



**PRODUCT NAME**

TM6820

**TITLE**

The differences between TM6820 and TM8712

**APPLICATION NOTE**

**The mask option differences :**

1. TM6820 Power mode 無 EXT-V 選項.
2. TM6820 無 key scan 選項.
3. TM6820 無 LED mode 選項.
4. TM6820 增加 IOA/IOB/IOC Pull low 由 mask option 選用.
5. TM6820 增加 Reset time set 及 Reset pin trigger mode 兩個選項

**The function differences :**

1. TM6820 Internal R 的 RC oscillator 頻率為 300kHz & 600kHz (mask option)  
(TM8712 Internal R 的 RC oscillator 頻率為 250k & 500k).
2. TM6820 內建 Low Battery Detect 功能.
3. TM6820 無 key scan 功能.
4. TM6820 無 LED mode 功能.

\*以下列出 TM8712 與 TM6820 之 option 選項, 黑體字標示的表示是 TM6820 與 TM8712 不同之處 :

**TM8712 option:**

1. POWER SOURCE :  
(1) **EXT-V**                      (2) 3V BATTERY OR HIGHER      (3) 1.5V BATTERY
  2. CLOCK SOURCE :  
(1) FAST ONLY & USE INTERNAL RESISTOR (2) FAST ONLY & USE EXTERNAL RESISTOR (3) SLOW ONLY (4) DUAL
  3. POWER ON RESET :  
(1) USE                      (2) NO USE
  4. INT PIN INTERNAL RESISTOR :  
(1) PULL HIGH      (2) PULL LOW      (3) OPEN TYPE
  5. INT PIN TRIGGER MODE :  
(1) RISING EDGE (2) FALLING EDGE
  6. LCD/**LED** ACTIVE TYPE :  
(1) LCD      (2) **LED HIGH ACTIVE**      (3) **LED LOW ACTIVE**      (4)O/P
  7. LCD DISPLAY IN RESET CYCLE (LED MUST SELECT OFF) :  
(1) ON                      (2) OFF
  8. F SEGMENT FOR DISPLAY "7" :  
(1) ON                      (2) OFF
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9. LCD/**LED** FRAME FREQUENCY :  
(1) SLOW (2) TYPICAL (3) FAST (4) **O/P**
10. LCD/**LED** DUTY CYCLE :  
(1) **O/P** or STATIC (2) DUPLEX (3) 1/3 DUTY (4) 1/4 DUTY (5) 1/5 DUTY
11. BIAS :  
(1) 1/3 BIAS (2) 1/2 BIAS (3) **NO BIAS**
12. WATCH DOG TIMER OVERFLOW TIME INTERVAL :  
(1) 8 X PH10 (2) 64 X PH10 (3) 512 X PH10
13. C PORT LOW LEVEL HOLD :  
(1) USE (2) NO USE
14. SEG24/IOA1/CX :  
(1) SEG24 (2) IOA1 (3) CX
15. SEG25/IOA2/RR :  
(1) SEG25 (2) IOA2 (3) RR
16. SEG26/IOA3/RT :  
(1) SEG26 (2) IOA3 (3) RT
17. SEG27/IOA4/RH :  
(1) SEG27 (2) IOA4 (3) RH
18. SEG28/IOB1/ELC :  
(1) SEG28 (2) IOB1 (3) ELC
19. SEG29/IOB2/ELP :  
(1) SEG29 (2) IOB2 (3) ELP
20. SEG30/IOB3/BZB :  
(1) SEG30 (2) IOB3 (3) BZB
21. SEG31/IOB4/BZ :  
(1) SEG31 (2) IOB4 (3) BZ
22. SEG32/IOC1/KI1 :  
(1) SEG32 (2) IOC1 (3) **KI1**
23. SEG33/IOC2/KI2 :  
(1) SEG33 (2) IOC2 (3) **KI2**
24. SEG34/IOC3/KI3 :  
(1) SEG34 (2) IOC3 (3) **KI3**
25. SEG35/IOC4/KI4 :  
(1) SEG35 (2) IOC4 (3) **KI4**
26. IOC1/KI1 FOR KEY RESET :  
(1) USE (2) NO USE
27. IOC2/KI2 FOR KEY RESET :  
(1) USE (2) NO USE
28. IOC3/KI3 FOR KEY RESET :  
(1) USE (2) NO USE
29. IOC4/KI4 FOR KEY RESET :  
(1) USE (2) NO USE
30. PH0 <=> BCLK FOR FAST ONLY :  
(1) PH0=BCLK (2) PH0=BCLK/4 (3) PH0=BCLK/8 (4) PH0=BCLK/16
31. INSTRUCTION ROM <-> TABLE ROM :  
(1) 128 <-> 3840
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- (2) 256 <-> 3584
- (3) 384 <-> 3328
- (4) 512 <-> 3072
- (5) 640 <-> 2816
- (6) 768 <-> 2560
- (7) 896 <-> 2304
- (8) 1024 <-> 2048
- (9) 1152 <-> 1792
- (A) 1280 <-> 1536
- (B) 1408 <-> 1280
- (C) 1536 <-> 1024
- (D) 1664 <-> 768
- (E) 1792 <-> 512
- (F) 1920 <-> 256
- (G) 2048 <-> 0

