



# OTP 语音芯片 IC-应用原理资料接线图 (AC8080)OTP80 秒



语音芯片开发-深圳市环芯半导体有限公司

电话 Tel: 0755-28149272

086-18922809111

掩膜 OTP: 主营 语音芯片, 玩具 IC, 录音 IC, 门铃 IC, 音乐芯片

邮箱 QQ: 68681298@qq.com

Http: //www. ATChi p. Com

## I Output status (for each Output pin):

- A. Stand by Status. (High/Low Status)
- B. Busy Low Active.
- C. Busy High Active.
- D. LED Flash at 6 Hz.
- E. LED Flash at 3 Hz.
- F. LED Flash at 1.5 Hz.
- G. LED Flash at 0.75 Hz.

## I Playrate level :

AC8080 can provide different play rate in one code as follow

| Play rate(K) | Play rate(K) |
|--------------|--------------|
| 3            | 6            |
| 3.2          | 6.4          |
| 3.31         | 6.85         |
| 3.42         | 7.38         |
| 3.55         | 8            |
| 3.69         | 8.72         |
| 3.84         | 9.6          |
| 4            | 10.66        |
| 4.17         | 12           |
| 4.36         | 13.71        |
| 4.57         | 16           |
| 4.8          | 19.2         |
| 5.05         | 24           |
| 5.33         |              |
| 5.64         |              |

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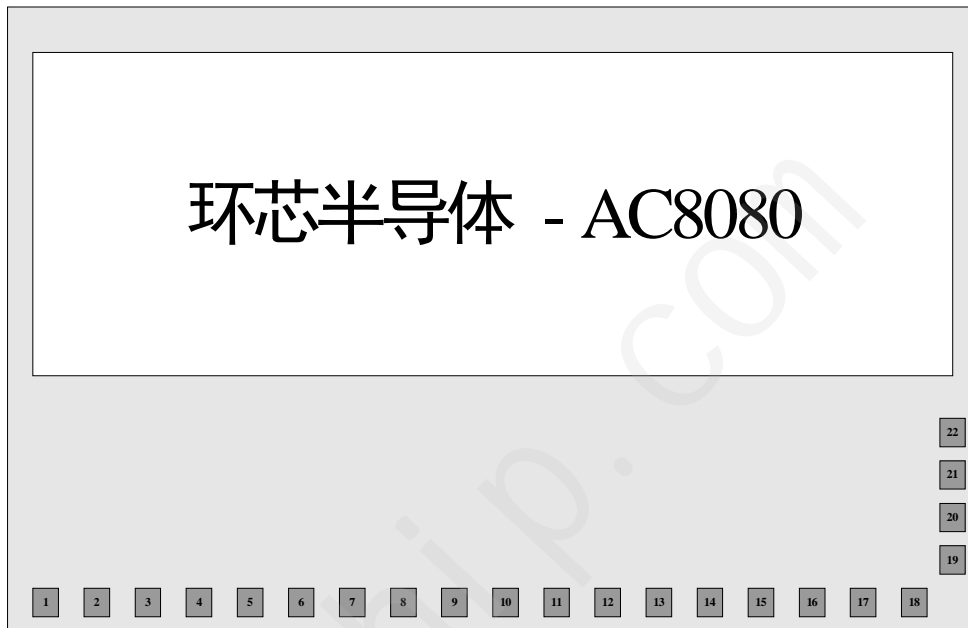
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## u AC8080 Pad Location

