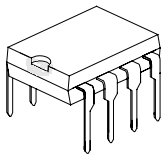
TELEPHONE TONE RINGER



DIP-8

*Pb-free plating product number: TA31002L

■ DESCRIPTION

The UTC **TA31002** is a bipolar integrated circuit designed for telephone bell replacement. It can also be used as alarms or other alerting devices.

■ FEATURES

*Current consumption is small. (at no-load)
*Package is compaction. (DIP-8 pin)
*Oscillation frequency is variable.
*Built-in threshold circuits prevent false triggering due to power noise as well as “chirps” due to rotary dial.
*Few external components.

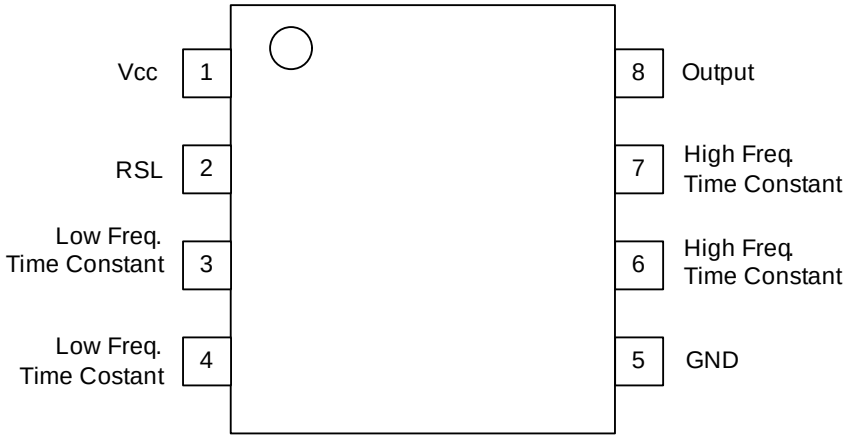
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Normal	Lead Free Plating		
TA31002-D08-T	TA31002L-D08-T	DIP-8	Tube

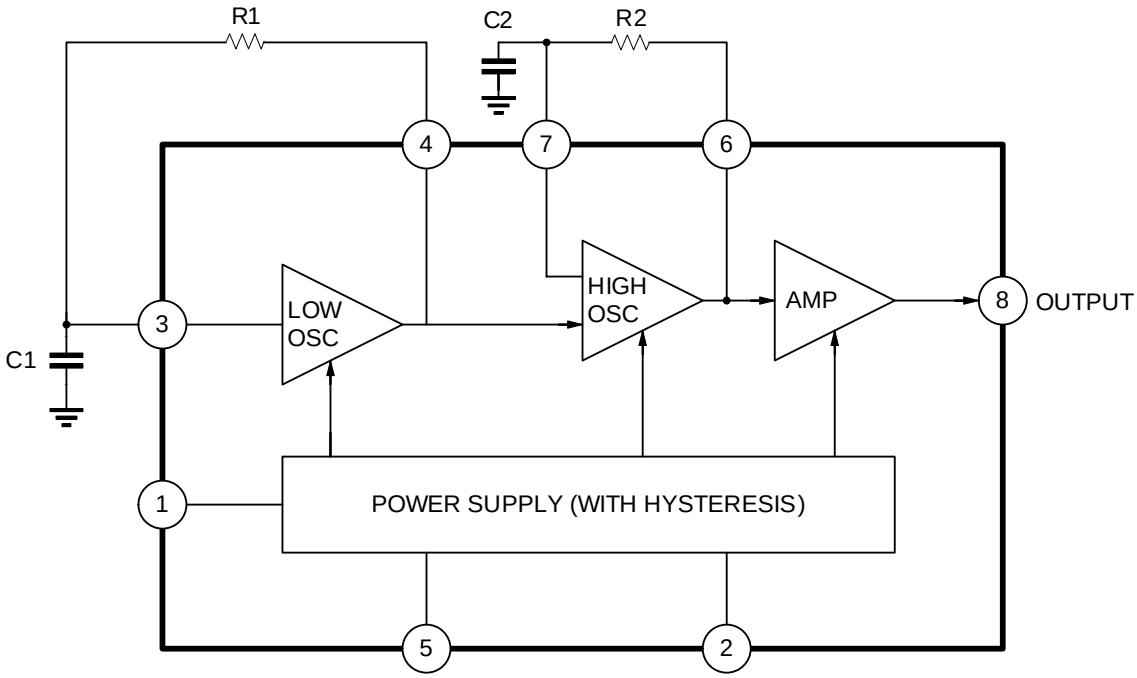
TA31002L-D08-T
(1)Packing Type
(2)Package Type
(3)Lead Plating

(1) T: Tube
(2) D08: DIP-8
(3) Lead Free Plating Blank: Pb/Sn

■ PIN CONFIGURATIONS



■ BLOCK DIAGRAM



Note:R1,R2,C1 and C2 are parts externally mounted

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Power Supply Voltage	V_{CC}	30	V
Power Dissipation	P_D	800	mW
Operating Temperature	T_{OPR}	-40 ~ +85	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

(All voltage referenced to GND unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage	V_{OPR}				29	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		0.7	1.4	2.5	mA
Oscillation Frequency (not3)	Fl	C1=0.47μF, R1=165kΩ	9	10	11	Hz
	fH1	C2=6800pF, R2=191kΩ	461	512	563	Hz
	fH2		576	640	703	Hz
Output Voltage “H” Level	V_{OH}	Vcc=24V, V_{OH}=-10mA PIN7=GND	20.0	21.5	22.5	V
Output Voltage “L” Level	V_{OL}	Vcc=24V, V_{OL}=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.

