

■ INTRODUCTION

SN68168 is a 168 seconds single chip voice synthesizer IC which contains I/O pins and a tiny controller. By programming through the tiny controller, user's applications including section combination, trigger modes, output status, and other logic functions can then be easily implemented.

■ FEATURES

- ◆ Single power supply 2.4V - 5.1V
- ◆ Built in a tiny controller
- ◆ 168 seconds voice capacity are provided
- ◆ Two 4-bit I/O ports and two 4-bit output ports are provided
- ◆ 64*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 dual tone melody generator
- ◆ Speech/Dual tone melody mixer is provided
- ◆ Fixed current D/A output is provided to drive external connected transistor for sound output
- ◆ Low Voltage Reset

■ 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
P30	I/O	Bit0 of I/O port 3
P31	I/O	Bit1 of I/O port 3
P32	I/O	Bit2 of I/O port 3
P33	I/O	Bit3 of I/O port 3
P40	O	Bit0 of output port 4
P41	O	Bit1 of output port 4
P42	O	Bit2 of output port 4
P43	O	Bit3 of output port 4
P50	O	Bit0 of output port 5
P51	O	Bit1 of output port 5
P52	O	Bit2 of output port 5
P53	O	Bit3 of output port 5
V _{DD}	I	Positive power supply
OSC	I	Oscillation component connection pin
TEST	I	For testing only
RESET	I	Reset pin
GND	I	Negative power supply
V _O	O	D/A current output

