

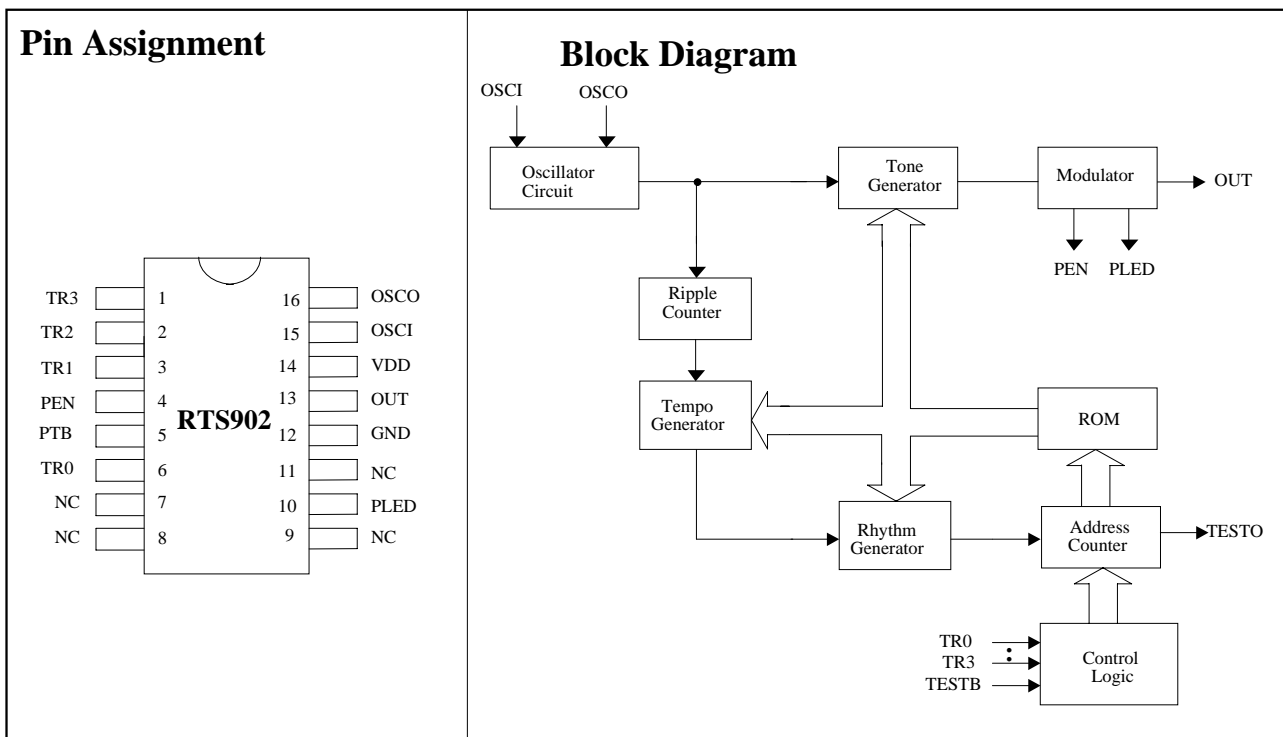
NATURAL SOUND EFFECT MELODY GENERATOR

Features

- Operating Voltage range: 2.4V to 5.0V
- Low power consumption
- 256-note ROM memory
- RC oscillator with an external resistor
- 1 sequence trigger key and 3 direct access keys are provided to select which song is to be played.
- Built-in on-the-chip envelope modulator
- Direct-drive speaker and programmable LED flash
- Provided PEN pin for drive motor
- Typical oscillator frequency: 128 KHz
- Power-ON Reset; melody begins from the first note.

General Description

RTS902 is a CMOS LSI designed for toys, doorbells and music boxes. It plays pr-programmed melody and is capable of generating songs in piano effect by using the built-in digital envelope circuit. By pushing the sequence trigger key, all songs can be played sequentially with an Auto-Stop function. In addition, all songs can be placed in one of the three regions and selected by pushing their corresponding direct-access keys providing the Auto-Stop function.



Absolute Maximum Ratings
Comments*

DC Supply Voltage.....0.3V to 6.0V
 Input/Output Voltage.....GND -0.2V to VDD + 0.2V
 Operating Temperature.....-10°C to 60°C
 Storage Temperature.....-25°C to 125°C

Never allow a stress to exceed the values listed under "Absolute Maximum Ratings", otherwise the device would suffer from a permanent damage. Nor is a stress at the listed value be allowed to persist over a period, since an extended exposure to the absolute maximum rating condition may also affect the reliability of the device, if not causing a damage thereof.

