



## A. HE89810 Introduction

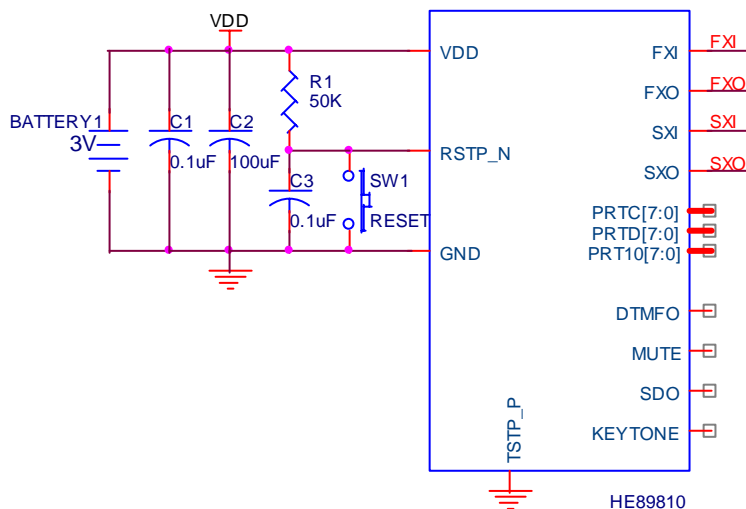
HE89810 is a member of 8-bit Micro-controller series used for telephone communication developed by King Billion Electronics Ltd. The built-in DTMF generator can generate the PSTN dialing tone directly. It can be applicable as Small/ Medium level telephone or communication product etc..

The instruction set of HE89810 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. HE89810 Features

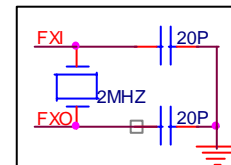
- Operation Voltage : 2.4V – 5.5V
- System Clock : DC ~ 8MHz @ 5.0V
- DC ~ 4MHz @ 2.4V
- Internal ROM : 8K Bytes(8K Program ROM)
- Internal RAM : 256 Bytes.
- Dual Clock System : Normal (Fast) clock : 32.768K ~ 8MHz
- Slow clock : 32.768KHz
- Operation Mode : DUAL、FAST、SLOW、IDLE、SLEEP Mode.
- With WDT (WATCH DOG TIMER) to prevent deadlock condition..
- 24 bit Bi-directional I/O port. Mask Option can select PUSH-PULL or OPEN DRAIN output mode for each I/O pin.
- 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. 8-bit DATA POINTER for RAM and 13-bit TABLE POINTER for ROM.

## C. Application Circuit

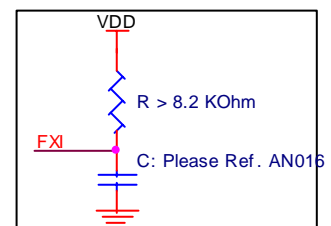


No External Parts is necessary if user adopt Internal Fast RC Clock

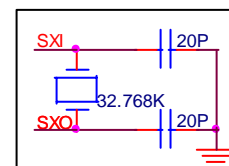
External Fast Clock:  
Crystal osc.



External Fast Clock:  
RC osc.



External Slow Clock:  
Crystal osc.



External Slow Clock:  
RC osc.

