



深圳市环芯半导体有限公司

电话 Tel: 0755-28149272

传真 Fax: 29018191

地址 Add: 深圳市宝安区龙华东环一路港之都大厦 633

邮编 Ps.: 518109

Http://www.ATChip.Com

- **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.

- **Play rate 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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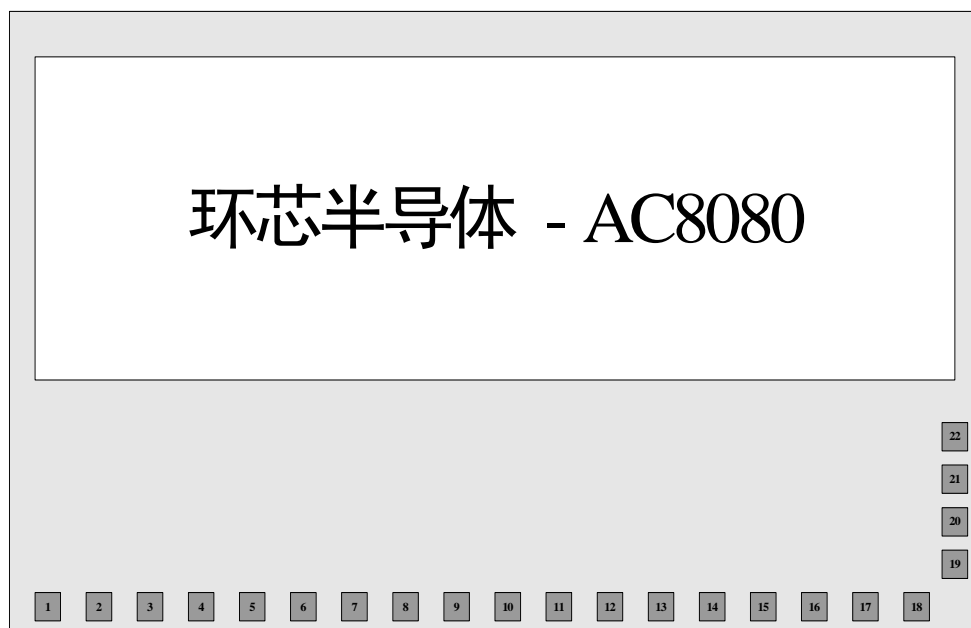
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◆ AC8080 Pad Location

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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◆ AC8080 PIN Description

PIN NAME	I/O	Function
TG1	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.
TG2	INPUT	Key Stand-alone Trigger Mode : TG2 is used to trigger the maximum 21 Voice Group one by one sequentially.
TG3	INPUT	Key Stand-alone Trigger Mode : TG3 is used trigger Only One Group.
TG4	INPUT	Key Stand-alone Trigger Mode : TG4 is used trigger Only One Group.
TG5	INPUT	Key Stand-alone Trigger Mode : TG5 is used trigger Only One Group.
	OUTPUT	As Output PIN , Output the BUSY or Flash Signal.
TG6	INPUT	Key Stand-alone Trigger Mode : TG6 is used trigger Only One Group.
	OUTPUT	As Output PIN , Output the BUSY or Flash Signal.
TG7	INPUT	Key Stand-alone Trigger Mode : TG7 is used trigger Only One Group.
	OUTPUT	As Output PIN , Output the BUSY or Flash Signal.
TG8	INPUT	Key Stand-alone Trigger Mode : TG8 is used trigger Only One Group.
	OUTPUT	As Output PIN , Output the BUSY or Flash Signal.
TG9	INPUT	Key Stand-alone Trigger Mode : TG9 is used trigger Only One Group.
	OUTPUT	As Output PIN , Output the BUSY or Flash Signal.
TG10	INPUT	Key Stand-alone Trigger Mode : TG10 is used trigger Only One Group.
	OUTPUT	As Output PIN , Output the BUSY or Flash Signal.



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TG11	INPUT	Key Stand-alone Trigger Mode : TG11 is used trigger Only One Group.
	OUTPUT	As Output PIN , Output the BUSY or Flash Signal.
TG12	INPUT	Key Stand-alone Trigger Mode : TG12 is used trigger Only One Group.
	OUTPUT	As Output PIN , Output the BUSY or Flash Signal.
TEST	INPUT	As a TEST PIN, for Enter Testing Procedure .
RSTN	INPUT	As a Low Reset PIN.
		Serial Trigger Mode : RSTN is used to trigger the maximum 64 Voice Group.
PWM1	OUTPUT	As a PWM PIN , can Directly drive the Speaker .
		As a DAC PIN , 8 bit D/A Current Output.
PWM2	OUTPUT	As a PWM PIN , can Directly drive the Speaker .
VDD	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.
VSS	INPUT	Connected to Ground.



