



SINO WEALTH



SH66T Series

Simple Melody Generator

Features

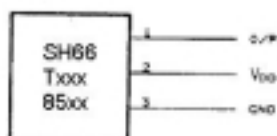
- 64 note ROM memory
- Operating Voltage Range: 1.3V - 3.3V with low power consumption
- Dynamic speaker can be driven with an external NPN transistor
- OSC resistor is built-in
- ONE SHOT mode or LEVEL HOLD mode can be selected
- Power on reset, melody begins from the first note
- Direct piezo drive
- Packaged in an inexpensive TO-92 package

General Description

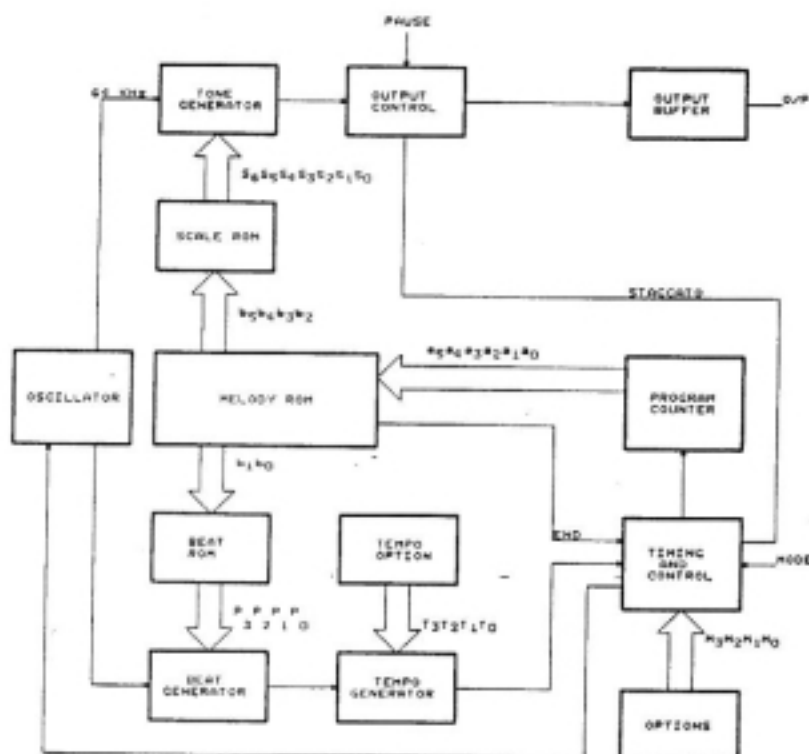
The SH66T Series are CMOS LSIs designed for use in door bells, telephones, and toy applications. They are on-chip ROMs programmed for musical performance. Produced by CMOS technology, these

devices result in very low power consumption. Since the SH66T Series includes oscillator and mode selector circuits, a compact melody module can be constructed with a few additional components.

Pin Configuration



Block Diagram





Absolute Maximum Ratings*

DC Supply Voltage	-0.3V to +5.0V
Operating Ambient Temperature	-10°C to 80°C
Storage Temperature	-55°C to +125°C

*Comments

Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied and exposure to absolute maximum rating conditions for extended periods may affect device reliability.

DC Electrical Characteristics (GND = 0V, T_A = 25°C, F_{osc} = 65536 Hz, unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Operating Voltage	V _{DD}	1.3	–	3.3	V	
Supply Current	Standby	I _S	–	–	1	μA V _{DD} = 1.5V O/P open
	Operating	I _O	–	–	60	μA V _{DD} = 1.5V O/P open
O/P Drive Current	I _{O/P}	0.6	1.5	–	mA	V _{DD} = 1.3V V _{O/P} = 0.8V
O/P Sink Current	I _{O/P}	0.6	1.5	–	mA	V _{DD} = 1.3V V _{O/P} = 0.5V
Frequency Deviation Per Lot	ΔF/F	– 12	–	33	%	V _{DD} = 1.5V
Frequency Stability	ΔF/F	–	–	12	%	$\frac{F_{osc}(1.6V) - F_{osc}(1.3V)}{F_{osc}(1.3V)}$

Pin Description

Pin No.	Designation	Description
1	O/P	Melody output
2	V _{DD}	Positive power supply
3	GND	Negative power supply

Tone Generator

Tone frequency are oscillator frequencies + M, where M is any even number from 64 to 254. Within a melody, 14 scales can be selected including PAUSE code and END code. The tone generator is a programmed divider. The range of scales is from C4 to C6 and the range of frequency varies from 256 Hz to 32768 Hz.

