

ILA1519B

2 X 6 WATT STEREO CAR RADIO POWER AMPLIFIER

GENERAL DESCRIPTION

The ILA1519B is an integrated class-B dual output amplifier in a 9-lead single in-line (SIL) plastic medium power package. The device is primarily developed for car radio applications.

Features

Requires very few external components	Thermally protected
High output power	Reverse polarity safe
Fixed gain	Compatible with TDA1517 (except gain)
Good ripple rejection	No switch-on/switch-off plop
Mute/stand-by switch	Protected against electrostatic discharge
Load dump protection	AC and DC short-circuit-safe to ground and Vp
Capability to handle high energy on outputs (Vp = 0 V)	

QUICK REFERENCE DATA

parameter	conditions	symbol	min.	typ.	max.	unit
Supply voltage range						
operating		V _p	6,0	14,4	18,0	V
non-operating		V _p	-	-	30	V
load dump protected		V _p	-	-	45	V
Repetitive peak output current		I _{ORM}	-	-	2,5	A
Total quiescent current		I _{tot}		40	80	mA
Stand-by current		I _{sb}		0,1	100	mA
Switch-on current		I _{sw}			40	mA
Input impedance		Z ₁	50			kΩ
Output power	THD= 0,5%;4 Ω			5		W
	THD=10%;4 Ω			6		W
Channel separation		α	40			dB
Noise output voltage		V _{no(rms)}			150	μV
Supply voltage ripple rejection	f=100Hz	SVRR	40			dB
	f=1kHz to 10 kHz	SVRR	48			dB
Crystal temperature		T _c			150	°C

PACKAGE OUTLINE: 9-lead SIL-bent-to-DIL; plastic (SOT110B).

PINNING

1	NV1	non-inverting input 1
2	GND1	ground (signal)
3	SVRR	supply voltage ripple rejection
4	OUT1	output 1
5	GND2	ground (substrate)
6	OUT2	output 2
7	Vp	supply voltage
8	M/SS	mute/stand-by switch
9	INV2	non-inverting input 2

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DC CHARACTERISTICS (note 1) $V_p = 14,4\text{ V}$; $T_{amb} = 25\text{ }^\circ\text{C}$; unless otherwise specified

parameter	conditions	symbol	min.	Typ.	max.	unit
Supply						
Supply voltage range	note 2	V_p	6,0	14,4	18,0	V
Quiescent current		I_P	-	40	80	mA
DC output voltage	note 3	V_o	-	6,95	-	V
Mute/stand-by switch						
Switch-on voltage level	see Fig.3	V_{ON}	8,5	-	-	V
Mute condition						
Output signal in mute position	$V_I = 1\text{ V (max.)}$; $f = 20\text{ Hz to }15\text{ kHz}$	V_{mute}	3,3	-	6,4	V
		V_o	-	-	20	mV
Stand-by condition						
DC current in stand-by condition		V_{sb}	0	-	2	V
Switch-on current		I_{sb}	-	-	100	μA
		I_{sw}	-	12	40	μA

AC CHARACTERISTICS (note 1)

$V_p=14,4\text{V}$; $R_L=4\Omega$; $f=1\text{kHz}$; $T_{amb}=25^\circ\text{C}$ unless otherwise specified

parameter	conditions	symbol	min.	typ.	max.	unit
Output power	note 4; THD = 0,5%	P_o	4	5	-	W
	THD = 10%	P_o	5,5	6,0	-	W
Total harmonic distortion	$P_o=1\text{W}$	THD	-	0,1	-	%
Low frequency roll-off	note 5; -3 dB	f_L	-	45	-	Hz
High frequency roll-off	-1 dB	f_H	20	-	-	kHz
Closed loop voltage gain		G_v	39	40	41	dB
Supply voltage ripple rejection						
note 6						
ON						
ON	$f= 100\text{ Hz}$	SVRR	40	-	-	dB
	$f= 10\text{ Hz to }10\text{ kHz}$	SVRR	48	-	-	dB
mute		SVRR	48	-	-	dB
stand-by		SVRR	80	-	-	dB
Input impedance		I_{Zil}	50	60	75	$\text{k}\Omega$
Noise output voltage	note 7;					
ON	$R_s=0\Omega$	$V_{no(rms)}$	-	150	-	mV
ON	$R_s= 10\text{ k}\Omega$	$V_{no(rms)}$	-	250	500	mV
mute	note 8	$V_{no(rms)}$	-	120	-	mV
Channel separation	$R_s= 10\text{ k}\Omega$	a	40	-	-	dB
Channel balance		IDGvl	-	0,1	1	dB

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Notes to the characteristics

1. All characteristics are measured using the circuit shown in Fig. 4.
2. The circuit is DC adjusted at $V_p = 6V$ to $18V$ and AC operating at $V_p = 8,5V$ to $18V$.
3. At $18V < V_p < 30V$ the DC output voltage $< V_p/2$.
4. Output power is measured directly at the output pins of the IC.
5. Frequency response externally fixed.
6. Ripple rejection measured at the output with a source impedance of 0Ω (maximum ripple amplitude of $2V$) and a frequency between $100Hz$ and $10kHz$.
7. Noise voltage measured in a bandwidth of $20Hz$ to $20kHz$.
8. Noise output voltage independent of R_n ($V_j = 0V$).