

# AN6172

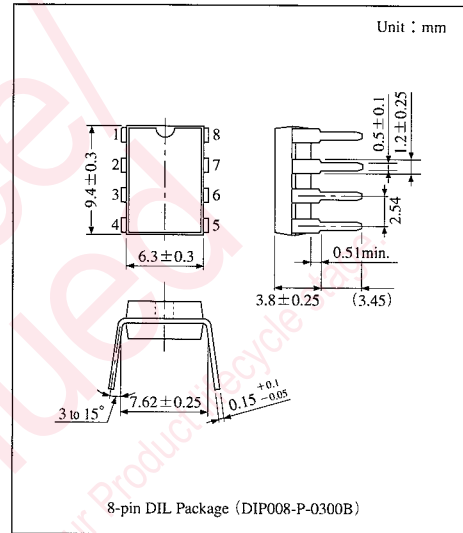
## Tone Ringer

### Overview

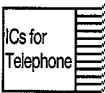
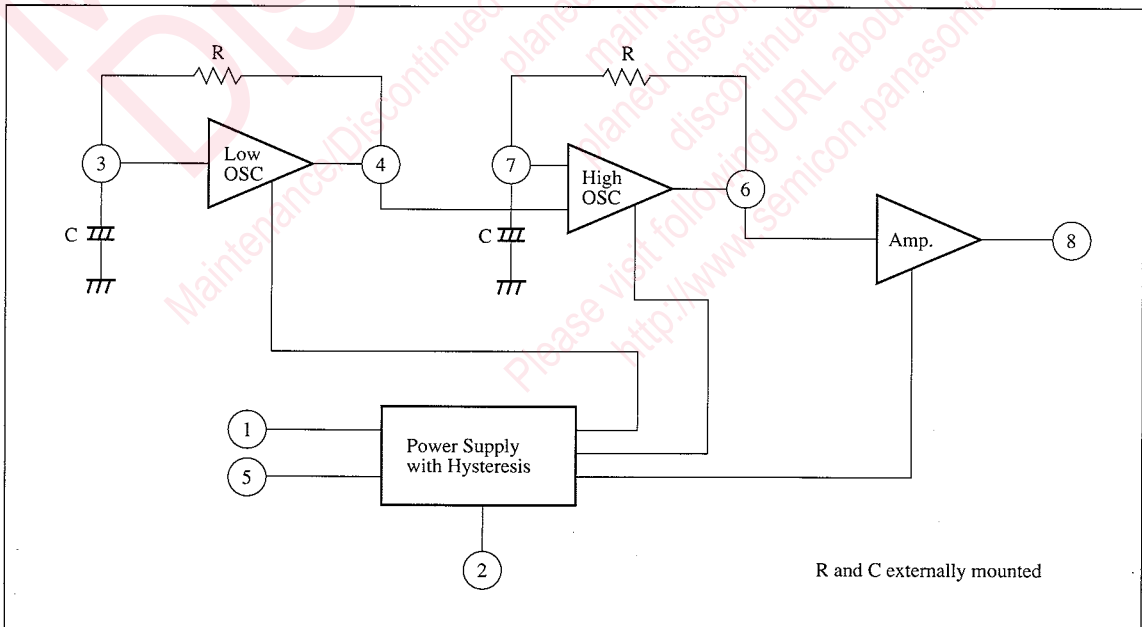
The AN6172 is an integrated circuit designed for telephone set and generates a call tone for telephone set.

