AN6170, AN6170S

Tone Ringers

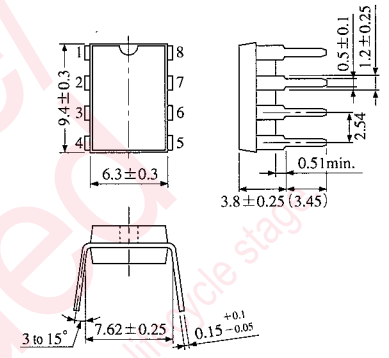
■ Overview

The AN6170 and the AN6170S are integrated circuis designed for telephone set and generates a call tone for telephone set.

■ Features

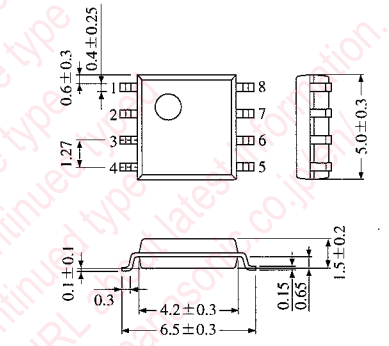
- Low current operation
- Adjustable, three-frequency tone
- Since the threshold circuit is incorporated, it is free from resonance.
- Resistance of pin 2 allows the resonance start current to be variable.

AN6170 Unit : mm



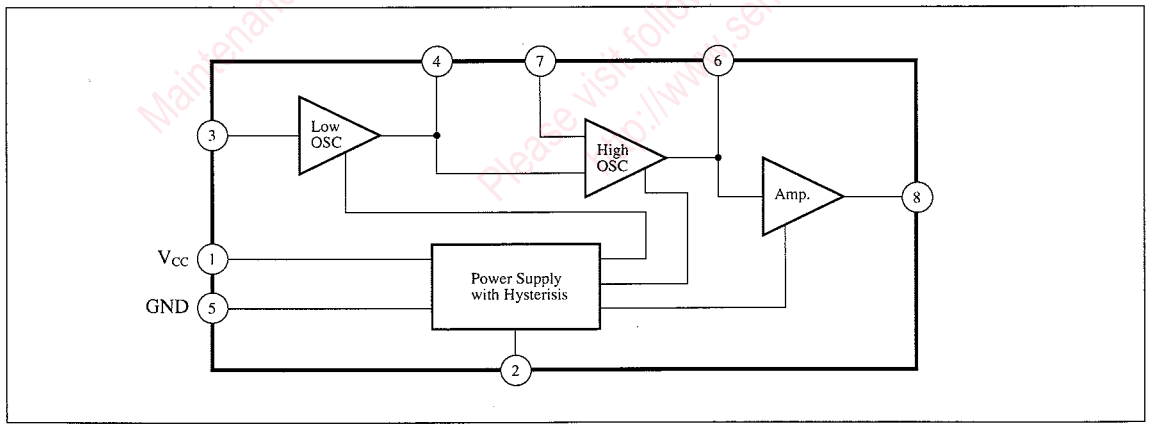
8-pin DIL Plastic Package (DIP008-P-03000B)

AN6170S Unit : mm



8-Lead PANAELAT Plastic Package (SOP008-P-0225)

■ Block Diagram



Absolute Maximum Ratings (Ta=25℃)

Parameter		Symbol	Rating	Unit
Supply voltage		V_{CC}	30	V
Supply current		I_{CC}	— *1	mA
Power dissipation	AN6170	P_D	500	mW
	AN6170S		170	
Operating ambient temperature		T_{opr}	−30 to +75	℃
Storage temperature	AN6170	T_{stg}	−55 to +150	℃
	AN6170S		−55 to +125	

*1 $P_D > V_{CC} \times I_{CC}$

Recommended Operating Range (Ta=25℃)

