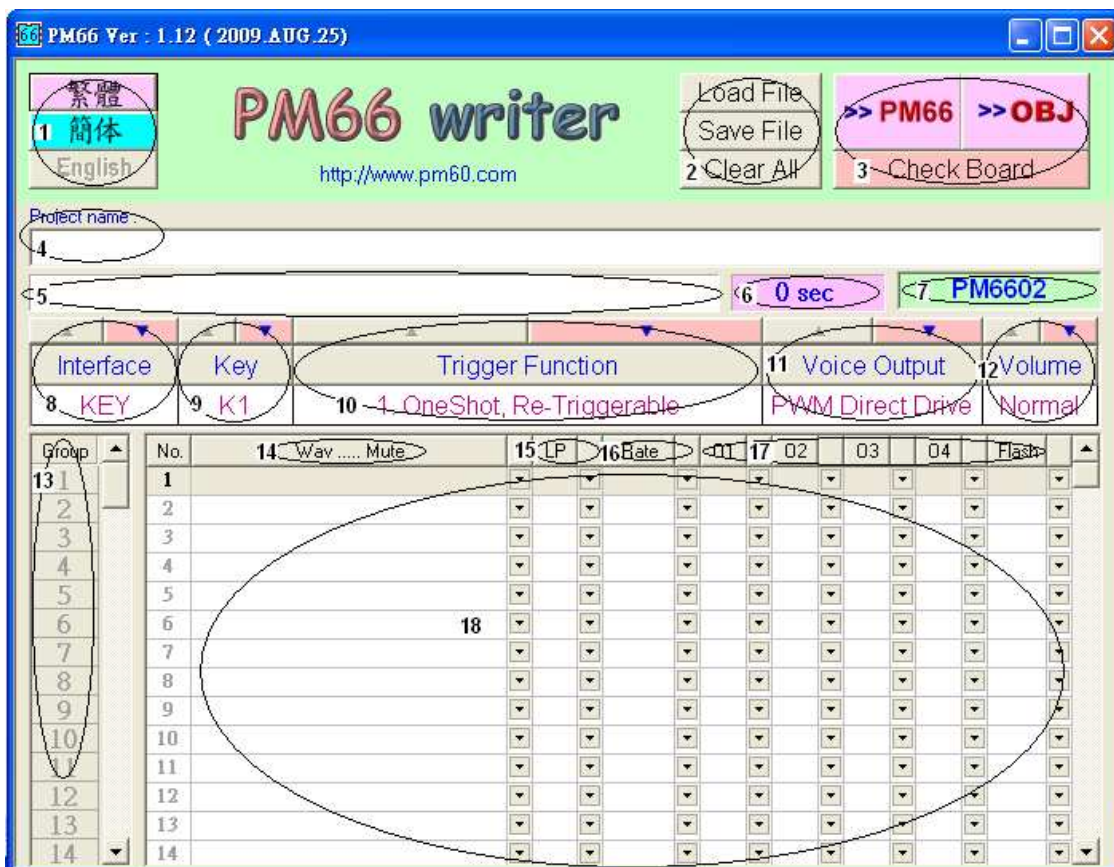


# PM66 Easy Write Voice Coding System

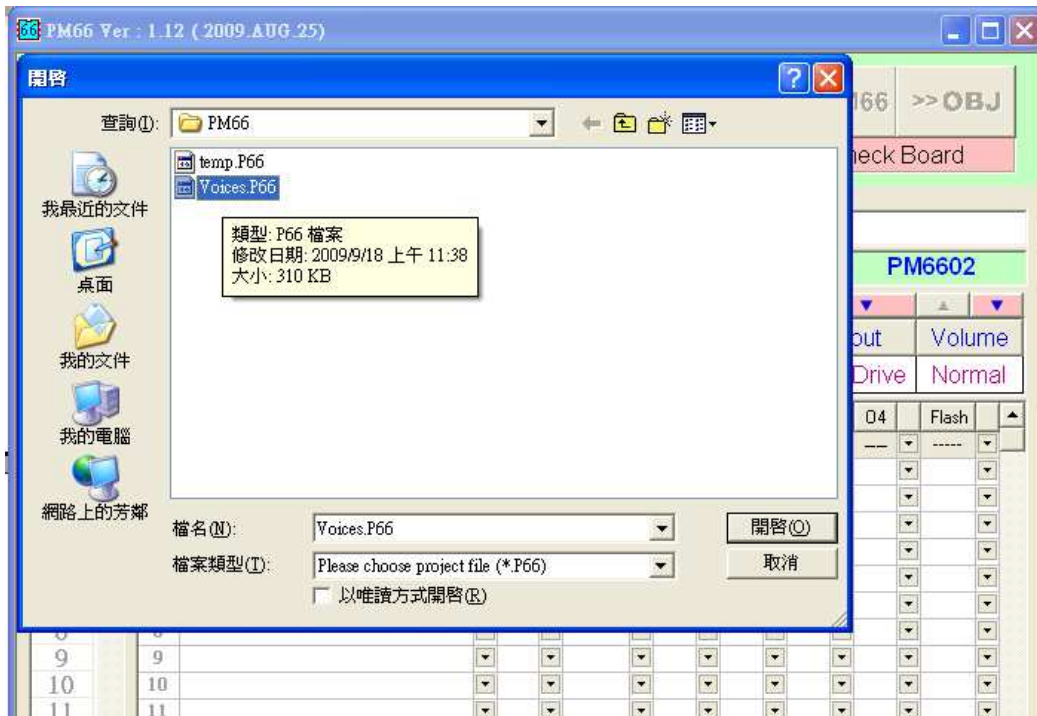
PM66 Utility Software is an utility software matching with **PM66SXX / PM66SSXX** Voice Module Boards - **LONG DURATION HIGH QUALITY VOICE PLAYBACK MODULE**. PM66 is a controversial user-friendly system – a combination of versatile program and cost-effective, outperforming **PM66SXX / PM66SSXX** Voice Module Boards –



