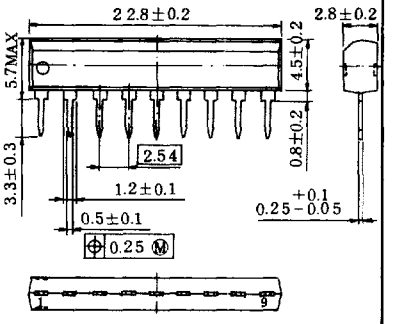
TA31075S, TA31075F

TONE RINGER (For Telephone)

- 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.

Unit in mm

TA31075S



Package width and length do not include mold protrusion.
Allowable mold protrusion is 0.15mm.

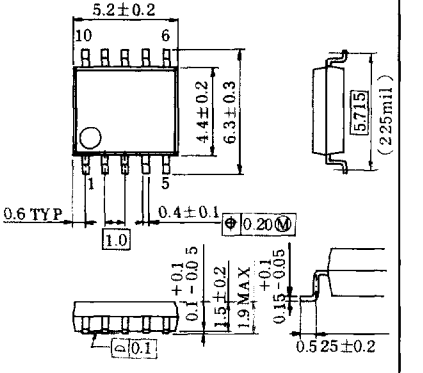
JEDEC	—
TOSHIBA	SIP9-P-C

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Power Supply Voltage		V_{CC}	30	V
Power Dissipation	S Type	P_D	890	mW
	F Type		590	
Operating Temperature		Topr	-30~75	°C
Storage Temperature		Tstg	-55~150	°C

Unit in mm

TA31075F

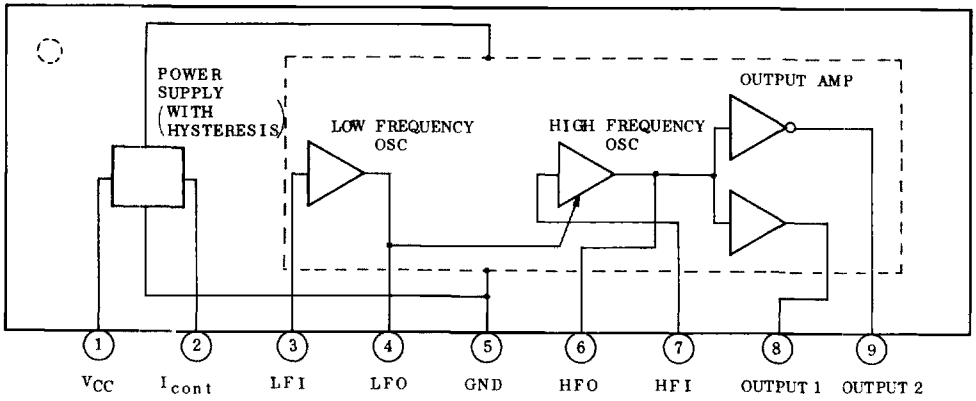


Package width and length do not include mold protrusion.
Allowable mold protrusion is 0.15mm.