### Features

- Low current operation
  - Adjustable, three-frequency tone
  - Built-in hysteresis
- Characteristic for positive switch-ON



### Block Diagram



**Pin Descriptions**

Pin No.	Pin name
1	V <sub>CC</sub>
2	R <sub>h</sub>
3	OSC
4	OSC
5	GND
6	OSC
7	OSC
8	V <sub>O</sub>

**Absolute Maximum Ratings (Ta=25°C)**

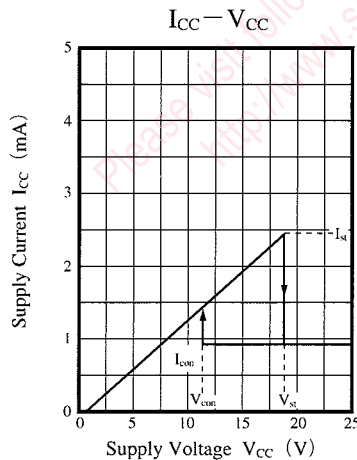
Parameter	Symbol	Rating	Unit
Supply voltage	V <sub>CC</sub>	30	V
Supply current	I <sub>CC</sub>	—	mA
Power dissipation	P <sub>D</sub>	500	mW
Operating ambient temperature	T <sub>opr</sub>	-30 to +75	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

**Electrical Characteristics (V<sub>CC</sub>=24V, Ta=25°C)**

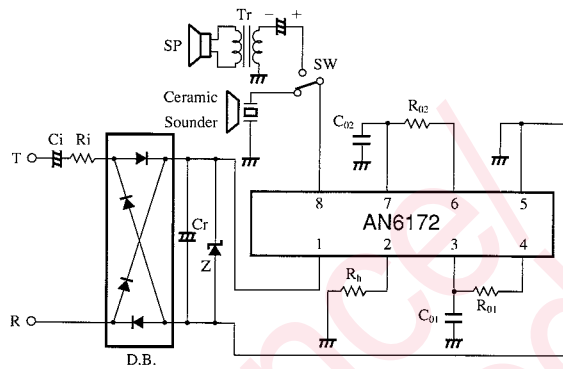
Parameter	Symbol	Condition	min	typ	max	Unit
Rumbling starting supply voltage	V <sub>st</sub> *1	R <sub>h</sub> =36kΩ	17.5	19.5	21.5	V
Rumbling continuous supply voltage	V <sub>con</sub> *1	R <sub>h</sub> =36kΩ	9.0	11.0	13.0	V
Rumbling starting current consumption	I <sub>st</sub> *1	R <sub>h</sub> =36kΩ	1.4	2.4	3.5	mA
Rumbling continuous current consumption	I <sub>con</sub> *1	R <sub>h</sub> =36kΩ	0.4	0.75	1.25	mA
Output frequency (1)	f <sub>w</sub> *2		13	14	15	Hz
Output frequency (2)	f <sub>1</sub> *3		967	1040	1113	Hz
Output frequency (3)	f <sub>2</sub> *4		1204	1295	1386	Hz
Output voltage H level	V <sub>OH</sub>	I <sub>8</sub> =-10mA	20	—	—	V
Output voltage L level	V <sub>OL</sub>	I <sub>8</sub> =+10mA	—	—	2.0	V

\*1 Refer to the characteristic curve. \*2  $f_w \approx 0.697 / (C_{01} \cdot R_{01})$  \*3  $f_1 \approx 0.634 / (C_{02} \cdot R_{02})$  \*4  $f_2 \approx 1.24 + f_1$

**Characteristics Curve**



### ■ Application Circuit



Parts name	Symbol	Recommended parts
Input capacitance	$C_i$	Matsushita 0.9 - 250 ( $0.9 \mu\text{F}$ ), 474K - 250
Input resistance	$R_i$	2.2k $\Omega$
Diode bridge	D.B.	.
Capacitance	$C_r$	15 $\mu\text{F}$ /35V
Zener diode	Z	Matsushita MA1300L (27V)
Rumbling starting adjust pin	$R_h$	36k $\Omega$
Oscillation resistance	$R_{01}$	110k $\Omega$
Oscillation resistance	$R_{02}$	130k $\Omega$
Oscillation capacitance	$C_{01}$	0.47 $\mu\text{F}$
Oscillation capacitance	$C_{02}$	Polyester 4700 $\mu\text{F}$
Ceramic sounder		Matsushita EFB-RR
		Matsushita EFB-RW
Speaker	SP	Matsushita EAS-6P32S (8 $\Omega$ )
Transformer	Tr	8 $\Omega$ : 2k $\Omega$

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