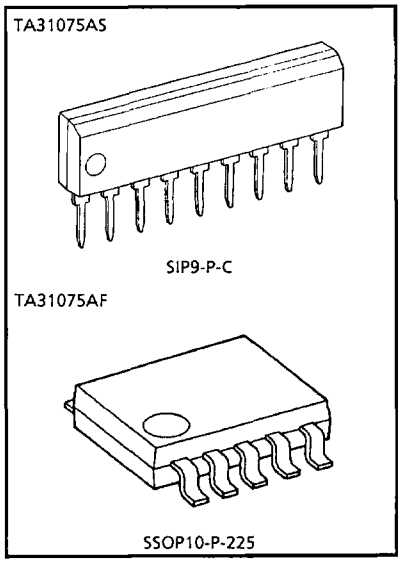
TONE RINGER FOR TELEPHONE

FEATURES

- Since output circuit is of differential output, output sound pressure level can be made high.
- Initiation supply voltage and sustaining supply voltage are low.
- Current consumption is small. (at no-load)
- Initiation current consumption can be varied with external resistance.
- Oscillation frequency can be varied with external parts.
- Package is small. (Slim SIP-9 pin, Flat 10 pin)
- External Parts are few.

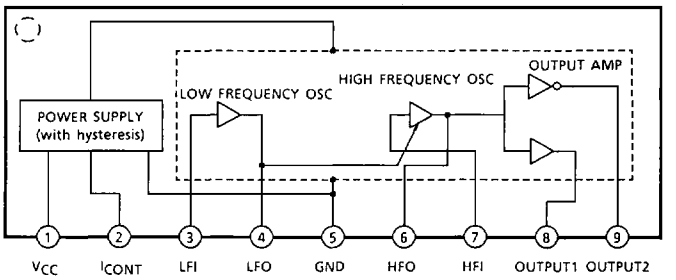
TA31075AS



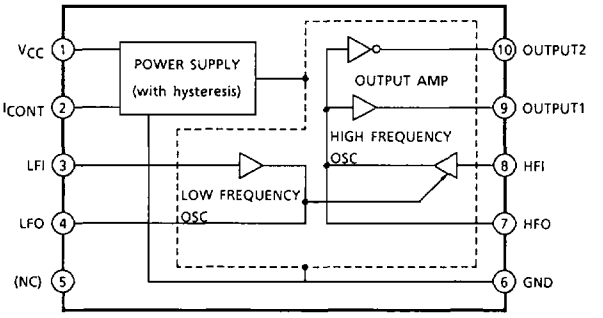
Weight SIP9-P-C : 0.72g (Typ.)
SSOP10-P-225 : 0.09g (Typ.)

BLOCK DIAGRAM

TA31075AS



TA31075AF



OPERATING INSTRUCTION

1. Initiation supply voltage (V_{si}), sustaining supply voltage (V_{sus}), and current consumption (I_{CC}).

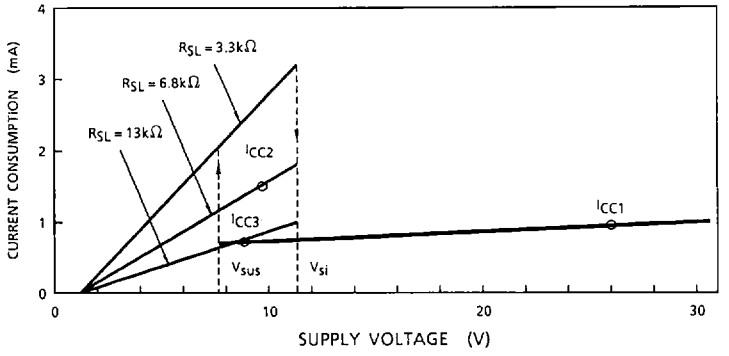


Fig.1

2. Method of using I_{CONT} terminal [pin 2 (2)]

In the TA31075AS, TA31075AF the initiation output consumption can be changed by using the I_{CONT} terminal. The resistor R_{SL} is connected to GND terminal [pin 5 (6)] from I_{CONT} terminal as shown in Fig.2.
Further, the initiation current consumption can be changed by changing the value of R_{SL}.

