

AN6172

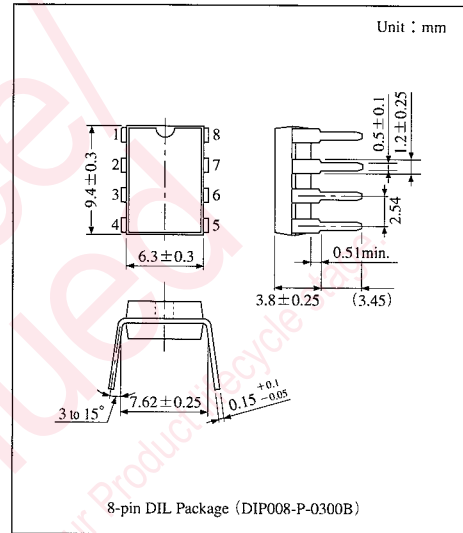
Tone Ringer

Overview

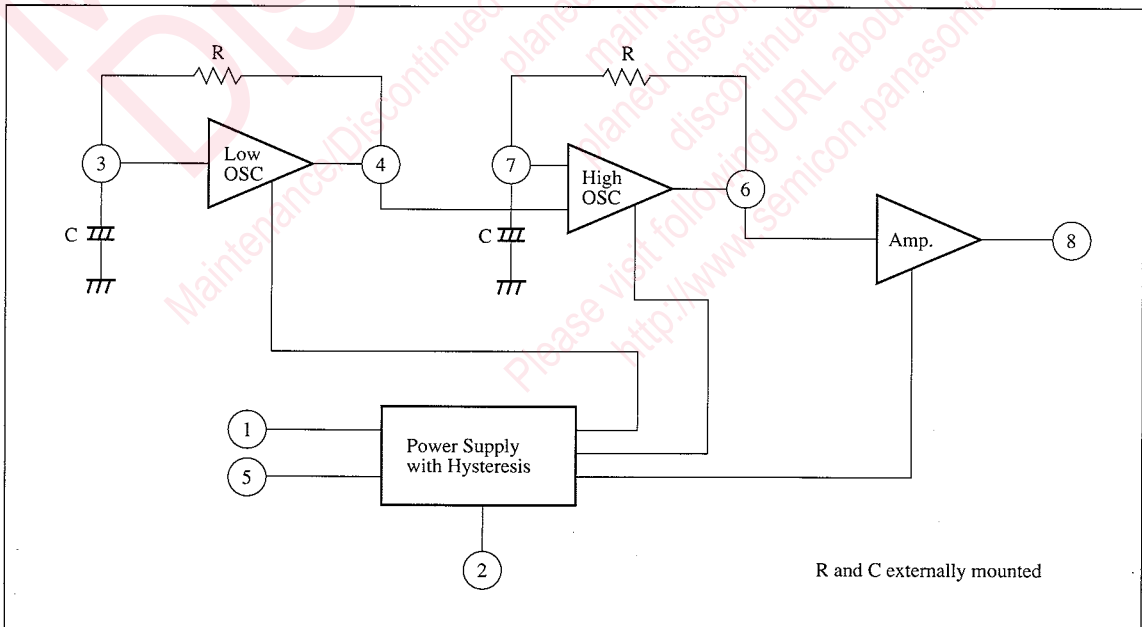
The AN6172 is an integrated circuit designed for telephone set and generates a call tone for telephone set.

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 _{CC}
2	R _h
3	OSC
4	OSC
5	GND
6	OSC
7	OSC
8	V _O

Absolute Maximum Ratings (Ta=25°C)

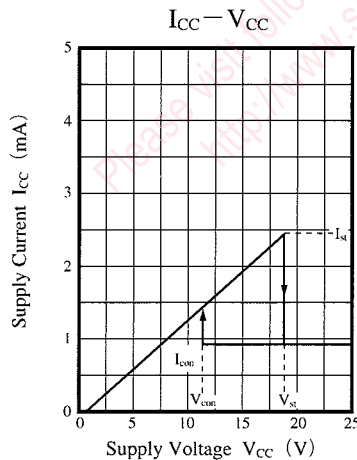
Parameter	Symbol	Rating	Unit
Supply voltage	V _{CC}	30	V
Supply current	I _{CC}	—	mA
Power dissipation	P _D	500	mW
Operating ambient temperature	T _{opr}	-30 to +75	°C
Storage temperature	T _{stg}	-55 to +150	°C

Electrical Characteristics (V_{CC}=24V, Ta=25°C)

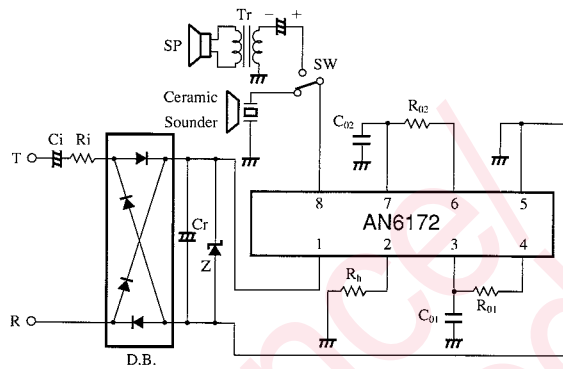
Parameter	Symbol	Condition	min	typ	max	Unit
Rumbling starting supply voltage	V _{st} *1	R _h =36kΩ	17.5	19.5	21.5	V
Rumbling continuous supply voltage	V _{con} *1	R _h =36kΩ	9.0	11.0	13.0	V
Rumbling starting current consumption	I _{st} *1	R _h =36kΩ	1.4	2.4	3.5	mA
Rumbling continuous current consumption	I _{con} *1	R _h =36kΩ	0.4	0.75	1.25	mA
Output frequency (1)	f _w *2		13	14	15	Hz
Output frequency (2)	f ₁ *3		967	1040	1113	Hz
Output frequency (3)	f ₂ *4		1204	1295	1386	Hz
Output voltage H level	V _{OH}	I ₈ =-10mA	20	—	—	V
Output voltage L level	V _{OL}	I ₈ =+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 Ω
Diode bridge	D.B.	.
Capacitance	C_r	15 μF /35V
Zener diode	Z	Matsushita MA1300L (27V)
Rumbling starting adjust pin	R_h	36k Ω
Oscillation resistance	R_{01}	110k Ω
Oscillation resistance	R_{02}	130k Ω
Oscillation capacitance	C_{01}	0.47 μF
Oscillation capacitance	C_{02}	Polyester 4700 μF
Ceramic sounder		Matsushita EFB-RR
		Matsushita EFB-RW
Speaker	SP	Matsushita EAS-6P32S (8 Ω)
Transformer	Tr	8 Ω : 2k Ω

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