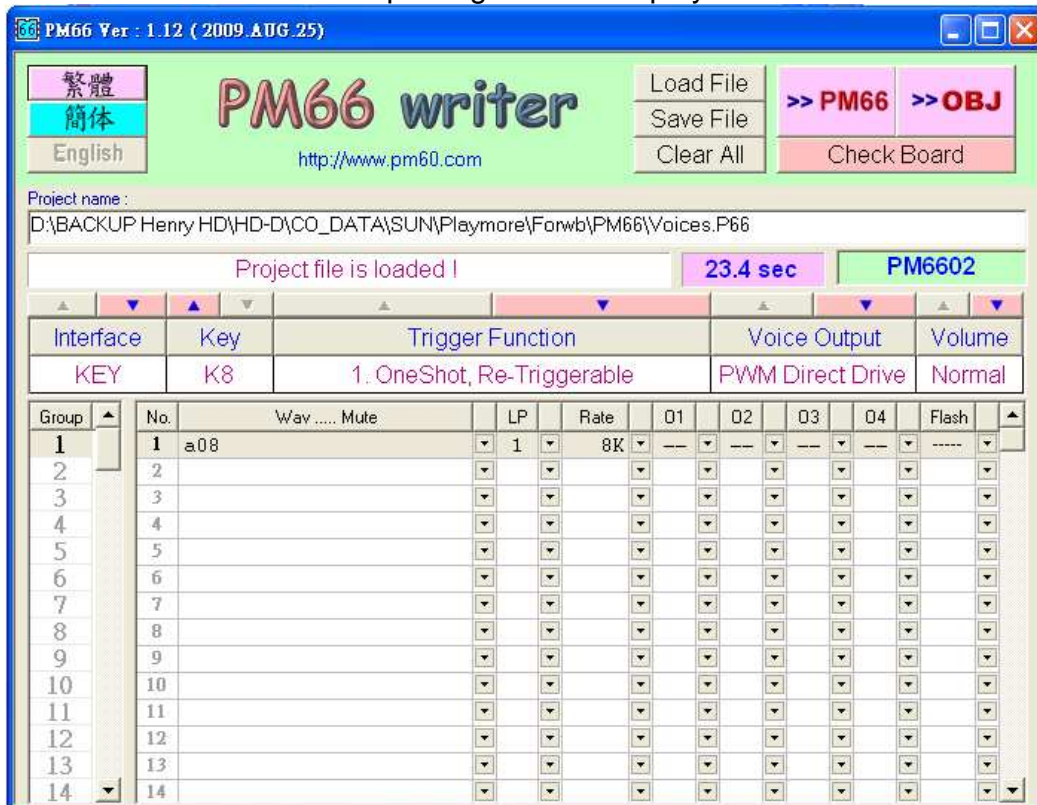
## FUNCTIONAL DESCRIPTION:

**F1** – Triple Language Selection: 繁體(Chinese) / 简体(Simplified Chinese) / English

**F2** – Script Program **Load / Save / Clear** operation keys  
**Load** key actuated & selected Voices.P66 (PM66 Script Program):



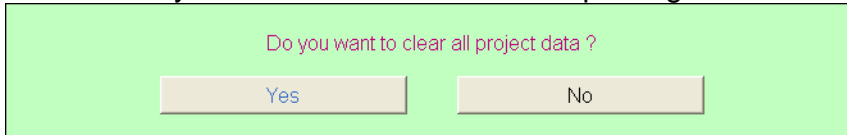
Load in the Voices.P66 Script Program and display the content



Save key actuated to save the Script Program in the content as a PC file with extension

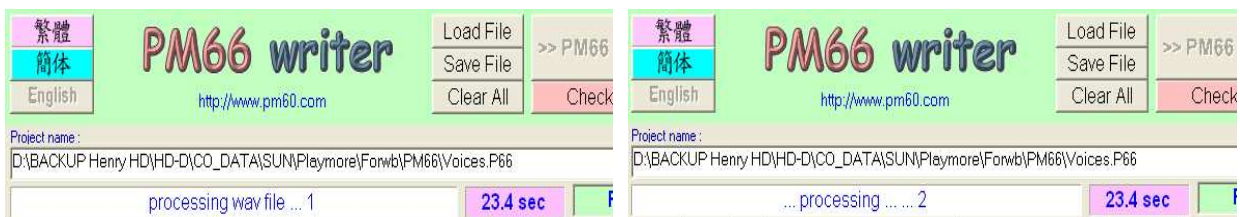
“.P66”.

**Clear All** key actuated to clear all the Script Program in the content.



**F3 –Voice Module Board operation keys: >> PM66 / >> OBJ / Check Board**

**>> PM66** key actuated to download the Script Program in the content to PM66 Voice Module Board and at meantime save-up the Script Program if it is newly edited or has just been updated.



.obj file will be generated and saved up at sub-directory where .P66 file resided or saved up.

**>> OBJ** key actuated to download the selected OBJ file in PC to PM66 Voice Module Board. This is an operation of transferring machine code to PM66 Voice Module Board and the machine code can provide functions which the utility software cannot provide;



however, the PM66 Voice Module Board can perform.

**Check Board** key actuated to check if the PM66 Voice Module Board is connected properly and review the exact part number (with Ver. code) of the connected PM66 Voice Module Board.

**F4 – Project name** showing the project file in operation

**F5 – Status Display** showing Voice Module Board P/N, Write Processing Details, Error Warning ...etc.

**F6** –Total Length of time used (measured by **4.8K** sampling rate with **5bit** data i.e. **24Kbps** equivalent to **24Kb** memory used for every second of voice, i.e. 23.4sec equivalent to 23.4sec x **24Kbps** = 561.6Kb & exact voice duration: 23.4 sec. x **4.8/8** = 14sec. for using **8K** sampling rate; however, if using **16K** sampling rate instead of **8K** sampling rate, Total Length of time displayed will be 46.6, i.e. 46.6sec equivalent to 46.6sec x **24Kbps** = 1118.4Kb & exact voice duration: 46.6 sec. x **4.8/16** = 14sec.)



**F7** –**Voice Module Number Display** for showing the Voice Module part number suitable for the current Project.

**PM6602** provides voice duration 40 sec.

**PM6604** provides voice duration 125 sec.

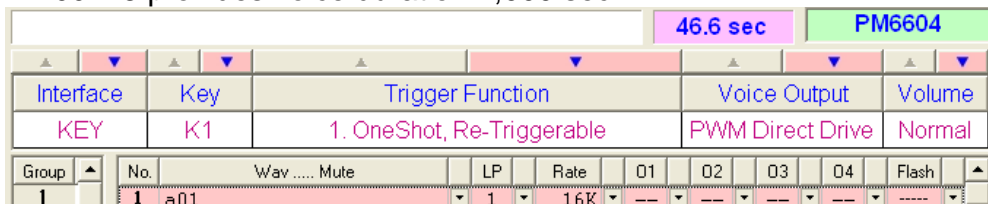
**PM6608** provides voice duration 250 sec.

**PM6616** provides voice duration 500 sec.

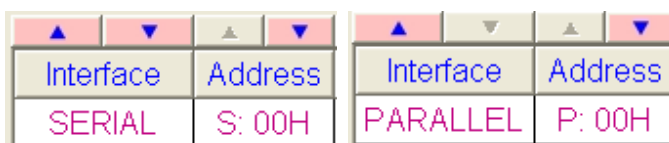
**PM6632** provides voice duration 1,000 sec.

**PM6664** provides voice duration 2,000 sec.

**PM66128** provides voice duration 4,000 sec.







**F8** – **Key Interface / Serial Interface / Parallel Interface** Selection using  &  buttons.



Key Interface selected showing

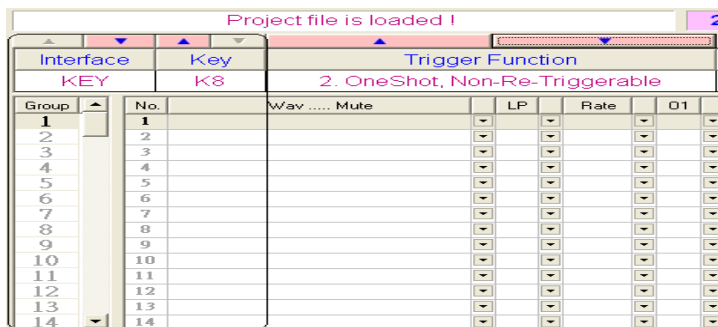
i. **F9** - KEY1~KEY8 key number

- ii.  &  buttons are used to select either the increment or decrement KEY code.
- iii. **F10** - KEY Trigger Function Selection using  &  buttons

