

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA8265K

DUAL AUDIO POWER AMPLIFIER

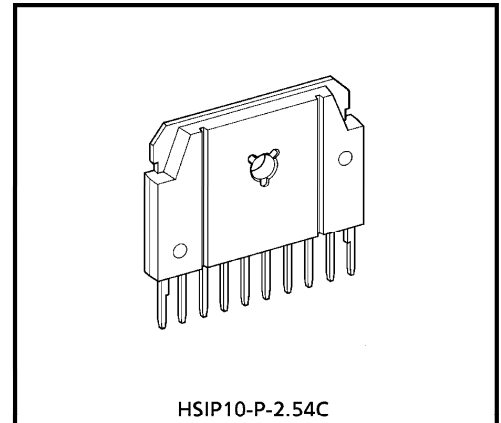
The TA8265K is dual audio power amplifier for consumer applications.

This IC provides an output power of 6 watts per channel (at $V_{CC} = 20\text{ V}$, $f = 1\text{ kHz}$, $\text{THD} = 10\%$, $R_L = 8\ \Omega$).

It is suitable for power amplifier of TV and home stereo.

FEATURES

- High Output Power : $P_{\text{out}} = 6\text{ W/channel (Typ.)}$
($V_{CC} = 20\text{ V}$, $R_L = 8\ \Omega$, $f = 1\text{ kHz}$, $\text{THD} = 10\%$)
- Low Noise : $V_{\text{NO}} = 0.14\text{ mV}_{\text{rms}} \text{ (Typ.)}$
($V_{CC} = 20\text{ V}$, $R_L = 8\ \Omega$, $G_V = 34\text{ dB}$, $R_g = 10\text{ k}\Omega$,
 $\text{BW} = 20\text{ Hz}\sim 20\text{ kHz}$)
- Very Few External Parts
- Built In Thermal Shut Down Protector Circuit
- Operating Supply Voltage Range : $V_{CC(\text{opr.})} = 10\sim 30\text{ V}$ ($T_a = 25^\circ\text{C}$)



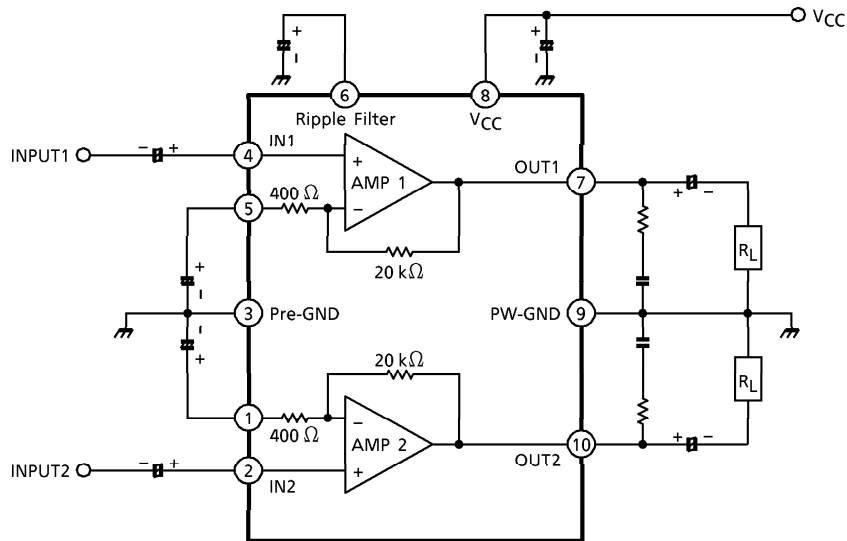
HSIP10-P-2.54C

Weight : 3.15 g (Typ.)