$R_{SL} \geqq 2k\Omega$

(Refer to Fig.1)

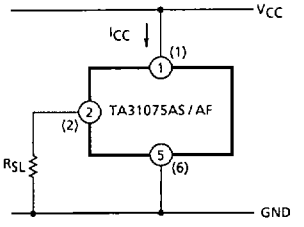


Fig.2

Terminal No. in ( ) is that of TA31075AF

3. Oscillation frequency

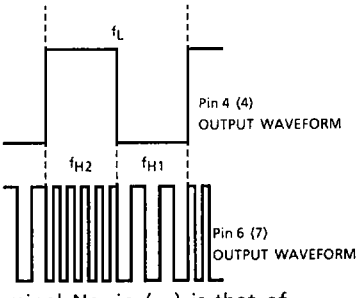
In TA31075AS, TA31075AF, two kinds of oscillation frequencies f_{H1} and f_{H2} of high frequency oscillating circuit are alternately oscillated and output through oscillation f_L of low frequency oscillating circuit.
Oscillation frequencies f_L, f_{H1} and f_{H2} can be set by C_1, C_2, R_1 and R_2 of external circuit. The standard of each oscillation frequency is as follows.
Set R_1 and R_2 at 140kΩ or over.

(1) $f_L \simeq 1 / 1.24 \cdot R_1 \cdot C_1$

(2) $f_{H1} \simeq 1 / 1.43 \cdot R_2 \cdot C_2$

(3) $f_{H2} \simeq 1.24 \cdot f_{H1}$

Frequency from Diagram



Terminal No. in ( ) is that of TA31075AF.

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Power Supply Voltage		V_{CC}	30	V
Power Dissipation	AS Type	P_D	890	mW
	AF Type		590	
Operating Temperature		T_{opr}	−30~70	°C
Storage Temperature		T_{stg}	−55~150	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

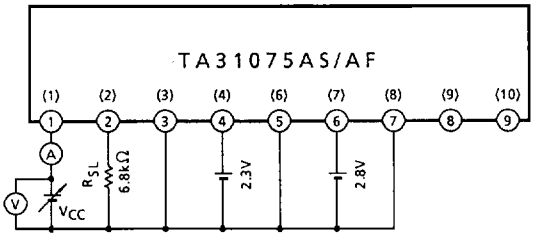
CHARACTERISTIC			SYMBOL	TEST CIR-CUIT	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Operating Voltage			V_{opr}	1	—		—	—	30	V
Initiation Supply Voltage			V_{si}	1	—		10.5	11.4	12.5	V
Sustaining Supply Voltage			V_{sus}	1	—		6.8	7.8	8.9	V
Current Consumption			I_{CC1}	1	No-Load R_{SL} = 6.8kΩ	V_{CC} = 24V	0.5	0.9	1.3	mA
			I_{CC2}	1		V_{CC} = 11V	1.15	1.45	1.65	
			I_{CC3}	1		V_{CC} = 9V *	0.35	0.75	1.1	
Oscillation Frequency			f_L	2	C_1 = 0.47μF, R_1 = 165kΩ		8.0	10.4	12.5	Hz
			f_{H1}	3	C_2 = 6800pF, R_2 = 191kΩ		430	538	640	
			f_{H2}	4			560	665	770	
Output Voltage	OUTPUT1	"H" Level	V_{OH1}	5	V_{CC} = 24V, I_{source} = −10mA		20	22.5	—	V
		"L" Level	V_{OL1}	6	V_{CC} = 24V, I_{sink} = 10mA		—	1.65	2.3	
	OUTPUT2	"H" Level	V_{OH2}	7	V_{CC} = 24V, I_{source} = −10mA		20	22.5	—	
		"L" Level	V_{OL2}	8	V_{CC} = 24V, I_{sink} = 10mA		—	1.65	2.3	

* After V_{CC} = 12.5V is impressed.