KEY Trigger Function –

1. **One shot, re-trigger:** One key stroke to play 1 cycle and stop; but can be re-trigger during playing and starts again from the beginning
2. **One shot, non-re-trigger:** One key stroke to play 1 cycle and stop; it cannot be interrupted by re-trigger for re-starting again.
3. **Level hold, play 1 cycle:** Hold the key for playing 1 cycle and stop, release the key during playing to an immediate stop
4. **Level hold, play repeat:** Hold the key for cyclical playing repeatedly, release the key during playing to a final stop
5. **One shot, re-trigger, play repeat:** One key stroke for cyclical playing repeatedly; but can be re-trigger during playing and starts again from the beginning
6. **Toggle on/off:** One key stroke to play to the end for 1 cycle and second stroke to stop during playing

Key Interface provides i. **F9 - 8 Keys for Voice / Program retrieval** and each Key has its own selected ii. **F10 - KEY Trigger Function**. Furthermore, each Key has **F13** - sequential Groups from 1 to 100 for sequential operation

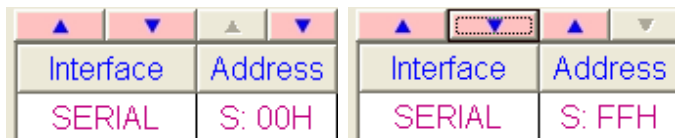


| Group | No. | Wav | Mute | LP | Rate | Out1 | Out2 | Out3 | Out4 | Flash |
|-------|-----|-----|------|----|------|------|------|------|------|-------|
| 1     | 1   |     |      |    |      |      |      |      |      |       |
| 2     | 2   |     |      |    |      |      |      |      |      |       |
| 3     | 3   |     |      |    |      |      |      |      |      |       |
| 4     | 4   |     |      |    |      |      |      |      |      |       |
| 5     | 5   |     |      |    |      |      |      |      |      |       |
| 6     | 6   |     |      |    |      |      |      |      |      |       |
| 7     | 7   |     |      |    |      |      |      |      |      |       |
| 8     | 8   |     |      |    |      |      |      |      |      |       |
| 9     | 9   |     |      |    |      |      |      |      |      |       |
| 10    | 10  |     |      |    |      |      |      |      |      |       |
| 11    | 11  |     |      |    |      |      |      |      |      |       |
| 12    | 12  |     |      |    |      |      |      |      |      |       |
| 13    | 13  |     |      |    |      |      |      |      |      |       |
| 14    | 14  |     |      |    |      |      |      |      |      |       |



operator can input Group2 Data Wav .... Mute / LP / (Sampling) Rate / Out1~Out4 / Flash

KEY1's Group1 Voice / Program can be retrieved by pressing KEY1 the 1st time and KEY1's Group2 Voice / Program can be retrieved by pressing KEY1 the 2nd time ...etc.

**Serial Interface** provides 2 Hex code Address 256 partitions ranging from 00H ~ FFH.

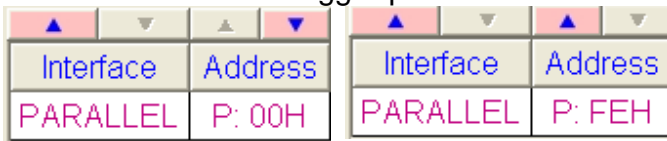


|           |         |           |         |
|-----------|---------|-----------|---------|
| Interface | Address | Interface | Address |
| SERIAL    | S: 00H  | SERIAL    | S: FFH  |

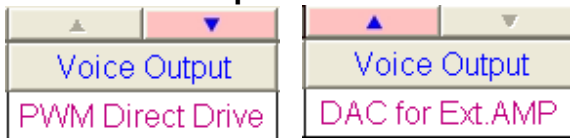
 &  buttons are used to select either the increment or decrement Serial Address code.

**Parallel Interface** provides also 2 Hex code Address 128 partitions ranging from 00H ~ FEH using only the plural Hex code i.e. the least significant bit **KEY1** is not used as

address but used as trigger pin.



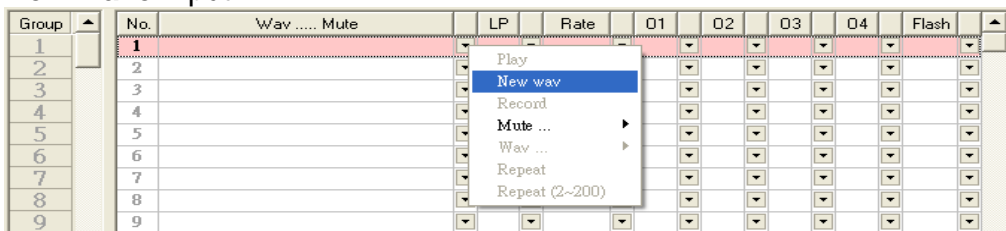
**F11 – Voice Output** mode i.e. either PWM Direct Drive or DAC for Ext. AMP



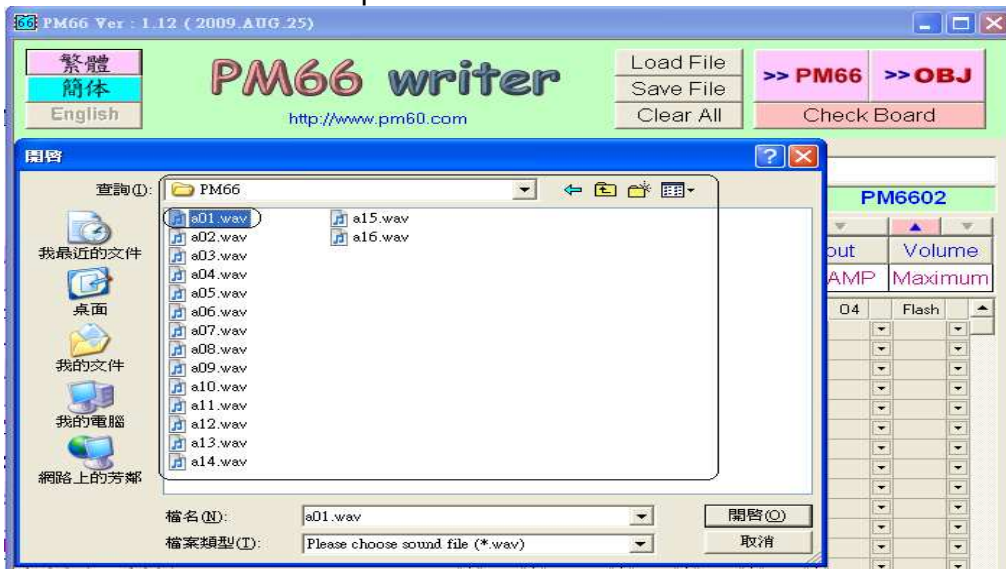
**F12 – Voice Level Adjustment** for either Normal, Larger or Maximum.



**F14 – Wav ..... Mute Content Input**  
**New wave Input**



Using pull-down menu(Play / New wav / Mute / Wav/ Repeat/ Repeat (2~200)) and select **New wav** for new wave input.



