

OTP Speech Chip SC8065

1、Description

The SC8065 are single-chip voice synthesizing CMOS IC. They are embedded EPROM architecture, and OTP (One Time Programmable) Speech chip, Each body has one input and two I/O pins. Through accurate internal oscillation, external R_{osc} is unnecessary. There is only one PWM output for voice. Thus any external component is not required. Maximum 128 voice groups. Serial trigger mode maximum 127 voice groups , mobile One Group contain several steps(voice section); Maximum 1536 steps for all the Groups. Each Step can be define Trigger Mode, Output Status, Voice Section, Mute length, I/O Type & Simple Programming Function. Support three mode trigger IC (Stand Alone, Serial Trigger Mode). Easy use development system is for function selection and voice combination . PC download the ROM code by the OTP_Writer.

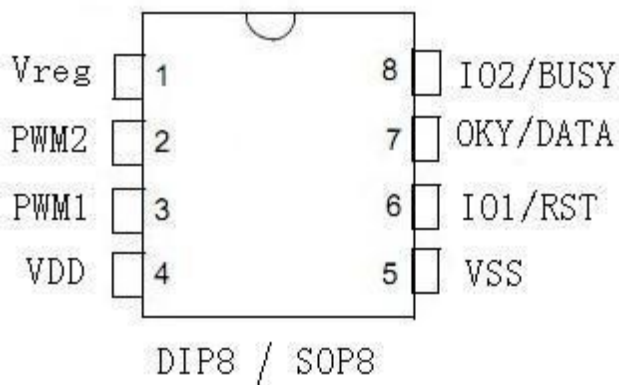
2、Funtions :

(1).MAX voice file : 1536

- (2).MAX Trigger Groups : 128
- (3).MAX Step : 768
- (4).Operating Voltage range: 1.8V ~ 5.5V
- (5).Total Voice Duration : 85" (6K Samples)
- (6).I/O pin : 3
- (7).Voice output : PWM
- (8).Sequential Key : OKY1 -> 128 Groups. IO1-> 1 Group. IO1-> 1 Group
- (9).Debounce time : 50 us or 10 ms
- (10)Step can change Trigger I/O Type, Trigger Mode & Output Status.
- (11).DIP8/SOP8 Package.
- (12).Three Mode Trigger IC :
- (13).Key Stand-alone Trigger Mode :
 - A. Edge/Level
 - B. Hold/Unhold
 - C. Retrigger/Irretrigger
- (14).Serial Trigger Mode :
Combinations of OKY1 to trigger maximum 127 Voice Group.
- (15).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. PWM for LED Dimming Control.

3、PAD Description:



Pad No	Pad Name	Description
1	Vreg	Power Supply PIN ,Connected with a 0.1 uF to VSS.
2	PWM2	As a PWM PIN , can Directly drive the Speaker
3	PWM1	As a PWM PIN , can Directly drive the Speaker .
4	VDD	Power Supply PIN , Connected with a 0.1 uF to VSS. @1.8~5.5V Working Voltage.
5	VSS	Connected to Ground.
6	I01/RST	Key Stand-alone Trigger Mode : is used trigger Only One Group Serial Trigger Mode : is used to trigger reset Voice Group
7	OKY/DATA	Key Stand-alone Trigger Mode : Tis used to trigger the maximum 128 Voice. Serial Trigger Mode : is used to trigger the maximum 127 Voice Group
8	I02/BUSY	Key Stand-alone Trigger Mode : is used trigger Only One Group. As Output PIN , Output the BUSY or Flash Signal.

4、DC Electrical Characteristics:

4.1、Maximum Rating

Symbol	Rating	Unit
VDD~GND	-0.5 ~ +7.0	V
Top (operating)	-0 ~ +70	°C
Tst (storage)	55 ~ +150	°C

4.2、DC Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Condition
VDD	VDD	1.8	3.0	5.5	V	
I _{sb}	Standby current, VDD=3V/4.5V		1		uA	VDD=3V/4.5V, no load
I _{op}	Operating current DD=3V		1		mA	VDD=3V, no load
	Operating current DD=3V		1.1		mA	VDD=4.5V, no load
I _{ih}	Input current (1M ohms pull-low)		10		uA	VDD=3V
			25			VDD=4.5V
I _{ih}	Input current (300k ohms pull-low)		30		uA	VDD=3V
			85			VDD=4.5V
I _{od}	Output drive current		-7		mA	VDD=3V, Voh=1.0V
			-11			VDD=4.5V, Voh=2.2V
I _{os}	Output sink current		22		mA	VDD=3V, Voh=1.5V
			33			VDD=4.5V, Voh=1.5V
I _{oh}	PWM1, PWM2 output current		-65		mA	VDD=3V, Voh=1.5V
I _{oi}			65			VDD=3V, Voi=1.5V

