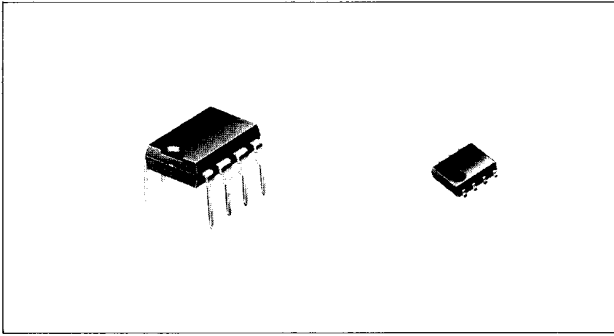# BA6564A BA6564AF
BA6565A BA6565AF

The BA6564A, BA6564AF, BA6565A, and BA6565AF are monolithic tone ringers. The devices detect incoming line current and generate ring tone. The ringing tone frequency is variable using external resistors and capacitors. The output load is selectable from speaker, piezoelectric buzzer, etc.

Features
1. Low power design.
2. Variable ringing tone frequency.
3. Internal power supply with hysteresis eliminates malfunction from power-line noise or resonance from the dial.
4. Minimal external component requirement.
5. Variable operation starting voltage (BA6564A/BA6564AF).
6. Variable operation starting current (BA6565A/BA6565AF).

Applications
Telephone handsets
Telephone-related equipment
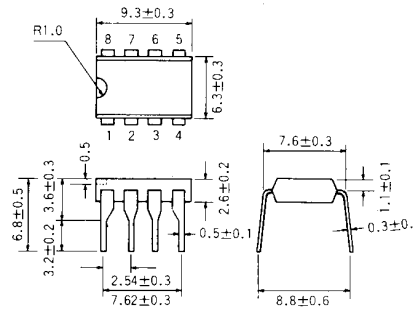Ringing signal generators, etc.

Dimensions (Unit: mm)

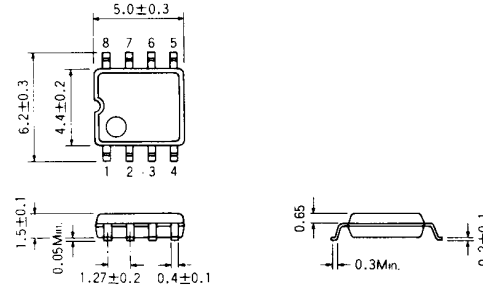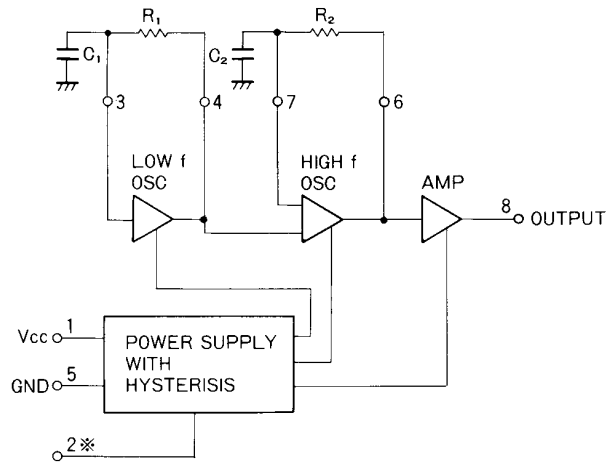**BA6564A/BA6565A**

Fig. 1

BA6564AF/BA6565AF

Fig. 2

Block Diagram

※ 2pin ; TRIGGER IN (BA6564A)
RSL (BA6565A)

Fig. 3

Recommended Operating Conditions (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Supply voltage	V_{CC}	—	24	29	V	—

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Starting supply voltage	V_{si}	17	19.48	21	V	*1
Continuous operation supply voltage	V_{SUS}	104	11.95	13.5	V	*2
Starting current consumption	I_{si}	0.8	1.428	2.6	mA	Unloaded: $V_{CC}=V_{SUS}$
Continuous operation current consumption	I_{SUS}	0.45	0.870	—	mA	Unloaded: $V_{CC}=V_{SUS}$
Oscillation frequency*3	f_L	9	10.156	11	Hz	$R_1=165k\Omega\pm1\%$, $C_1=0.47\mu F\pm5\%$
Oscillation frequency	f_{H_1}	558	625.8	682	Hz	$R_2=191k\Omega\pm1\%$, $C_2=0.0068\mu F\pm5\%$
Oscillation frequency	f_{H_2}	705	788.2	861	Hz	

*1 Necessary supply voltage for tone-ringer starting oscillation
*2 Necessary supply voltage for tone-ringer continuous oscillation
*3 Oscillation frequency depends on the following formulas.

$$f_L=1/(1.25 \cdot C_1 \cdot R_1)(Hz)$$
$$f_{H_1}=1/(1.25 \cdot C_2 \cdot R_2)(Hz)$$
$$f_{H_2}=1.27 \cdot f_{H_1}(Hz)$$

Application Examples

$R_1=165k\Omega$
$C_1=0.47\mu F$
$R_2=195k\Omega$
$C_2=0.0068\mu F$
$f_L=10Hz$
$f_{H_1}=626Hz$
$f_{H_2}=788Hz$
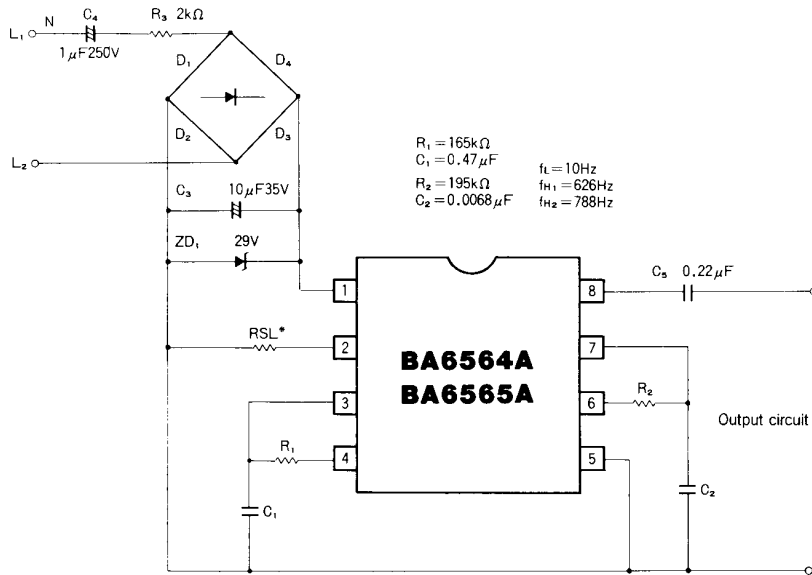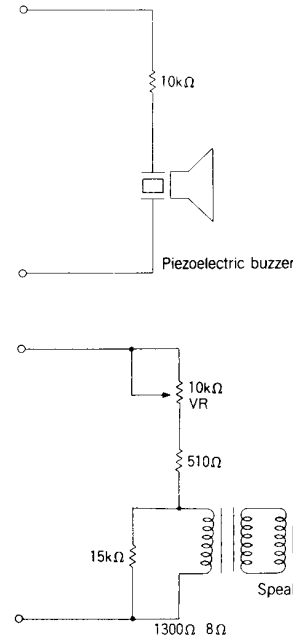
BA6564A
BA6565A

Fig. 4

RSL allows variation of the operation starting current for the BA6565A (recommended value: 6.2 to 36 kΩ).
It also allows variation of the operation starting voltage for the BA6564A (recommended value: 200 k to 1 MΩ).