CHIP SIZE: (0, 0) (1910,1890) UM



| NO | PAD NAME | X    | Y    | NO | PAD NAME | X   | Y    |
|----|----------|------|------|----|----------|-----|------|
| 1  | OSCI     | -886 | -878 | 12 | TG2      | 62  | -878 |
| 2  | RSTN     | -800 | -878 | 13 | TG5      | 148 | -878 |
| 3  | VPP      | -714 | -878 | 14 | TG6      | 234 | -878 |
| 4  | VDD      | -628 | -878 | 15 | TG7      | 320 | -878 |
| 5  | TG3      | -542 | -878 | 16 | TG8      | 407 | -878 |
| 6  | TG4      | -455 | -878 | 17 | TG9      | 493 | -878 |
| 7  | TG11     | -369 | -878 | 18 | TG10     | 579 | -878 |
| 8  | TG12     | -283 | -878 | 19 | VSS_P    | 888 | -757 |
| 9  | VSS      | -197 | -878 | 20 | PWM1     | 888 | -671 |
| 10 | TEST     | -111 | -878 | 21 | VDD_P    | 888 | -585 |
| 11 | TG1      | -24  | -878 | 22 | PWM2     | 888 | -499 |

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## u AC8080 PIN Description

| PIN NAME    | I/O   | Function  |
|-------------|-------|---|
| <b>TG1</b>  | INPUT | Key Stand-alone Trigger Mode : TG1 is used to trigger the maximum 32 Voice Group one by one sequentially. |
|             |       | Serial Trigger Mode : TG1 is used to trigger the maximum 64 Voice Group.                                  |
| <b>TG2</b>  | INPUT | Key Stand-alone Trigger Mode : TG2 is used to trigger the maximum 21 Voice Group one by one sequentially. |
|             |       |   |
| <b>TG3</b>  | INPUT | Key Stand-alone Trigger Mode : TG3 is used trigger Only One Group.  |
|             |       |   |
| <b>TG4</b>  | INPUT | Key Stand-alone Trigger Mode : TG4 is used trigger Only One Group.  |
|             |       |   |
| <b>TG5</b>  | INPUT | Key Stand-alone Trigger Mode : TG5 is used trigger Only One Group.  |
|             |       | OUTPUT  |
| <b>TG6</b>  | INPUT | Key Stand-alone Trigger Mode : TG6 is used trigger Only One Group.  |
|             |       | OUTPUT  |
| <b>TG7</b>  | INPUT | Key Stand-alone Trigger Mode : TG7 is used trigger Only One Group.  |
|             |       | OUTPUT  |
| <b>TG8</b>  | INPUT | Key Stand-alone Trigger Mode : TG8 is used trigger Only One Group.  |
|             |       | OUTPUT  |
| <b>TG9</b>  | INPUT | Key Stand-alone Trigger Mode : TG9 is used trigger Only One Group.  |
|             |       | OUTPUT  |
| <b>TG10</b> | INPUT | Key Stand-alone Trigger Mode : TG10 is used trigger Only One Group.                                       |
|             |       | OUTPUT  |

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|             |        |   |
|-------------|--------|---|
| <b>TG11</b> | INPUT  | Key Stand-alone Trigger Mode : TG11 is used trigger Only One Group.       |
|             | OUTPUT | As Output PIN , Output the BUSY or Flash Signal.                          |
| <b>TG12</b> | INPUT  | Key Stand-alone Trigger Mode : TG12 is used trigger Only One Group.       |
|             | OUTPUT | As Output PIN , Output the BUSY or Flash Signal.                          |
| <b>TEST</b> | INPUT  | As a TEST PIN, for Enter Testing Procedure .                              |
|             |        |   |
| <b>RSTN</b> | INPUT  | As a Low Reset PIN.   |
|             |        | Serial Trigger Mode : RSTN is used to trigger the maximum 64 Voice Group. |
| <b>PWM1</b> | OUTPUT | As a PWM PIN , can Directly drive the Speaker .                           |
|             |        | As a DAC PIN , 8 bit D/A Current Output.                                  |
| <b>PWM2</b> | OUTPUT | As a PWM PIN , can Directly drive the Speaker .                           |
|             |        |   |
| <b>VDD</b>  | INPUT  | Power Supply PIN , Connected with VDD5 @ 2.4~3.6 V Working Voltage.       |
|             |        | Power Supply PIN , Connected with a 0.1 uF to VSS.                        |
| <b>VSS</b>  | INPUT  | Connected to Ground.  |
|             |        |   |