980910EBF1

- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
- This product generates heat during normal operation. However, substandard performance or malfunction may cause the product and its peripherals to reach abnormally high temperatures. The product is often the final stage (the external output stage) of a circuit. Substandard performance or malfunction of the destination device to which the circuit supplies output may cause damage to the circuit or to the product.
- The products described in this document are subject to the foreign exchange and foreign trade laws.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

BLOCK DIAGRAM



APPLICATION INFORMATION

(1) Voltage gain

The closed loop voltage gain is determined by R₁, R₂.

$$G_V = 20 \log \frac{R_1 + R_2}{R_2} \text{ (dB)}$$

$$= 20 \log \frac{20 \text{ k}\Omega + 400 \Omega}{400 \Omega}$$

$$\cong 34 \text{ (dB)}$$

(a) Amplifier with gain < 34 dB

$$G_V = 20 \log \frac{R_1 + R_2 + R_4}{R_2 + R_4} \text{ (dB)}$$

When R₄ = 220 Ω
 G_V ≅ 30 (dB)
 is given.

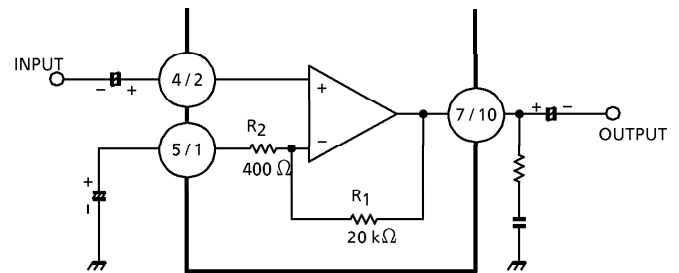


Fig.1

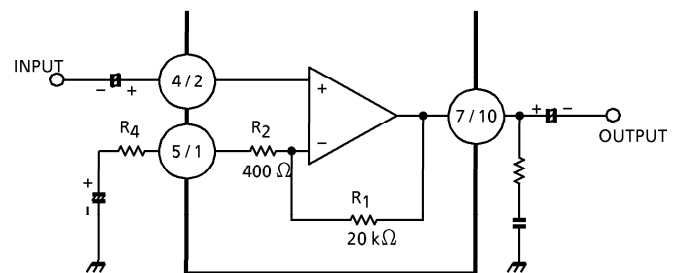


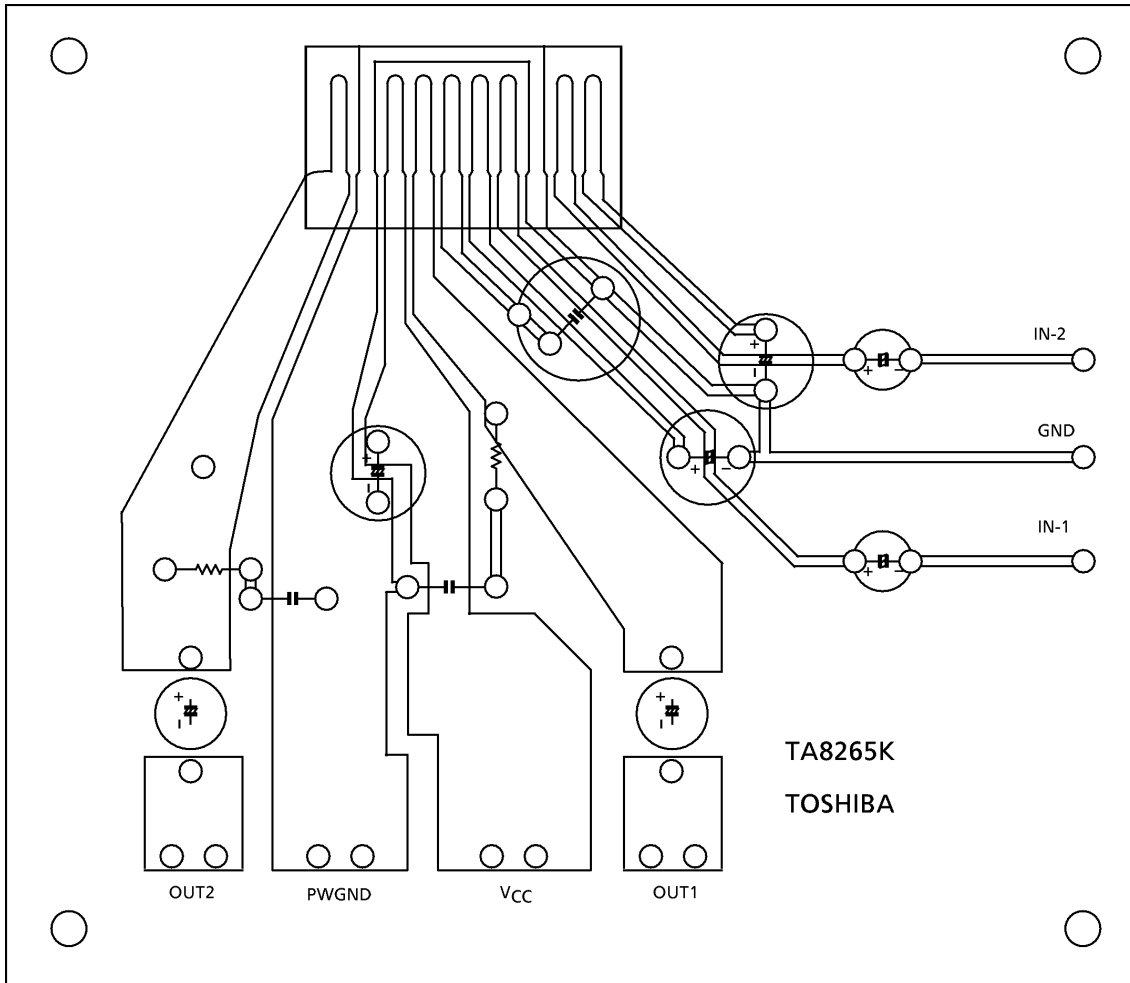
Fig.2

CAUTIONS

This IC is not proof enough against a strong E-M field by CRT which may cause malfunction such as leak.

Please set the IC keeping the distance from CRT.

STANDARD P.C.B



(BOTTOM VIEW)

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	30	V
Output Current (Peak / Ch)	$I_{O(\text{peak})}$	2	A
Power Dissipation	P_D (Note)	20	W
Operating Temperature	T_{opr}	-20~75	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~150	$^\circ\text{C}$

(Note) : Derated above $T_a = 25^\circ\text{C}$ in the proportion of 267 mW/ $^\circ\text{C}$.

ELECTRICAL CHARACTERISTICS

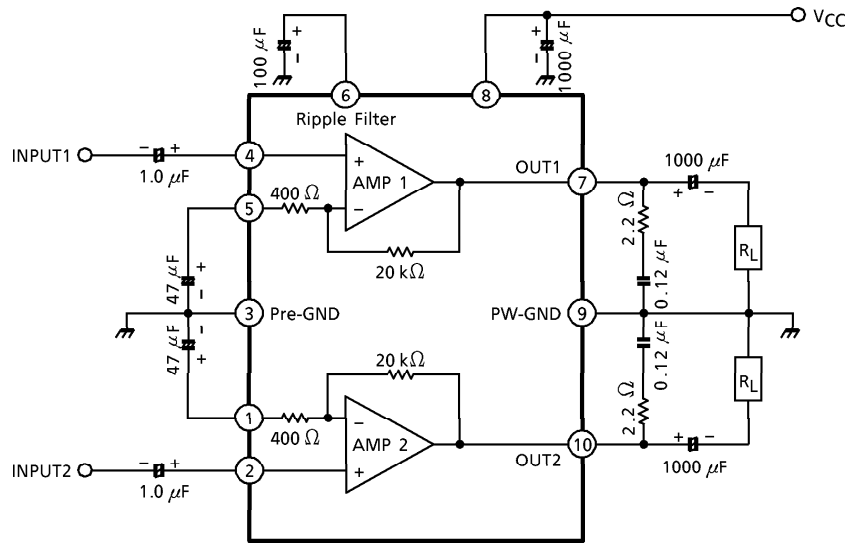
(Unless otherwise specified, $V_{CC} = 20\text{ V}$, $R_L = 8\ \Omega$, $R_g = 600\ \Omega$, $f = 1\text{ kHz}$, $T_a = 25^\circ\text{C}$)