5、 Play Rate:

1	2	3	4	5	6	7	8
24kHz	20 kHz	17.1 kHz	15.0 kHz	13.3kHz	12.0 kHz	10.9 kHz	10.0 kHz
9	10	11	12	13	14	15	16
9.2kHz	8.6 kHz	8.0 kHz	7.5 kHz	7.1 kHz	6.3 kHz	6.0 kHz	5.5 kHz

6、 Timing Diagram :

6.1、 Key Stand-alone Trigger Mode

Only one input pin can select Toggle On/Off function (1st

Trigg nput priority is OKY1 > I01 > I02

1. Trigger Pulse Width < Group Length

Option Setting =Edge / Hold

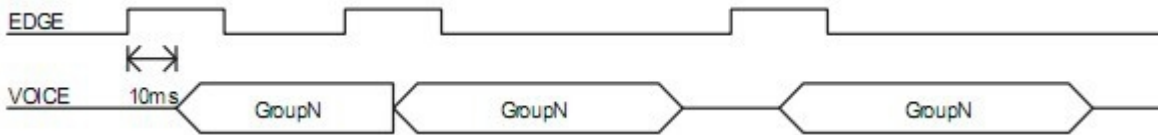


2. Trigger Pulse Width < Group Length

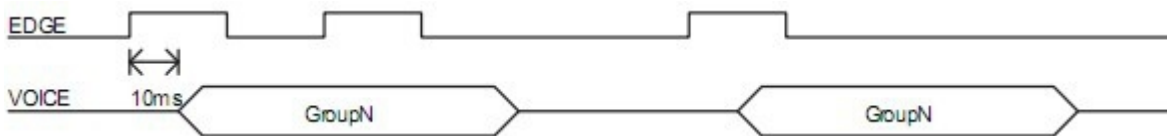
Option Setting = Edge / Unhold



3. Option Setting = Retrigger