Default LP = 1 (Play one time by one trigger) which can be altered by using **F15 – Loop**

**Selection** pull-down menu to select more than one time i.e. from 1 ~ 16 times.

| Group | No. | Wav | Mute | LP | Rate | O1 | O2 | O3 | O4 | Flash |
|-------|-----|-----|------|----|------|----|----|----|----|-------|
| 1     | 1   | a01 |      | 1  | 1    |    |    |    |    |       |
| 2     | 2   |     |      |    | 2    |    |    |    |    |       |
| 3     | 3   |     |      |    | 3    |    |    |    |    |       |
| 4     | 4   |     |      |    | 4    |    |    |    |    |       |
| 5     | 5   |     |      |    | 5    |    |    |    |    |       |
| 6     | 6   |     |      |    | 6    |    |    |    |    |       |
| 7     | 7   |     |      |    | 7    |    |    |    |    |       |
| 8     | 8   |     |      |    | 8    |    |    |    |    |       |
| 9     | 9   |     |      |    | 9    |    |    |    |    |       |
| 10    | 10  |     |      |    | 10   |    |    |    |    |       |
| 11    | 11  |     |      |    | 11   |    |    |    |    |       |
| 12    | 12  |     |      |    | 12   |    |    |    |    |       |
| 13    | 13  |     |      |    | 13   |    |    |    |    |       |
| 14    | 14  |     |      |    | 14   |    |    |    |    |       |

Default 8K Sampling Rate which can be altered by using **F16 – Sampling Rate Selection** pull-down menu to select another i.e. from 4K ~ 20KHz.

| Interface | Key | Trigger Function           | 4K | Voice Output    | Volume |
|-----------|-----|----------------------------|----|-----------------|--------|
| KEY       | K1  | 1. OneShot, Re-Triggerable | 5K | WM Direct Drive | Normal |

| Group | No. | Wav | Mute | LP | Rate | O1 | O2 | O3 | O4 | Flash |
|-------|-----|-----|------|----|------|----|----|----|----|-------|
| 1     | 1   | a01 |      | 1  | 8K   |    |    |    |    |       |
| 2     | 2   |     |      |    |      |    |    |    |    |       |
| 3     | 3   |     |      |    |      |    |    |    |    |       |
| 4     | 4   |     |      |    |      |    |    |    |    |       |
| 5     | 5   |     |      |    |      |    |    |    |    |       |
| 6     | 6   |     |      |    |      |    |    |    |    |       |
| 7     | 7   |     |      |    |      |    |    |    |    |       |
| 8     | 8   |     |      |    |      |    |    |    |    |       |
| 9     | 9   |     |      |    |      |    |    |    |    |       |
| 10    | 10  |     |      |    |      |    |    |    |    |       |
| 11    | 11  |     |      |    |      |    |    |    |    |       |
| 12    | 12  |     |      |    |      |    |    |    |    |       |
| 13    | 13  |     |      |    |      |    |    |    |    |       |
| 14    | 14  |     |      |    |      |    |    |    |    |       |

**Mute** Input can select <1 ranging from 0.01 ~ 0.9 sec.

| No. | Wav | Mute | LP | Rate | O1 | O2 | O3 | O4 | Flash |
|-----|-----|------|----|------|----|----|----|----|-------|
| 1   | a01 |      | 1  | 8K   |    |    |    |    |       |
| 2   |     |      |    |      |    |    |    |    |       |
| 3   |     |      |    |      |    |    |    |    |       |
| 4   |     |      |    |      |    |    |    |    |       |
| 5   |     |      |    |      |    |    |    |    |       |
| 6   |     |      |    |      |    |    |    |    |       |
| 7   |     |      |    |      |    |    |    |    |       |
| 8   |     |      |    |      |    |    |    |    |       |
| 9   |     |      |    |      |    |    |    |    |       |
| 10  |     |      |    |      |    |    |    |    |       |
| 11  |     |      |    |      |    |    |    |    |       |
| 12  |     |      |    |      |    |    |    |    |       |
| 13  |     |      |    |      |    |    |    |    |       |
| 14  |     |      |    |      |    |    |    |    |       |

**Mute** Input can select 1 ~ 9 ranging from 1 ~ 9.5 sec. and >= 10 ranging from 10 ~ 100 sec.

| No. | Wav | Mute | LP | Rate | O1 | O2 | O3 | O4 | Flash |
|-----|-----|------|----|------|----|----|----|----|-------|
| 1   | a01 |      | 1  | 8K   |    |    |    |    |       |
| 2   |     |      |    |      |    |    |    |    |       |
| 3   |     |      |    |      |    |    |    |    |       |
| 4   |     |      |    |      |    |    |    |    |       |
| 5   |     |      |    |      |    |    |    |    |       |
| 6   |     |      |    |      |    |    |    |    |       |
| 7   |     |      |    |      |    |    |    |    |       |
| 8   |     |      |    |      |    |    |    |    |       |
| 9   |     |      |    |      |    |    |    |    |       |
| 10  |     |      |    |      |    |    |    |    |       |

**Wave ...** Input can re-use those previously input voices

| No. | Wav .... Mute | LP | Rate | O1 | O2 |
|-----|---------------|----|------|----|----|
| 1   | a01           | 1  | 8K   | -- | -- |
| 2   |               |    |      |    |    |
| 3   |               |    |      |    |    |
| 4   |               |    |      |    |    |
| 5   |               |    |      |    |    |
| 6   |               |    |      |    |    |
| 7   |               |    |      |    |    |
| 8   |               |    |      |    |    |
| 9   |               |    |      |    |    |

**Repeat** Input can force all Inputs above of it repeat endlessly in sequence or at a specific number of times (from 2 ~ 200).

| No. | Wav .... Mute | LP | Rate | O1 | O2 |
|-----|---------------|----|------|----|----|
| 1   | a01           | 1  | 8K   | -- | -- |
| 2   | ^^Repeat^^    |    |      |    |    |
| 3   |               |    |      |    |    |
| 4   |               |    |      |    |    |
| 5   |               |    |      |    |    |
| 6   |               |    |      |    |    |
| 7   |               |    |      |    |    |
| 8   |               |    |      |    |    |
| 9   |               |    |      |    |    |

All **Wav** and **Mute** Inputs can also control **F17** - Out1~Out4. When Out1, 2, 3 or 4 actuated, their actuation duration are low as the a01(wav) or 0.5(Mute duration) is activated. Besides of simply turning on the actuation, there are Flash\_0 & Flash\_1 selections which flash by interleaving pattern and the Flash frequency (preset 3Hz) can be altered by ticking a selection in the Flash pull-down menu (from 1 ~ 16hz).