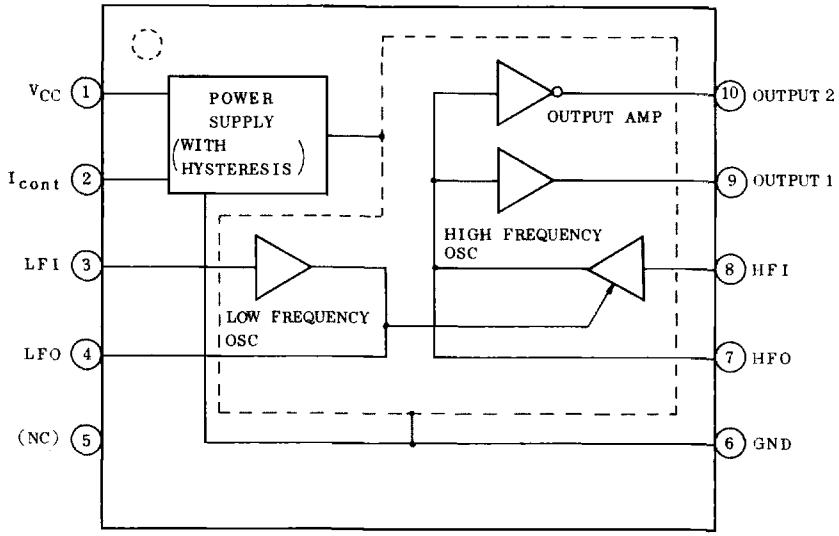
JEDEC	—
TOSHIBA	SSOP10-P-225

BLOCK DIAGRAM AND PIN CONNECTION

TA31075S



TA31075F



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	V_{CC}=24V	0.6	0.95	1.4	mA
			I_{CC2}		R_{SL}=6.8kΩ	V_{CC}=10V	1.25	1.46	1.75	
			I_{CC3}			V_{CC}=9V*	0.35	0.75	1.1	
Oscillation Frequency			f_L	2	C1=0.47μF, R1=165kΩ		8.0	10.4	12.5	Hz
			f_{H1}	3	C2=6800pF, R2=191kΩ		430	538	640	
			f_{H2}	4			560	665	770	
Output Voltage	OUTPUT 1	"H" Level	V_{OH1}	5	V_{CC}=24V, I_{source}=10mA		20.0	22.5	-	V
		"L" Level	V_{OL1}	6	V_{CC}=24V, I_{sink}=10mA		-	0.95	2.0	
	OUTPUT 2	"H" Level	V_{OH2}	7	V_{CC}=24V, I_{source}=10mA		20.0	22.5	-	
		"L" Level	V_{OL2}	8	V_{CC}=24V, I_{sink}=10mA		-	0.95	2.0	

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

1. Initiation Supply Voltage (V_{si}), Sustaining Supply Voltage (V_{SUS}), and Current Consumption (I_{CC}).

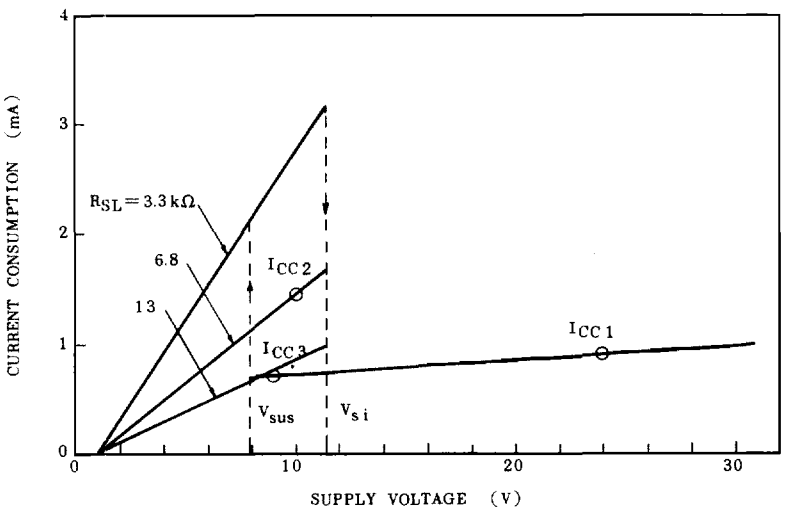


Fig. 1

2. METHOD OF USING I_{cont} terminal [② (2) PIN]

In the TA31075S/F the initiation current consumption can be changed by using the I_{cont} terminal.
The resistor R_{SL} is connected to GND terminal [⑤ (6) PIN] 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)

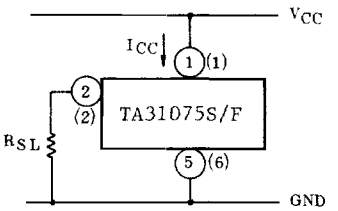


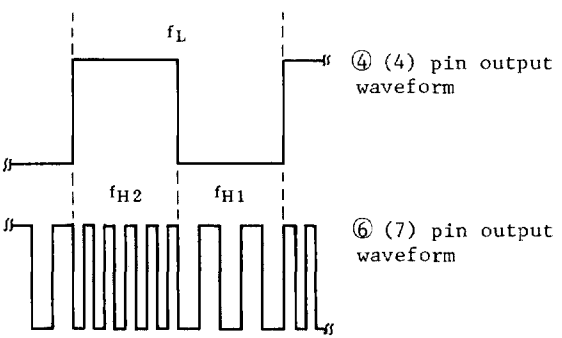
Fig. 2

3. Oscillation Frequency

In TA31075S/F, two kinds of oscillation frequencies f_{H1} and f_{H2} of high frequency oscillating circuit are alternately oscillated and output through oscillation frequency f_L of low frequency oscillating circuit.
Oscillation frequencies f_L, f_{H1} and f_{H2} can be set by C1, C2, R1 and R2 of external circuit.
The standard of each oscillation frequency is as follows.
Set R1 and R2 at 140kΩ or over.