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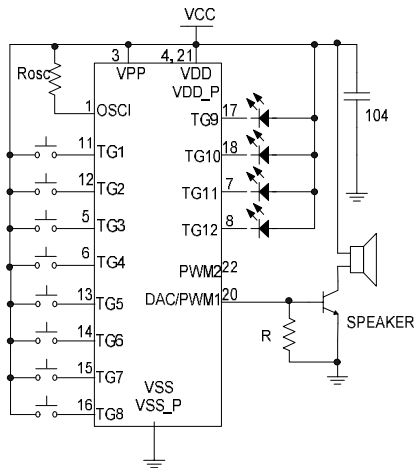
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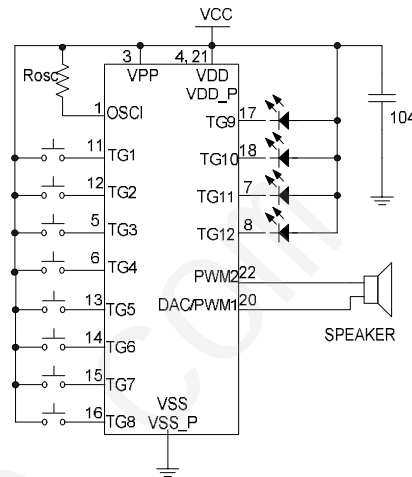
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## u AC8080 Application Circuit

