

AN6170, AN6170S

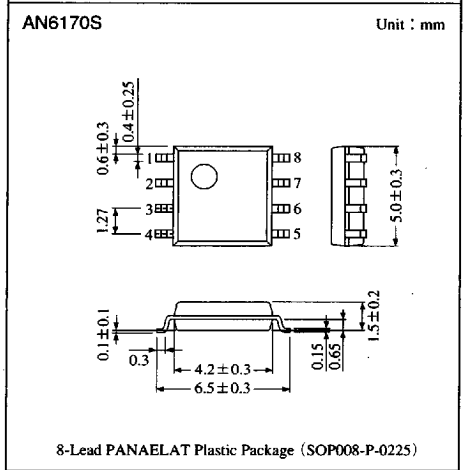
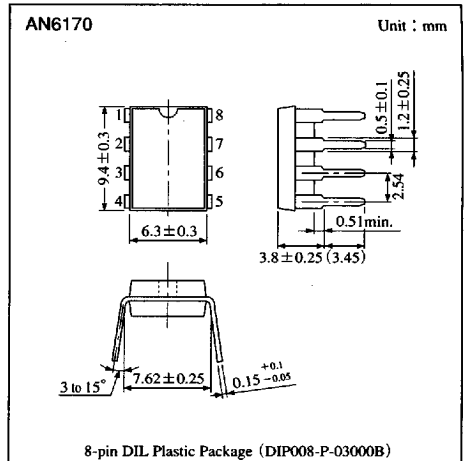
Tone Ringers

Overview

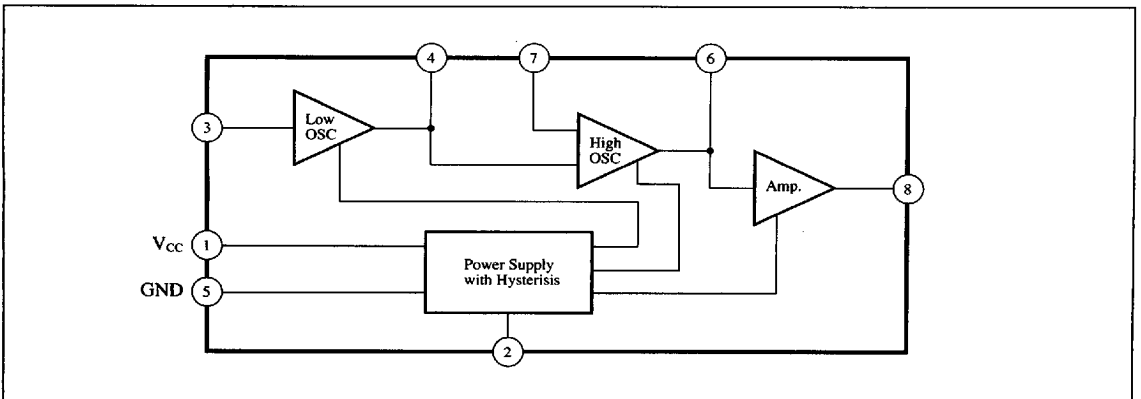
The AN6170 and the AN6170S are integrated circuits designed for telephone set and generates a call tone for telephone set.

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



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■ Absolute Maximum Ratings (Ta=25°C)

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	°C
Storage temperature	AN6170	T _{stg}	-55 to +150	°C
	AN6170S		-55 to +125	

*1 P_D > V_{CC} × I_{CC}

■ Recommended Operating Range (Ta=25°C)

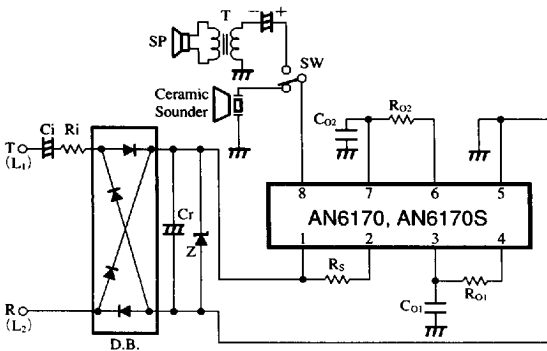
Parameter	Symbol	Range
Operating supply voltage range	V _{CC}	8 to 30V

■ Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	min	typ	max	Unit
Rumbling starting supply voltage *1	V _{st}	R _S = 7.5k Ω	14.5	16.5	18.5	V
Rumbling continuous supply voltage *1	V _{con}	R _S = 7.5k Ω	7.5	9.5	11.5	V
Rumbling starting current consumption *1	I _{st}	R _S = 7.5k Ω	1.5	2.4	3.5	mA
Rumbling continuous current consumption *1	I _{con}	R _S = 7.5k Ω	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 = -10mA	20	—	—	V
Output voltage L level	V _{OL}	I _S = +10mA	—	—	2	V

*1 Refer to the characteristic. *2 f_w = 0.697 / (C_{O1} · R_{O1}). *3 f₁ = 0.634 / (C_{O2} · R_{O2}). *4 f₂ = 1.24 · f₁

■ Application Circuit



Parts name	Symbol	Recommended parts
Input capacitance	C _i	Matsushita 0.9-250 (0.9 μF), 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)
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

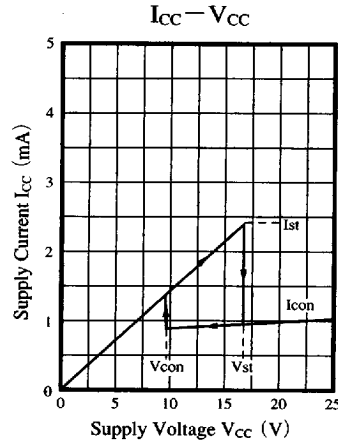
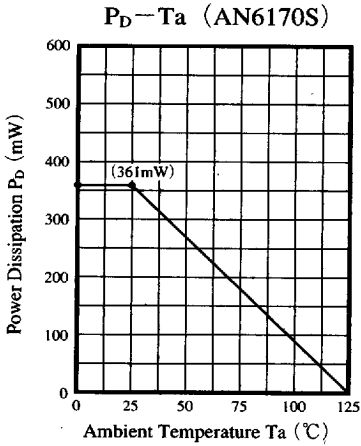
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Pin Descriptions

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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