Product introduction

The BJ8M611A is a single chip 8-bit MCU based on RISC architecture with built-in 2K×
16-bit MTP program memory. It is manufactured using an advanced CMOS process with
low power consumption characteristics and low operating voltage capability. The chip
integrates a multi-channel 12-bit A/D converter, 3-way amplifier/comparator circuit, QC
fast charging circuit module, and 3 timer modules to provide timing, counting, and PWM
functions. Internal watchdog, low voltage reset, low voltage detection functions ensure
the reliable operation of the system. At the same time, it provides a rich clock options,
including internal fast clock, internal slow clock, external crystal clock and external input
clock, so that users can use flexibly. In addition, the MCU includes rich IO resources and
can be widely used in various products.

Application field

Consumer electronics, small appliances, etc.

CPU characteristics

RISC architecture, 1T kernel.
8 layers of hardware stack.

Store

Program memory: 2K x 16bits.
Data RAM: 256 x 8bits.
EEPROM: 128byte.

Instruction set

68 instructions.

Interrupt

Unique interrupt entry address (08h).

12 interrupt source(T0/T1/T2/INT0.1/LVD/ADC/T1PWM0.1.2/T2PWM0.2/CMP/OP).

I/O port

Bi-direction IO port: P0, P1.
Wake up function: P1.
The internal resistance values of all the pins are the same, and you can do 1/2 VDD
driving the LCD: P0,P1.
Open drain: P1.
External interrupts: P15/P17, which is triggered by the level.
P03 has 40ma low level drive capability.

Timer/counter

Timer/counter 0
    8-bit basic timer/counter.
    Supports the pre-division function.
Timer/counter 1
    Automatic loading of 16-bit timer/counter.
    3 PWM channels.
    Supports the pre-division function.
Timer/counter 2
    Automatic loading of 16-bit timer/counter.
    2 PWM channels.
    Supports the pre-division function.

    Capture the input function.

12-bit ADC

10 external input channels.
1 internal VDD/4.
1 internal reference voltage.
AD Reference voltage: VDD, external reference voltage, internal reference voltage (1V, 2V, 3V, 4V).
ADC sampling speed selection.
ADC2(P02), ADC7(P16) supports IO input to the type of the resistance voltage, accuracy 1%.

Amplifier

Integrate 1(OP) that can be fully directed.
It can be configured as a comparator.
Configurable input electrode inside GND, 1V, 2V, 3V, 4V.
If the user is configured to use the internal connection, the corresponding guide can be used as an I/O.
The output can be used for the AD(OP), or register or interrupt (the comparator).
Do OP adjustable zero.

Fixed magnification

Software configuration is used or is not used (straight through).
The magnification is fixed 16 times.
Need to support zero and calibration (if required, programmable or automatic).
Connect to the ADC2 entry.

Comparator

The output is shown as the register, and the configuration is interrupted.

The comparator input negative end can be connected to C-pin, can also connect to

the internal GND, 1V, 2V, 3V, 4V.

Other functions that are not used when the comparator is used.

QC module

D+/D- can be configured as any voltage or high resistance state between 0V-3.6V, and the adjustment step is 0.1V.
The baseline for power withdrawal should not be affected by other baseline Settings for the IC.
The shutdown can be configured.
Supports switching back and forth between various gears.
QC2.0/3.0 or AFC protocol can be accessed through the program control register.

Watchdog timer

Supports the pre-division function.
Can configure overflow reset or wake up.

Clock system

Internal RC oscillator (master clock)
    Frequency: 1MHz, 2MHz, 8MHz, 16MHz, error: ±1%.
Internal RC oscillator (WDT clock)
    Frequency: 128KHz, error: ±3%.
External crystal oscillator can be configured
    Supports 32768Hz to 16MHz external crystal oscillator.
    Supports crystal and ceramic oscillators.
External RC oscillator
    Frequency: 100KHz~10MHz, error: ±5%.
External clock source
    Operating frequency: 32768Hz~16MHz.
Can work with dual clocks
    Oscillator can be divided frequency: 1, 2, 4, 8.

Working mode

Common mode: Both high-speed and low-speed clocks work properly.
Low-speed mode: Only the low-speed clock works properly.
STOP mode: All clocks stop working.
IDLE mode: The CPU stops working and peripherals can work.

Low voltage reset (LVR)

Low voltage reset options: 1.8V, 2.3V, 2.7V, 3.0V, 3.3V, 3.6V, 3.9V.
Reset time: 140us, 6.5ms, 18ms, 72ms, 228ms.

Low Voltage Detection (LVD)

Low voltage detection options: 2.2V, 2.4V, 2.6V, 2.9V, 3.2V, 3.8V, 4.1V.
Can be configured to generate interrupts.

Low power mode

The power consumption in STOP mode is less than 1.2uA.
I/O, level trigger mode for external interrupts, RTC mode for timer 0, and watchdog wakeup.

Operating temperature range

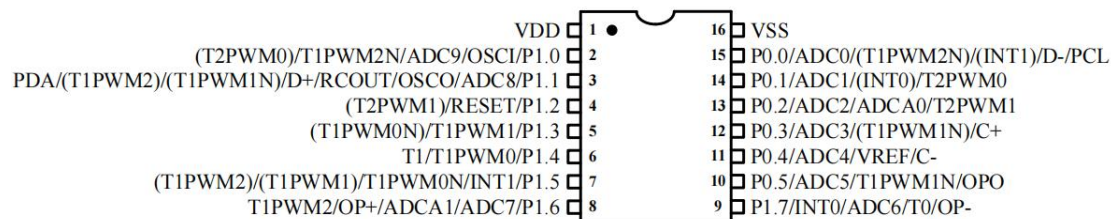-40℃ ~ +85℃.

Voltage operating range

1.8V~5.5V.

Anti-interference capability

ESD: Better than ±4000V.
EFT: better than ±4000V.

Pin assignment diagram

SOP16

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              VDD ▭ 1 ●      16 ▭ VSS
(T2PWM0)/T1PWM2N/ADC9/OSCI/P1.0 ▭ 2      15 ▭ P0.0/ADC0/(T1PWM2N)/(INT1)/D-/PCL
PDA/(T1PWM2)/(T1PWM1N)/D+/RCOUT/OSCO/ADC8/P1.1 ▭ 3   14 ▭ P0.1/ADC1/(INT0)/T2PWM0
        (T2PWM1)/RESET/P1.2 ▭ 4      13 ▭ P0.2/ADC2/ADCA0/T2PWM1
      (T1PWM0N)/T1PWM1/P1.3 ▭ 5      12 ▭ P0.3/ADC3/(T1PWM1N)/C+
              T1/T1PWM0/P1.4 ▭ 6      11 ▭ P0.4/ADC4/VREF/C-
(T1PWM2)/(T1PWM1)/T1PWM0N/INT1/P1.5 ▭ 7   10 ▭ P0.5/ADC5/T1PWM1N/OPO
     T1PWM2/OP+/ADCA1/ADC7/P1.6 ▭ 8    9 ▭ P1.7/INT0/ADC6/T0/OP-
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SOP8

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              VDD ▭ 1 ●       8 ▭ VSS
PDA/(T1PWM2)/(T1PWM1N)/D+/RCOUT/OSCO/ADC8/P1.1 ▭ 2   7 ▭ P0.0/ADC0/(T1PWM2N)/(INT1)/D-/PCL
      (T1PWM0N)/T1PWM1/P1.3 ▭ 3       6 ▭ P0.4/ADC4/VREF/C-
              T1/T1PWM0/P1.4 ▭ 4       5 ▭ P1.7/INT0/ADC6/T0/OP-
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