### AC8080 DAC APPLICATION



### AC8080 PWM APPLICATION



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## AC8080 3V Serial Mode

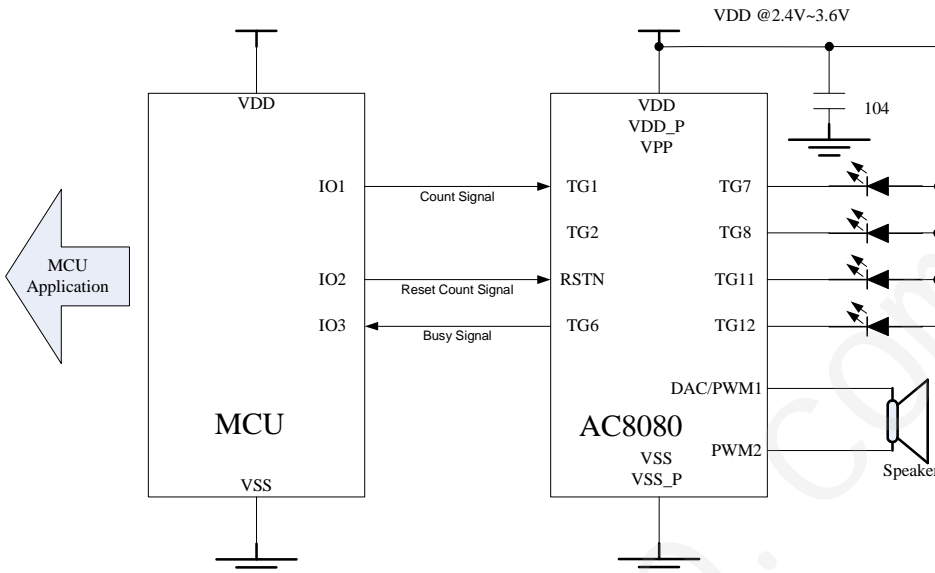


Fig. 5

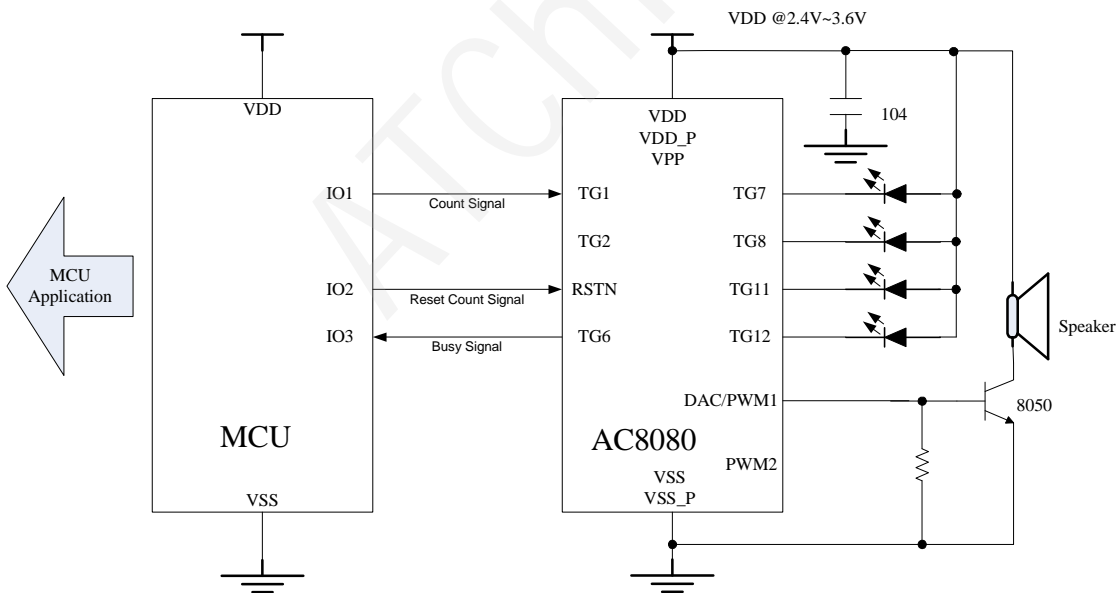


Fig. 6

# OTP 语音芯片 IC-应用原理资料接线图 (AC8080) OTP80 秒



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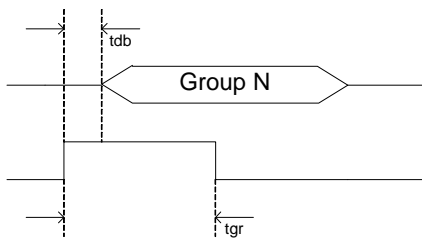
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## AC8080 Trigger Timing

