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		Tc			150	^{0}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

DC CHARACTERISTICS (note 1)

Vp = 14,4 V; Tamb = 25 °C; unless otherwise specified

PARAMETER	CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply						
Supply voltage range	note 2	Vp	6,0	14,4 40	18,0	V
Quiescent current		IP	-	6,95	80	mA
DC output voltage	note 3	V_O	-		-	V
				-		
Mute/stand-by switch						
Switch-on voltage level	see Fig.3	VON	8,5		-	V
				-		
Mute condition		Vmute	3,3		6,4	V
Output signal in mute position	V_I = 1 V (max.);			-		
	f = 20 Hz to 15 kHz	V_O	-		20	mV
				-		
Stand-by condition		Vsb	0	-	2 100	V
DC current in stand-by condition		Isb	-	12	40	µA
Switch-on current		Isw	-			µA

AC CHARACTERISTICS (note 1)

Vp=14,4V; R_L=4Ω; f=1kHz; Tamb=25°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 0,1	-	W
Total harmonic distortion	P_O=1W	THD	-		-	%
Low frequency roll-off	note 5;			45		
	-3 dB	f_L	-	-	-	Hz
High frequency roll-off	-1 dB	f_H	20	40	-	kHz
Closed loop voltage gain		G_V	39		41	dB
Supply voltage ripple rejection						
	note 6					
ON				-		
ON	f= 100 Hz	SVRR	40	-	-	dB
	f= 10 Hz to 10 kHz	SVRR	48	-	-	dB
mute		SVRR	48	-	-	dB
stand-by		SVRR	80	60	-	dB
Input impedance		lZil	50		75	kΩ
Noise output voltage	note 7;			150		
ON	R_S=0Ω	Vno(rms)	-	250	-	mV
ON	R_S= 10 kΩ	Vno(rms)	-	120	500	mV
mute	note 8	Vno(rms) a	-	-	-	mV
Channel separation	R_S= 10 kΩ	lDGvl	40	0,1	-	dB
Channel balance			-		1	dB

Notes to the characteristics

1. All characteristics are measured using the circuit shown in Fig. 4.
2. The circuit is DC adjusted at Vp= 6V to 18V and AC operating at Vp= 8,5V to 18 V.
3. At 18 V < Vp< 30 V the DC output voltage **<** Vp/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 0 ^ (maximum ripple amplitude of 2 V) and a frequency between 100 Hz and 10 kHz.
7. Noise voltage measured in a bandwidth of 20 Hz to 20 kHz.
8. Noise output voltage independent of R^ (V j = 0 V).