Electrical Characteristics

(VDD=3.0V, GND=0V, T_A=25°C, unless otherwise specified)

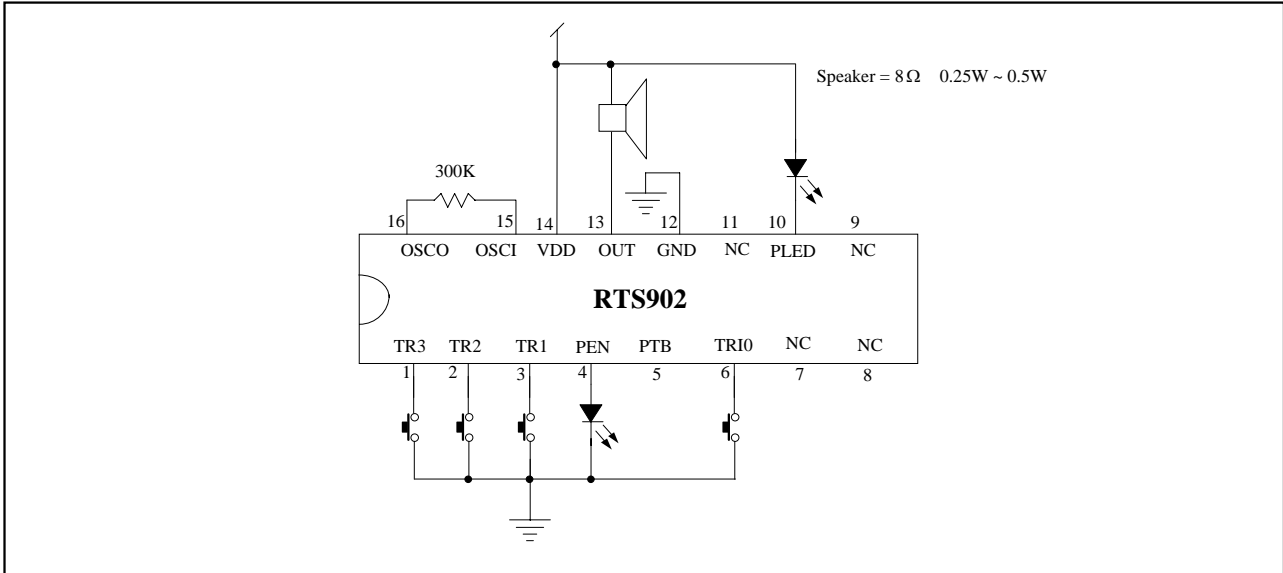
Parameter	Symbol	Min.	Typ.	Max.	Conditions
Operating Voltage	VDD	2.4V	-	5.0V	
Operating Current	I _{dd}	-	-	1mA	Unload
Stand-by Current	I _{stb}	-	-	1μA	Full load
LED Sinking Current	LED Sinking	10mA	-	-	V _{ol} = 1.0V
PEN Driving Current	LED D _{riving}	1mA	-	-	V _{oh} = 2.0V
Out Driving Current	Out D _{riving}	-	190mA	-	DAC full scale Load = 8Ω
Oscillator Frequency Deviation Per Lot	Δ F/F	-	-	±15%	

Pin Description

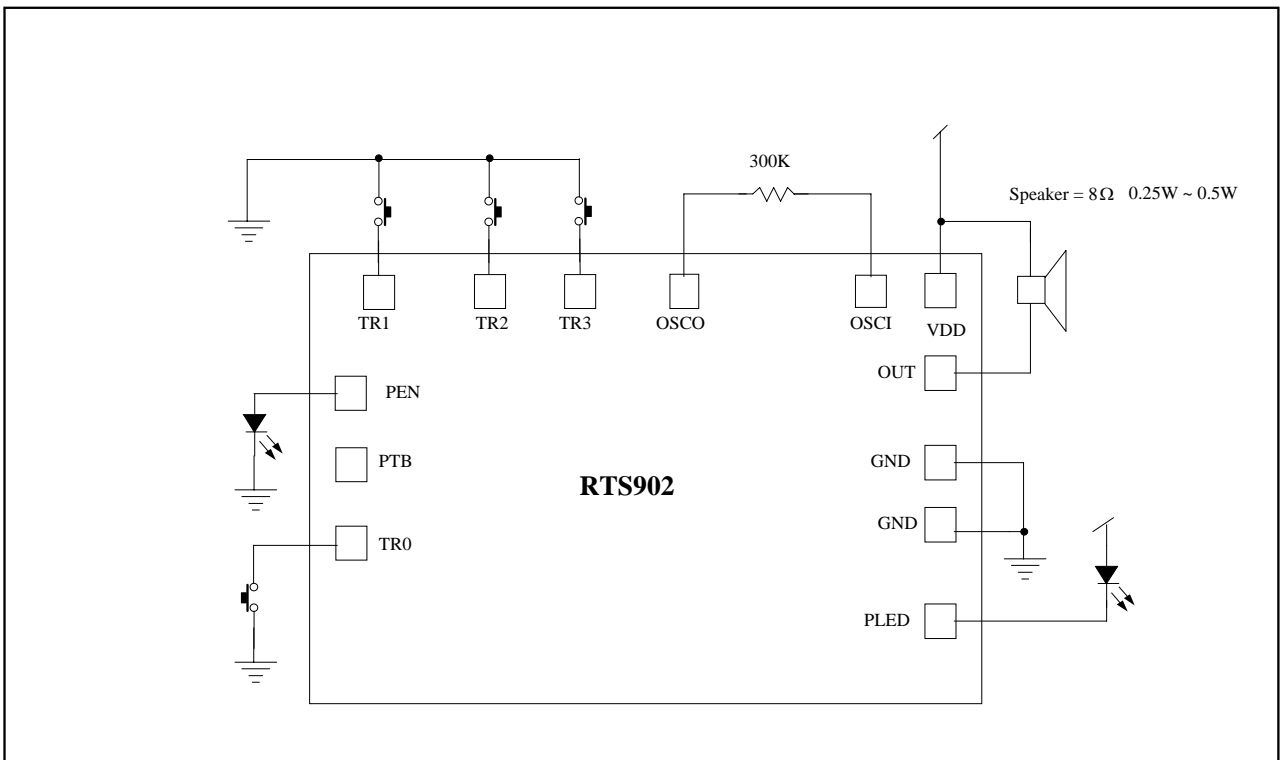
Pin No.	Designation	Description
1	TR3	Direct access trigger pin 3 The melody in region 3 will be played when this pin is connected to GND.
2	TR2	Direct access trigger pin 2 The melody in region 2 will be played when this pin is connected to GND.
3	TR1	Direct access trigger pin 1 The melody in region 1 will be played when this pin is connected to GND.
4	PEN	Melody playing indicator. Active high
5	PTB	For testing only
6	TR0	Sequential trigger pin 0. The melodies in regions 1 – 3 will be played sequentially when this pin is connected to GND.
7	NC	No connection
8	NC	No connection
9	NC	No connection
10	PLED	LED driver output pin. Active low.
11	NC	No connection
12	GND	Negative power supply
13	OUT	Tone output pin
14	VDD	Positive power supply
15	OSCI	Oscillator input pin
16	OSCO	Oscillator output pin