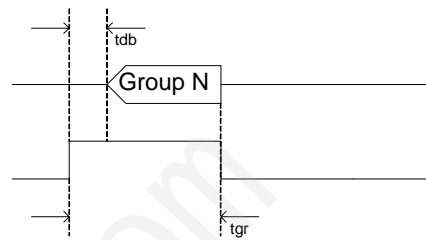
(a) Trigger Pulse Width < Group Length

Option Setting = Edge / Unhold



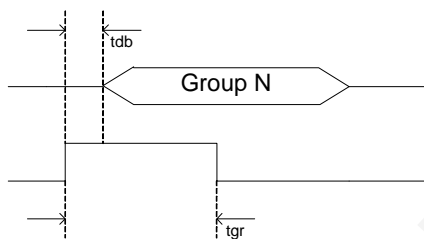
(b) Trigger Pulse Width < Group Length

Option Setting = Edge / Hold



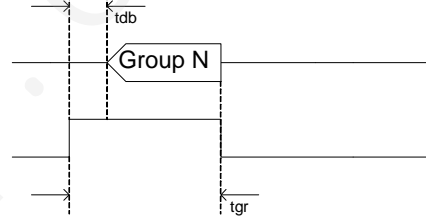
(c) Trigger Pulse Width < Group Length

Option Setting = Level / Unhold



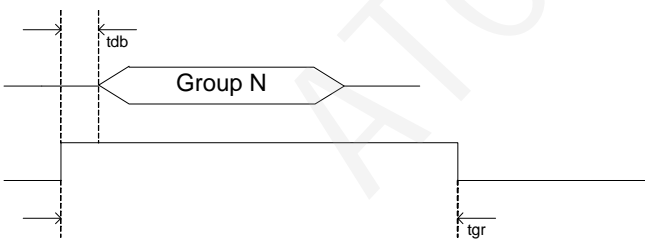
(d) Trigger Pulse Width < Group Length

Option Setting = Level / Hold



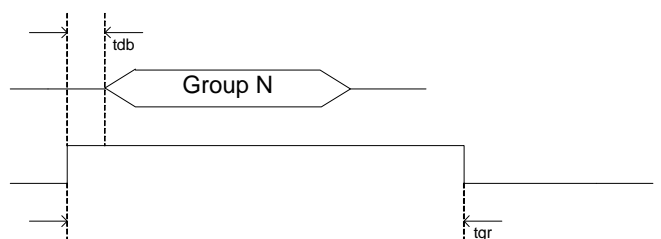
(e) Trigger Pulse Width > Group Length

Option Setting = Edge / Unhold



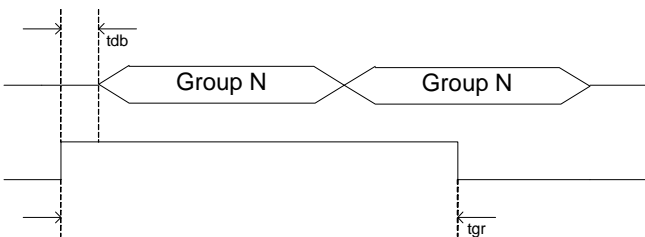
(f) Trigger Pulse Width > Group Length

Option Setting = Edge / Hold



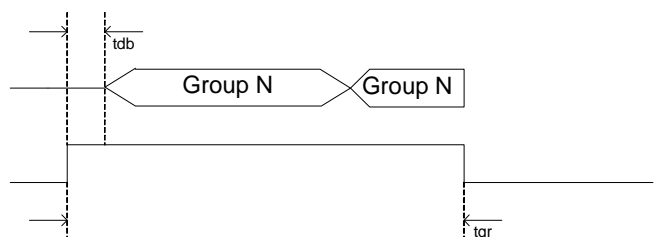
(g) Trigger Pulse Width > Group Length

Option Setting = Level / Unhold



(h) Trigger Pulse Width > Group Length

Option Setting = Level / Hold





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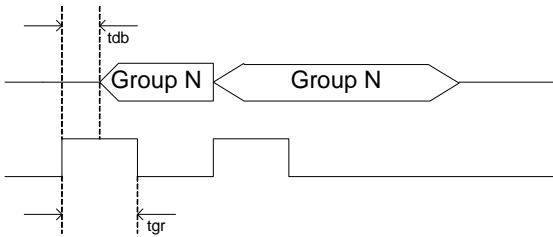
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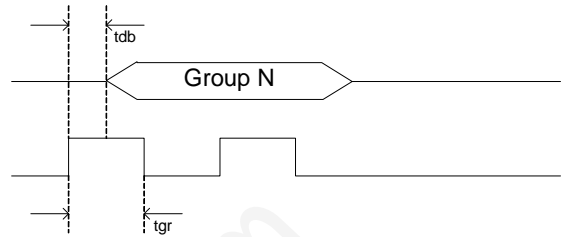
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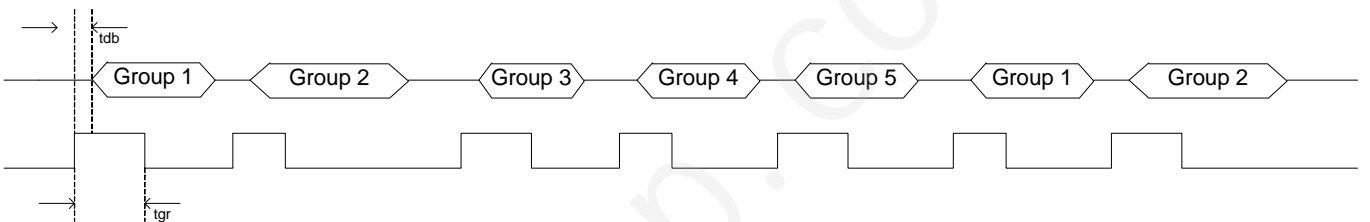
(i) Option Setting = Retrigger