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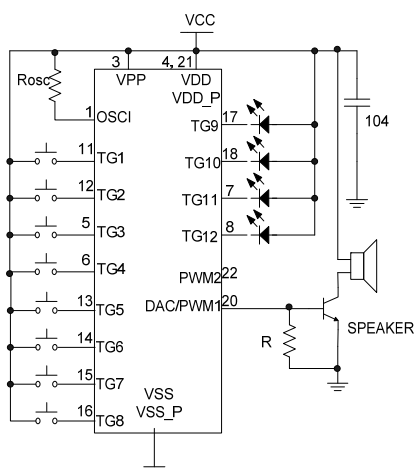
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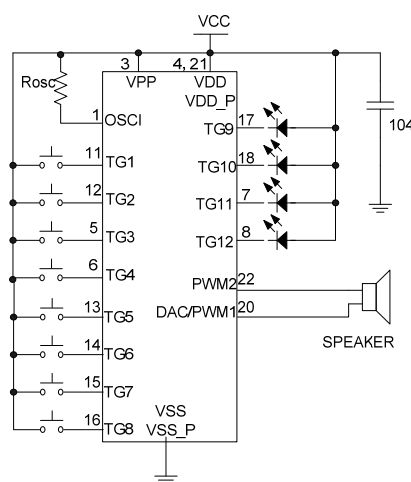
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◆ AC8080 Application Circuit