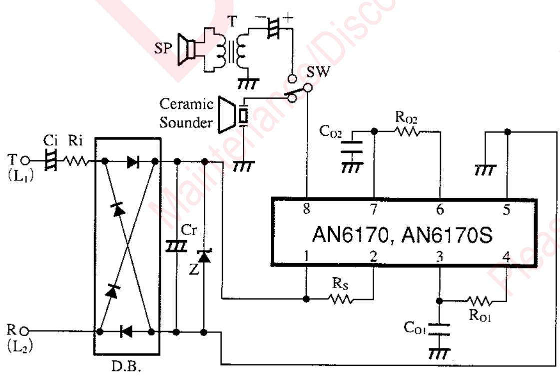
Parameter	Symbol	Range
Operating supply voltage range	V_{CC}	8 to 30V

Electrical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Rumbling starting supply voltage *1	V_{st}	R_S=7.5kΩ	14.5	16.5	18.5	V
Rumbling continuous supply voltage *1	V_{con}	R_S=7.5kΩ	7.5	9.5	11.5	V
Rumbling starting current consumption *1	I_{st}	R_S=7.5kΩ	1.5	2.4	3.5	mA
Rumbling continuous current consumption *1	I_{con}	R_S=7.5kΩ	0.4	0.75	1.15	mA
Output frequency (1) *2	f_W		13	14	15	Hz
Output frequency (2) *3	f_1		967	1040	1113	Hz
Output frequency (3) *4	f_2		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	V

*1 Refer to the characteristic. *2 $f_W \fallingdotseq 0.697/(C_{O1} \cdot R_{O1})$. *3 $f_1 \fallingdotseq 0.634/(C_{O2} \cdot R_{O2})$. *4 $f_2 \fallingdotseq 1.24 \cdot f_1$

Application Circuit



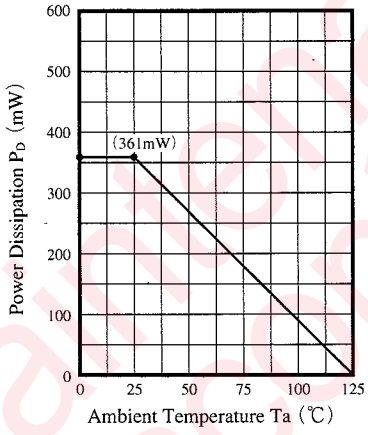
Parts name	Symbol	Recommended parts
Input capacitance	C_i	Matsushita 0.9−250 (0.9μF). 474K−250
Input resistance	R_i	2.2kΩ
Diode bridge	D.B.	―――
Capacitance	C_r	15μF/35V
Zener diode	Z	Matsushita MA1300L (27V)
Short-circuit resistance	R_S	7.5kΩ
Oscillation resistance	R_{O1}	110kΩ
Oscillation resistance	R_{O2}	130kΩ
Oscillation capacitance	C_{O1}	0.47μF
Oscillation capacitance	C_{O2}	Poluester 4700pF
Ceramic sounder	—	Matsushita EFB−RR
		Matsushita EFB−RW
Speaker	SP	Matsushita EAS−6P32S (8Ω)
Transformer	T	8Ω : 2kΩ

Pin Descriptions

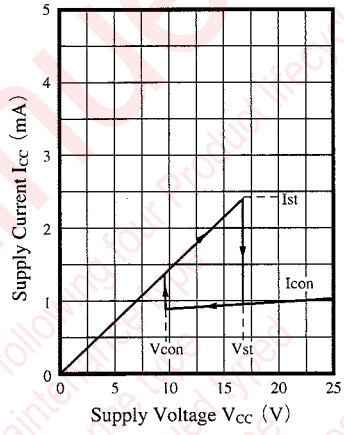
Pin No.	Pin name
1	V_{CC}
2	R_S
3	OSC
4	OSC
5	GND
6	OSC
7	OSC
8	V_O

Characteristics Curve

$P_D - Ta$ (AN6170S)



$I_{CC} - V_{CC}$



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