(j) Option Setting = Irretrigger



(k) TG1 = Sequential Trigger & From Group1~Group5



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## u AC8080 Trigger Voice Combination Example

| Voice File   | Description        |
|--------------|--------------------|
| Voice File A | Hello ( 1.5'')     |
| Voice File B | Good Morning (3'') |
| Voice File C | John (1'')         |
| Voice File D | Tom (1'')          |
| Voice File E | Mary (1.5'')       |
|              |                    |
|              |                    |

Group1 = Step1 + Step 2

Group 2 = Step3 + Step 4 + Step 5

Group 3 = Step 6 + Step 7

Group1 = Hello John

Group 2= Hello Tom Good Morning

Group 3 = Good Morning Mary

Step1 = Voice File A

Step 2 = Voice File C

Step 3 = Voice File A

Step 4 = Voice File D

Step 5 = Voice File B

Step 6 = Voice File B

Step 7 = Voice File E

Total use 3 Group , 7 Steps

Voice duration= Hello + Good Morning + John + Tom + Mary

= 1.5'' + 3'' + 1'' + 1'' + 1.5''

= 8''

Total duration = 8'' ( 40''-8'' = 32'' space are free , can add more Voice File )

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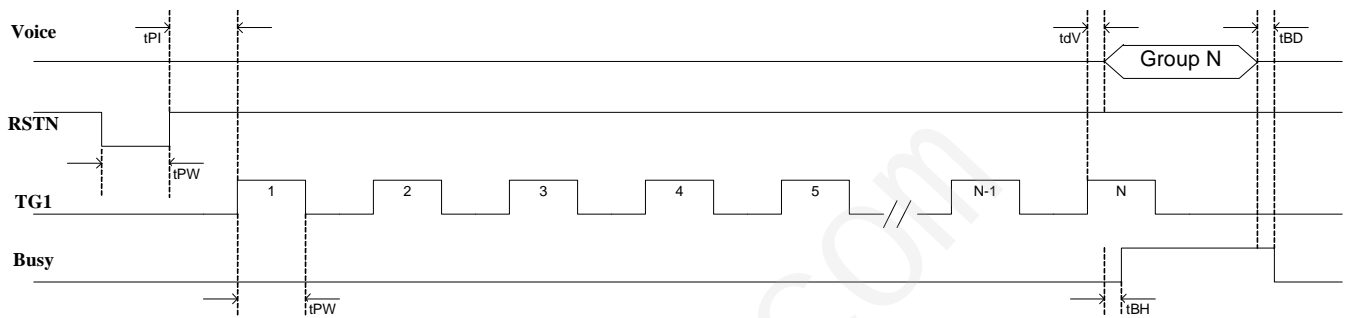
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## u AC8080 Serial Mode Timing



