

# UTC TA31001 LINEAR INTEGRATED CIRCUIT

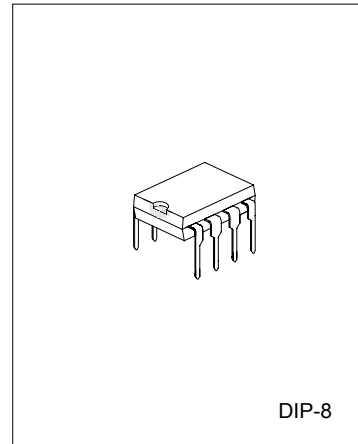
## TELEPHONE TONE RINGER

### DESCRIPTION

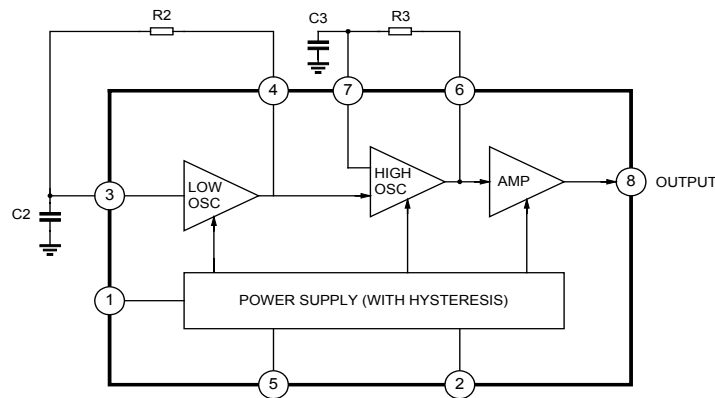
The UTC TA31001 is a bipolar integrated circuit designed for telephone bell replacement. It can also be used as alarms or other alerting devices.

### FEATURES

- \*Designed for telephone bell replacement.
- \*Low current drain for multiple extension of lines.
- \*Adjustable 2-frequency tone.
- \*Adjustable warbling rate.
- \*Built-in hysteresis prevents false triggering and rotary dial 'CHIRPS'.
- \*Programmable for initiation voltage by simple external resistor.



### BLOCK DIAGRAM



Note: R2, R3, C2 and C3 are parts externally mounted

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## ABSOLUTE MAXIMUM RATINGS(Ta=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	V <sub>cc</sub>	30	V
Power Dissipation	P <sub>d</sub>	400	mW
Operating Temperature	T <sub>opr</sub>	-45 to 85	°C
Storage Temperature	T <sub>stg</sub>	-65 to 150	°C

## ELECTRICAL CHARACTERISTICS( Ta=25°C )

(All voltage referenced to GND unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating Supply Voltage	V <sub>cc</sub>				29	V
Initiation Supply Voltage (note 1)	V <sub>si</sub>	See Fig.1	17	19	21	V
Initiation Supply Current (note 1)	I <sub>si</sub>	6.8K-Pin 2 to GND	1.4	3.5	4.2	mA
Sustaining Voltage (note 2)	V <sub>sus</sub>	See Fig.1	9.7	11	12	V
Sustaining Current (note 2)	I <sub>sus</sub>	No Load V <sub>cc</sub> =V <sub>sus</sub> , See Fig.1	0.7	1.4	2.5	mA
Trigger Voltage (note 3)	V <sub>TRG</sub>	V <sub>cc</sub> =15V	9	10.5	12	V
Trigger Current (note 3)	I <sub>TRG</sub>	V <sub>cc</sub> =15V	10	20	1000 <sup>5</sup>	μA
Disable Voltage (note 4)	V <sub>DIS</sub>				0.8	V
Disable Current (note 4)	I <sub>DIS</sub>		-40	-50		μA
Output Voltage High	V <sub>OH</sub>	V <sub>cc</sub> =21V, I <sub>8</sub> =-15mA Pin6=6V, Pin7=GND	17.0	19	21	V
Output Voltage Low	V <sub>OL</sub>	V <sub>cc</sub> =21V, I <sub>8</sub> =15mA Pin6=GND, Pin7=6V			1.6	V
Input Current 1	I <sub>IN</sub> (Pin 3)	Pin3=6V, Pin4=GND			500	nA
Input Current 2	I <sub>IN</sub> (Pin 7)	Pin7=6V, Pin6=GND			500	nA
High Frequency 1	F <sub>H1</sub>	R3=191K, C3=6800pF	461	512	563	Hz
High Frequency 2	F <sub>H2</sub>	R3=191K, C3=6800pF	576	640	704	Hz
Low Frequency	F <sub>L</sub>	R2=165K, C2=0.47μF	9	10	11	Hz