AC8080 DAC APPLICATION



AC8080 PWM APPLICATION





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AC8080 3V Serial Mode

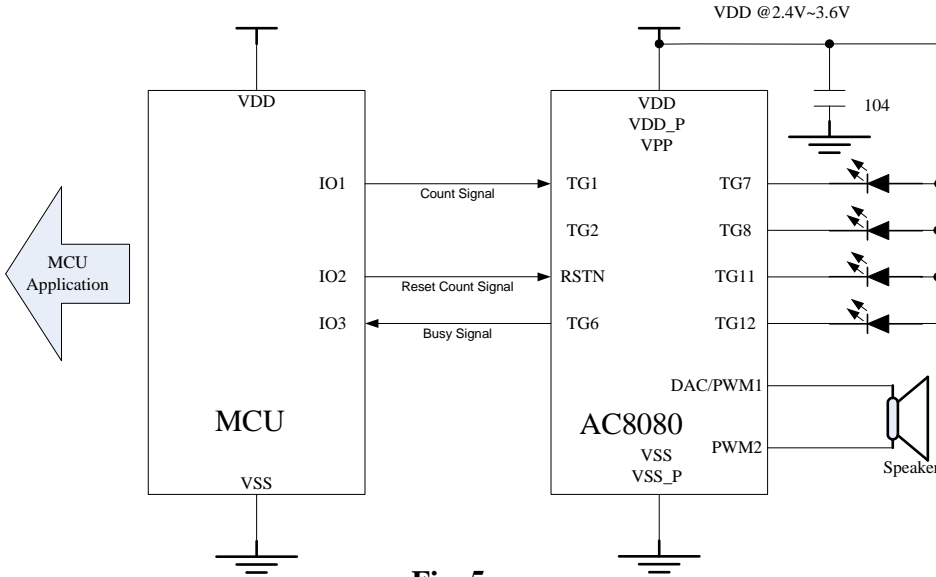


Fig. 5

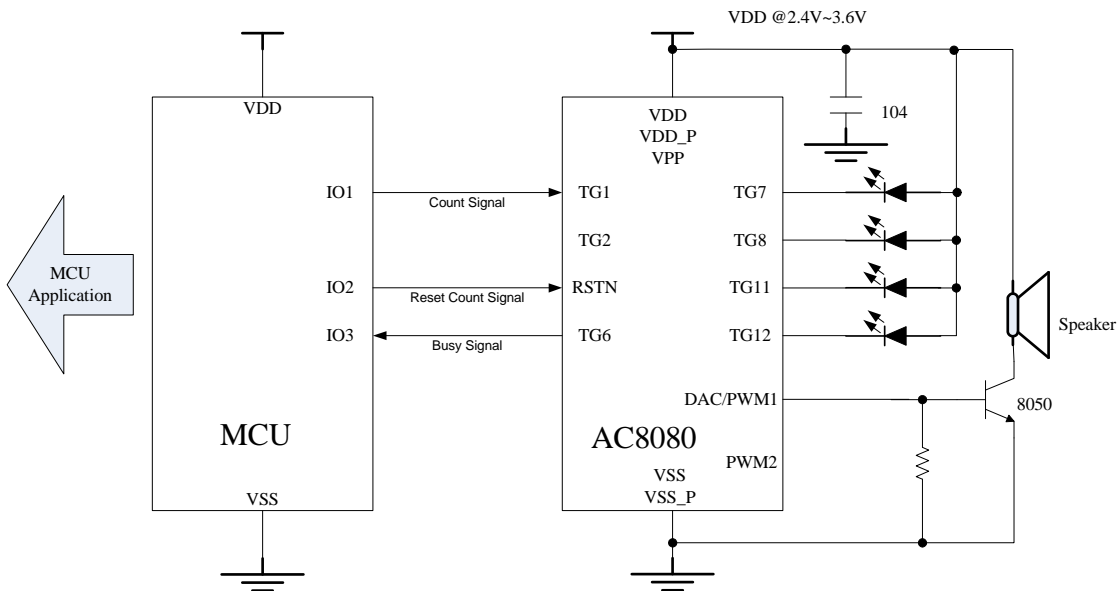


Fig. 6



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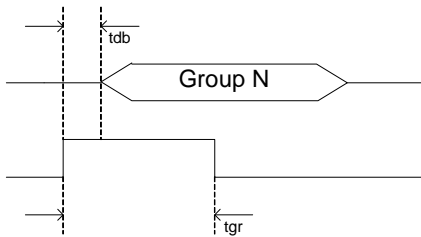
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AC8080 Trigger Timing

