## ■ Feature

- ➢ Wide operating voltage range 3.0V to 5.0V
- ➢ Low power consumption
- ➢ Several voice effects selectable:
    - ✧ Transposing voice (higher or lower)
    - ✧ Amplifying voice
    - ✧ Robot voice
- ➢ Variable resistor or switch can be used to adjust the transposed-voice effect
- ➢ External memory is not required
- ➢ Build-in reduction noise circuit and silence function
- ➢ For application in toys, masks, telephone systems and other voice fields

■ General Description

The WIN8072 is a single-chip CMOS LSI designed for voice changer, which can transpose or distort one voice into another voice by encoding the input audio signals in normal speed and transmit the output audio signals with unusual speed. That is accomplished by sampling the input audio signals into digital signals and re-arranging the digital signals to generate different voice from the user's normal voice. The WIN8072 includes microphone amplifier to amplify voice signal and noise reduction circuit for reducing environment noise.

Pin Assignment	**Block Diagram**
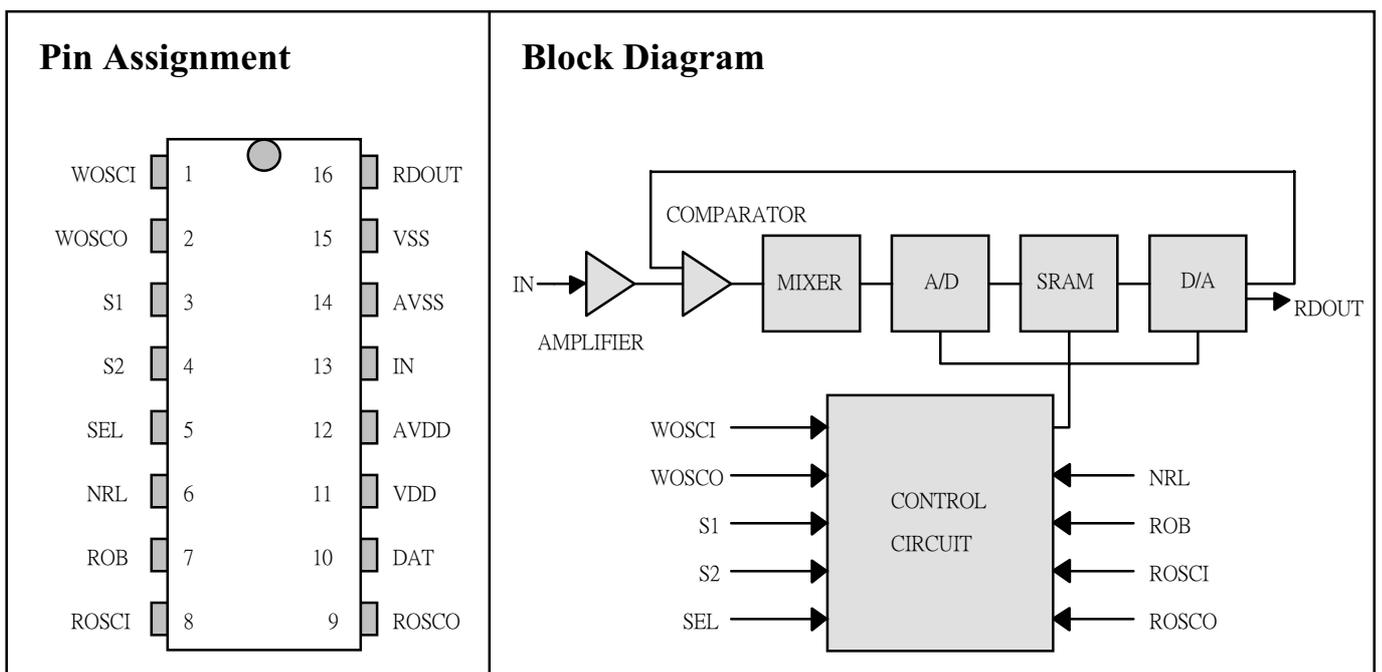
■ Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.
Operating Voltage	VDD	3.0V	4.5V	5.0V
Operating Current	IDD	--	--	10mA
Input Voltage of Signal	VINp-p	0.5V	1.5V	2.0V
Output Voltage of Signal	VOUTp-p	--	1.6V	--

