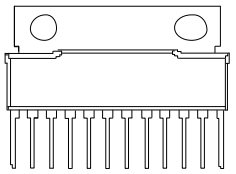
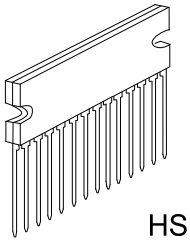
PA7522 **LINEAR INTEGRATED CIRCUIT**

DUAL 3-W BTL AUDIO POWER AMPLIFIER



HSIP-12A



HSIP-14B

Lead-free: PA7522L
Halogen-free: PA7522G

■ DESCRIPTION

The UTC **PA7522** is an audio power amplifier IC for the stereo system. In the BTL (balanced transformer less) method, fewer external parts and easier design for applications are required.

■ FEATURES

* 3-W output (8Ω) with supply voltage of 8V
* On-chip standby function
* On-chip volume function

■ ORDERING INFORMATION

Ordering Number			Package	Packing
Normal	Lead Free Plating	Halogen Free		
PA7522-H12-A-T	PA7522L-H12-A-T	PA7522G-H12-A-T	HSIP-12A	Tube
PA7522-H14-B-T	PA7522L-H14-B-T	PA7522G-H14-B-T	HSIP-14B	Tube

PA7522L-H12-A-T

(1)Packing Type — (1) T: Tube

(2)Package Type — (2) H12-A: HSIP-12A, H14-B: HSIP-14B

(3)Lead Plating — (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

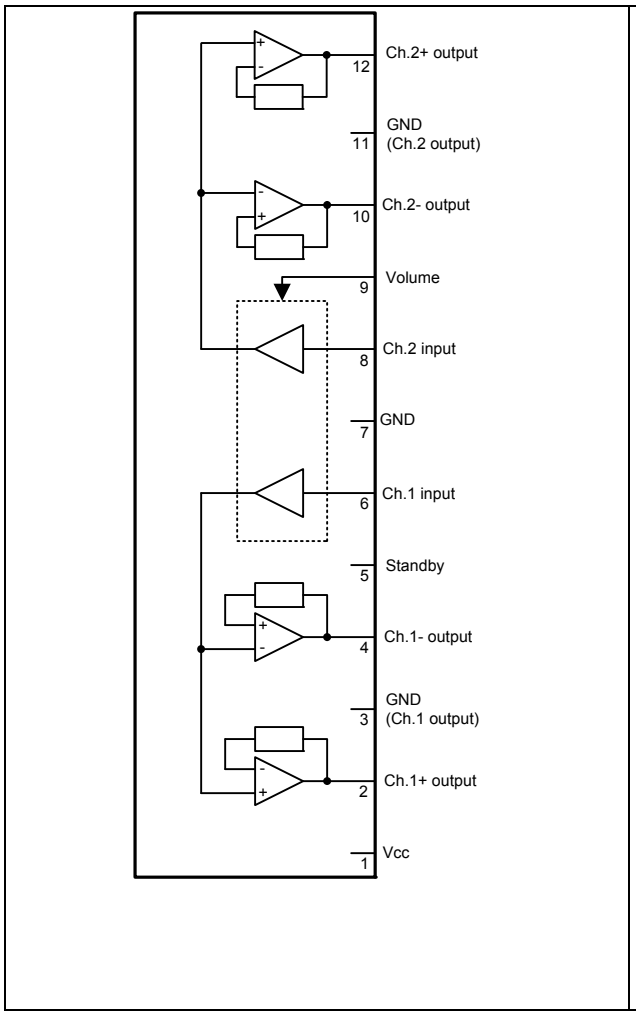
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■ PIN DESCRIPTION