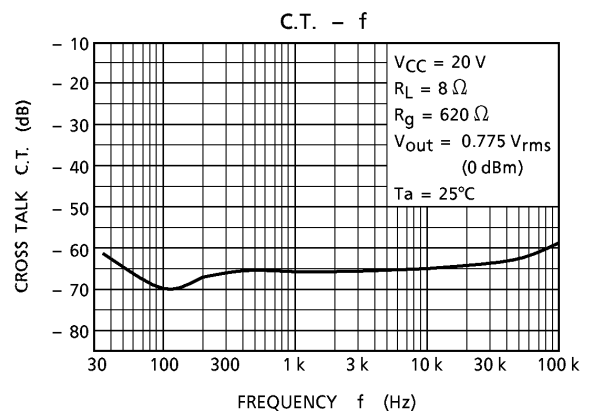
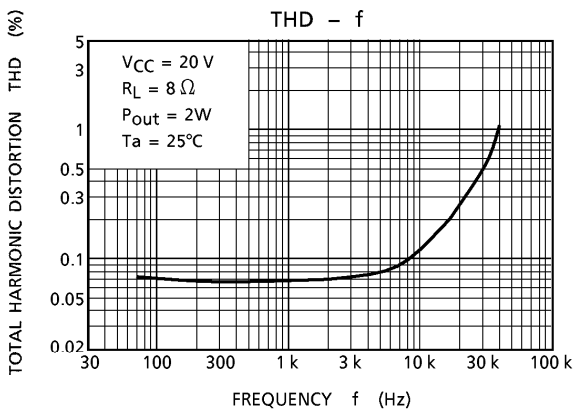
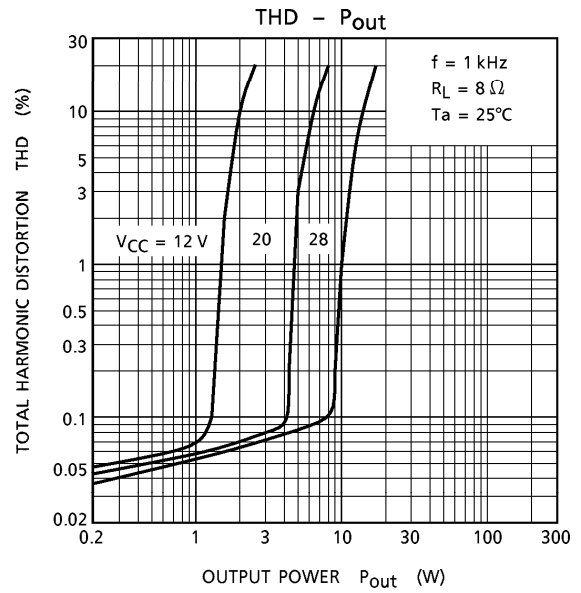
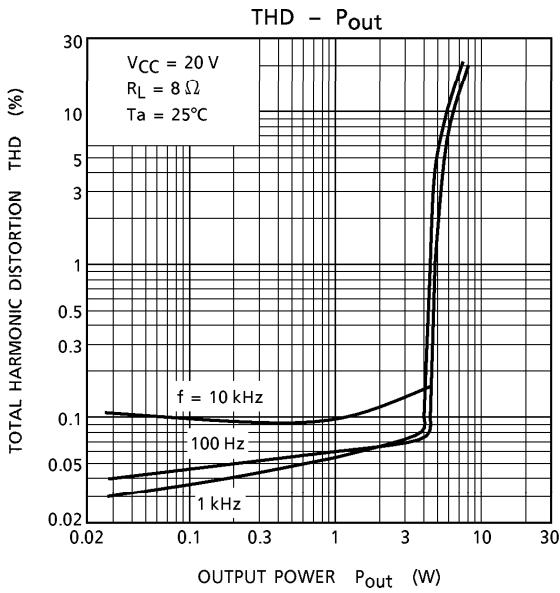
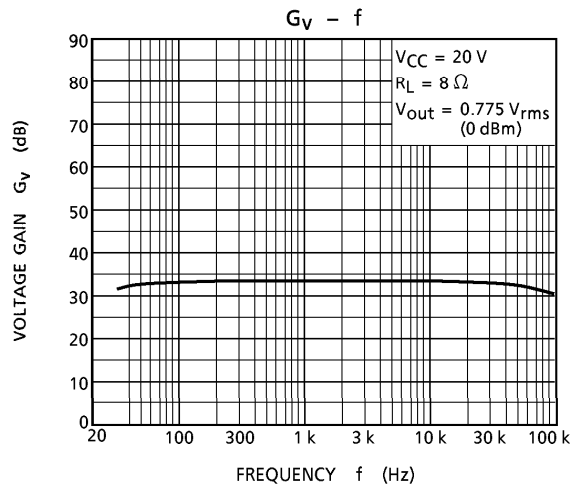
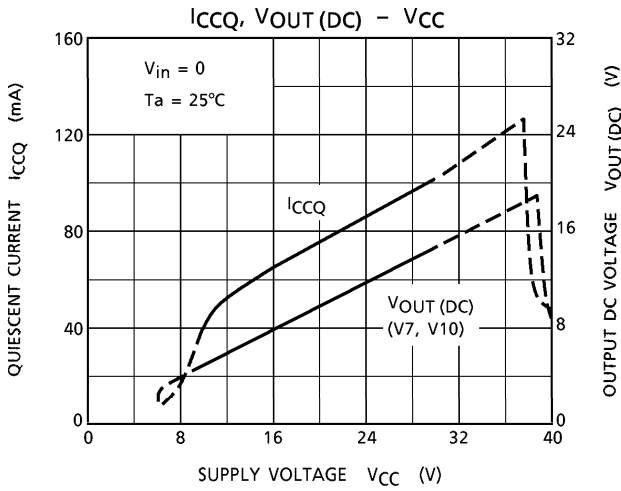
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_{CCQ}	—	$V_{in} = 0$	—	75	130	mA
Output Power	$P_{out(1)}$	—	THD = 10%	5.0	6.0	—	W
	$P_{out(2)}$	—	THD = 1%	—	4.5	—	
Total Harmonic Distortion	THD	—	$P_{out} = 2\text{ W}$	—	0.1	0.6	%
Closed Loop Voltage Gain	G_V	—	$V_{out} = 0.775 V_{rms}$ (0 dBm)	32.5	34.0	35.5	dB
Cross Talk	C.T.	—	$V_{out} = 0.775 V_{rms}$ (0 dBm)	—	-65	—	dB
Input Resistance	R_{IN}	—	—	—	30	—	$k\Omega$
Ripple Rejection Ratio	R.R.	—	$R_g = 10\ k\Omega$, $f_{ripple} = 100\text{ Hz}$ $V_{ripple} = 0.775 V_{rms}$ (0 dBm)	-45	-57	—	dB
Output Noise Voltage	V_{no}	—	$R_g = 10\ k\Omega$, BW = 20 Hz~20 kHz	—	0.14	0.3	mV_{rms}