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

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)

■ APPLICATION NOTE

In the UTC **TA31002** the initiation current consumption (Isi) can be changed by using the RSL terminal. The resistor RSL is connected to GND from PIN2 as shown in fig.1. Further, the initation current consumption (Isi) can be changed by changing the value of RSL.

Fig.2 show the graph of Vs-Is characteristic at the time when RSL has been changed to three values. The Vs-Is characteristic in UTC **TA31002** at the time when RSL=6.8kΩ coincides with that at the time when PIN2 of the TA31001 has been used at an open state.

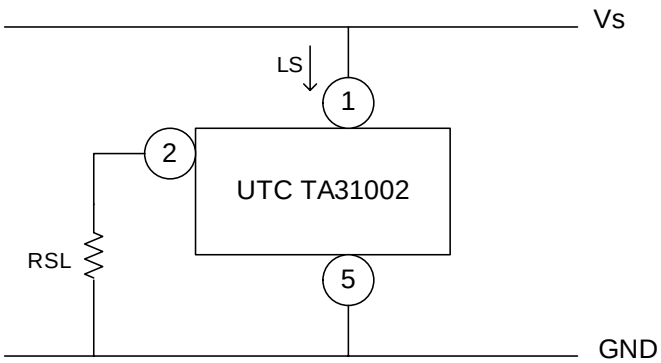


FIG.1

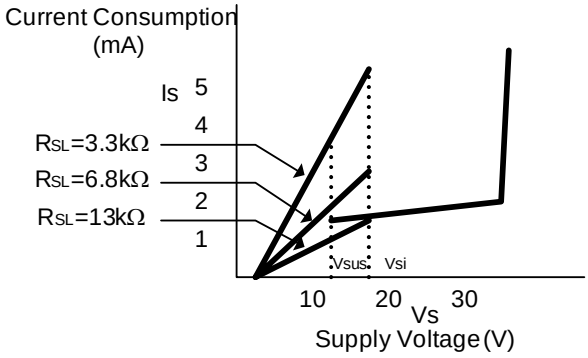
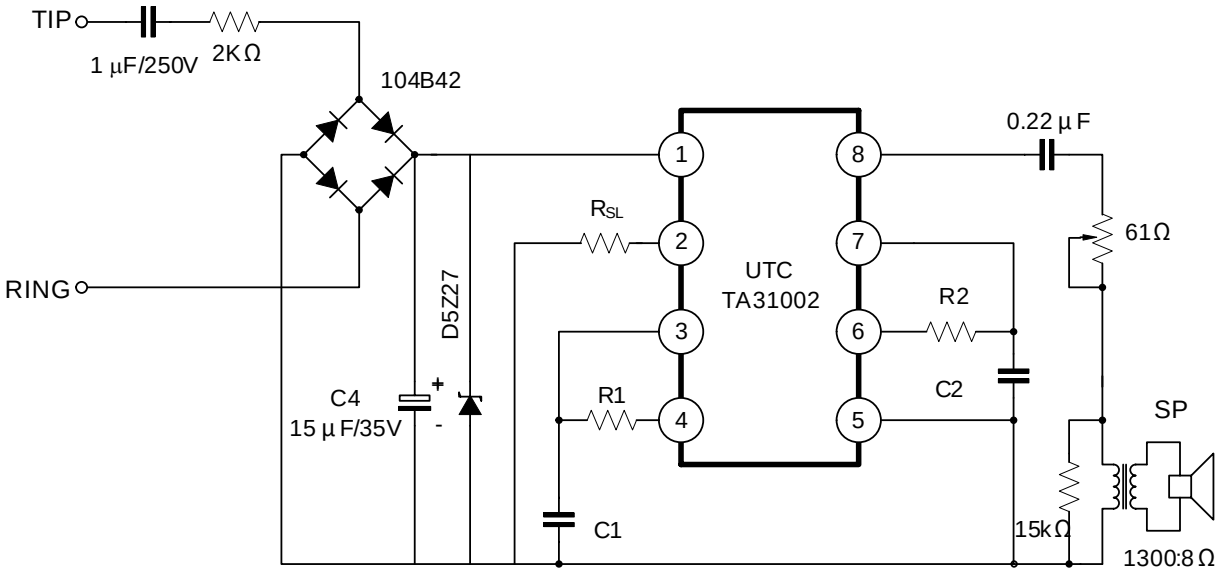


FIG.2

■ APPLICATION CIRCUIT



fL=1/1.234R1*C1
fH1=1/1.515R2*C2
fH2=1.24fH1

when:
R1=165KΩ R2=191KΩ
C1=0.47μF/16V C2=0.0068μF/16V
fL≅10Hz fH1≅500Hz fH2≅630Hz