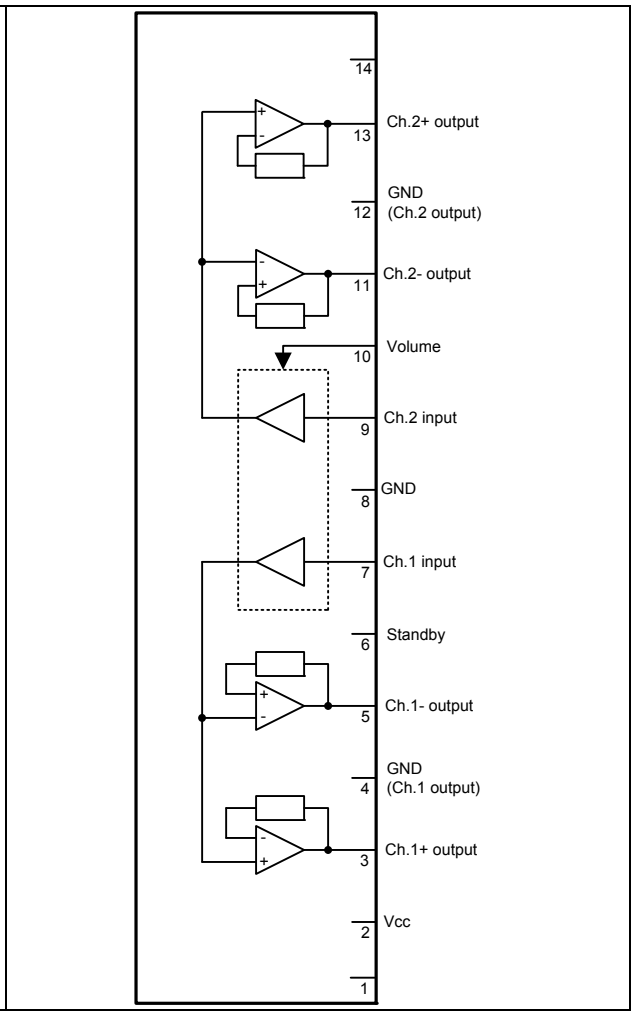
PIN NO.		PIN NAME	DESCRIPTION
HSIP-12A	HSIP-14B		
-	1	NC	No connect
1	2	V_{CC}	Supply voltage
2	3	Ch.1+ output	Ch.1+ output
3	4	GND	Ground (output ch.1)
4	5	Ch.1- output	Ch.1 - output
5	6	Standby	Standby (standby state if this pin is open)
6	7	Ch.1 input	Ch.1 input
7	8	GND	Ground (input)
8	9	Ch.2 input	Ch.2 input
9	10	Volume	Volume (max. volume if this pin is open.)
10	11	Ch.2- output	Ch.2 - output
11	12	GND	Ground (output ch.2)
12	13	Ch.2+ output	Ch.2 + output
-	14	NC	No connect

■ BLOCK DIAGRAM

HSIP-12A



HSIP-14B



■ ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage (At no signal)	V_{CC}	14	V
Supply Current	I_{CC}	2.0	A
Power Dissipation(Ta = 70°C)	P_D	1.92	W
Operating Temperature	T_{OPR}	-20 ~ +85	°C
Storage Temperature	T_{STG}	-40 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ RECOMMENDED OPERATING RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Supply voltage	V_{CC}	3.5 ~ 13.5	V

■ ELECTRICAL CHARACTERISTICS

(V_{CC}=8.0V, R_L=8Ω, f=1kHz, Ta=25°C±2°C, unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Circuit Current	I_D	V_{IN}=0mV, Vo1.=0V		45	100	mA
Standby Current	I_{STN-BY}	V_{IN}=0mV, Vo1.=0V		1	10	μA
Output Noise Voltage (Note)	V_{NO}	R_G=10KΩ, Vo1.=0V		0.10	0.4	mV(rms)
Output Offset Voltage	V_{OFF}	R_G=10KΩ, Vo1.=0V	-250	0	250	mV
Total Harmonic Distortion	THD	P_{OUT}=0.5W, Vo1.=1.25V		0.10	0.5	%
Maximum Output Power	P_{OUT1}	THD=10%, Vo1.=1.25V	2.4	3.0		W
Ripple Rejection (Note)	RR	R_G=10KΩ, Vo1.=0V V_R=1V(rms), f_R=120Hz	30	50		dB
Voltage Gain	G_v	P_{OUT}=0.5W, Vo1.=1.25V	31	33	35	dB
Volume Attenuation Rate*	Att	P_{OUT}=0.5W, Vo1.=0V	70	85		dB
Channel Balance 1	CB1	P_{OUT}=0.5W, Vo1.=1.25V	-1	0	1	dB
Channel Balance 2	CB2	P_{OUT}=0.5W, Vo1.=0.6V	-3	0	3	dB
Intermediate Voltage Gain	G_{VM}	P_{OUT}=0.5W, Vo1.=0.6V	20.5	23.5	26.5	dB
Channel Crosstalk	C_T	P_{OUT}=0.5W, Vo1.=1.25V	40	55		dB

Note: In measuring, the filter for the range of 15 Hz ~ 30 kHz (12 dB/OCT) is used.