■ Pin Description

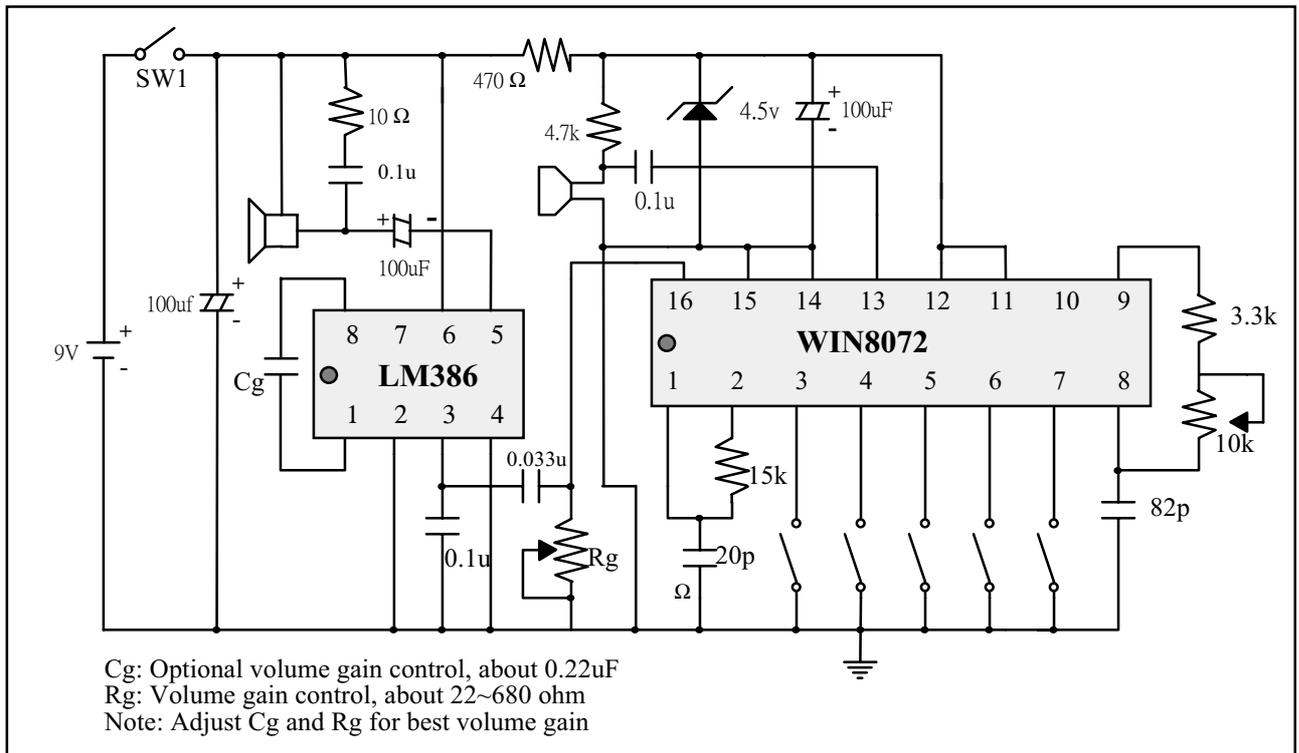| No.	Designation	Description
1	WOSCI	Write (sampling) oscillator input pin
2	WOSCO	Write (sampling) oscillator output pin
3,4	S1,S2	Tone frequency of voice output select pins <table><tr><td>S1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>S2</td><td>0</td><td>1</td><td>0</td><td>1</td></tr><tr><td>Tone freq.</td><td>800Hz</td><td>1333Hz</td><td>660Hz</td><td>2KHz</td></tr></table>* Input Frequency: 1KHz
5	SEL	The voice effect are adjusted by variable resistor if the pin connect to GND
6	NRL	Amplifying voice effect is selected if this pin is connected to GND Transposing voice effect is selected if this pin is floating
7	ROB	Robot voice effect is selected if this pin is connected to GND
8	ROSCI	Read (re-arranging) oscillator input pin
9	ROSCO	Read (re-arranging) oscillator output pin
10	DAT	For testing only
11	VDD	Positive power supply
12	AVDD	Analog positive power supply
13	IN	Audio signal input pin
14	AVSS	Analog negative power supply
15	VSS	Negative power supply
16	RDOUT	Audio signal output pin