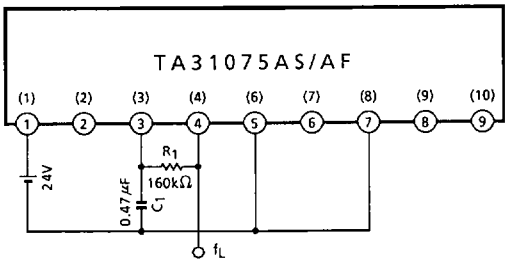
TEST CIRCUIT

Terminal No. in ( ) is that of TA31075AF.

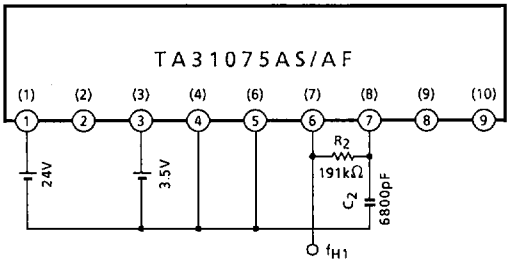
(1) V_{si}, V_{sus}, I_{CC}



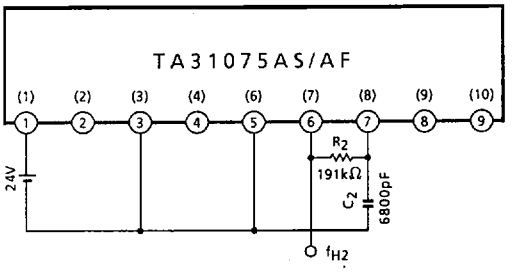
(2) f_L



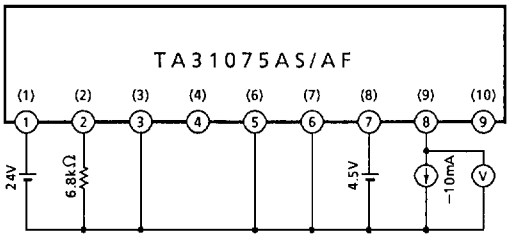
(3) f_{H1}



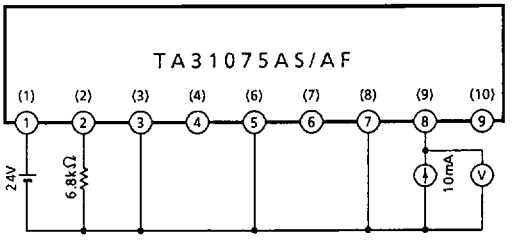
(4) f_{H2}



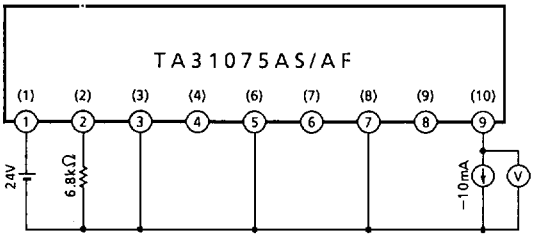
(5) V_{OH1}



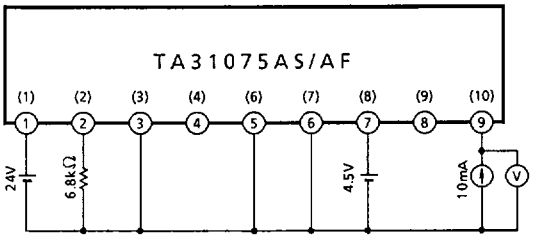
(6) V_{OL1}



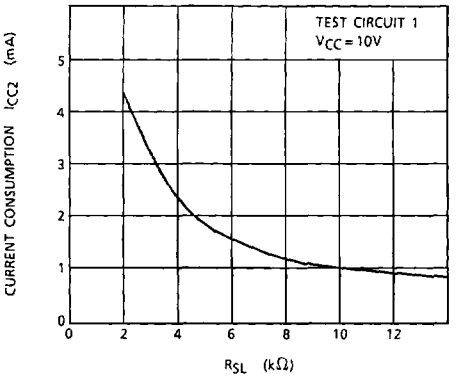
(7) V_{OH2}