Beat Generator

The beat generator is also a programmed divider. It contains 15 available beats as follows: 1/4, 1/2, 3/4, 1, 1-1/4, 1-1/2, 1-3/4, 2, 2-1/4, 2-1/2, 2-3/4, 3, 3-1/4, 3-1/2, 3-3/4. Four beats can be selected from the above.

Functional Description

Oscillator Circuit

The oscillator frequency is used as a time base for tone and beat generators. Its accuracy affects the quality of the music.

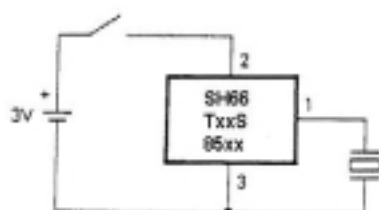


Melody ROM

The mask ROM can memorize 64 notes with 6 bits; 4 bits are used for controlling the scale code and 2 bits are used for controlling the rhythm code.

Application Circuits (for reference only)

ONE SHOT Mode for Piezo

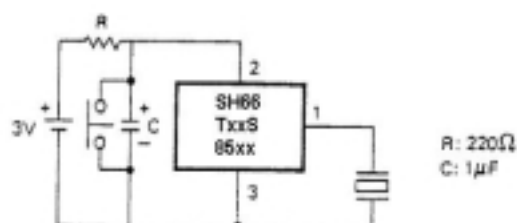


Tempo Generator

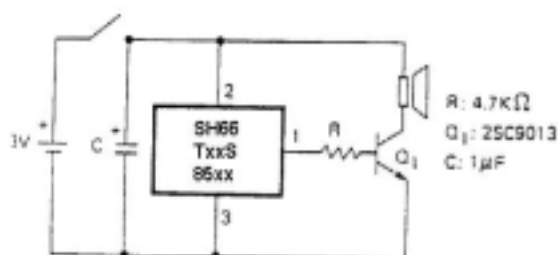
There are 15 available tempos in the SH66T. The 15 tempos are: 128, 137, 148, 160, 175, 192, 213, 240, 274, 320, 384, 480, 640, 960, 1920 μ /minute.

ONE SHOT Mode for Piezo

(Normal open switch)

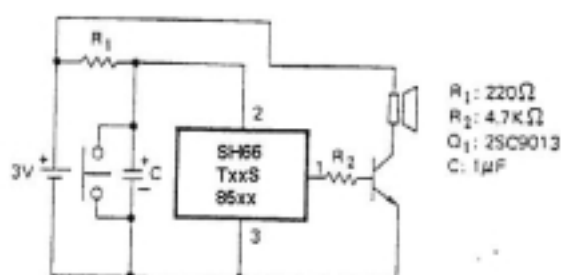


ONE SHOT Mode for Speaker



ONE SHOT Mode for Speaker

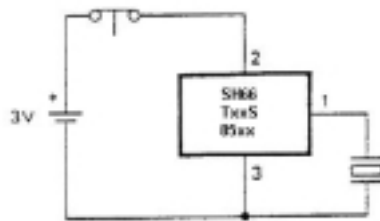
(Normal open switch)



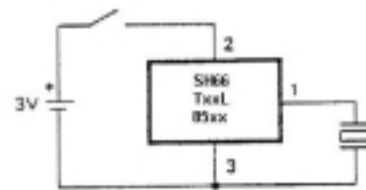


ONE SHOT Mode for Piezo

(Normal closed switch)