■ **Application Circuit**

➢ **Variable resistor adjusting with transistor amplifier (VCC = 9V)**
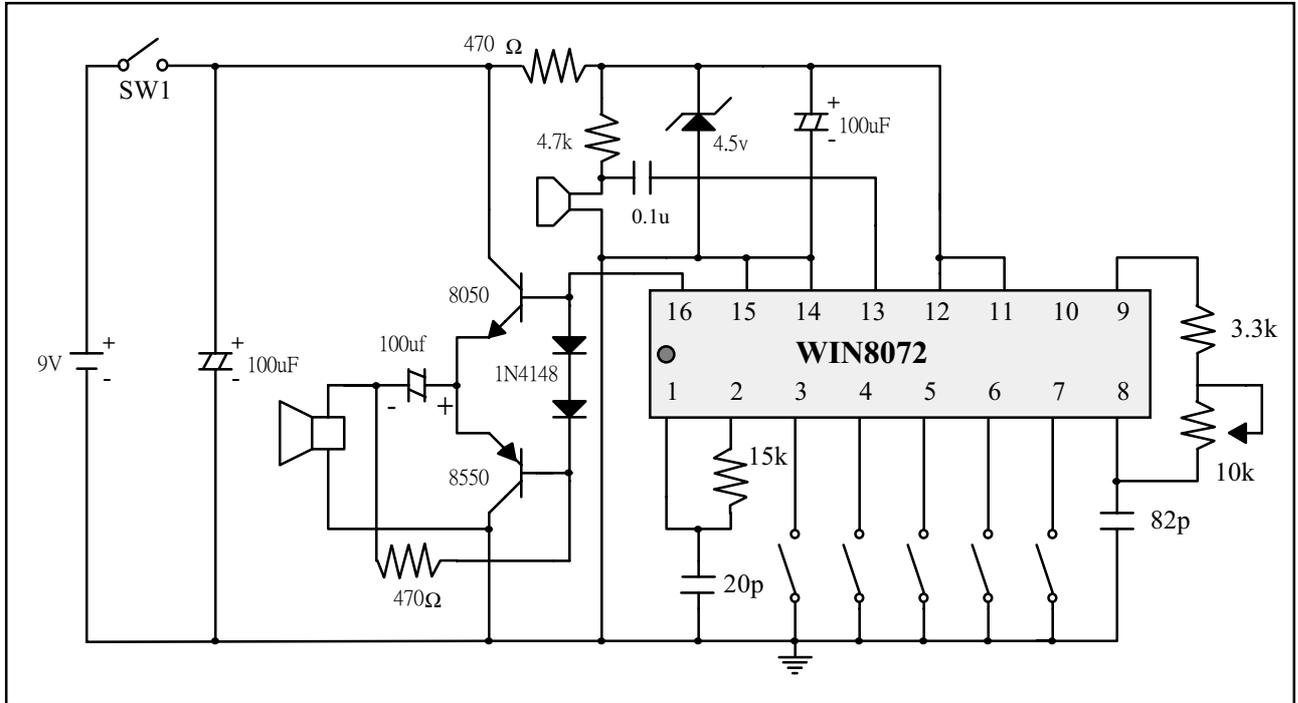
➢ **Variable resistor adjusting with transistor amplifier (VCC = 4.5V)**
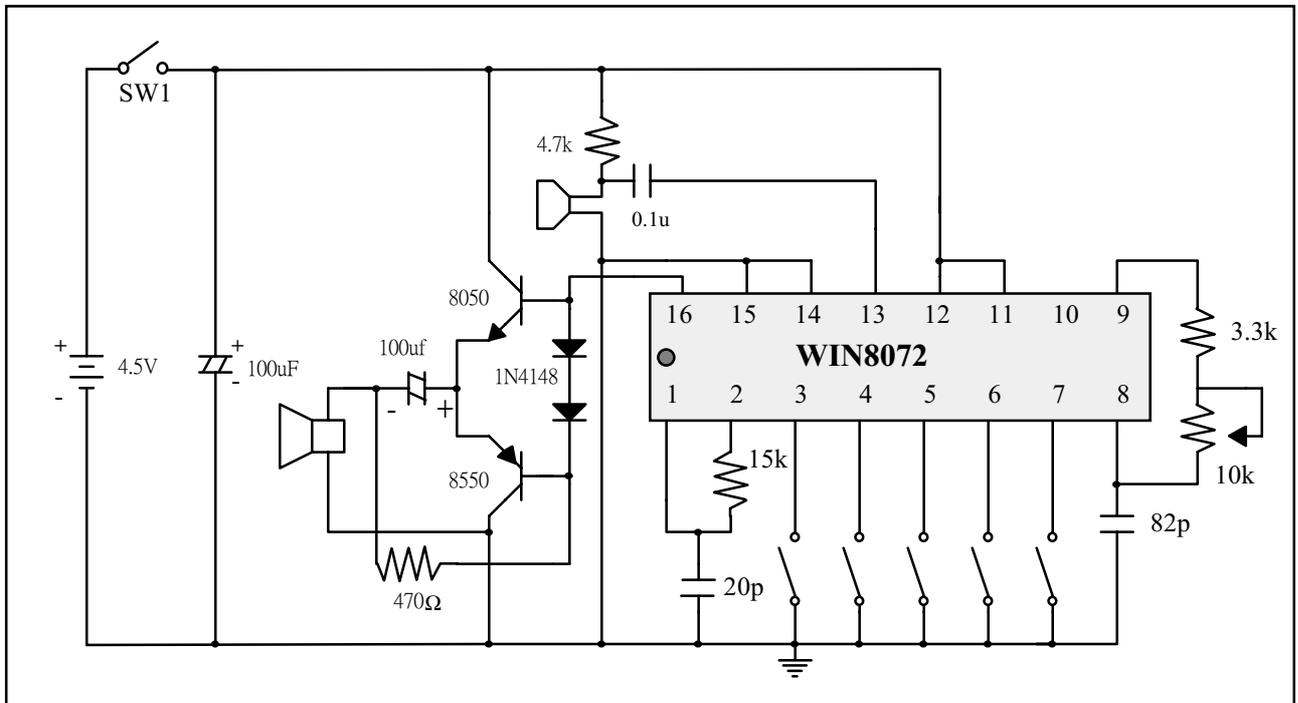
➢ **Variable resistor adjusting with LM386 amplifier**

Cg: Optional volume gain control, about 0.22uF
Rg: Volume gain control, about 22~680 ohm
Note: Adjust Cg and Rg for best volume gain

■ **Bonding Diagram**

Designation	X (um)	Y (um)
WOSCI	98.50	410.40
WOSCO	99.40	96.60
S1	319.60	96.60
S2	539.80	96.60
SEL	760.00	96.60
NRL	980.20	96.60
NC	1199.60	96.60
ROB	1201.50	323.40
ROSCI	1201.50	543.60
ROSCO	1201.50	847.80
DAT	1201.50	1068.00
VDD	1036.90	1193.30
AVDD	886.90	1193.30
IN	280.00	1193.30
AVSS	98.50	1193.30
VSS	98.50	1043.20
RDOUT	98.50	829.30

Substrate is connected to GND