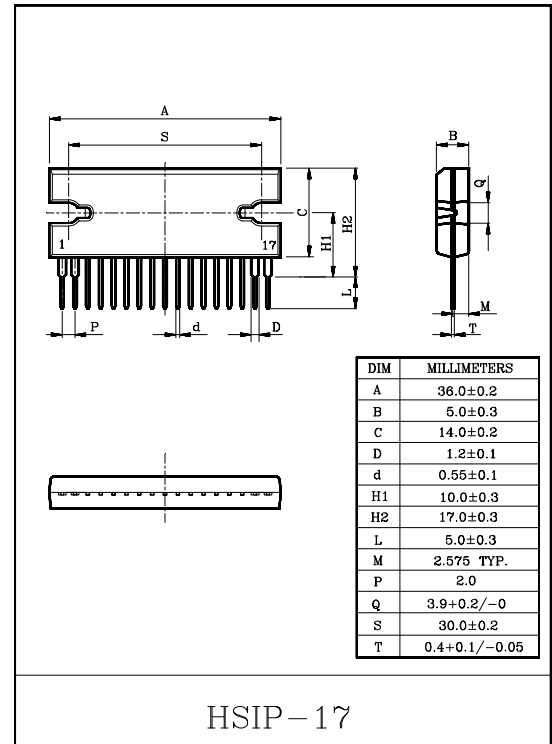


42W BTL×2CH AUDIO POWER IC

The KIA8231L is BTL audio power amplifier for consumer application. It is designed for high power, low distortion and low noise. It contains various kind of protectors and the function of stand-by.

FEATURES

- High Power
 - : $P_{OUT(1)}=42W(Typ.)$
($V_{CC}=14.4V$, $f=1kHz$, $THD=10\%$, $R_L=2\Omega$)
 - : $P_{OUT(2)}=37W(Typ.)$
($V_{CC}=13.2V$, $f=1kHz$, $THD=10\%$, $R_L=2\Omega$)
 - : $P_{OUT(3)}=22W(Typ.)$
($V_{CC}=13.2V$, $f=1kHz$, $THD=10\%$, $R_L=4\Omega$)
- Excellent Output Power Bandwidth
 - : $P_{OUT(4)}=17W(Typ.)$
($V_{CC}=13.2V$, $f=20Hz \sim 20kHz$, $THD=1\%$, $R_L=4\Omega$)
- Fixed Voltage Gain
 - : $G_v=32dB(Typ.)$
($V_{CC}=13.2V$, $V_{out}=0.775V_{rms}$ (0dBm))
- Low Thermal Resistance
 - : $\theta_{j-c}=1.5^{\circ}C/W(Typ.)$
- Low Distortion
 - : $THD=0.02\%(Typ.)$
($V_{CC}=13.2V$, $f=1kHz$, $P_{out}=4W$, $R_L=4\Omega$)
- Built-in Stand-by Switch Function
 - : $I_{STBY}=100\mu A(Typ.)$
(With pin ① set at high, power is turned ON)
- Built-in various protection circuit
 - : Thermal shut down, over voltage, out to GND, out to out short
- Operating supply voltage.
 - : $V_{CC(opr)}=9 \sim 18V$.



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MAXIMUM RATINGS (Ta=25℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Peak Supply Voltage (0.2s)	$V_{CC(surge)}$	50	V
DC Supply Voltage	$V_{CC(DC)}$	25	V
Operating Supply Voltage	$V_{CC(opr)}$	18	V
Output Current (peak)	$I_{O(peak)}$	9	A
Power Dissipation	P_D	50	W
Operating Temperature	T_{opr}	-30~85	℃
Storage Temperature	T_{stg}	-55~150	℃