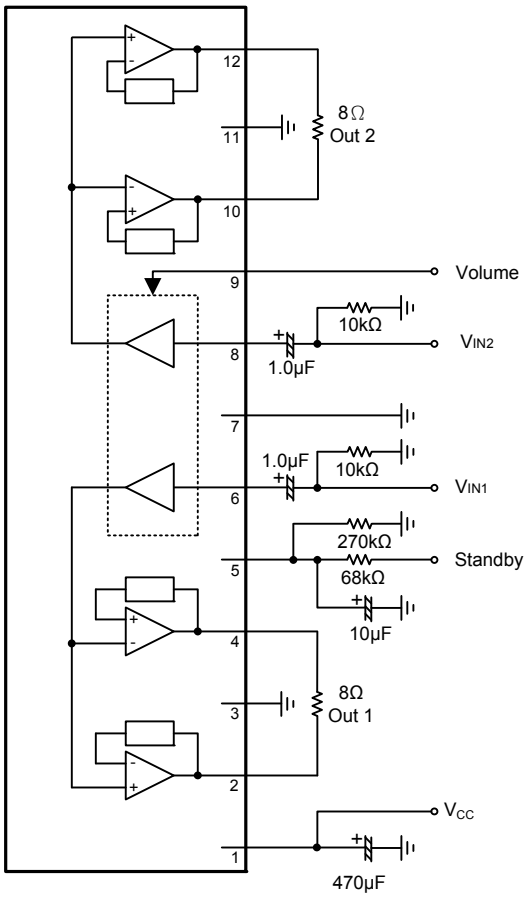
■ TERMINAL EQUIVALENT CIRCUITS AT V_{CC}=8V

PIN NO.		PIN NAME	VOLTAGE
HSIP-12A	HSIP-14B		
1	2	V_{CC}	8V
2	3	Ch.1 + output pin	3.6V (at no signal)
3	4	GND	0V
4	5	Ch.1 - output pin	3.9V (at no signal)
5	6	Standby pin	0V or 5V (Standby off at supply 5V. Standby at 0.4V less or open.)
6	7	Ch.1 input pin	1.4V (Input circuit bias voltage is output)
7	8	GND	0V
8	9	Ch.2 input pin	1.4V (Input circuit bias voltage is output)
9	10	Volume pin	Supply to 0V ~ 1.25V
10	11	Ch.2-output pin	3.9V (at no signal)
11	12	GND	0V
12	13	Ch.2+ output pin	3.6V (at no signal)

■ USAGE NOTES

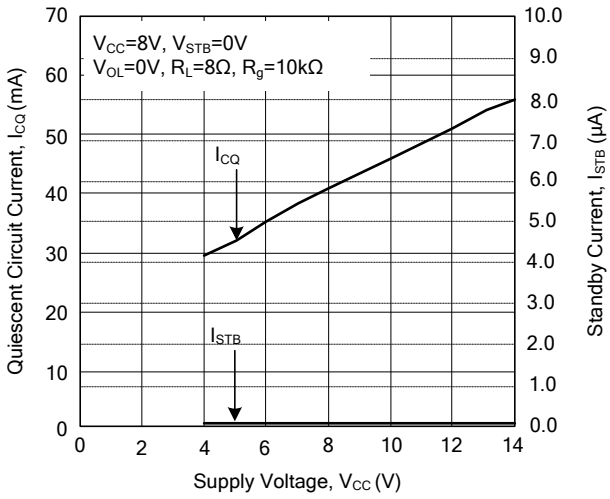
* Please avoid the short-circuits to V_{CC}, ground, or load short-circuit.
* Please connect the cooling fin with the GND potential.
* The thermal shutdown circuit operates at about T_J=150°C. However, the thermal shutdown circuit is reset automatically if the temperature drops.
* Please carefully design the heat radiation especially when you take out high power at high V_{CC} .
* Please connect only the ground of signal with the signal GND of the amplifier in the previous stage.