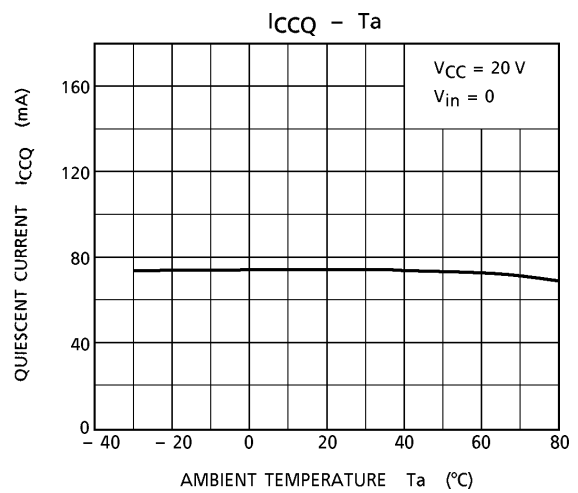
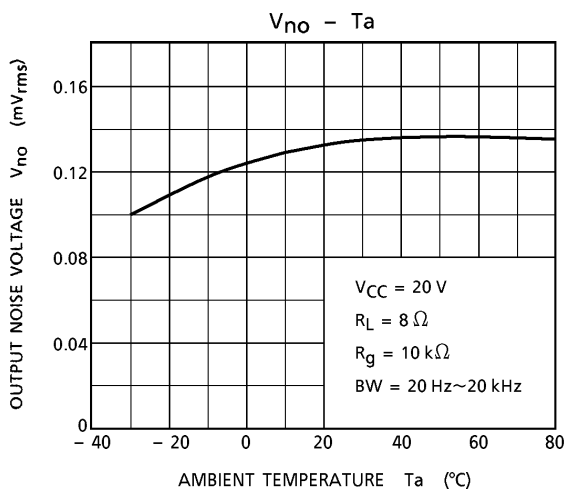
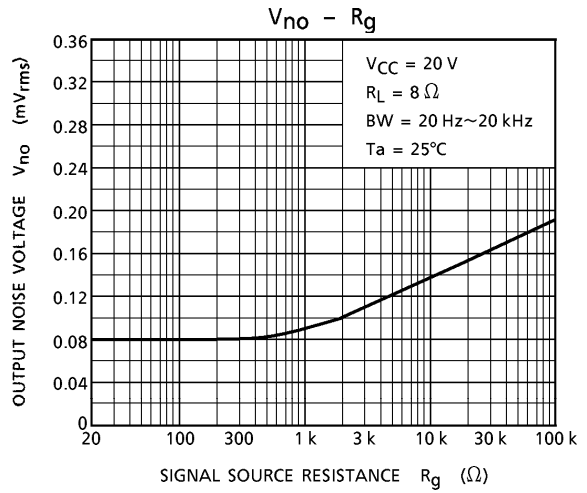
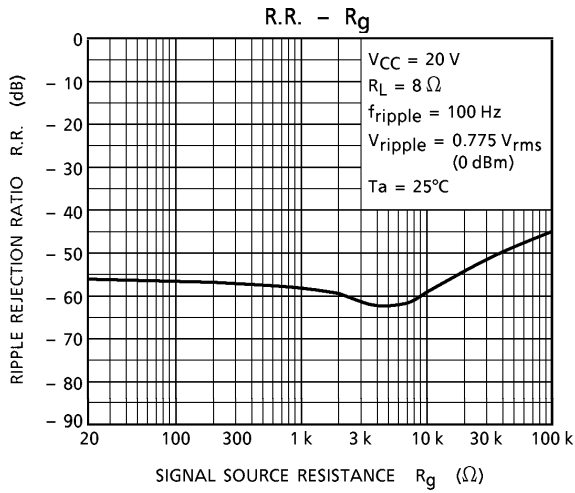
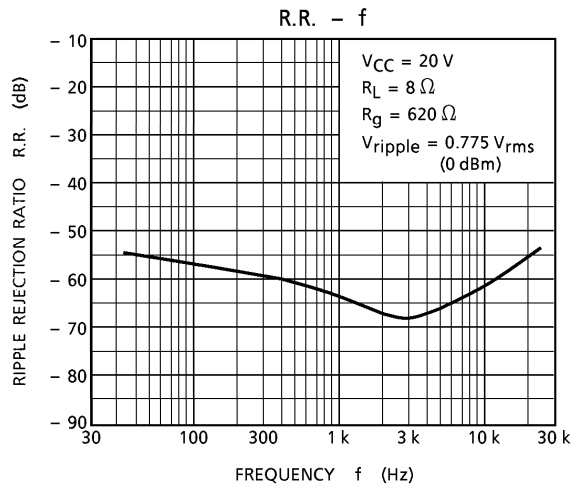
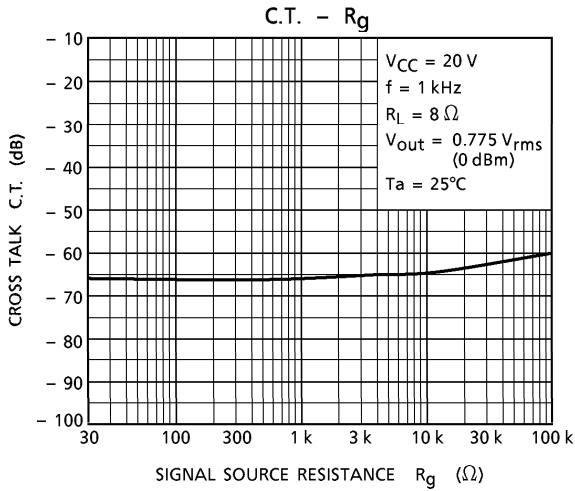
TYP. DC VOLTAGE OF EACH TERMINAL ($V_{CC} = 20\text{ V}$, $T_a = 25^\circ\text{C}$)