| No. | Wav .... Mute | LP | Rate | O1 | O2  | O3 | O4 | Flash |
|-----|---------------|----|------|----|-----|----|----|-------|
| 1   | a01           | 1  | 8K   | ON | --  | -- | -- | ----  |
| 2   |               |    |      |    | ON  |    |    |       |
| 3   |               |    |      |    | F:0 |    |    |       |
| 4   |               |    |      |    | F:1 |    |    |       |
| 5   |               |    |      |    |     |    |    |       |

| No. | Wav .... Mute    | LP | Rate | O1  | O2  | O3 | O4 | Flash |
|-----|------------------|----|------|-----|-----|----|----|-------|
| 1   | a01              | 1  | 8K   | ON  | --  | -- | -- | ----  |
| 2   | : ( Mute ) : 0.5 | 1  | ---- | F:0 | F:1 | -- | -- | 3 hz  |
| 3   |                  |    |      |     | ON  |    |    |       |
| 4   |                  |    |      |     | F:0 |    |    |       |
| 5   |                  |    |      |     | F:1 |    |    |       |
| 6   |                  |    |      |     |     |    |    |       |

| No. | Wav .... Mute    | LP | Rate | O1  | O2  | O3 | O4 | Flash |
|-----|------------------|----|------|-----|-----|----|----|-------|
| 1   | a01              | 1  | 8K   | ON  | --  | -- | -- | ----  |
| 2   | : ( Mute ) : 0.5 | 1  | ---- | F:0 | F:1 | -- | -- | 3 hz  |
| 3   |                  |    |      |     |     |    |    |       |
| 4   |                  |    |      |     |     |    |    |       |
| 5   |                  |    |      |     |     |    |    |       |
| 6   |                  |    |      |     |     |    |    |       |
| 7   |                  |    |      |     |     |    |    |       |
| 8   |                  |    |      |     |     |    |    |       |
| 9   |                  |    |      |     |     |    |    |       |
| 10  |                  |    |      |     |     |    |    |       |
| 11  |                  |    |      |     |     |    |    |       |
| 12  |                  |    |      |     |     |    |    |       |
| 13  |                  |    |      |     |     |    |    |       |
| 14  |                  |    |      |     |     |    |    |       |

Therefore, operator can use **Mute** function to program a sequential activation of Out1, 2, 3 & 4 with or without **Wav** intervening. Moreover, the total allowable program sequences are 120pcs; but, will consider to extend under customer requisition

| Interface | Key | Trigger Function           | Voice Output     | Volume |
|-----------|-----|----------------------------|------------------|--------|
| KEY       | K1  | 1. OneShot, Re-Triggerable | PWM Direct Drive | Normal |

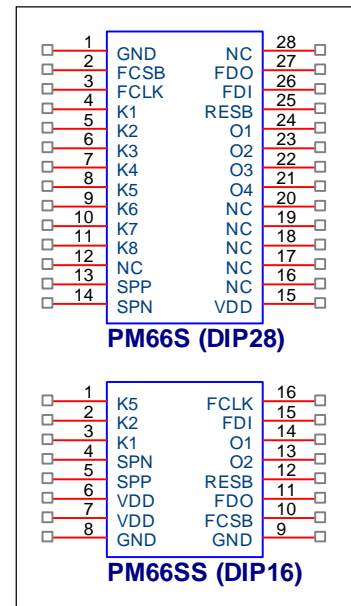
  

| Group | No. | Wav | Mute | LP | Rate | O1 | O2 | O3 | O4 | Flash |
|-------|-----|-----|------|----|------|----|----|----|----|-------|
| 89    | 189 |     |      |    |      |    |    |    |    |       |
| 90    | 190 |     |      |    |      |    |    |    |    |       |
| 91    | 191 |     |      |    |      |    |    |    |    |       |
| 92    | 192 |     |      |    |      |    |    |    |    |       |
| 93    | 193 |     |      |    |      |    |    |    |    |       |
| 94    | 194 |     |      |    |      |    |    |    |    |       |
| 95    | 195 |     |      |    |      |    |    |    |    |       |
| 96    | 196 |     |      |    |      |    |    |    |    |       |
| 97    | 197 |     |      |    |      |    |    |    |    |       |
| 98    | 198 |     |      |    |      |    |    |    |    |       |
| 99    | 199 |     |      |    |      |    |    |    |    |       |
| 100   | 200 |     |      |    |      |    |    |    |    |       |
| End   | End |     |      |    |      |    |    |    |    |       |

# PM66 Hardware (PM66S02 / PM66S04 / PM66S08 / PM66S16 / PM66S32 / PM66S64 / PM66S128) (PM66SS02 / PM66SS04 / PM66SS08 / PM66SS16 / PM66SS32 / PM66SS64)

## 1. FEATURES

- ◎ PM66SXX is pin-to-pin compatible with PM50SXX
- ◎ Long Duration ( 40 ~ 4000 seconds )
- ◎ 8-Input Pins , 4-Output Pins
- ◎ No External Components
- ◎ No external components and Free Combinations of USB Download Voices
- ◎ Wide Range Sampling Rate Selection ( 4 ~ 20K Hz )
- ◎ Flexible Operation Voltage ( 3 ~ 5V )
- ◎ Multiple LED Flashing Frequencies ( 1 ~ 12 Hz )
- ◎ Direct Key Trigger , Serial or Parallel MCU Addressing



## 2. DESCRIPTION

PM66 Series are the integration of circuits of flash memory , ADPCM decoder , power amplifier and voltage regulator to a brand new Voice Playback Module. Because of its standard DIP-28 pinouts , user can easily apply PM66 to all occasions of requisition of Voice Playback. By simply connecting voltage , speaker , trigger keys , PM66 is an independent Voice Playback system. With the usage of Flash Memories , USB PC Download and the versatile programming features , PM66 provides an easy and quick way of changing voice/function, especially those are timely specified.

### 3. PRODUCT CATAGOLUE

PM66 Series is categorized by Voice Duration into 7types , below TABLE tabulates Voice Durations under different items with different sampling rates:

| Sampling Rate➔  | 4.8K | 6K   | 8K   | 10K  | 12K  | 16K  | 20K |
|-----------------|------|------|------|------|------|------|-----|
| Voice Duration➔ |      |      |      |      |      |      |     |
| ↓Product P/N#↓  |      |      |      |      |      |      |     |
| PM6602          | 40   | 32   | 24   | 19.2 | 16   | 12   | 9.6 |
| PM6604          | 125  | 100  | 75   | 60   | 50   | 37.5 | 30  |
| PM6608          | 250  | 200  | 150  | 120  | 100  | 75   | 60  |
| PM6616          | 500  | 400  | 300  | 240  | 200  | 150  | 120 |
| PM6632          | 1000 | 800  | 600  | 480  | 400  | 300  | 240 |
| PM6664          | 2000 | 1600 | 1200 | 960  | 800  | 600  | 480 |
| PM66128         | 4000 | 3200 | 2400 | 1920 | 1600 | 1200 | 960 |

### 4. PINOUT DESCRIPTION PM66SXX (DIP) PINOUTS

| PINOUT   | PIN NUMBER | DESCRIPTION                             |
|----------|------------|---|
| K1~K8    | 4~11       | Trigger Input Pins <negative trigger>   |
| O1~O4    | 24~21      | Output Pins                             |
| SPP, SPN | 13, 14     | Speaker Contacts (Differential Outputs) |
| VDD      | 15         | Positive Power PIN                      |
| GND      | 1          | Ground Voltage                          |
| RESB     | 25         | System Reset <negative trigger>         |
| FCS      | 2          | Flash Memory Control Pin                |
| FCK      | 3          | Flash Memory Control Pin                |
| FDO      | 27         | Flash Memory Control Pin                |
| FDI      | 26         | Flash Memory Control Pin                |