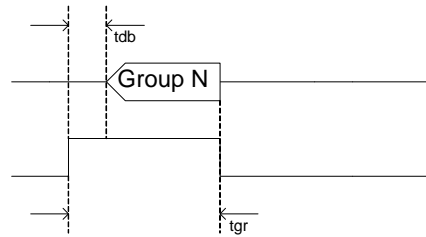
(a) Trigger Pulse Width < Group Length

Option Setting = Edge / Unhold



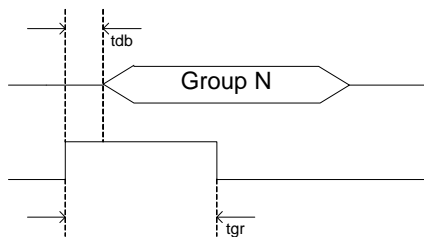
(b) Trigger Pulse Width < Group Length

Option Setting = Edge / Hold



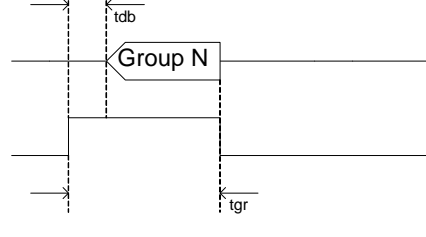
(c) Trigger Pulse Width < Group Length

Option Setting = Level / Unhold



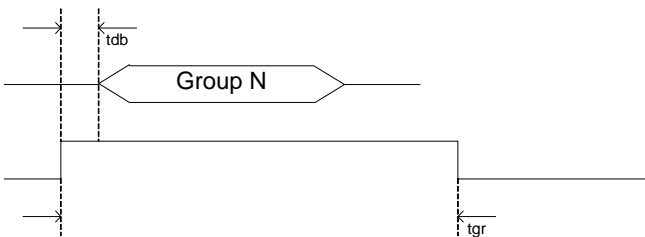
(d) Trigger Pulse Width < Group Length

Option Setting = Level / Hold



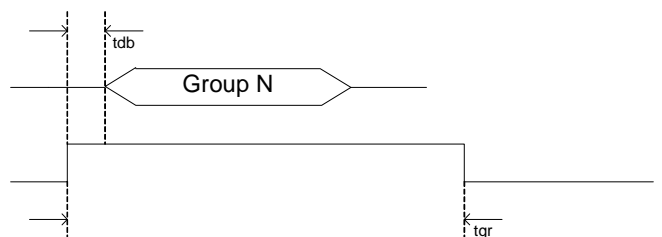
(e) Trigger Pulse Width > Group Length

Option Setting = Edge / Unhold



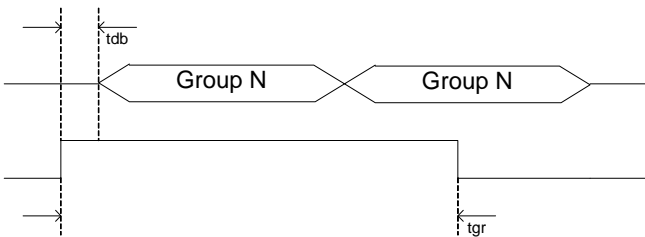
(f) Trigger Pulse Width > Group Length

Option Setting = Edge / Hold



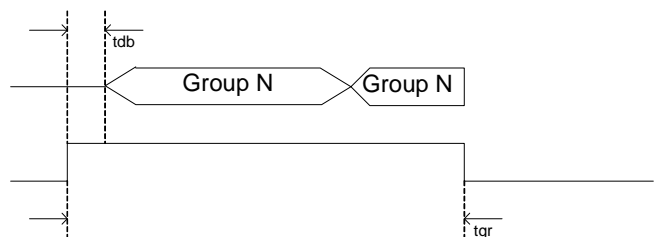
(g) Trigger Pulse Width > Group Length

Option Setting = Level / Unhold



(h) Trigger Pulse Width > Group Length

Option Setting = Level / Hold





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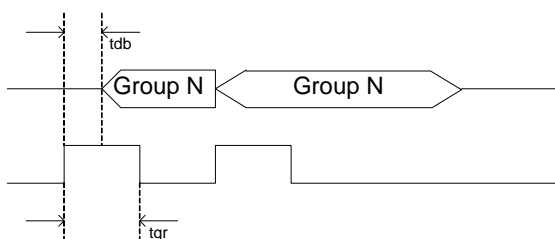
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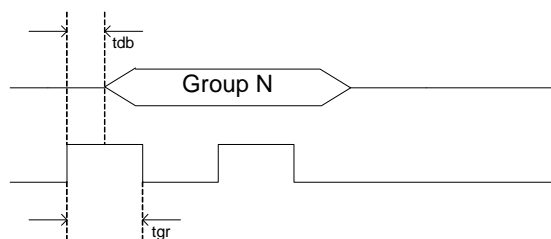
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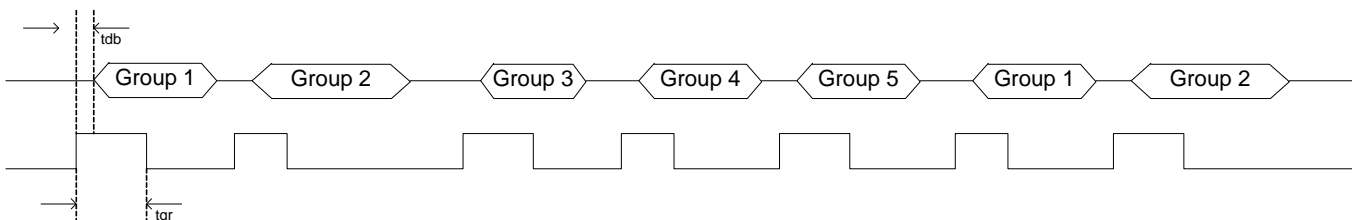
(i) Option Setting = Retrigger



(j) Option Setting = Irretrigger



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





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◆ 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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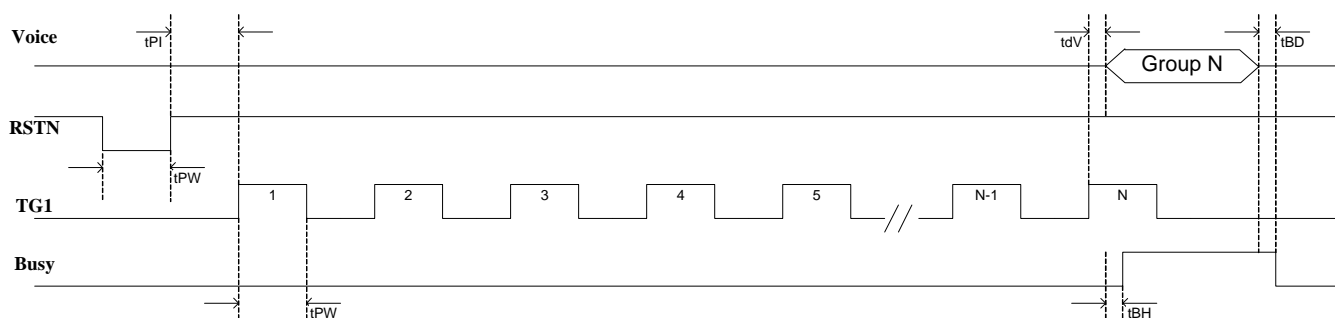
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◆ AC8080 Serial Mode Timing



