

ILA7053

2 x 1 W PORTABLE/MAINS-FED STEREO POWER AMPLIFIER

GENERAL DESCRIPTION

The ILA7053 is an integrated class-B stereo power amplifier in a 16-lead dual-in-line (DIL) plastic package. The device, consisting of two BTL amplifiers, is primarily developed for portable audio applications but may also be used in mains-fed applications.

Features

- No external components
- No switch-ON/OFF clicks
- Good overall stability
- Low power consumption
- Short-circuit-proof.

QUICK REFERENCE DATA

PARAMETER	CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply voltage range		Vp	3	6	18	V
Total quiescent current	$R_L = \infty$	I _{tot}	-	9	16	mA
Output power	$R_L = 8\Omega$ Vp=6V	P _o	-	1.2	-	W
Internal voltage gain		Gv	38	39	40	dB
Total harmonic distortion	P _o =0.1W	THD	-	0.2	1.0	%

PACKAGE OUTLINE 16-lead DIL; plastic (SOT38); SOT38-1; PINNING

1	SGND1	signal ground 1	9	OUT2A	output 2 (positive)
2	IN1	input 1	10	GND2	power ground 2
3	n.c.	not connected	11	n.c.	not connected
4	n.c.	not connected	12	OUT2B	output 2 (negative)
5	Vp	supply voltage	13	OUT1B	output 1 (negative)
6	IN2	input 2	14	GND1	power ground 1
7	SGND2	signal ground 2	15	n.c.	not connected
8	n.c.	not connected	16	OUT1A	output 1 (positive)

Note The information contained within the parentheses refer to the polarity of the loudspeaker terminal to which the output must be connected.

FUNCTIONAL DESCRIPTIO

The ILA7053 is a stereo output amplifier, with an internal gain of 39 dB, which is primarily for use in portable audio applications but may also be used in mains-fed applications. The current trends in portable audio application design is to reduce the number of batteries which results in a reduction of output power when using conventional output stages. The ILA7053 overcomes this problem by using the Bridge-Tied-Load (BTL) principle and is capable of delivering 1.2 W into an 8 Ω load (Vp = 6 V). The load can be short-circuited under all input conditions.

RATINGS Limiting values in accordance with the Absolute Maximum System (IEC 134)

PARAMETER	CONDITIONS	SYMBOL	MIN.	MAX.	UNIT
Supply voltage		Vp	-	18	V
Non-repetitive peak output current		I _{osM}	-	1.5	A
Crystal temperature		T _c	-	+150	°C
Storage temperature range		T _{stg}	-55	+150	°C

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CHARACTERISTICS $V_p = 6\text{ V}$; $R_L = 8\ \Omega$; $T_{amb} = 25\text{ }^\circ\text{C}$; unless otherwise specified; measured from test circuit, Fig.7.

PARAMETER	CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply voltage range		V_p	3	6	18	V
Total quiescent current	$R_L = \infty$; note 1	I_{tot}	-	9	16	mA
Input bias current		I_{bias}	-	100	300	nA
Supply voltage ripple rejection	note 2	SVRR	40	50	-	dB
Input impedance		Z_i	-	100	-	$k\Omega$
DC output offset voltage	note 3	ΔV_{13-16}	-	-	100	mV
		V_{12-9}	-	-	100	mV
Noise output voltage (RMS value)	note 4	$V_{no(rms)}$	-	150	300	mV
	note 5	$V_{no(rms)}$	-	60	-	mV
Output power	THD = 10%	P_o	-	1.2	-	W
Total harmonic distortion	$P_o=0.1\text{ W}$	THD	-	0.2	1.0	%
Internal voltage gain		G_v	38	39	40	dB
Channel balance		ΔG_v	-	-	1	dB
Channel separation	note 3	a	40	-	-	dB
Frequency response		f	-	0.02 to 20	-	kHz

Notes to the characteristics

1. With a practical load the total quiescent current depends on the offset voltage.
2. Ripple rejection measured at the output with $R_s = 0\ \Omega$ and $f = 100\text{ Hz}$ to 10 kHz . The ripple voltage (200 mV) is applied to the positive supply rail.

$R_s = 5\ k\Omega$. The noise output voltage (RMS value) is measured with $R_s = 5\ k\Omega$, unweighted and a bandwidth of 60 Hz to 15 kHz.

The noise output voltage (RMS value) is measured with $R_s = 0\ \Omega$ and $f = 500\text{ kHz}$ with 5 kHz bandwidth. If $R_L = 8\ \Omega$ and $L_L = 200\text{ mH}$ the noise output current is only 100 nA.