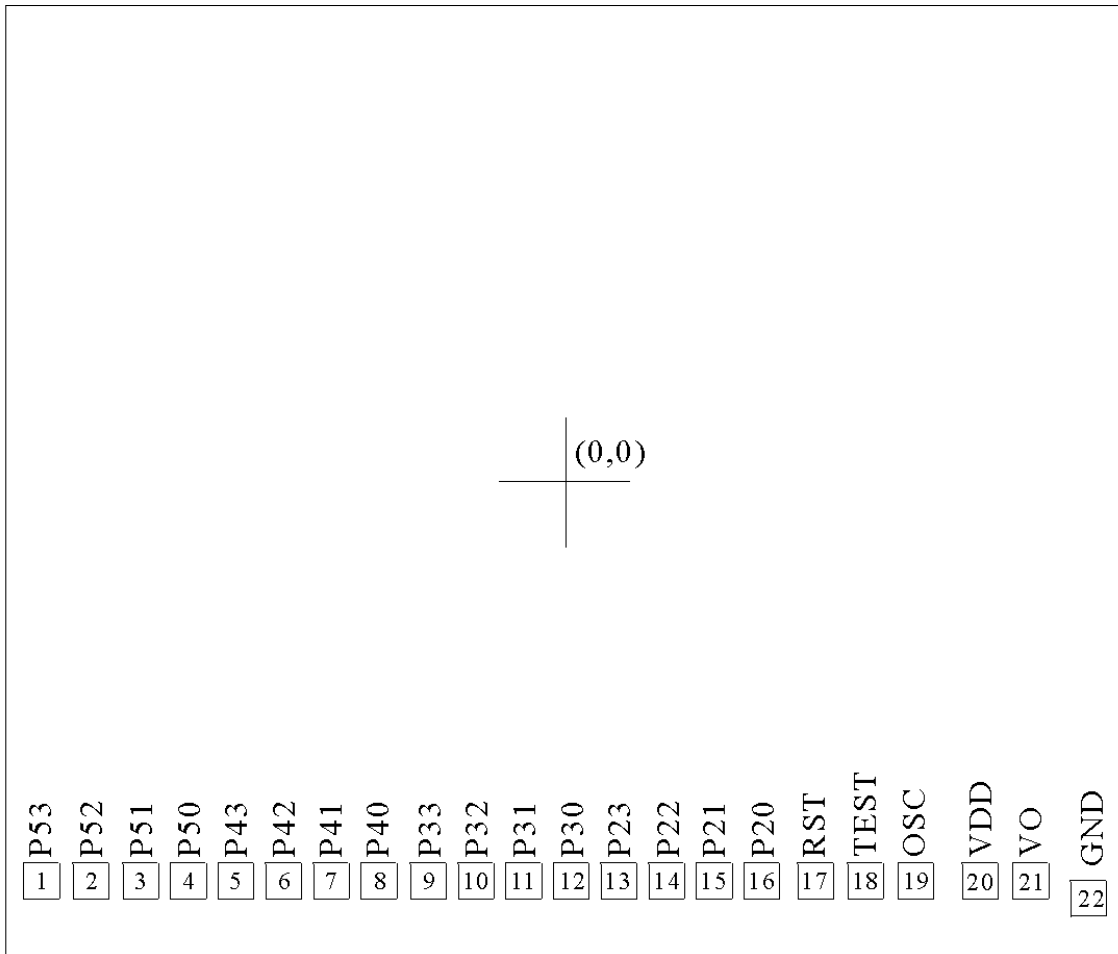
■ ABSOLUTE MAXIMUM RATING

Items	Symbol	Min	Max	Unit.
Supply Voltage	V_{DD}	-0.3	6.0	V
Input Voltage	V_{IN}	$V_{SS}-0.3$	$V_{DD}+0.3$	V
Operating Temperature	T_{OP}	-20.0	70.0	°C
Storage Temperature	T_{STG}	-55.0	125.0	°C

■ ELECTRICAL CHARACTERISTICS

Item	Sym.	Min.	Typ.	Max.	Unit	Condition
Operating Voltage	V_{DD}	2.4	3.0	5.1	V	
Standby Current	I_{SBY}	-	-	2.0	μA	$V_{DD}=3V$, no load
Operating Current	I_{OPR}	-	-	250	μA	$V_{DD}=3V$, no load
Input Current of P1	I_i	-	3	-	μA	$V_{DD}=3V$
Drive Current of P2,P3	I_{OD}	1.5	2	-	mA	$V_{DD}=3V, V_O=2.4V$
Sink Current of P2,P3	I_{OS}	2.0	3	-	mA	$V_{DD}=3V, V_O=0.4V$
D/A Output Current	I_{VO}	2.0	3.0	4.0	mA	$V_{DD}=3V, V_O=0.7V$
Oscillation Freq.	F_{OSC}	-	1.0	-	MHz	$V_{DD}=3V$

■ **BONDING PAD LOCATION**



SN68168

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

DISCLAIMER

The information appearing in SONiX web pages (“this publication”) is believed to be accurate.

However, this publication could contain technical inaccuracies or typographical errors.

The reader should not assume that this publication is error-free or that it will be suitable for any particular purpose. SONiX makes no warranty, express, statutory implied or by description in this publication or other documents which are referenced by or linked to this publication. In no event shall SONiX be liable for any special, incidental, indirect or consequential damages of any kind, or any damages whatsoever, including, without limitation, those resulting from loss of use, data or profits, whether or not advised of the possibility of damage, and on any theory of liability, arising out of or in connection with the use or performance of this publication or other documents which are referenced by or linked to this publication. This publication was developed for products offered in Taiwan. SONiX may not offer the products discussed in this document in other countries. Information is subject to change without notice. Please contact SONiX or its local representative for information on offerings available. Integrated circuits sold by SONiX are covered by the warranty and patent indemnification provisions stipulated in the terms of sale only.

The application circuits illustrated in this document are for reference purposes only. SONIX DISCLAIMS ALL WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE. SONIX reserves the right to halt production or alter the specifications and prices, and discontinue marketing the Products listed at any time without notice. Accordingly, the reader is cautioned to verify that the data sheets and other information in this publication are current before placing orders.

Products described herein are intended for use in normal commercial applications. Applications involving unusual environmental or reliability requirements, e.g. military equipment or medical life support equipment, are specifically not recommended without additional processing by SONIX for such application.