

#### INTRODUCTION

SN65007 is 7 seconds one-channel single chip voice synthesizer IC which contains a PWM Direct Drive Circuit. There is one 4-bit I/O port and built in a tiny controller. By programming through the tiny controller, user's applications including section combination, trigger modes, output status, and other logic functions can be easily implemented.

#### ■ FEATURES

- Single power supply 2.4V 5.1V
- 7 seconds voice capacity is provided
- Built in a tiny controller
- One 4-bit I/O port is provided
- 32\*4 bits RAM are provided
- Maximum 16k program ROM is provided
- Readable ROM code data
- Built in a high quality speech synthesizer
- Adaptive playing speed from 2.5k-20kHz is provided
- Built in a PWM Direct Drive circuit output BUO1 and BUO2 directly connected to Speaker for sound output
- System clock : 1MHz

#### ■ PIN ASSIGNMENT

Symbol	I/O	Function Description
P20	I/O	Bit0 of I/O port 2
P21	I/O	Bit1 of I/O port 2
P22	I/O	Bit2 of I/O port 2
P23	I/O	Bit3 of I/O port 2
$V_{DD}$	I	Positive power supply
OSC	I	Oscillation component connection pin
TEST	I	For testing only
GND	I	Negative power supply
BUO1	0	PWM output 1
BUO2	0	PWM output 2



## ■ ABSOLUTE MAXIMUM RATINGS

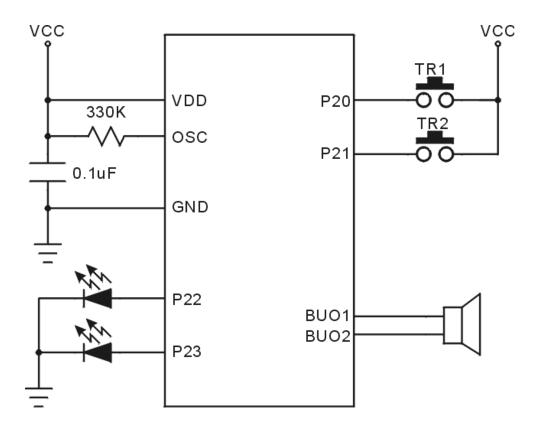
Items	Symbol	Min	Max	Unit.
Supply Voltage	$V_{DD}$ - $V$	-0.3	6.0	V
Input Voltage	$V_{IN}$	GND-0.3	V <sub>DD</sub> +0.3	V
Operating Temperature	T <sub>OP</sub>	-20.0	70.0	°C
Storage Temperature	T <sub>STG</sub>	-55.0	125.0	°C

## **■ ELECTRICAL CHARACTERISTICS**

Item	Sym.	Min.	Тур.	Max.	Unit	Condition
Operating Voltage	$V_{DD}$	2.4	3.0	5.1	>	
Standby current	I <sub>SBY</sub>	ı	ı	1.0	иA	V <sub>DD</sub> =3V, no load
Operating Current	I <sub>OPR</sub>	ı	ı	250	иA	V <sub>DD</sub> =3V, no load
Input current of P2	I <sub>IH</sub>	ı	3.0	10.0	иA	$V_{DD}$ =3 $V$ , $V_{IN}$ =3 $V$
Drive current of P2	I <sub>OD</sub>	1.5	2	-	mΑ	$V_{DD}$ =3 $V$ , $V_{O}$ =2.4 $V$
Sink Current of P2	Ios	2.0	3	-	mΑ	$V_{DD}$ =3V, $V_{O}$ =0.4V
Drive current of Buo1	I <sub>OD</sub>	100	120	-	mΑ	VDD=3V,Buo1=1.5V
Sink Current of Buo1	Ios	100	120	-	mA	VDD=3V,Buo1=1.5V
Drive Current of Buo2	I <sub>OD</sub>	100	120	-	mΑ	VDD=3V,Buo2=1.5V
Sink Current of Buo2	Ios	100	120	-	mA	VDD=3V,Buo2=1.5V
Oscillation Freq.	Fosc	-	1.0	-	MHz	V <sub>DD</sub> =3V



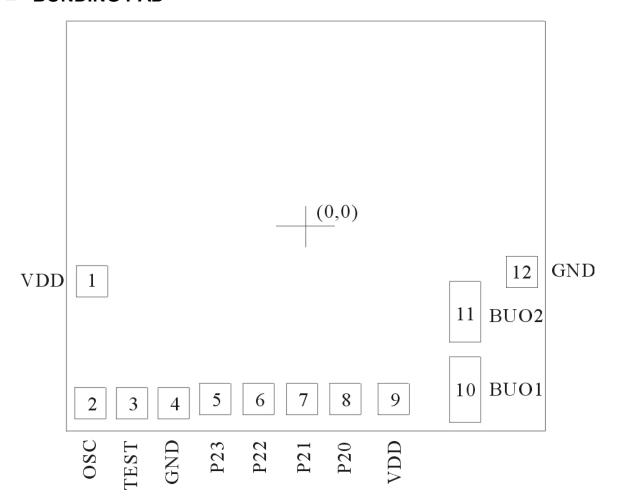
# ■ APPLICATION CIRCUIT



Note: Please bonds all of  $V_{\text{DD}}$  and  $V_{\text{SS}}$  pins.



## **■ BONDING PAD**



## SN65007

Note: The substrate MUST be connected to Vss in PCB layout.



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