TG1=Edge/Unhold/Retrigger

RSTN=Reset PIN



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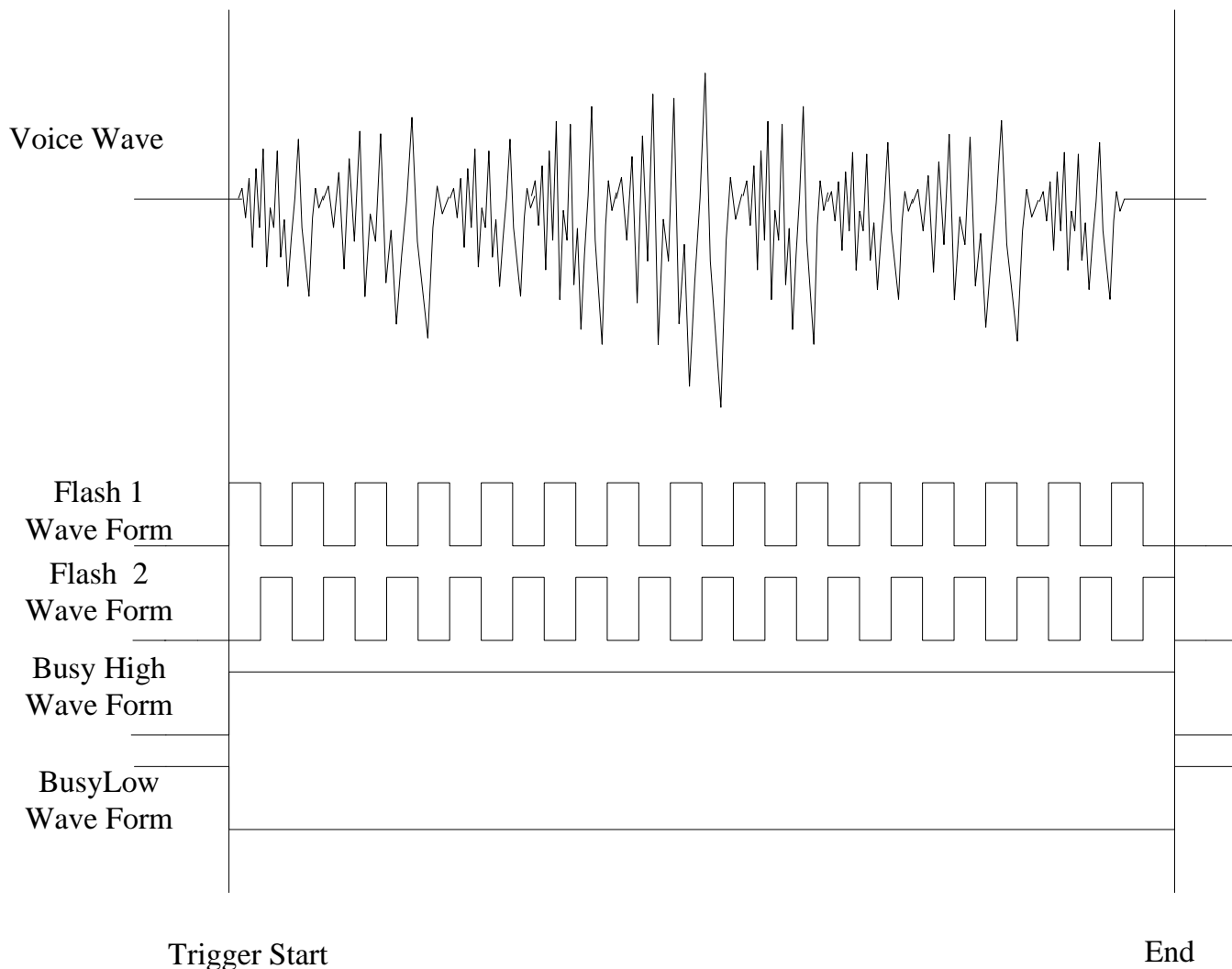
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◆ AC8080 Voice Wave & Output Status





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◆ DC Electrical Characteristics

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



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◆ 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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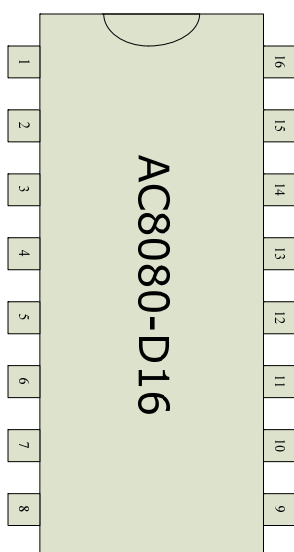
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◆ AC8080 Package Information

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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◆ Writer Mapping Description

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

OTP Writer Power Board Pin Mapping Table			
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	

◆ Writer Board Slot Location

