Elektronische Bauelemente

SPW31002D

Bipolar Tone

Ringer ICS

RoHS Compliant Product

Description

The SPW31002D is a bipolar integrated circuit.
It is designed for telephone bell replacement.

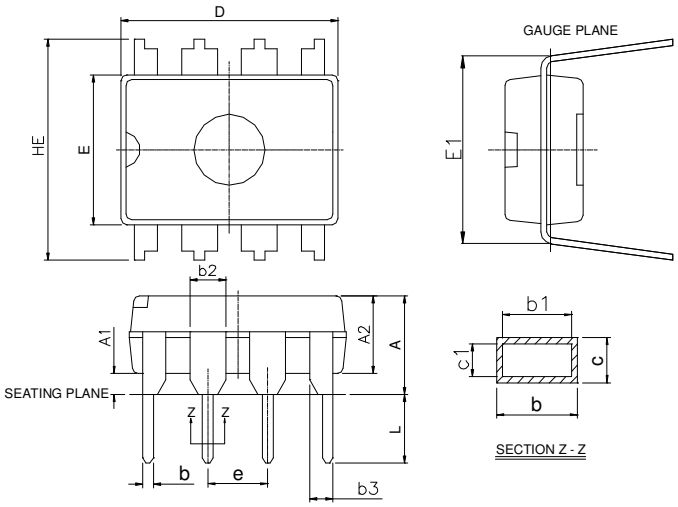
Features

* Package Is Compact (DIP-8 Pin)
* Oscillation Frequency Is Variable
* Few External Components
* Current Consumption Is Small
* Built-in Threshold Circuit Prevent False Triggering Due To Power Noise As Well As "Chirps" Due To Rotary Dial.

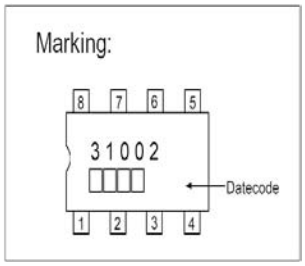
Applications

* Telecom Tone Ringer Set

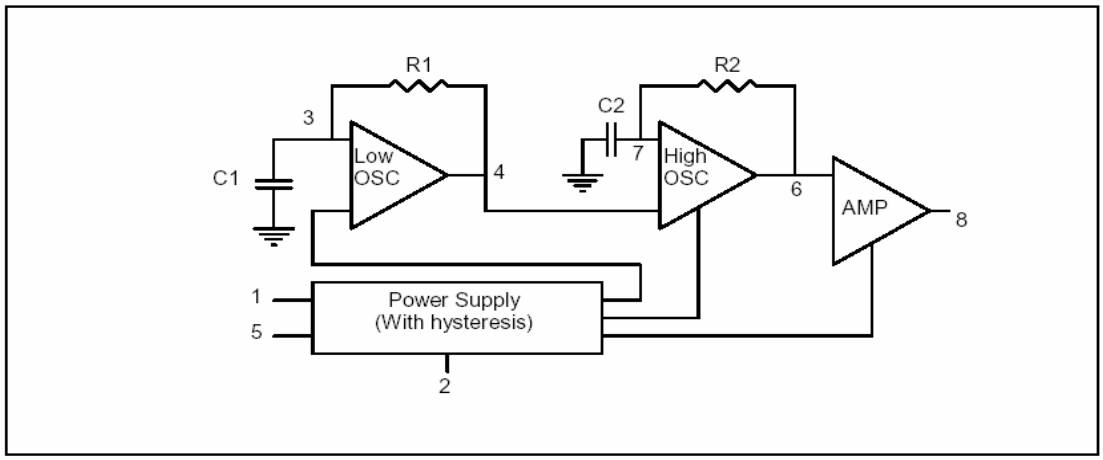
DIP-8

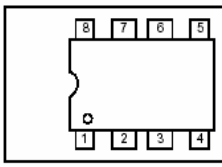


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	-	0.5334	c1	0.203	0.279
A1	0.381	-	D	9.017	10.16
A2	2.921	4.953	E	6.096	7.112
b	0.356	0.559	E1	7.620	8.255
b1	0.356	0.508	e	2.540 BSC	
b2	1.143	1.778	HE	-	10.92
b3	0.762	1.143	L	2.921	3.810
c	0.203	0.356			



Pin Configuration & Block Diagram





Pin1 : Vcc	Pin5 : Gnd
Pin2 : RSL Trigger In	Pin6 : High Freq. Time Constant.
Pin3 : Low Freq. Time Constant.	Pin7 : High Freq. Time Constant.
Pin4 : Low Freq. Time Constant.	Pin8 : Output

Absolute Maximum Ratings at Ta = 25℃

Characteristics	Symbol	Rating	Unit
Operating temperature	Topr	-40 ~ 85	℃
Storage Temperature range	Tstg	-55 ~ 150	℃
Supply Voltage	Vcc	30	V
Power Dissipation	Pd	500	mW

Electrical Characteristics (0℃≤TA≤70℃,Vcc=5V unless otherwise specified)

Characteristics		Symbol	Test Conditions	Min	Typ.	Max.	Unit
Operating Voltage		Vopr		-	-	30	V
Initiation Supply Voltage		Vsi	(Note 1)	17	19	21	V
Sustaining Supply Voltage		Vsus	(Note 2)	10.5	12	-	V
Initiation Current Consumption		Isi	No load	1.4	3.3	4.2	mA
Sustaining Current Consumption		Isus		0.4	1.4	2.0	mA
Oscillator Frequency		fL	C1=0.47uF, R1=165kΩ	9	10	11	Hz
		fH1	C1=6800pF, R2=191kΩ	461	512	563	
		fH2		576	640	703	
Output Voltage	"H" Level	V_{OH}	Vce = 24V, I_{OH}=-10mA Pin7=Gnd	20	21.5	22.5	V
	"L" Level	V_{OL}	Vce = 24V, I_{OH}=-10mA Pin7=7V	0.7	1.0	2.0	V

Note 1：Initiation Supply Voltage (Vsi) is a supply voltage required to start oscillation of the tone ringer.

