

AN6170, AN6170S

Tone Ringers

Overview

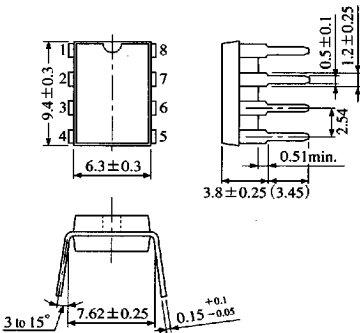
The AN6170 and the AN6170S are integrated circuits designed for telephone set and generates a call tone for telephone set.

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.

AN6170

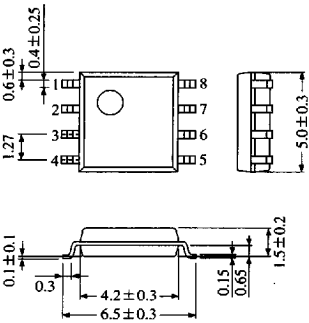
Unit : mm



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

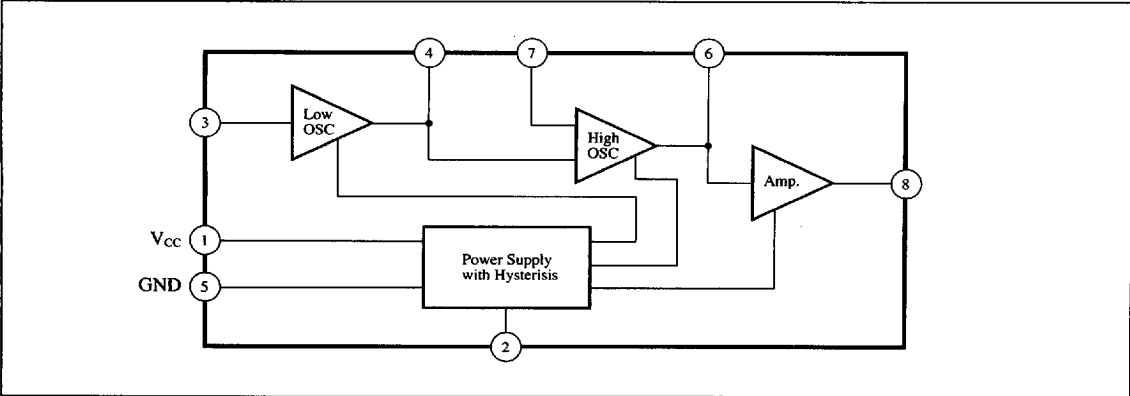
AN6170S

Unit : mm



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

Block Diagram



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■ 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℃)

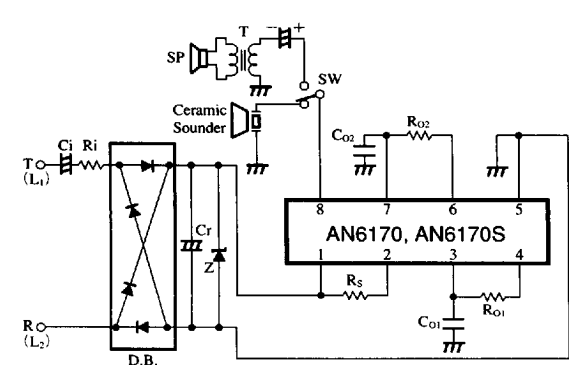
Parameter	Symbol	Range
Operating supply voltage range	V _{CC}	8 to 30V

■ 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 _S = −10mA	20	—	—	V
Output voltage L level	V _{OL}	I _S = +10mA	—	—	2	V

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

■ 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

ICs for Telephone

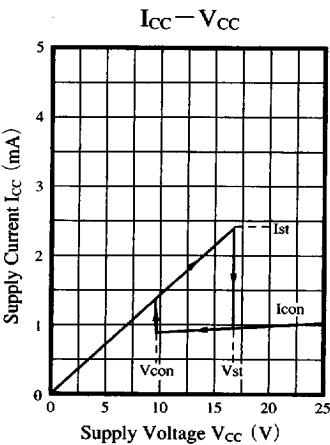
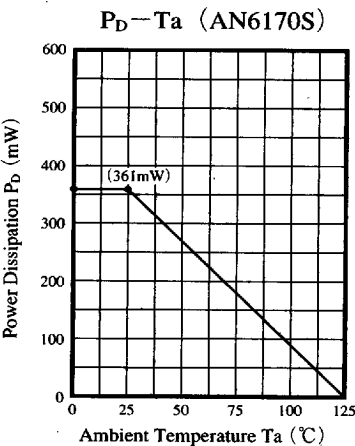
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Pin Descriptions

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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