32. SLOW CLOCK OSCILLATION TYPE FOR SLOW ONLY OR DUAL

- (1)X'tal      (2)RC

33. FAST CLOCK OSCILLATION TYPE FOR FAST ONLY OR DUAL

- (1)INTERNAL R FOR **250kHz**      (2)INTERNAL R FOR **500kHz**

**TM6820 option:**

1. POWER SOURCE :

- (1) 3V BATTERY      (2) 1.5V BATTERY

2. CLOCK SOURCE :

- (1) FAST ONLY & USE INTERNAL RESISTOR
- (2) FAST ONLY & USE EXTERNAL RESISTOR
- (3) SLOW ONLY (4) DUAL

3. POWER ON RESET :

- (1) USE      (2) NO USE

4. INT PIN INTERNAL RESISTOR :

- (1) PULL HIGH      (2) PULL LOW      (3) OPEN TYPE

5. INT PIN TRIGGER MODE :

- (1) RISING EDGE      (2) FALLING EDGE

6. LCD DISPLAY IN RESET CYCLE :

- (1) ON      (2) OFF

7. F SEGMENT FOR DISPLAY "7" :

- (1) ON      (2) OFF

8. LCD FRAME FREQUENCY :

- (1) SLOW      (2) TYPICAL (3) FAST

9. LCD DUTY CYCLE :

- (1) STATIC      (2) DUPLEX (3) 1/3 DUTY
- (4) 1/4 DUTY      (5) 1/5 DUTY

10. BIAS :

- (1) 1/3 BIAS      (2) 1/2 BIAS

11. WATCH DOG TIMER OVERFLOW TIME INTERVAL :

- (1) 8 X PH10      (2) 64 X PH10      (3) 512 X PH10

12. C PORT LOW LEVEL HOLD :

- (1) USE      (2) NO USE

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13. SEG24/IOA1/CX :  
    (1) SEG24   (2)IOA1                   (3) CX
  14. SEG25/IOA2/RR :  
    (1) SEG25   (2)IOA2                   (3) RR
  15. SEG26/IOA3/RT :  
    (1) SEG26   (2)IOA3                   (3) RT
  16. SEG27/IOA4/RH :  
    (1) SEG27   (2)IOA4                   (3) RH
  17. SEG28/IOB1/ELC :  
    (1) SEG28   (2)IOB1                   (3) ELC
  18. SEG29/IOB2/ELP :  
    (1) SEG29   (2)IOB2                   (3) ELP
  19. SEG30/IOB3/BZB :  
    (1) SEG30   (2)IOB3                   (3) BZB
  20. SEG31/IOB4/BZ :  
    (1) SEG31   (2)IOB4                   (3) BZ
  21. SEG32/IOC1 :  
    (1) SEG32   (2)IOC1
  22. SEG33/IOC2 :  
    (1) SEG33   (2)IOC2
  23. SEG34/IOC3 :  
    (1) SEG34   (2)IOC3
  24. SEG35/IOC4 :  
    (1) SEG35   (2)IOC4
  25. IOC1 FOR KEY RESET :  
    (1) USE      (2) NO USE
  26. IOC2 FOR KEY RESET :  
    (1) USE      (2) NO USE
  27. IOC3 FOR KEY RESET :  
    (1) USE      (2) NO USE
  28. IOC4 FOR KEY RESET :  
    (1) USE      (2) NO USE
  29. PH0 <=> BCLK FOR FAST ONLY :  
    (1) PH0=BCLK   (2) PH0=BCLK/4   (3) PH0=BCLK/8   (4) PH0=BCLK/16
  30. INSTRUCTION ROM <-> TABLE ROM :  
    (1) 128 <-> 3840  
    (2) 256 <-> 3584  
    (3) 384 <-> 3328  
    (4) 512 <-> 3072  
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    (6) 768 <-> 2560  
    (7) 896 <-> 2304  
    (8) 1024 <-> 2048  
    (9) 1152 <-> 1792  
    (A) 1280 <-> 1536  
    (B) 1408 <-> 1280  
    (C) 1536 <-> 1024  
    (D) 1664 <-> 768

(E) 1792 <-> 512

(F) 1920 <-> 256

(G) 2048 <-> 0

31. SLOW CLOCK OSCILLATION TYPE FOR SLOW ONLY OR DUAL

(1)X'tal (2)RC

32. FAST CLOCK OSCILLATION TYPE FOR FAST ONLY OR DUAL

(1)INTERNAL R FOR **300kHz** (2)INTERNAL R FOR **600kHz**

**33. IOA PULL LOW RESISTOR :**

(1) USE (2) NO USE

**34. IOB PULL LOW RESISTOR :**

(1) USE (2) NO USE

**35. IOC PULL LOW RESISTOR :**

(1) USE (2) NO USE

**36. RESET TIME :**

(1) PH15/2 (2) PH12/2

**37. RESET PIN TYPE :**

(1) LEVEL (2) PULSE