\*NOTE (See electrical characteristics sheet)

1. Initiation supply voltage (V<sub>si</sub>) is the supply voltage required to start the tone ringer oscillating.
2. Sustaining voltage (V<sub>sus</sub>) is the supply voltage required to maintain oscillation.
3. V<sub>TRG</sub> and I<sub>TRG</sub> are the conditions applied to trigger in to start oscillation for V<sub>sus</sub> ≅ V<sub>cc</sub> ≅ V<sub>si</sub>
4. V<sub>DIS</sub> and I<sub>DIS</sub> are the conditions applied to trigger in to inhibit oscillation for V<sub>si</sub> ≅ V<sub>cc</sub>
5. Trigger current must be limited to this value externally.

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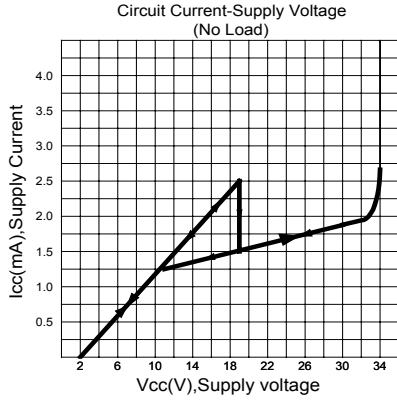


Fig. 1

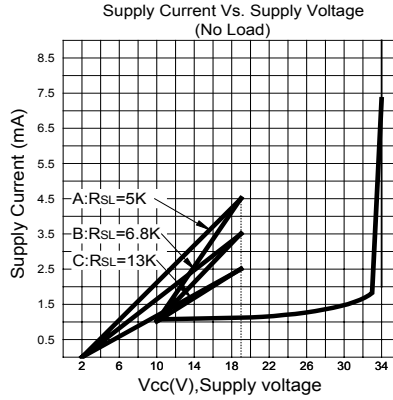


Fig. 2

## APPLICATION CIRCUIT

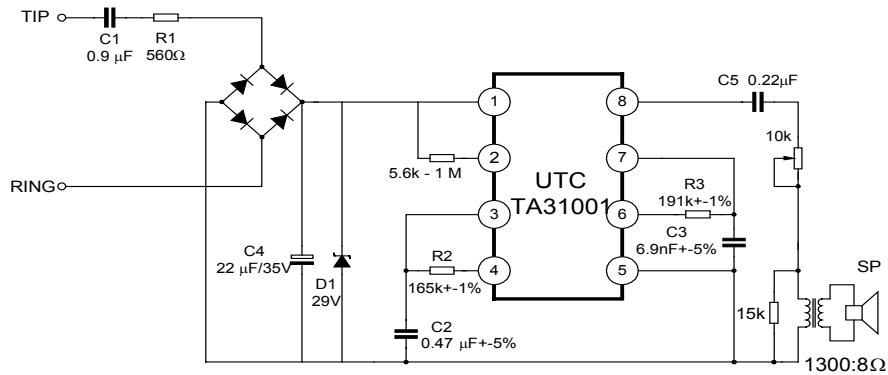


Fig. 3

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