Note 2 : Sustaining Supply Voltage (Vsus) is a supply voltage required to maintain oscillation of the tone ringer.

Note 3 : Oscillation frequency is determined by the following equations (1),(2) and (3):

(1) fL=1/1.234, R1, C1 (Hz) (2) fH1=1/1.515, R2, C2 (Hz) (3) fH2=1.24 fH1 (Hz)

Method Of Using Rsl

In the GP31002, using the RSL terminal can change the initiation supply current (Isi). The resistor RSL is connected to Gnd from Pin 2 as show in Fig. 3.

Further, the initiation supply current (Isi) can be changing the value of RSL. Fig. 4 shows the graph of Vs-Is characteristic at the time when RSL has been changed to three values. The Vs-Is characteristic at the time when RSL=6.8 kΩ coincides with that at the time when Pin2 of the GP31002 has been used at an open state. If Pin 7 is connected to Gnd as shown in Fig. 5, the GP31002 can stop oscillation. (the "L" level voltage is under 2V)

Fig.3

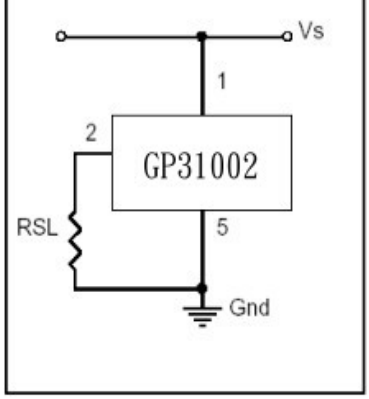


Fig.4

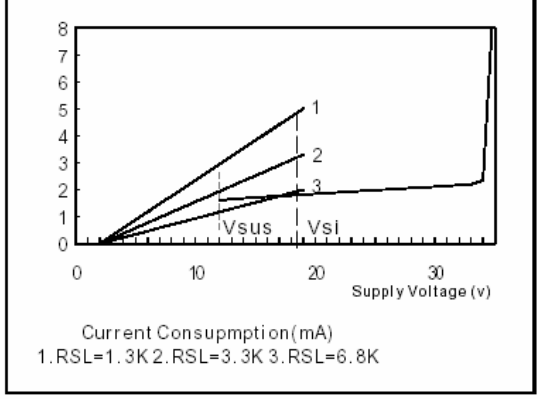
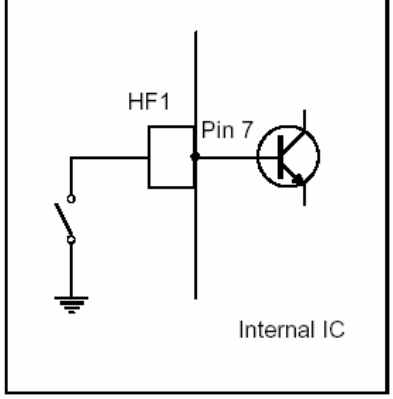
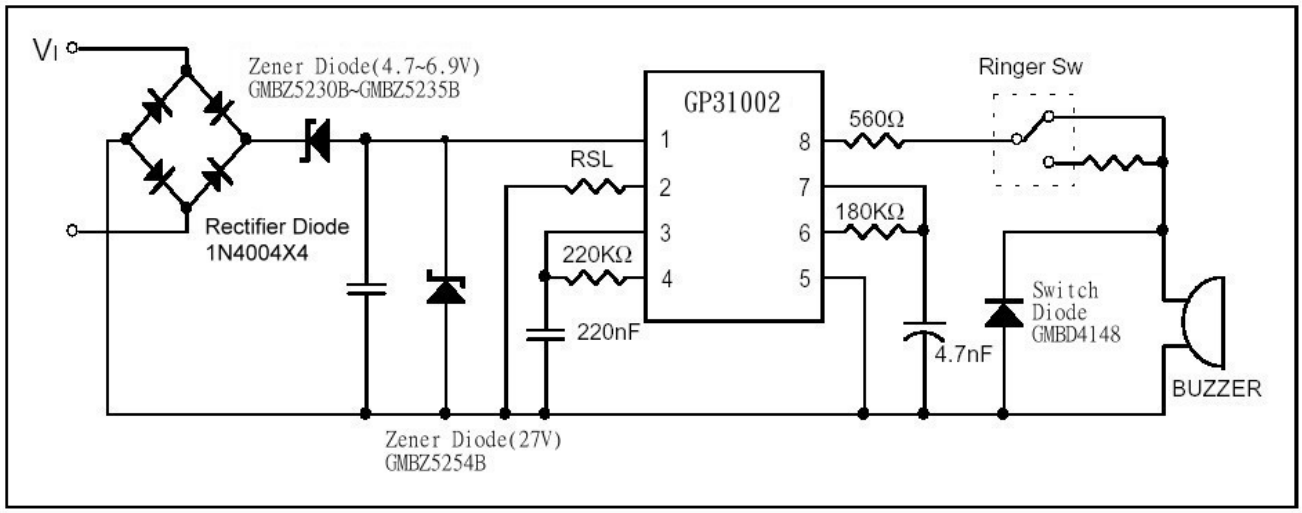


Fig.5



Application Information

Application circuits of Telecom Tone Ringer Set



Example of Output Circuit