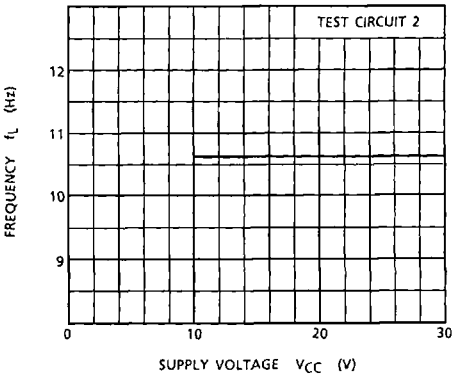
(8) V_{OL2}



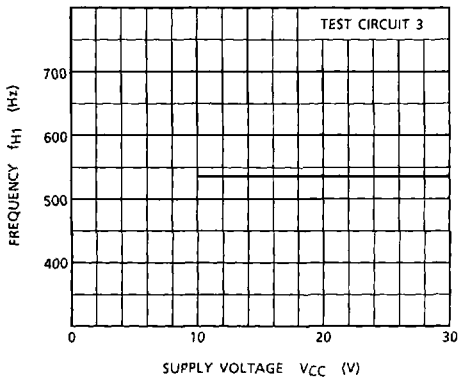
CURRENT CONSUMPTION I_{CC2} – R_{SL}



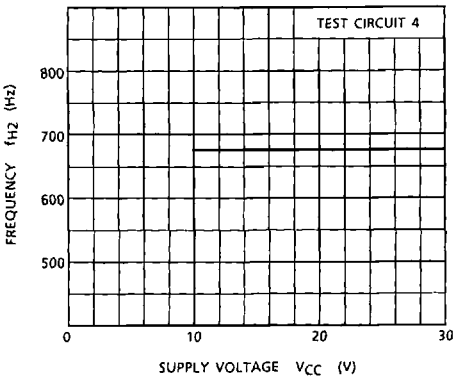
FREQUENCY f_L – SUPPLY VOLTAGE



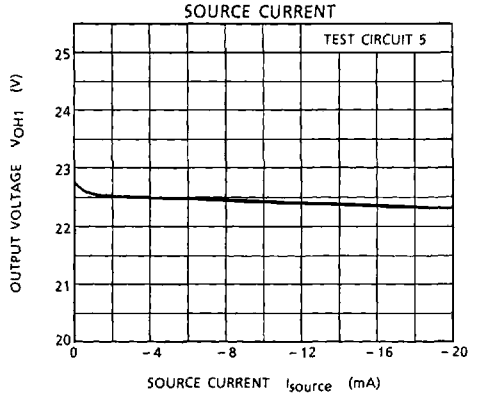
FREQUENCY f_{H1} – SUPPLY VOLTAGE



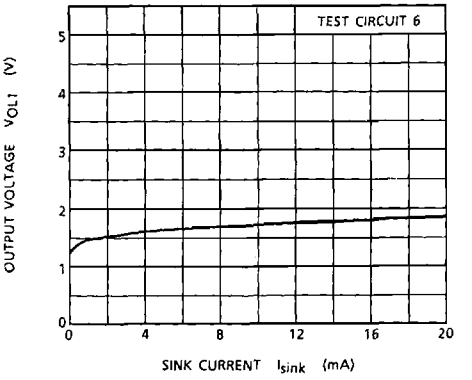
FREQUENCY f_{H2} – SUPPLY VOLTAGE



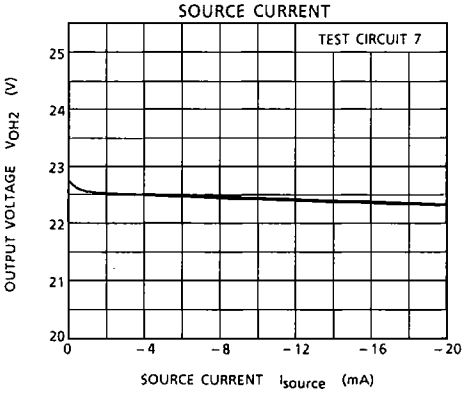
OUTPUT VOLTAGE V_{OH1} – SOURCE CURRENT



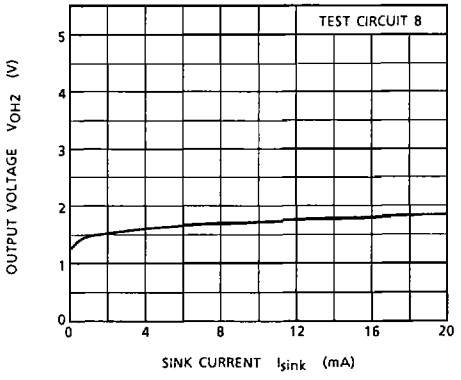