TG1=Edge/Unhold/Retrigger

RSTN=Reset PIN

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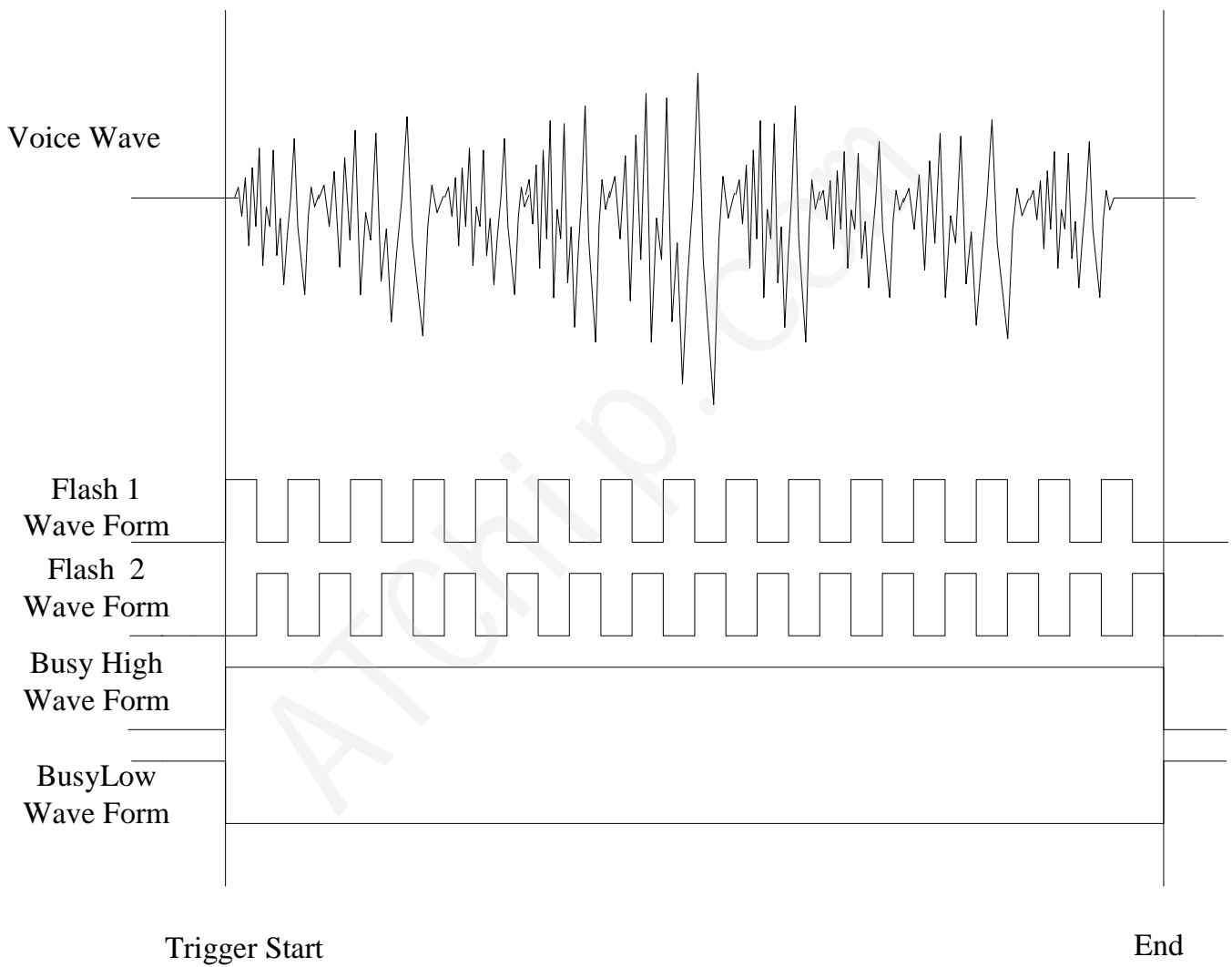
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## u AC8080 Voice Wave & Output Status



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## u DC Electrical Characteristics

| Item                    | Symbol          | Min | Typ | Max | Unit | Condition           |
|-------------------------|-----------------|-----|-----|-----|------|---------------------|
| Operating voltage       | VDD             | 2.4 | 3.0 | 3.6 | V    |                     |
| Standby current         | I <sub>sb</sub> |     | 1   | 5   | uA   | VDD=3V,no load      |
| Operating current       | I <sub>op</sub> |     | 600 |     | uA   | VDD=3V,no load      |
| Drive current of Output | I <sub>od</sub> |     | 10  |     | mA   | VDD=3V<br>VOUT=0.6V |
| Sink current of Output  | I <sub>os</sub> |     | 30  |     | mA   | VDD=3V<br>VOUT=2.4V |
| Drive current of PWM    | I <sub>od</sub> |     | 200 |     | mA   | VDD=3V,VOUT=1.5V    |
| Sink current of PWM     | I <sub>os</sub> |     | 200 |     | mA   | VDD=3V,VOUT=1.5V    |
|                         |                 |     |     |     |      |                     |
|                         |                 |     |     |     |      |                     |
|                         |                 |     |     |     |      |                     |

