

ILA7050

LOW VOLTAGE MONO/STEREO POWER AMPLIFIER

GENERAL DESCRIPTION

The ILA7050 is a low voltage audio amplifier for small radios with headphones (such as watch, pen and pocket radios) in mono (bridge-tied load) or stereo applications.

Features

- Limited to battery supply application only (typ. 3 and 4 V)
- Operates with supply voltage down to 1,6 V
- No external components required
- Very low quiescent current
- Fixed integrated gain of 26 dB, floating differential input
- Flexibility in use - mono BTL as well as stereo
- Small dimension of encapsulation (see package design example)

QUICK REFERENCE DATA

Supply voltage range	V _p	1,6	to 6,0 V
Total quiescent current (at V _p = 3 V)	I _{tot}	typ.	3,2 mA
Bridge tied load application (BTL)			
Output power at R) = 32 Ω			
V _p =3V; d _{tot} =10%	P _O	typ.	140 mW
D.C. output offset voltage between the outputs	I _{AVI}	max.	70 mV
Noise output voltage (r.m.s. value)			
at f = 1 kHz; R _g = 5 kfit	V _{no(rms)}	typ.	140 mV
Stereo application			
Output power at R(= 32 Ω			
d _{tot} = 10%; V _p = 3V	P _O	typ.	35 mW
d _{tot} = 10%; V _p = 4,5V	P _O	typ.	75 mW
Channel separation at R _s = 0 Ω; f = 1 kHz	K	typ.	40 dB
Noise output voltage (r.m.s. value)			
at f = 1 kHz; R _s = 5 kΩ	V _{no(rms)}	typ.	100 mV

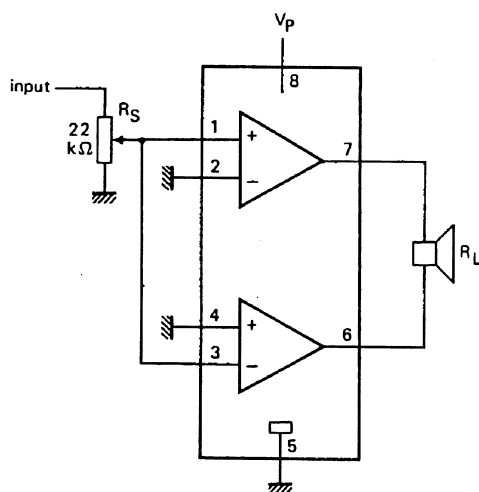
PACKAGE OUTLINE 8-lead DIL; plastic (SOT97); SOT97-1;

CHARACTERISTICS $V_p = 3\text{ V}$; $f = 1\text{ kHz}$; $R_L = 32\ \Omega$, $T_{amb} = 25\text{ }^\circ\text{C}$; unless otherwise specified

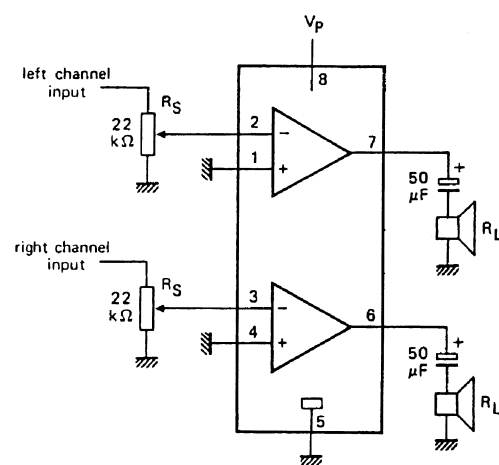
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply					
Supply voltage	V_p	1,6	-	6,0	V
Total quiescent current	I_{tot}	-	3,2	4	mA
Bridge-tied load application (BTL); see Fig.4					
Output power; note 1					
$V_p = 3,0\text{ V}$; $d_{tot} = 10\%$	P_o	-	140	-	mW
$V_p = 4,5\text{ V}$; $d_{tot} = 10\%$ ($R_L = 64\ \Omega$)	P_o	-	150	-	mW
Voltage gain	G_v	-	32	-	dB
Noise output voltage (r.m.s. value)					
$R_s = 5\text{ k}\Omega$; $f = 1\text{ kHz}$	$V_{no(rms)}$	-	140	-	mV
$R_s = 0\ \Omega$; $f = 500\text{ kHz}$; $B = 5\text{ kHz}$	$V_{no(rms)}$	-	tbf	-	mV
D.C. output offset voltage (at $R_s = 5\text{ k}\Omega$)	$I\Delta V_I$	-	-	70	mV
Input impedance (at $R_s = \infty$)	$ Z_{i1} $	1	-	-	$M\Omega$
Input bias current	I_i	-	40	-	nA
Stereo application;					
Output power; note 1					
$V_p = 3,0\text{ V}$; $d_{tot} = 10\%$	P_o	-	35	-	mW
$V_p = 4,5\text{ V}$; $d_{tot} = 10\%$	P_o	-	75	-	mW
Voltage gain	G_v	24.5	26	27.5	dB
Noise output voltage (r.m.s. value)					
$R_s = 5\text{ k}\Omega$; $f = 1\text{ kHz}$	$V_{no(rms)}$	-	100	-	mV
$R_s = 0\ \Omega$; $f = 500\text{ kHz}$; $B = 5\text{ kHz}$	$V_{no(rms)}$	-	tbf	-	mV
Channel separation					
$R_s = 0\ \Omega$; $f = 1\text{ kHz}$	K	30	40	-	dB
Input impedance (at $R_s = \infty$)	$ Z_{j1} $	2	-	-	$M\Omega$
Input bias current	I_i	-	20	-	nA

Note

- Output power is measured directly at the output pins of the IC. It is shown as a function of the supply voltage in Fig.2 (BTL application) and Fig.3 (stereo application).



Application diagram (BTL)



Application diagram (stereo)