TM57 Series

TM57PE10

DEMO CODE FOR

TM57PE10 BASIC FUNCTIONS

Application Note

AMENDMENT HISTORY

Version	Date	Description
V1.0	April, 2011	New release.

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PRODUCT NAME

TM57 series IC

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APPLICATION NOTE

1. TM57PE10_Comparator_Application_Sample

1-1. Details of DEMO subroutine, please refer to comp.asm

1-2. Sample description

1) Subroutine uses internal reference voltage, select IN0-pin as comparator signal input.

2) The interrupt device of the comparator in subroutine is triggered in falling edge, compare reference voltage as internal reference. When compare voltage CMP is lower than internal reference voltage, interrupt will exist.

3) TM57PE10 comparator has 3 input sources, if it is using internal reference, PB3 (IN+) will be input pin, the internal reference voltage selection is from 0-3 bit of the CMP_CONTROL, the internal reference voltage is Vcc*X/15 (X = bit 0-3 value). If selecting two external voltage comparator, PB1 (IN0-) and PB2 (IN1-) will be used as input of two comparator voltage. The changes (higher or lower) in comparator voltage interrupt can be selected from bit-6 of CMP_CONTROL. If using comparator, I/O port device is set as input, but it is not necessary to pull high, I/O data register must be set to 1.

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1-3. Circuit Diagram
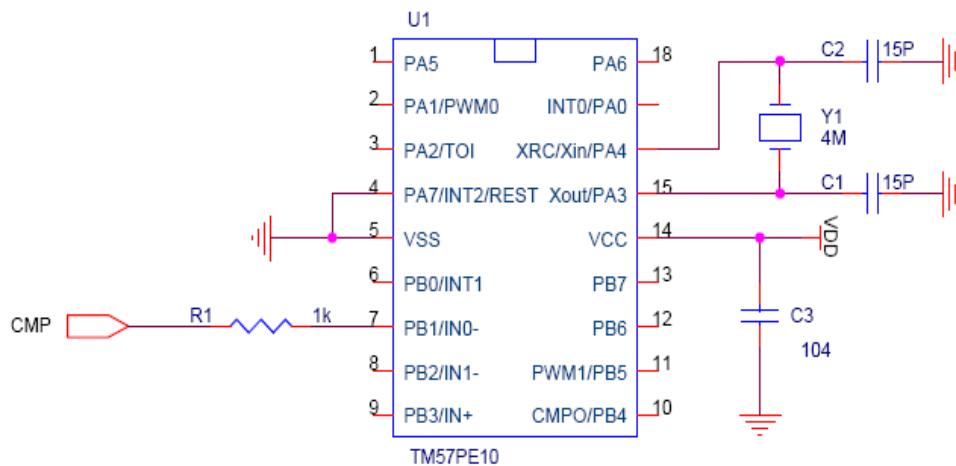
2. TM57PE10_External_Interrupt_Sample

2-1. Details of DEMO subroutine, please refer to ext_int.asm

2-2. Sample description

1) PA0 external interrupt 0 (INT0), PB0 external interrupt 1 (INT1), PA7 external interrupt 2 (INT2).

2) The related I/O must be set as input with pull high resistor on. I/O data register must be set to 1.

3) When the corresponding button is pressed, interrupt will happen, and subroutine will jump to the corresponding interrupt.

2-3. Circuit Diagram
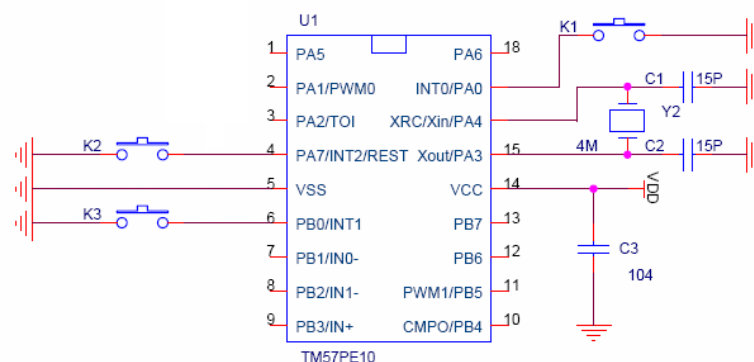
3. TM57PE10_Clock_Switch_Application_Sample

3-1. Details of DEMO subroutine, please refer to mode_conv.asm

3-2. Sample description

1) The clock switch in when subroutine description in fast mode, slow mode, idle mode, sleep mode, when power ON, system operating is in fast mode.

2) When main clock is operating in fast mode, sub clk will terminate. In sleep mode, turning OFF the main clock and sub clock will allow external interrupt and WKT to waken up the system, in slow mode, the main clock terminates, and sub clk will operate.

4. TM57PE10_PWM0 Application Sample

4-1. Details of DEMO subroutine, please refer to PWM0.asm

4-2. Sample description

1) PWM0 is 8-bit periodically programmable PWM generator. The periodic of PWM0 is set from PWM0_PERIOD register. The duty is set from PWM0DUTY, changing the value of PWM0DUTY will change the duty.

2) When CLRPWM0 =0, STOPTM0=1, the PWM0 output will be output from PA1 continuously.