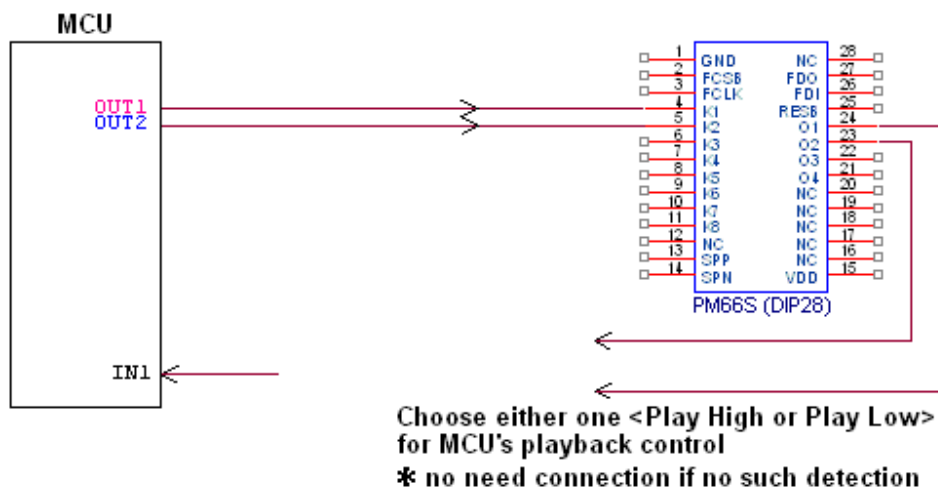
## PM66SSXX (DIP) PINOUTS

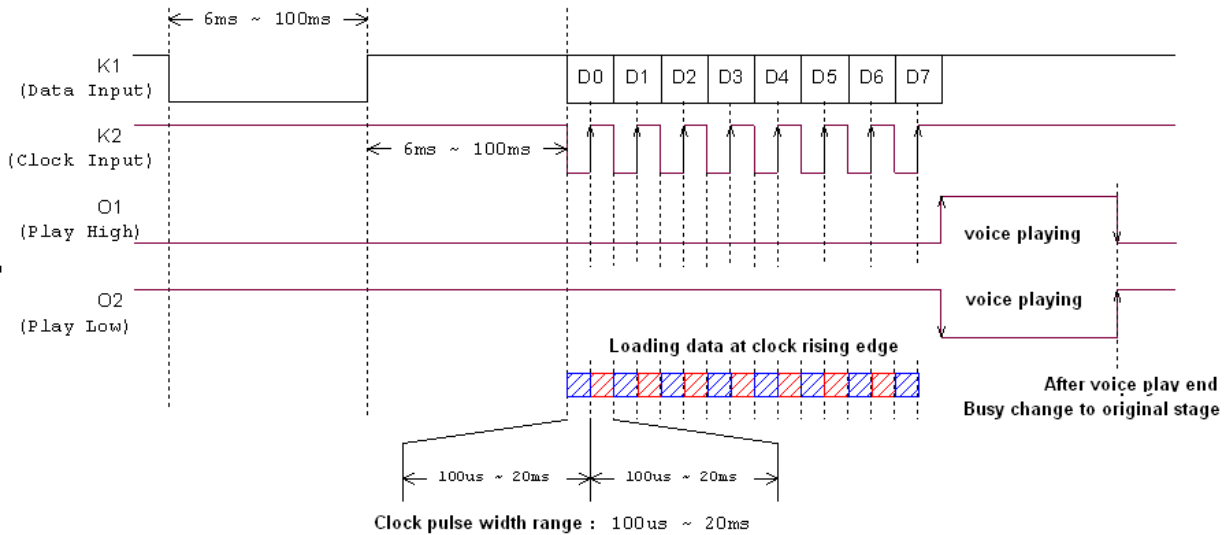
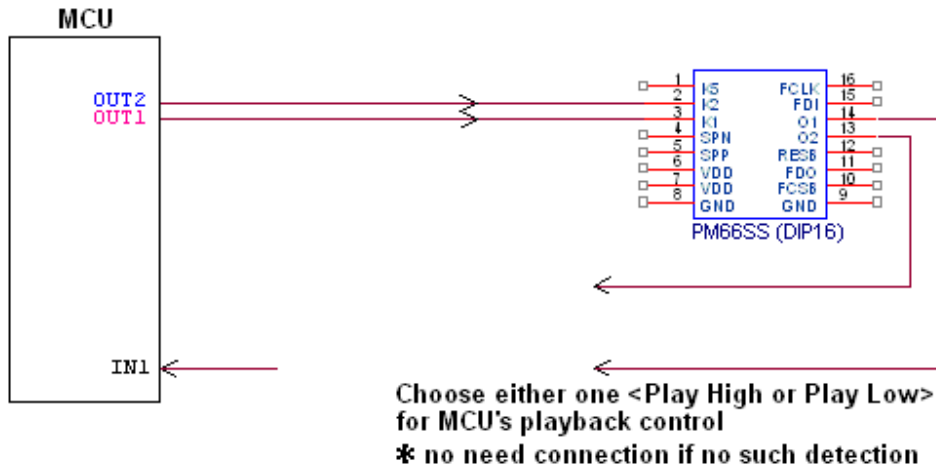
| PINOUT     | PIN NUMBER | DESCRIPTION                             |
|------------|------------|---|
| K1, K2, K5 | 3, 2, 1    | Trigger Input Pins <negative trigger>   |
| O1, O2     | 14, 13     | Output Pins                             |
| SPP, SPN   | 5, 4       | Speaker Contacts (Differential Outputs) |
| VDD        | 6, 7       | Positive Power PIN                      |
| GND        | 8, 9       | Ground Voltage                          |
| RESB       | 12         | System Reset <negative trigger>         |
| FCS        | 10         | Flash Memory Control Pin                |
| FCK        | 16         | Flash Memory Control Pin                |
| FDO        | 11         | Flash Memory Control Pin                |
| FDI        | 15         | Flash Memory Control Pin                |

## 5. ELECTRICAL CHARACTERISTIC

|                   |  |
|-------------------|--|
| Operation Voltage | 3~5V   |
| Operation Current | Maximum 60 mA <if use 8Ω Speaker for PWM Output> |
| Standby Current   | Less than 2 uA                                   |