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## u AC Electrical Characteristics

| Symbol | Characteristic                    | Rating |      |      | Unit |
|--------|-----------------------------------|--------|------|------|------|
|        |                                   | Min.   | Typ. | Max. |      |
| tdb    | Key Trigger debounce time (long)  | 14     |      |      | ms   |
| tdb    | Key Trigger debounce time (short) | 50     |      |      | us   |
| tgr    | Key Trigger Pulse width           |        |      |      |      |
| tPW    | Serial Mode Input Pulse Width     | 100    |      |      | us   |
| tPI    | The interval of two pulse         | 100    |      |      | us   |
| tBH    | Busy signal output hold time      | 400    |      |      | us   |
| tBD    | Busy signal output delay time     | 400    |      |      | us   |
| tdV    | Voice output delay time           | 400    |      |      | us   |
| tCS    | Chip Select setup time            | 1      |      |      | us   |
| tDS    | Data In setup time                | 1      |      |      | us   |
| tDH    | Data In hold time                 | 1      |      |      | us   |
| tCP    | Clock Pulse Width                 | 1      |      |      | us   |
| tCC    | Clock Cycle time                  | 2      |      |      | us   |
| tCH    | Chip Select hold time             | 1      |      |      | us   |

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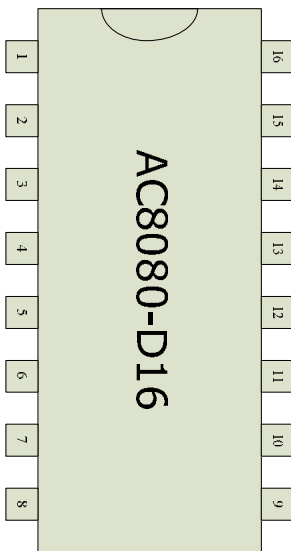
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## u AC8080 Package Information

### AC8080-D16



| PIN | NAME     |
|-----|----------|
| 1   | TEST     |
| 2   | TG1      |
| 3   | TG2      |
| 4   | VSS_P    |
| 5   | PWM1/DAC |
| 6   | VDD_P    |
| 7   | PWM      |
| 8   | VSS      |
| 9   | TG3      |
| 10  | VDD      |
| 11  | RSTN     |
| 12  | OSCI     |
| 13  | VPP      |
| 14  | TG4      |
| 15  | TG11     |
| 16  | TG12     |

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## u Writer Mapping Description

Writer Pin : **RSTN,VSS,TG4,TG3,VDD,TEST,VPP,TG11,TG12**

| DIP 48    | PAD Name | AC8080-D16 |  |
|-----------|----------|------------|--|
| 10 - RSTN | 2-RSTN   | 11-RSTN    |  |
| 11 - GND  | 9-VSS    | 8-VSS      |  |
| 12 - SCK  | 6-TG4    | 14-TG4     |  |
| 13 - CS   | 5-TG3    | 9-TG3      |  |
| 14 - VCC  | 4-VDD    | 10-VDD     |  |
| 36 - TEST | 10-TEST  | 1-TEST     |  |
| 37 - VPP  | 3-VPP    | 13-VPP     |  |
| 38 - DIO1 | 7-TG11   | 15-TG11    |  |
| 39 - DIO2 | 8-TG12   | 16-TG12    |  |
|           |          |            |  |

## u Writer Board Slot Location

