IDLE、SLEEP Mode.
- With WDT (WATCH DOG TIMER) to prevent deadlock condition.
- 32 bit Bi-directional I/O port. Mask Option can select PUSH-PULL or OPEN DRAIN output mode for each I/O pin.
- One built-in OP comparator.
- 3072 dots LCD driver (A、B TYPE selectable).
- One 7-bit current-type DAC output.
- PWM device.
- Built-in DTMF Generator.
- Two external interrupts and three internal timer interrupts.
- Two 16-bit timers and one Time-Base timer.
- Instruction set : 32 instructions, 4 addressing mode. 14-bit DATA POINTER for RAM and 21-bit TABLE POINTER for ROM.

## C. Application Circuit

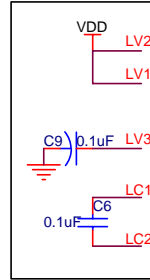
Four Charge Pump is selected  
LCD Max. Voltage=LV3=3\*VDD



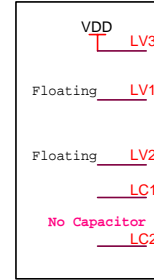
Four Charge Pump is selected  
LCD Max. Voltage=LV3=3/2\*VDD



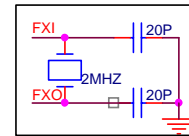
Four Charge Pump is selected  
LCD Max. Voltage=LV3=2\*VDD



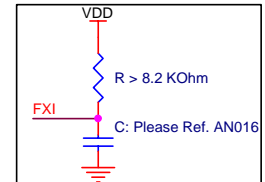
Four Charge Pump is selected  
LCD Max. Voltage=LV3=VDD



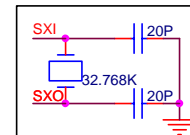
No External Parts is necessary if user adopt Internal Fast RC Clock  
External Fast Clock: Crystal osc.



External Fast Clock: RC osc.



External Slow Clock: Crystal osc.



External Slow Clock: RC osc.