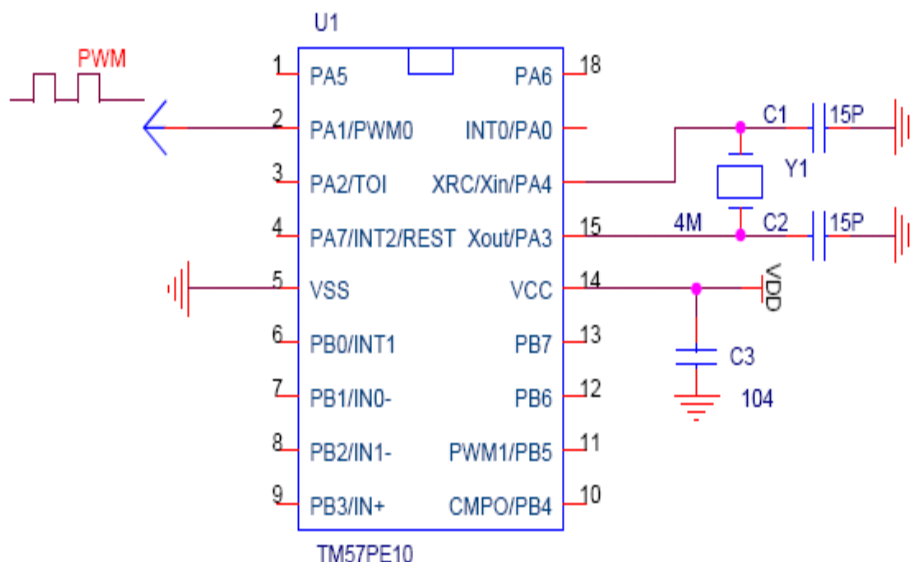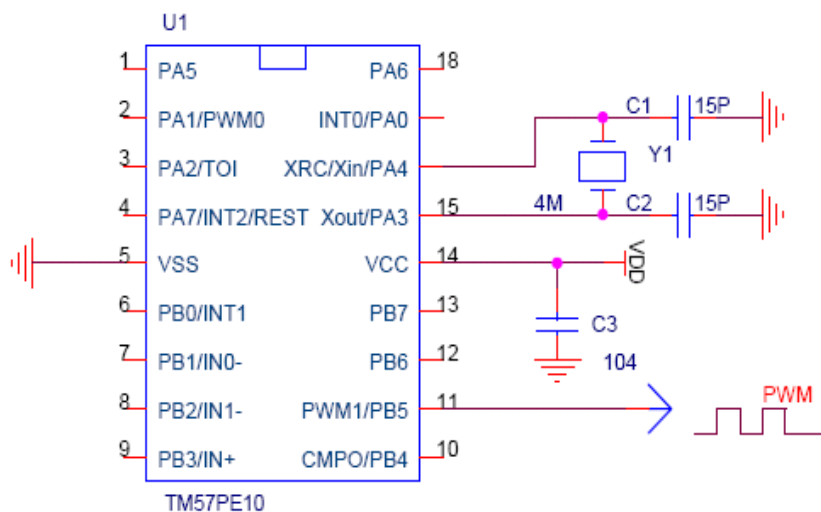### 4-3. Circuit Diagram

Preliminary

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5. TM57PE10_PWM1 Application Sample

5-1. Details of DEMO subroutine, please refer to PWM1.asm

5-2. Sample description

1) PWM1 is 8-bit fixed periodic PWM generator, the periodic is 1/fosc*2*256, and the duty is set from PWM1DUTY.

2) When the 4th bit of TIME_DIVIDE is 1, PWM1 will be output from PB5.

5-3. Circuit Diagram

6. TM57PE10_System_Initializatioin_Application_Sample

6-1. Details of DEMO subroutine, please refer to system_init.asm

6-2. Sample description

1) Subroutine initialization is done when power is turned ON, set the I/O status to system initial status, turn ON the necessary interrupt, clear all the memory inside the system, to avoid malfunction during system operating.

7. TM57PE10_Timer0_Application_Sample

7-1. Details of DEMO subroutine, please refer to timer0.asm

7-2. Sample description

1) Timer0 is 8-bit timer; there is no auto-reinstall function. Every time the interrupt happens, the initial value must be set in interrupt, the period time is 1/Fosc*2*divide*(256-TIMER0).

2) The way to turn ON the timer is, set the frequency divider of timer0, and then turn ON the interrupt.

8. TM57PE10_Timer2_Application_Sample

8-1. Details of DEMO subroutine, please refer to timer2.asm

8-2. Sample description

1) Timer2 is 15-bit timer, the period time is (1/Fcosc*128* timer2 div) or sub (1/sub clk * timer2 div), when the frequency divider is selected, timer does not need initial value, every time will be fixed time.

   NOTE: SUB clk is SXT, WRC, XRC

9. TM57PE10_Sleep_Wakeup_Application_Sample

9-1. Details of DEMO subroutine, please refer to wake_up.asm

9-2. Sample description

1) TM57PE10 sleep wakeup can be done from 3 external interrupts I/O and WKT.

2) External interrupt: After entering sleep mode, turn ON the external interrupt wakeup, when external interrupt happens, subroutine will jump to interrupt address, and system will wake up.

3) WKT wake up: select disable WDT Reset in config. When watchdog time overflows, subroutine will jump to interrupt address, and system will wake up.