OUTPUT VOLTAGE V_{OL1} – SINK CURRENT



OUTPUT VOLTAGE V_{OH2} – SOURCE CURRENT

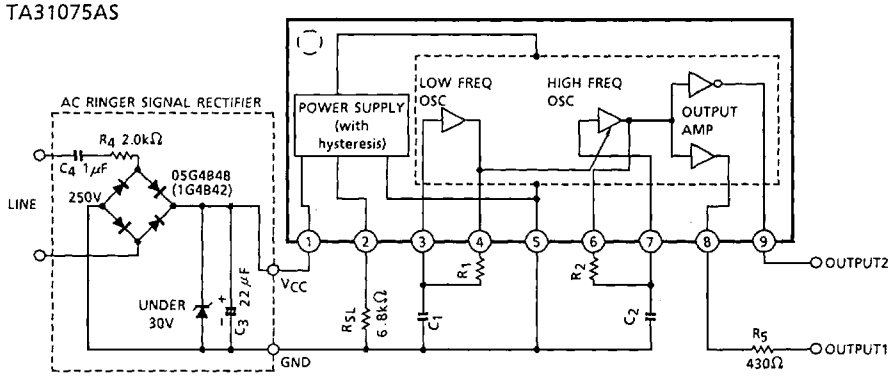


OUTPUT VOLTAGE V_{OL2} – SINK CURRENT

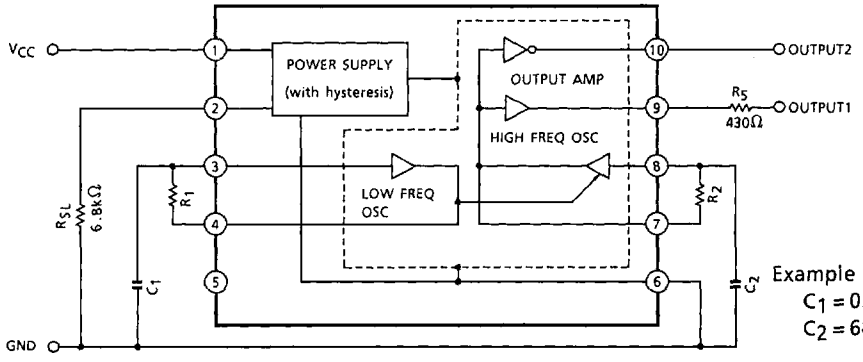


EXAMPLE OF APPLICATION CIRCUIT

TA31075AS



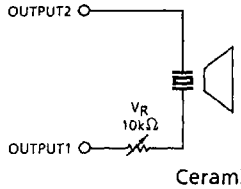
TA31075AF



Example
$C_1 = 0.47\mu F$, $R_1 = 165k\Omega$
$C_2 = 6800pF$, $R_2 = 191k\Omega$

EXAMPLE OF OUTPUT CIRCUIT

For Ceramic Sounder



Ceramic Sounder
PKM34EW-1201
MURATA MFG. CO., LTD.

For Speaker