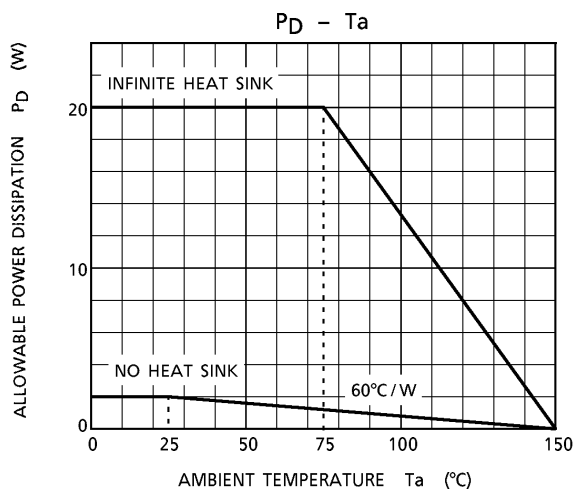
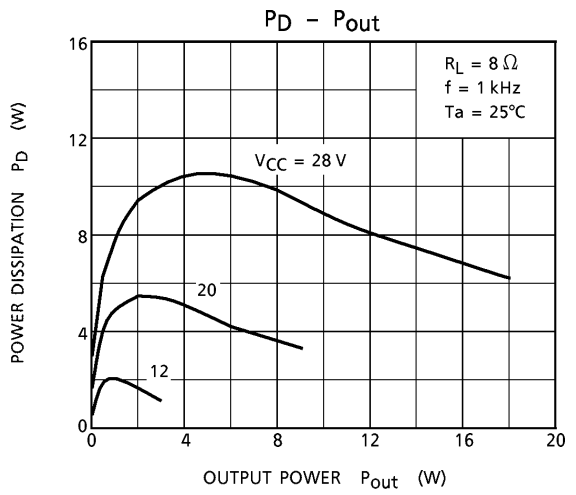
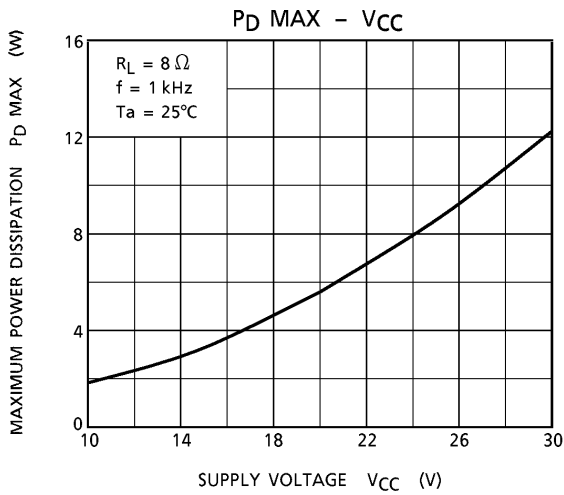
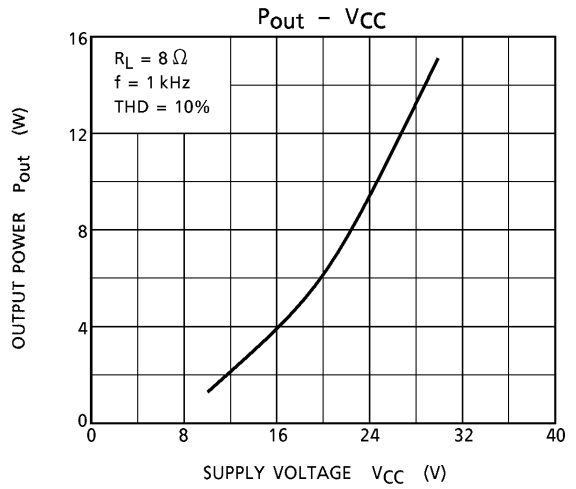
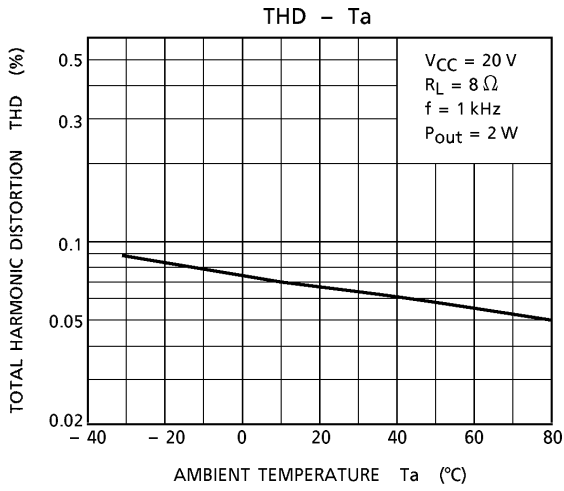
TERMINAL No.	1	2	3	4	5	6	7	9	9	10
DC Voltage (V)	2.1	2.25	GND	2.25	2.1	6.8	9.8	V_{CC}	GND	9.8