(1) $f_L \simeq 1/1.24 \cdot R1 \cdot C1$
(2) $f_{H1} \simeq 1/1.43 \cdot R2 \cdot C2$
(3) $f_{H2} \simeq 1.24 \cdot f_{H1}$

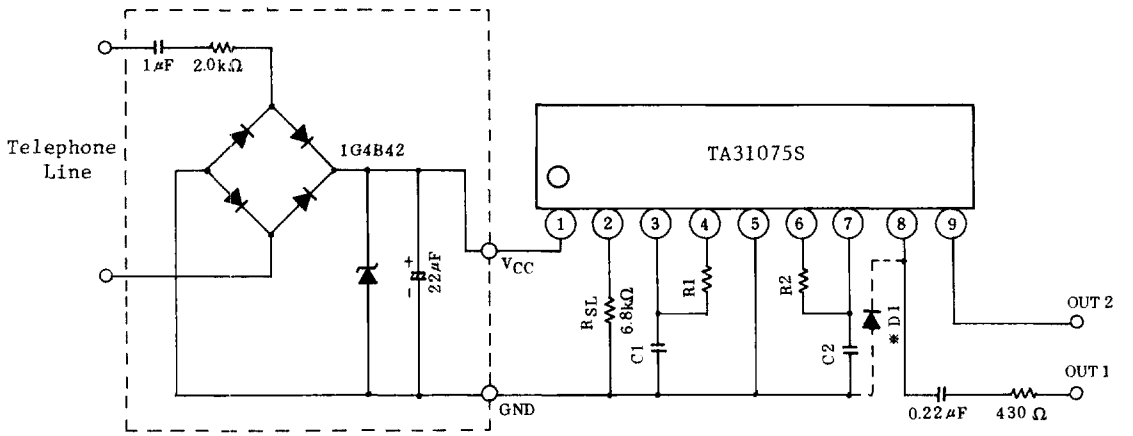
Frequency Form Diagram



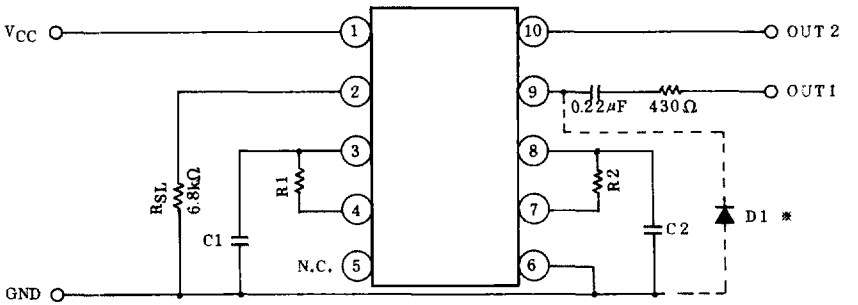
Terminal No. in ( ) is that of TA31075F.

AN EXAMPLE OF APPLICATION CIRCUIT TA31075S/F

For TA31075S



For TA31075F

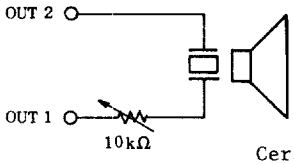


Example C1=0.47μF, R1=165kΩ
C2=6800pF, R2=191kΩ

* When unusual sound is produced by output load state, add diode D1 to ⑧ (9) pin as shown in the example of application circuit.
When output circuit is of ceramic sounder, add the diode having dielectric strength higher than that impressed to ① (1) pin V_{CC} terminal.
Terminal No. in ( ) is that of TA31075F.

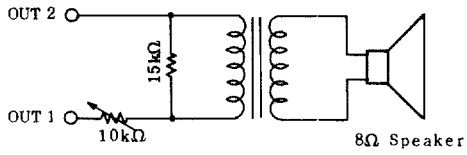
EXAMPLE OF OUTPUT CIRCUIT

For Ceramic Sounder



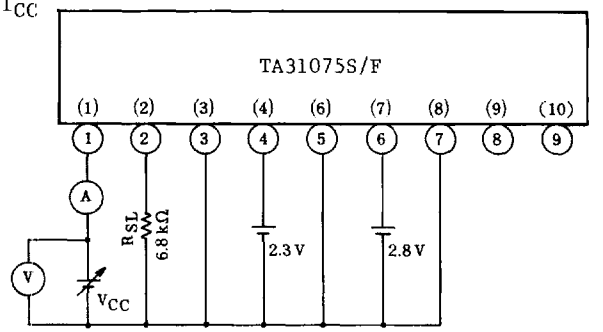
Ceramic Sounder
PKM34EW-1201
MURATA MANUFACTURING Co., Ltd.

