

AN6170, AN6170S

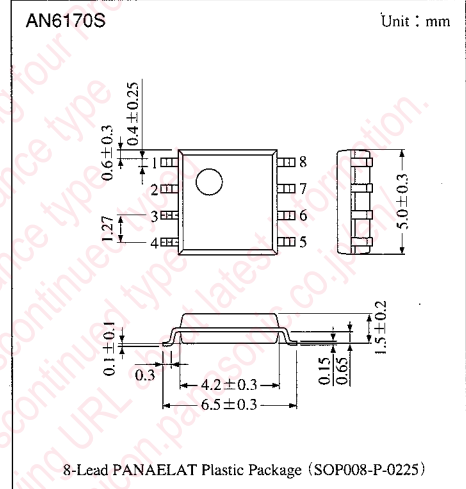
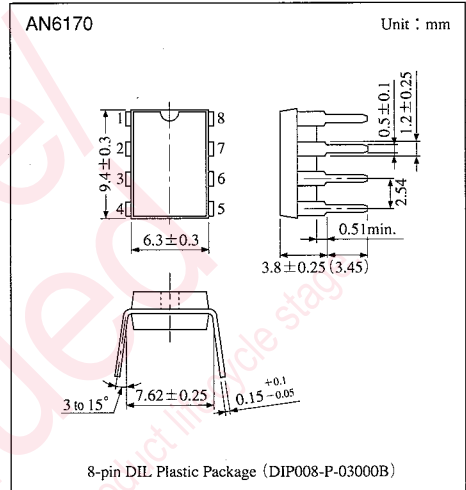
Tone Ringers

Overview

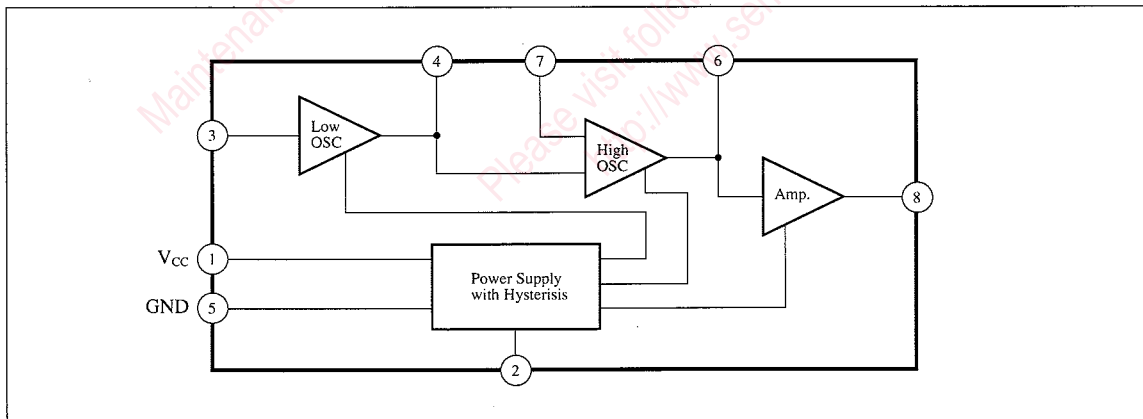
The AN6170 and the AN6170S are integrated circuits designed for telephone set and generates a call tone for telephone set.

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.



Block Diagram



■ Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	30	V
Supply current	I_{CC}	— *1	mA
Power dissipation	AN6170	P_D	mW
	AN6170S		
Operating ambient temperature	T_{opr}	-30 to +75	$^\circ\text{C}$
Storage temperature	AN6170	T_{stg}	$^\circ\text{C}$
	AN6170S		
		-55 to +125	

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

■ Recommended Operating Range ($T_a=25^\circ\text{C}$)

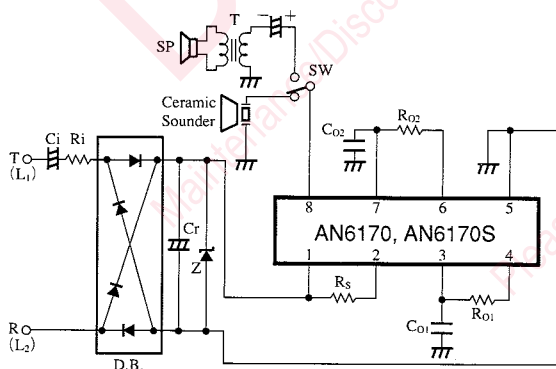
Parameter	Symbol	Range
Operating supply voltage range	V_{CC}	8 to 30V

■ Electrical Characteristics ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Condition	min	typ	max	Unit
Rumbling starting supply voltage *1	V_{st}	$R_S = 7.5\text{k}\Omega$	14.5	16.5	18.5	V
Rumbling continuous supply voltage *1	V_{con}	$R_S = 7.5\text{k}\Omega$	7.5	9.5	11.5	V
Rumbling starting current consumption *1	I_{st}	$R_S = 7.5\text{k}\Omega$	1.5	2.4	3.5	mA
Rumbling continuous current consumption *1	I_{con}	$R_S = 7.5\text{k}\Omega$	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}	$I_S = -10\text{mA}$	20	—	—	V
Output voltage L level	V_{OL}	$I_S = +10\text{mA}$	—	—	2	V

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

■ Application Circuit



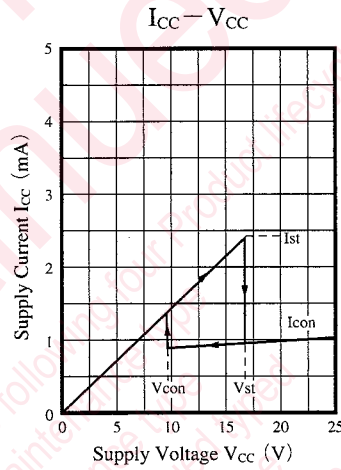
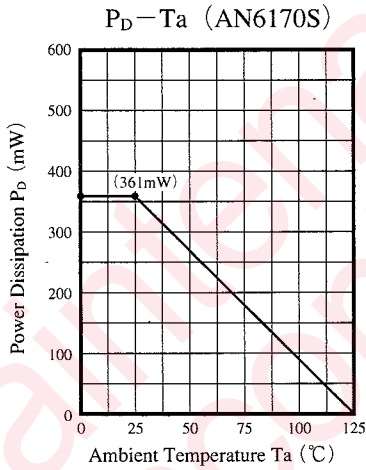
Parts name	Symbol	Recommended parts
Input capacitance	C_1	Matsushita 0.9-250 (0.9 μF), 474K-250
Input resistance	R_1	2.2k Ω
Diode bridge	D.B.	—
Capacitance	C_r	15 $\mu\text{F}/35\text{V}$
Zener diode	Z	Matsushita MA1300L (27V)
Short-circuit resistance	R_S	7.5k Ω
Oscillation resistance	R_{O1}	110k Ω
Oscillation resistance	R_{O2}	130k Ω
Oscillation capacitance	C_{O1}	0.47 μF
Oscillation capacitance	C_{O2}	Poluester 4700pF
Ceramic sounder	—	Matsushita EFB-RR
		Matsushita EFB-RW
Speaker	SP	Matsushita EAS-6P32S (8 Ω)
Transformer	T	8 Ω : 2k Ω

ICs for Telephone

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



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