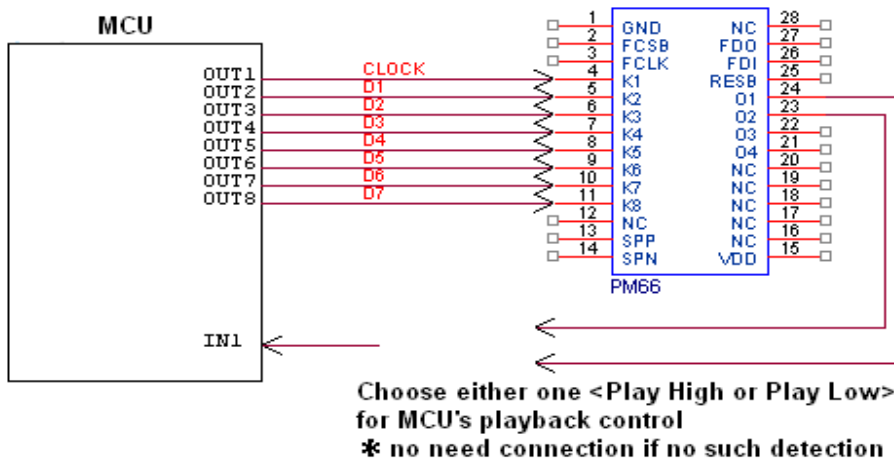
## 6. SERIAL ADDRESSING CIRCUIT AND TIMING DIAGRAM

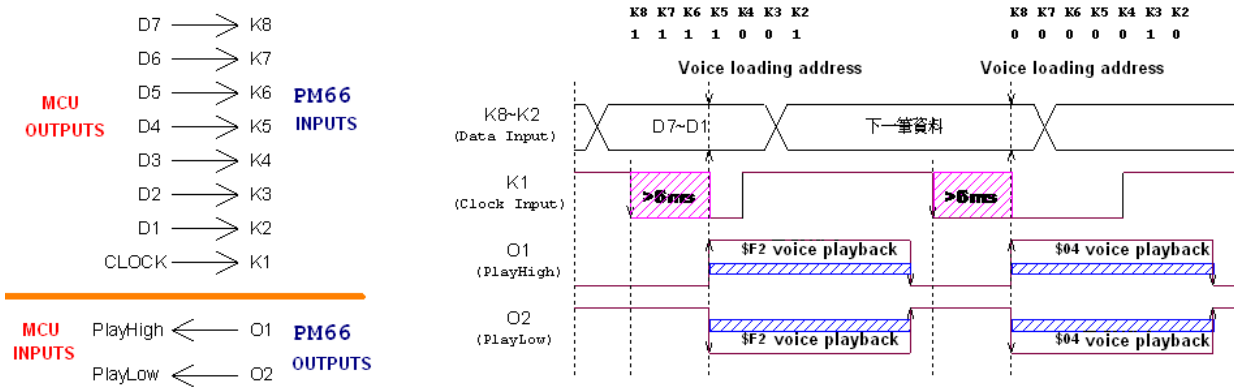




## 7. PARALLEL ADDRESSING CIRCUIT AND TIMING DIAGRAM

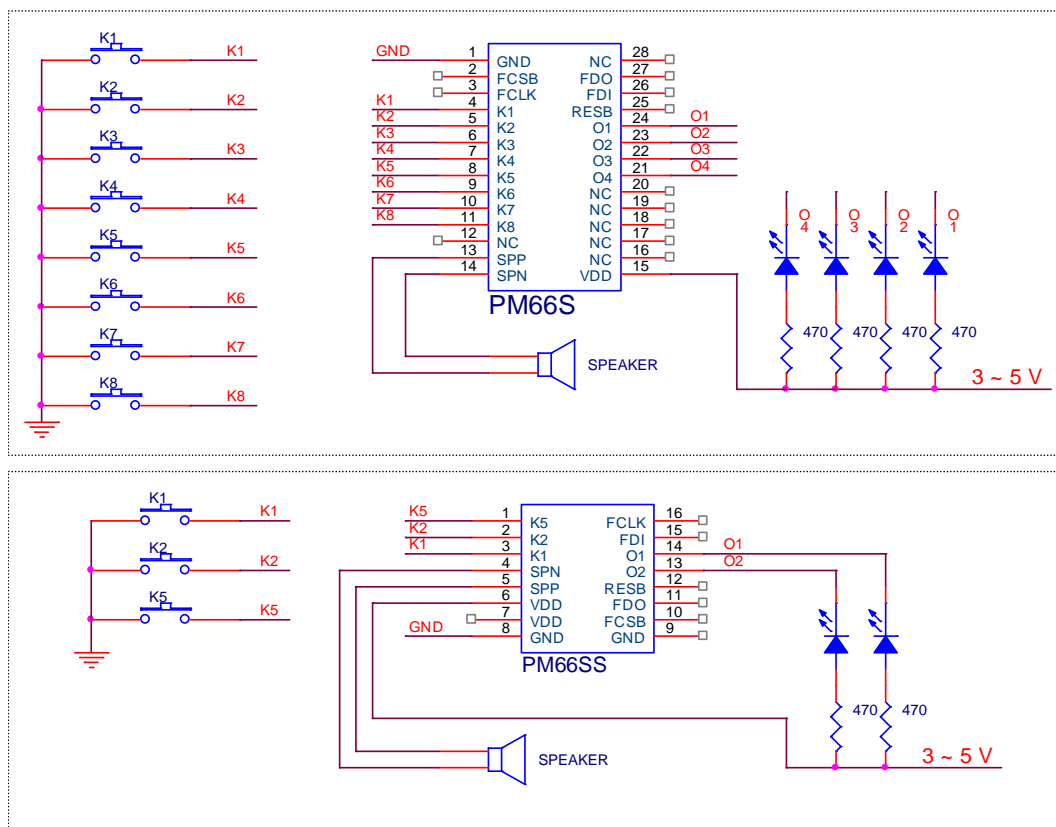
CAUTION: Do not suggest PM66SSXX(DIP16) to apply parallel addressing



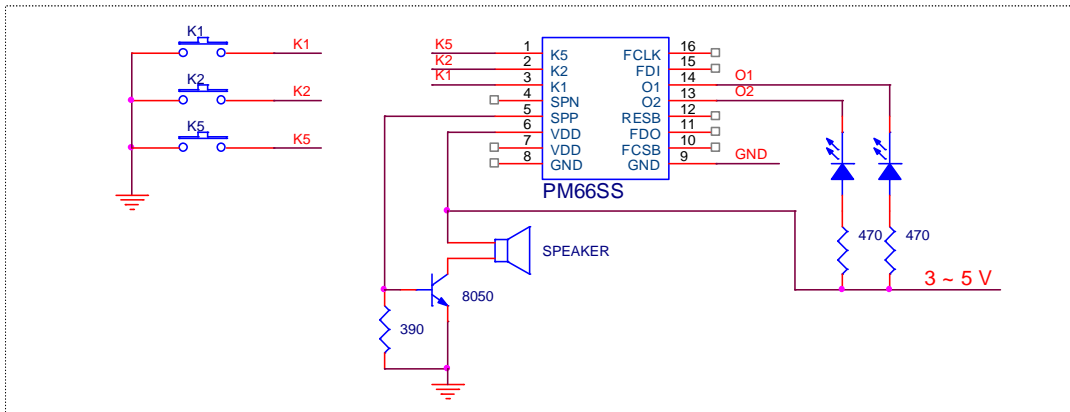
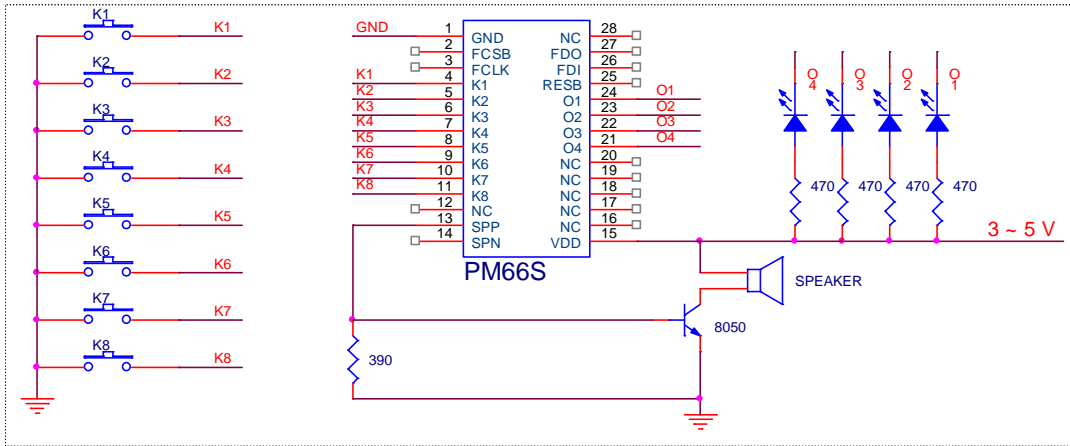