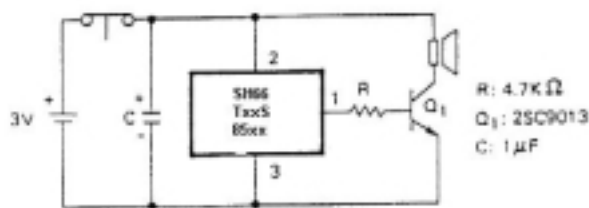


LEVEL HOLD Mode for Piezo

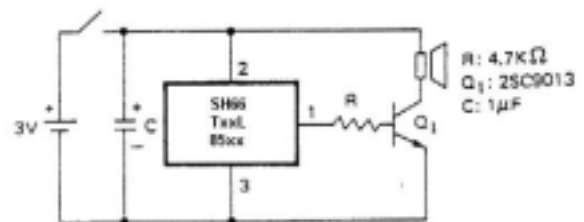


ONE SHOT Mode for Speaker

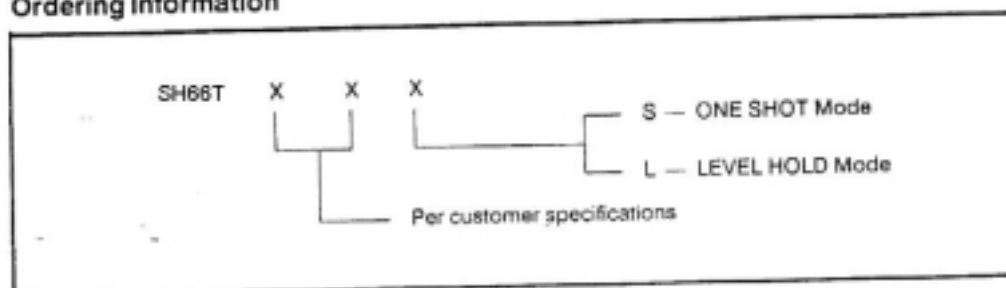
(Normal closed switch)



LEVEL HOLD Mode for Speaker



Ordering Information





Code List:

A: No patent restriction

1	SH66T-02	JINGLE BELLS
2	SH66T-03	SILENT NIGHT
3	SH66T-05	HOME SWEET HOME
4	SH66T-07	CONGRATULATIONS
5	SH66T-09	WEDDING MARCH (M)
6	SH66T-17	WE WISH YOU A MERRY X'MAS + SILENT NIGHT
7	SH66T-18	WEDDING MARCH (WAGGER)
8	SH66T-19	FOR ELISE
9	SH66T-20	WHEN THE SAINTS GO MARCHING IN
10	SH66T-24	TWINKLE TWINKLE LITTER STAR
11	SH66T-27	CHORAL SYMPHONY
12	SH66T-31	LULLABY (SCHUBERT)
13	SH66T-32	CU CU WALTZ
14	SH66T-38	MAMA + HOME SWEET HOME
15	SH66T-88	LULLABY (BRAMS) + REUEILLE

B: Need sign letter of undertaking

1	SH66T-01	JINGLE BELLS + SANTA CLAUSIS COMING TO TOWN + WE WISH YOU A MERRY X'MAS
2	SH66T-06	LET ME CALL YOU SWEET HEART
3	SH66T-10	I WILL FOLLOW HIM
4	SH66T-12	SUCH A WONDERFUL DAY
5	SH66T-13	EASTER PARADE
6	SH66T-16	TOMORROW
7	SH66T-25	MARCH OF TOY SOLDIER
8	SH66T-26	ROCKBYE BABY
9	SH66T-33	MARY HAD A LITTLE LAMB
10	SH66T-34	THE TRAIN IS RUNNING FAST
11	SH66T-74	LUIS VILLA LABOS
12	SH66T-75	FELIZ NAVIDAD
13	SH66T-80	REUEILLE
14	SH66T-86	DUP SONG
15	SH66T-87	NEBRASKA SCHOOL SONG
16	SH66T-89	BINGO
17	SH66T-90	ON WISCONSIN
18	SH66T-94	TWIXT WATCH AUDIO
19	SH66T-97	WE ARE THE BOYS FROM FLORIDA
20	SH66T-98	IUNIVERSITY OF FLORIDA ALAM MATER
21	SH66T-99	BI-BI- SOUND

**C: Need patenter authorize**

1	SH66T-04	JINGLE BELLS + RULDPH, THE RED-NOSED RENIDEER + JOY TO THE WORLD
2	SH66T-08	HAPPY BIRTHDAY TO YOU
3	SH66T-11	LOVE ME TENDER, LOVE ME TRUE
4	SH66T-21	CONGRATULATION + HAPPY BIRTHDAY
5	SH66T-36	HAPPY NEW YEAR
6	SH66T-68	IT'S A SMALL WORLD
7	SH66T-92	HAWIIAN WAR MARCHANTS
8	SH66T-93	HAPPY BIRTHDAY + CONGRATULATION + SUCH A WONDERFUL DAY