



A. HE89A21 Introduction

HE8A21 is a member of 8-bit Micro-controller series used for telephone communication developed by King Billion Electronics Ltd. Users can chose any one of combination among 【128 dots LCD Driver + 16 Bit I/O Port】...【64 dots LCD Driver + 32 Bit I/O Port】etc. This Also built-in a DTMF generator can generate the PSTN dialing tone directly. It can be applicable as Small/ Medium class telephone communication product etc..

The instruction set of HE89A21 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. HE89A21 Features

- Operation Voltage : 2.4V – 5.5V
- System Clock : DC ~ 8MHz @ 5.0V
- DC ~ 4MHz @ 2.4V
- Internal ROM : 16K Bytes(16K Program ROM)
- Internal RAM : 512 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..
- 16~32 bit Bi-directional I/O port. Mask Option can select PUSH-PULL or OPEN DRAIN output mode for each I/O pin.
- 128~64 dots LCD driver (A, B TYPE selectable).
- Built-in DTMF Generator.
- Two external interrupts and three internal timer interrupts.
- Two 16-bit timer and one Time Base timer.
- Instruction set : 32 instructions, 4 addressing mode. 9-bit DATA POINTER for RAM and 14-bit TABLE POINTER for ROM.

C. Important Note

1. LCD driving circuit must be turn off before IC goes into sleep mode.
2. Please bonds the TSTP_P, RSTP_N and PRTD[7:0] with test point on PCB (can be soldered and probed) as you can, then KB can do some IC testing job on PCB. Neither VDD nor GND connection is necessary for TSTP_P. The following figure is an example (Testing point with through hole).