## 8. APPLICATION CIRCUITS

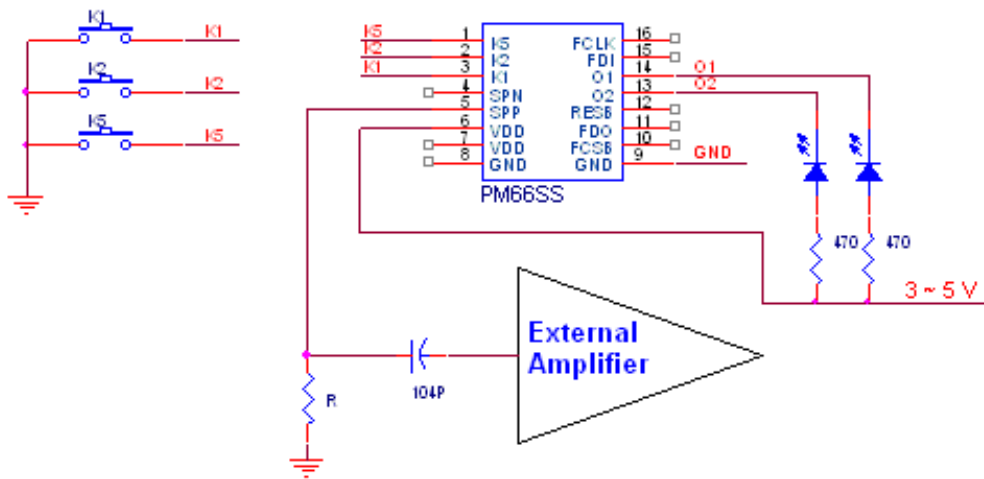
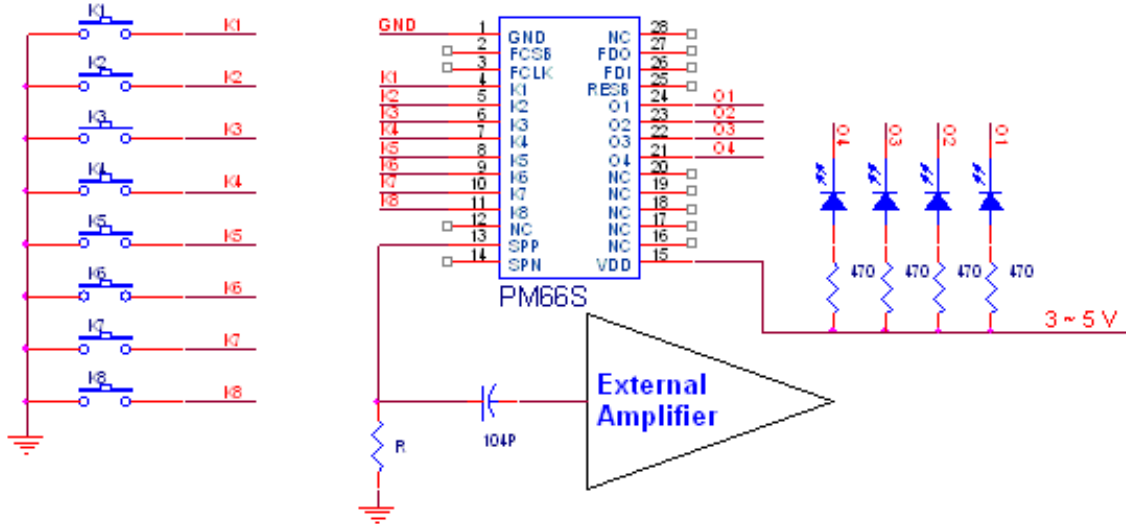
3V ~ 5V PWM Direct Drive Speaker Application Circuit:



3V ~ 5V DAC Drive Speaker Application Circuit:



3V ~ 5V External Amplifier Application Circuit:



## Ordering Information

PM66Writer (Ver. 2) – PM60SDWriter Tool

↓ **PM60(5V)/PM63(3V) Switch**

**USB  
Receptacle**



**5Vdc  
Adaptor**  
(Circular/  
Rectangular)



**Jack**  
(Circular/  
Rectangular)  
Differential Type  
**DAC**  
(Circular)



**PM66SDXX memory card slot**

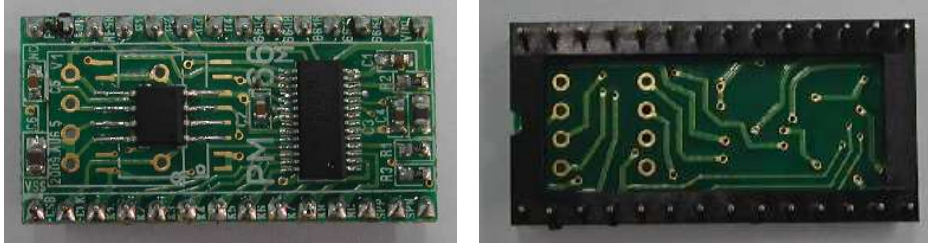
**RMK: K1 Key function can be switched to CDS photo trigger.**

Without USB plugged in, PM66Writer can be powered by 5Vdc adaptor which should not be over 6Vdc since over-voltage is hazardous to PM66Writer.

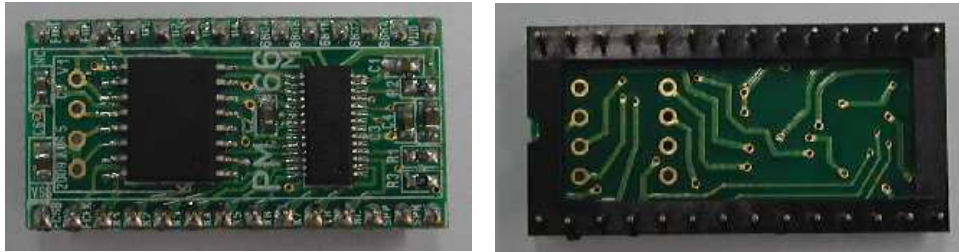


PM66 Writer Tool Setup

**Flash Version – PM66S02/ PM66S04/ PM66S08/ PM66S16/ PM66S32/ PM66S64**  
**DIP28 PCB** (SSOP on board Dual-in-line 28 pin) provide 40sec.~2,000sec\*. (I/O 8 inputs / 4 outputs)



**Flash Version – PM66S64/ PM66S128**  
**DIP28 PCB** (SSOP on board Dual-in-line 28 pin) provide 2,000sec.& 4,000sec\*. (I/O 8 inputs / 4 outputs)



\*: 4.8K sampling.

**Flash Version – PM66SS02/ PM66SS04/ PM66SS08/ PM66SS16/ PM66SS32/ PM66SS64**  
**DIP16 PCB** (SSOP on board Dual-in-line 16 pin) provide 40sec.~2,000sec\*. (I/O 3 inputs / 2 outputs)