For Speaker

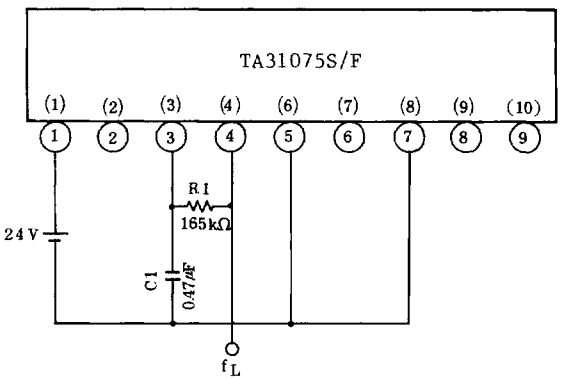


TA31075S/F TEST CIRCUIT

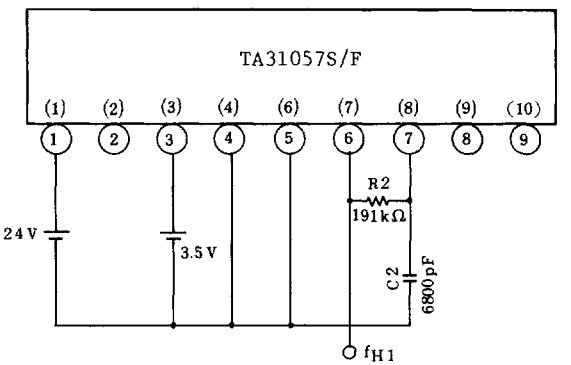
(1) V_{si}, V_{SUS}, I_{CC}



(2) f_L

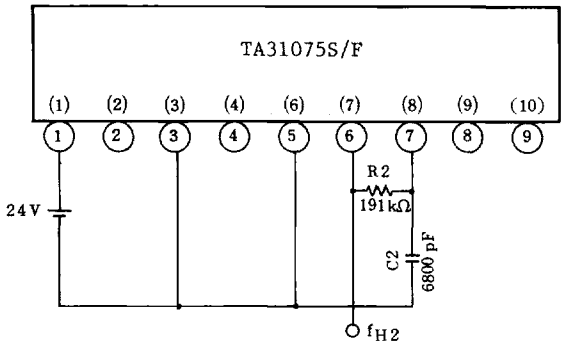


(3) f_{H1}

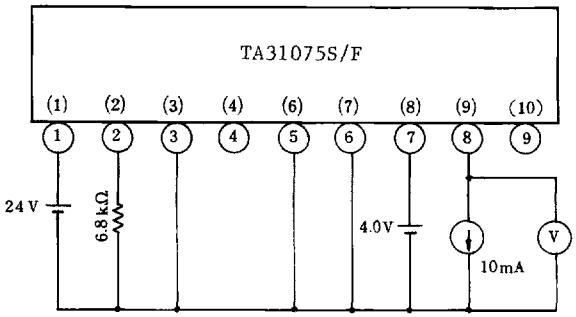


Terminal No. in ( ) is that of TA31075F.