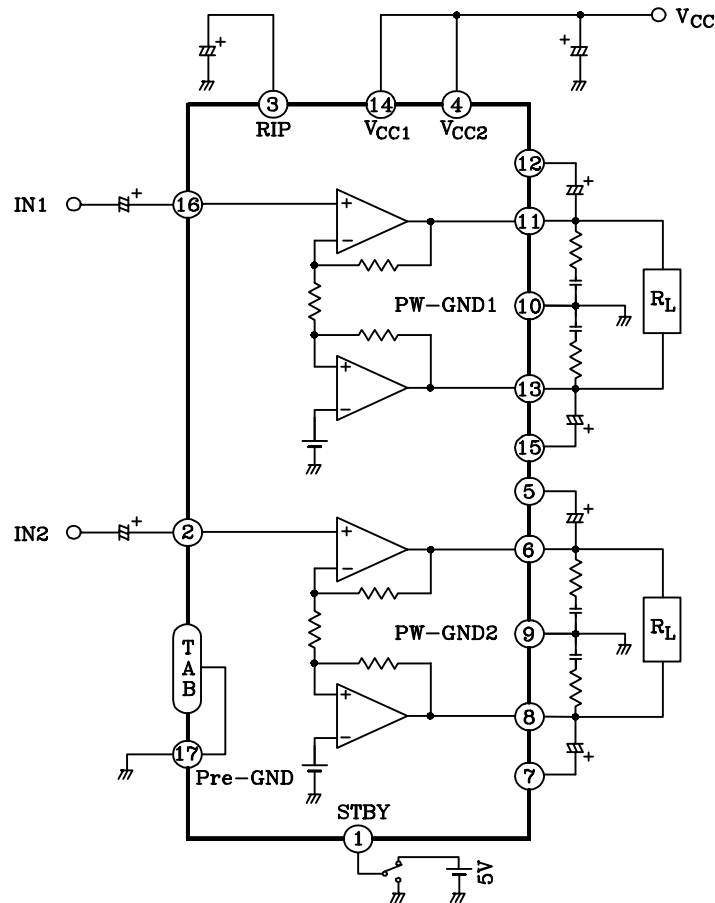
ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, $V_{CC}=13.2V$, $R_g=600\Omega$, $R_L=4\Omega$, $f=1kHz$, $T_a=25^\circ C$)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_{CCQ}	—	$V_{IN}=0$	—	150	250	mA
Output Power	$P_{OUT(1)}$	—	$V_{CC}=14.4V$, THD=10%, $R_L=2\Omega$	—	42	—	W
	$P_{OUT(2)}$	—	THD=10%, $R_L=2\Omega$	28	37	—	
	$P_{OUT(3)}$	—	THD=10%, $R_L=4\Omega$	19	22	—	
	$P_{OUT(4)}$	—	THD=1%, $f=20Hz \sim 20kHz$, $R_L=4\Omega$	—	17	—	
Total Harmonic Distortion	THD	—	$P_{OUT}=4W$	—	0.02	0.2	%
Voltage Gain	G_V	—	$V_{OUT}=0.775V_{rms}$ (0dBm)	30.5	32	33.5	dB
Voltage Gain Ratio	ΔG_V	—	$V_{OUT}=0.775V_{rms}$ (0dBm)	-1	0	1	dB
Output Noise Voltage	$V_{NO(1)}$	—	$R_g=0\Omega$, DIN45405 Noise Filter	—	0.07	—	mV_{rms}
	$V_{NO(2)}$	—	$R_g=0\Omega$, BW=20Hz~20kHz	—	0.06	0.1	mV_{rms}
Ripple Rejection Ratio	R.R.	—	$f_{ripple}=100Hz$, $R_g=600\Omega$, $V_{OUT}=0.775V_{rms}$ (0dBm)	40	60	—	dB
Cross Talk	C.T.	—	$R_g=600\Omega$, $V_{OUT}=0.775V_{rms}$ (0dBm)	—	60	—	dB
Input Resistance	R_{IN}	—	—	—	30	—	k Ω
Output Offset Voltage	V_{offset}	—	$V_{IN}=0$	-200	0	200	mV
Stand-By Current	I_{STBY}	—	Pin① : GND	—	100	150	μA

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BLOCK DIAGRAM

 $(G_V = 32\text{dB})$ 

CAUTION AND APPLICATION METHOD

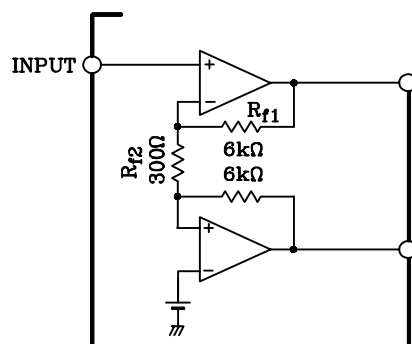
(Description is made only on the single channel.)

1. Voltage gain adjustment

This IC has no NF(negative feedback) terminals. Therefore, the voltage gain can't be adjusted, but it makes the device a space and total costs saver.

The voltage gain is decided only internal by expression below.

$$G_V = 20 \log \frac{R_{f1}}{R_{f2}} + 6(\text{dB}) = 32(\text{dB})$$



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TEST CIRCUIT ($G_V=32\text{dB}$)