■ APPLICATION CIRCUIT EXAMPLE

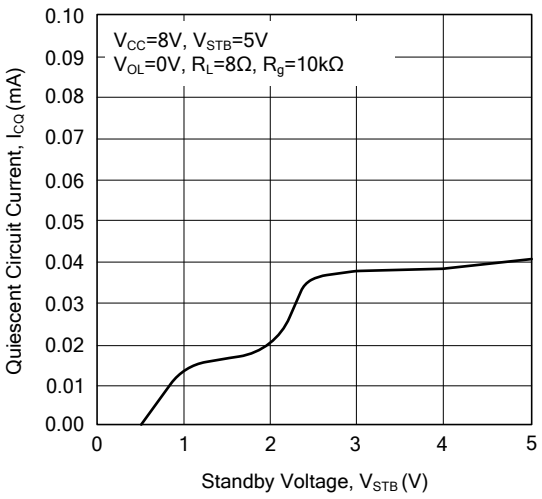


■ TYPICAL CHARACTERISTICS

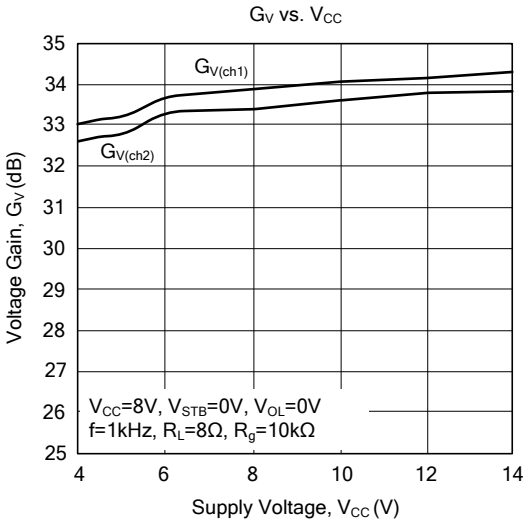
I_{CQ}, I_{STB} vs. V_{CC}



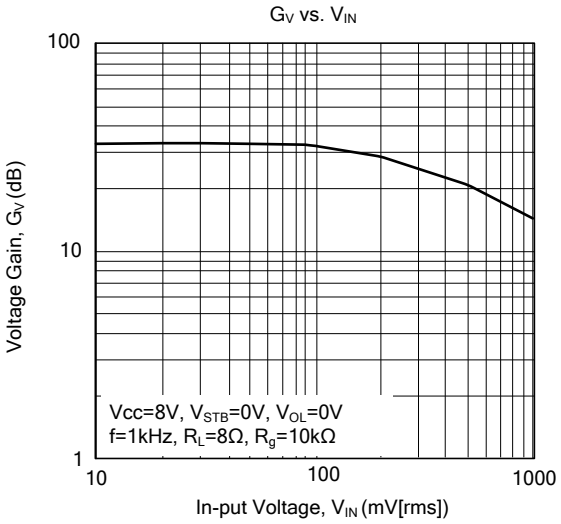
I_{CQ} vs. V_{STB}



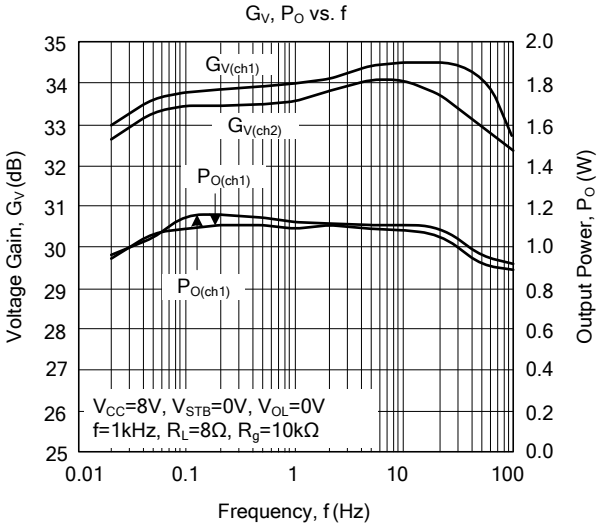
G_V vs. V_{CC}



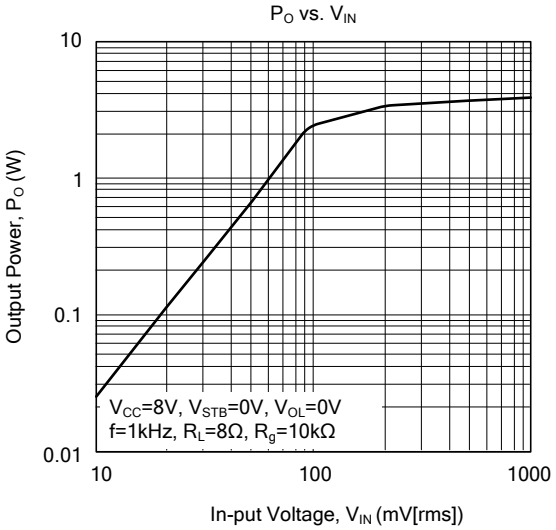
G_V vs. V_{IN}



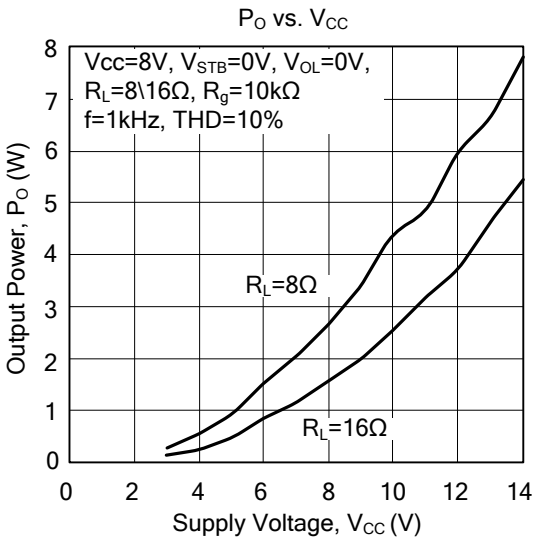
G_V, P_O vs. f



P_O vs. V_{IN}



■ TYPICAL CHARACTERISTICS(Cont.)



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