TEST CIRCUIT



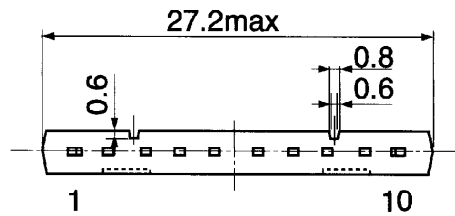
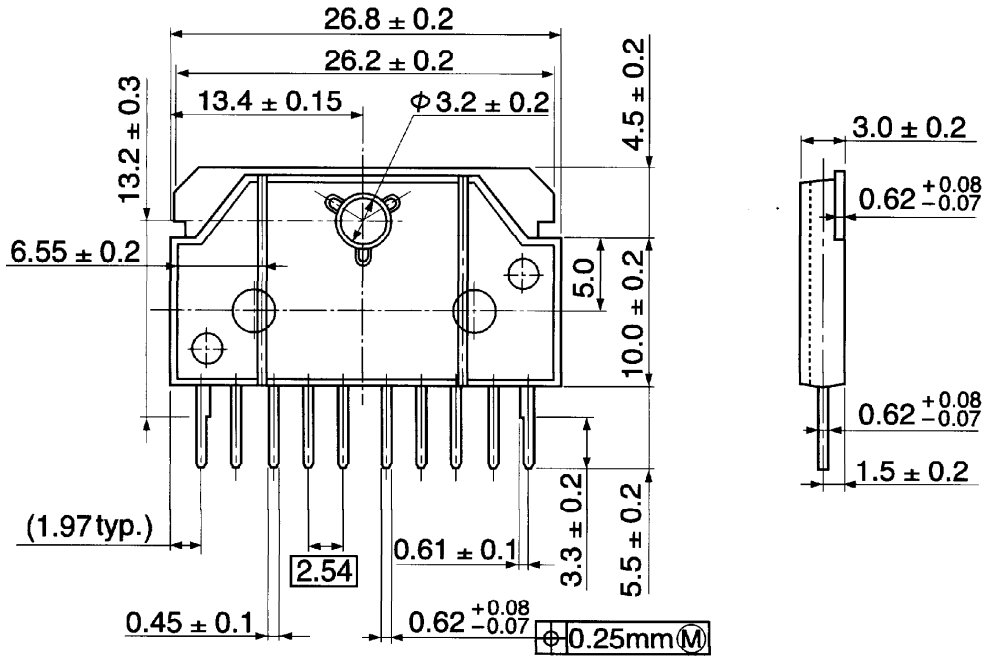






PACKAGE DIMENSIONS
HSIP10-P-2.54C

Unit : mm



Weight : 3.15 g (Typ.)