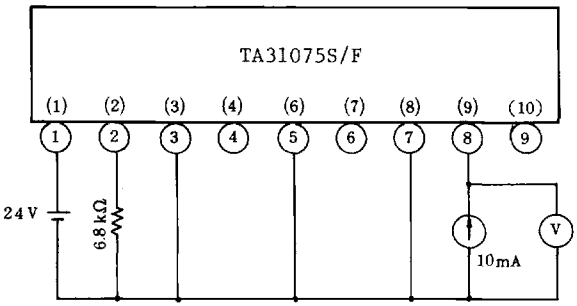
(4) f_{H2}



(5) V_{OH1}

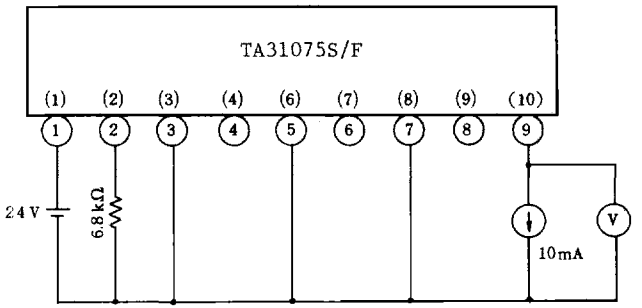


(6) V_{OL1}

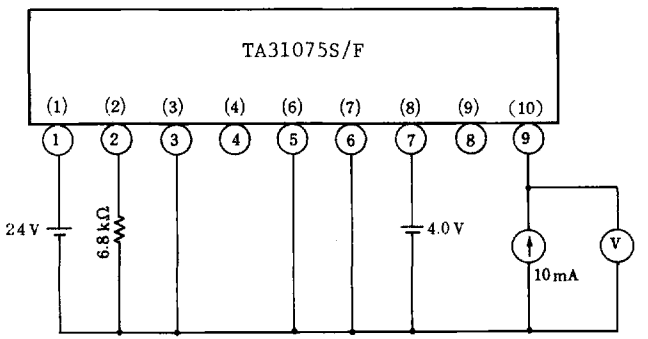


Terminal No. in ( ) is that of TA31075F.

(7) V_{OH2}

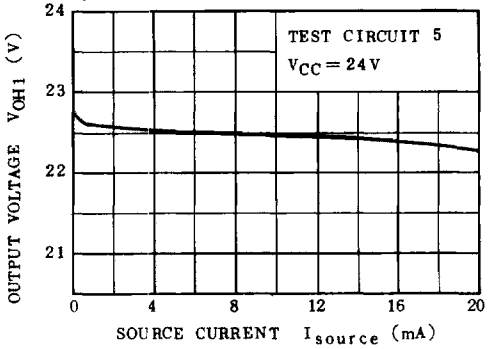


(8) V_{OL2}

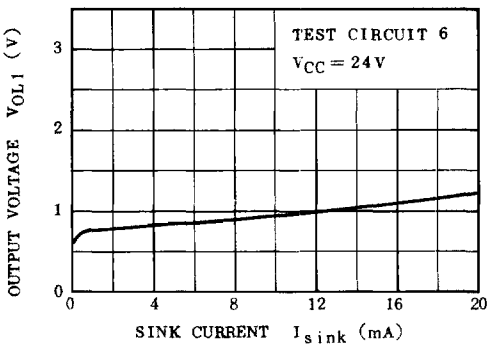


Terminal No. in ( ) is that of TA31075F.

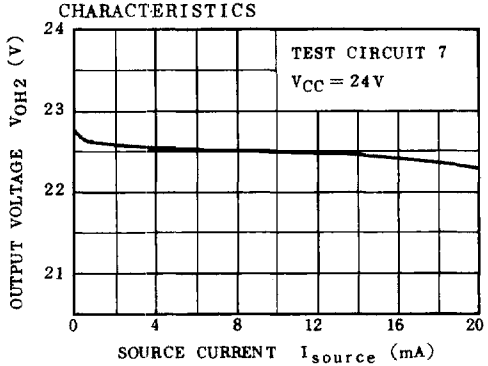
OUTPUT 1 VOLTAGE VS. SOURCE CURRENT CHARACTERISTICS



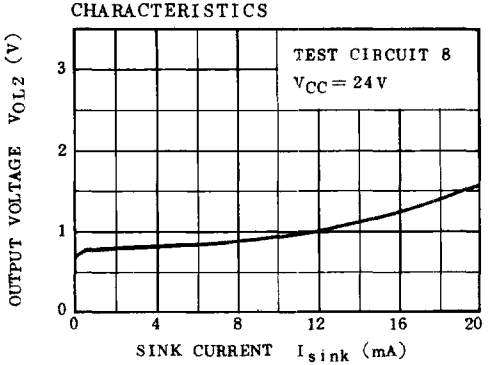
OUTPUT 1 VOLTAGE VS SINK CURRENT CHARACTERISTICS



OUTPUT 2 VOLTAGE VS. SOURCE CURRENT CHARACTERISTICS



OUTPUT 2 VOLTAGE VS. SINK CURRENT CHARACTERISTICS



INITIATION CURRENT CONSUMPTION I_{CC2} VS. R_{SL}