Typical Application Circuit

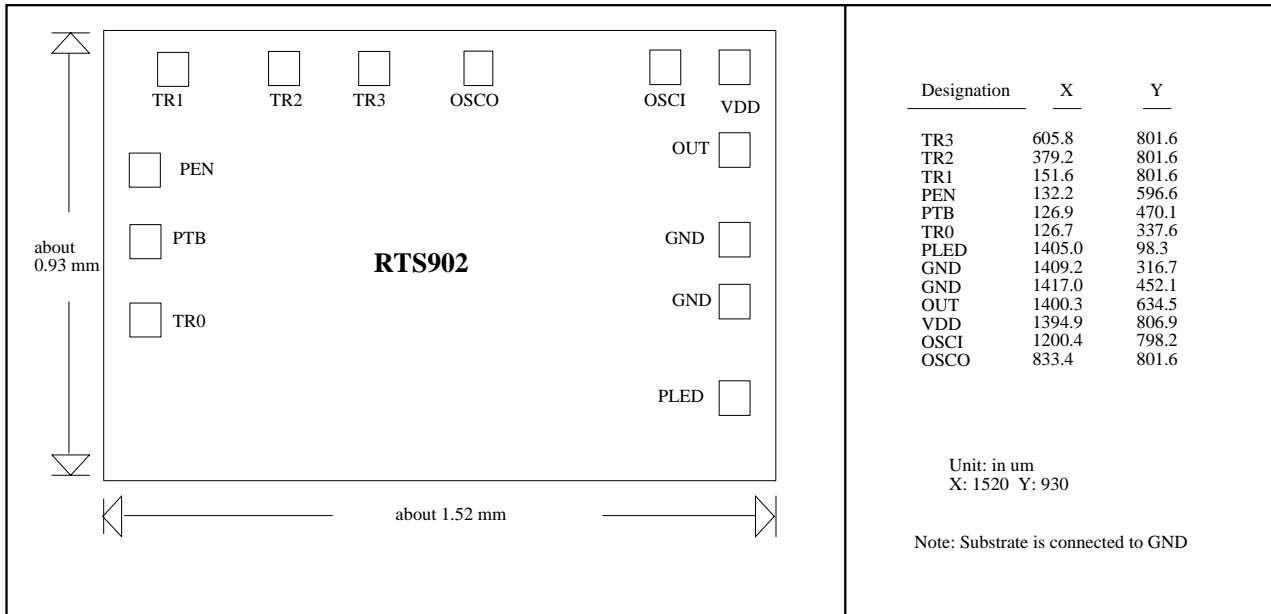
1.



2.



Bonding Diagram



Song List

RTS902-1:

1. La Reine Deo Saba
2. For Elise
3. Music Box Dancer

RTS902-2:

1. Japanese Lullaby
2. Brahms' Lullaby
3. Rockaby, Baby

RTS902-3:

1. Ding-Dong
2. Alarm Song
3. For Elise

RTS902-4:

1. Jingle Bells
2. We Wish You a Merry Christmas
3. Santa Claus is Coming to Town

RTS902-5:

1. London Bridge is Falling Down
2. Mary Had a Little Lamb
3. Down the Mountain Side We Go

RTS902-6:

1. Love Me Tender Love Me True
2. If You Love Me
3. I Can't Stop Loving You

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