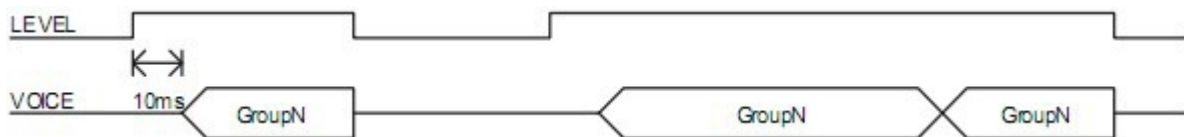


4. Option Setting = Irretrigger



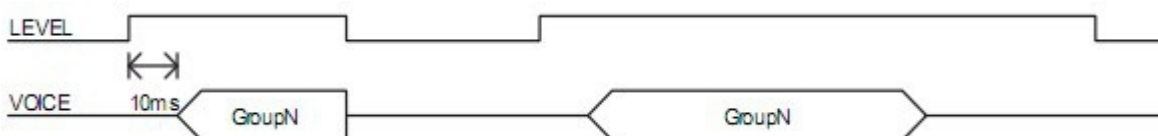
5. Trigger Pulse Width < Group Length

Option Setting = Level / Hold

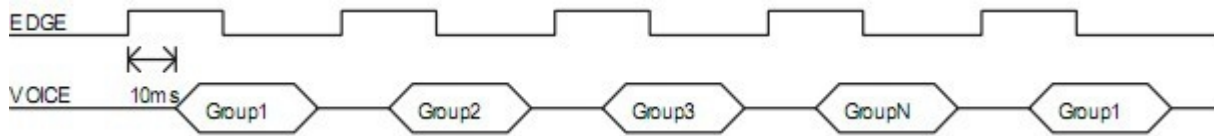


6. Trigger Pulse Width < Group Length

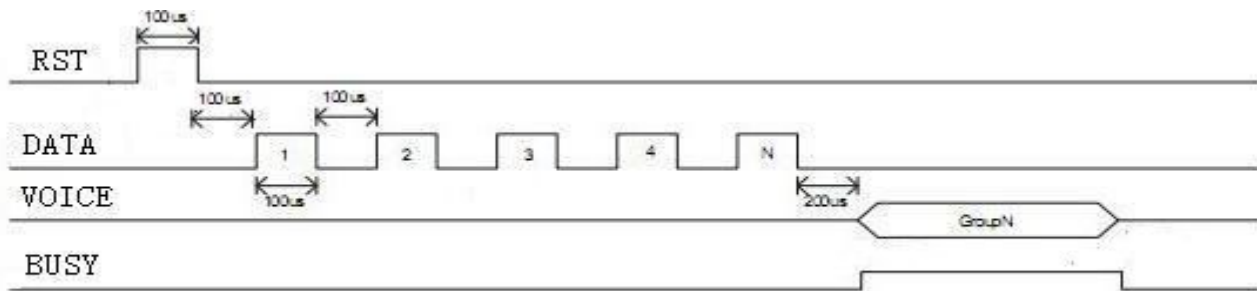
Option Setting = Level / Unhold



7. DATA= Sequential Trigger & From Group1~Group5



6.2、Serial Mode Timing

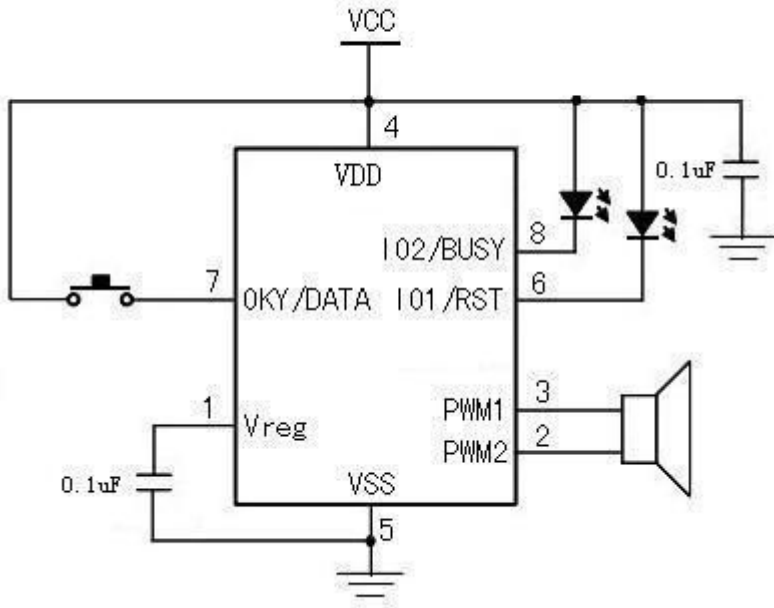


DATA=Edge/Unhol Trigger>50us

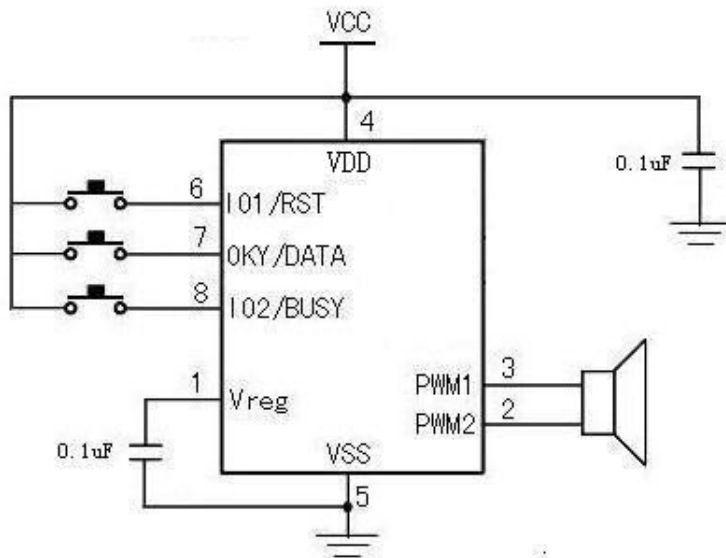
RST=Reset PIN .

7、Application Circuit:

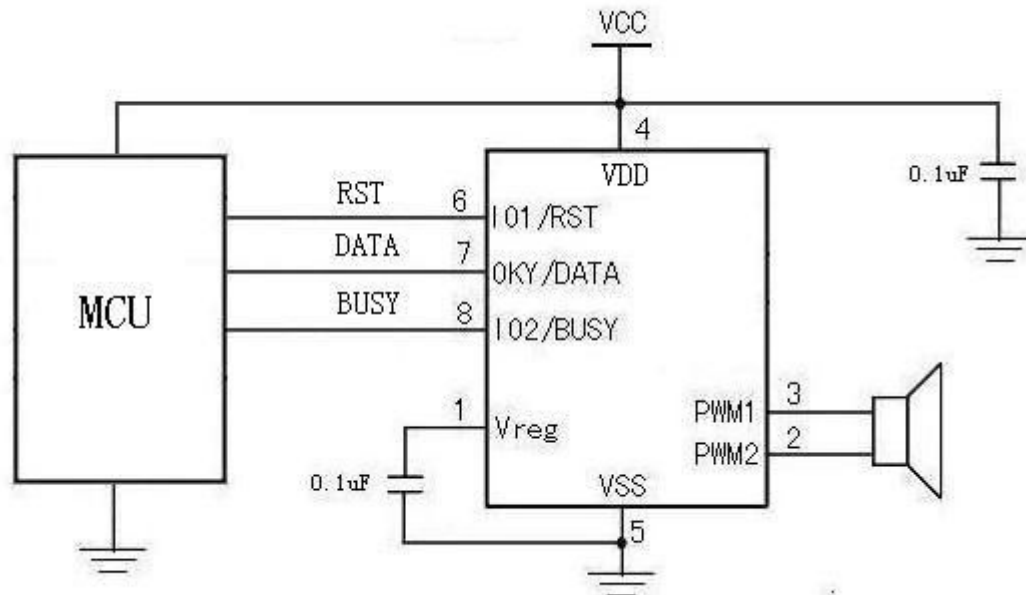
7.1、Stand-alone Mode(一)



7.2、Stand-alone Mode(二)

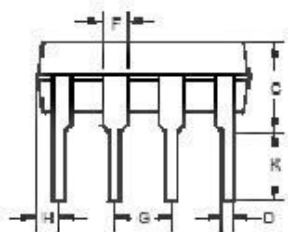
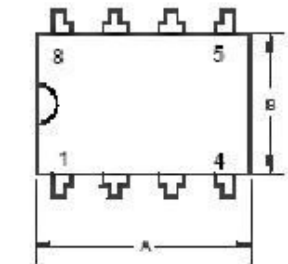


7.3、Serial Mode



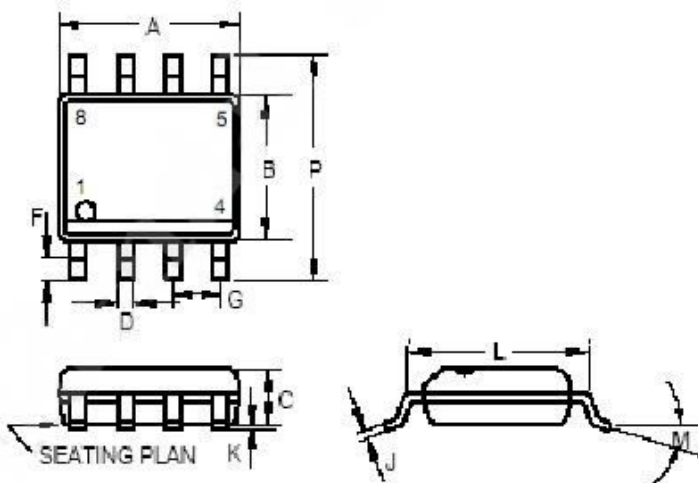
8、Package Information

1. DIP8 (300mil)



	INCHES			MILLIMETERS		
	MIN	TYP	MAX	MIN	TYP	MAX
A	0.355	0.365	0.400	9.02	9.27	10.16
B	0.240	0.250	0.280	6.10	6.35	7.11
C	-	-	0.210	-	-	5.33
D	-	0.018	-	-	0.46	-
F	-	0.060	-	-	1.52	-
G	-	0.100	-	-	2.54	-
H	0.050	-	0.090	1.27	-	2.29
J	0.008	-	0.015	0.20	-	0.38
K	0.115	0.130	0.150	2.92	3.30	3.81
L	0.300 BSC.			7.62 BSC.		
M	-	7°	15°	-	7°	15°

2. SOP8 (150miL)



	INCHES			MILLIMETERS		
	MIN	TYP	MAX	MIN	TYP	MAX
A	0.183	-	0.202	4.65	-	5.13
B	0.144	-	0.163	3.66	-	4.14
C	0.068	-	0.074	1.35	-	1.88
D	0.010	-	0.020	0.25	-	0.51
F	0.015	-	0.035	0.38	-	0.89
G	0.050 BSC			1.27 BSC		
J	0.007	-	0.010	0.19	-	0.25
K	0.005	-	0.010	0.13	-	0.25
L	0.189	-	0.205	4.80	-	5.21
M	-	-	8°	-	-	8°
P	0.228	-	0.244	5.79	-	6.20