

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 V_p
 Capability to handle high energy on outputs ($V_p = 0\text{ V}$)

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			k Ω
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	μ V
Supply voltage ripple rejection	f=100Hz	SVRR	40			dB
	f=1kHz to 10 kHz	SVRR	48			dB
Crystal temperature		T_c			150	$^{\circ}$ 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	V_p	supply voltage
8	M/SS	mute/stand-by switch
9	INV2	non-inverting input 2

DC CHARACTERISTICS (note 1)

V_p = 14,4 V; T_{amb} = 25 °C; unless otherwise specified

PARAMETER	CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply						
Supply voltage range	note 2	V _p	6,0	14,4 40	18,0	V
Quiescent current		I _p	-	6,95	80	mA
DC output voltage	note 3	V _o	-	-	-	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 V (max.); f = 20 Hz to 15 kHz	V _{mute}	3,3	-	6,4	V
		V _o	-	-	20	mV
Stand-by condition						
DC current in stand-by condition		V _{sb}	0	-	2 100	V
Switch-on current		I _{sb}	-	12	40	μA
		I _{sw}	-	-	-	μA

AC CHARACTERISTICS (note 1)

V_p=14,4V; R_L=4Ω; f=1kHz; T_{amb}=25°C unless otherwise specified

parameter	conditions	symbol	min.	typ.	max.	unit
Output power	note 4; THD = 0,5% THD = 10%	P _o P _o	4 5,5	5 6,0 0,1	- -	W W
Total harmonic distortion	P _o =1W	THD	-	-	-	%
Low frequency roll-off	note 5; -3 dB	f _L	-	45	-	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						
ON	note 6			-	-	
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		I _{Zil}	50	-	75	kΩ
Noise output voltage	note 7;			150	-	
ON	R _s =0Ω	V _{no} (rms)	-	250	-	mV
ON	R _s = 10 kΩ	V _{no} (rms)	-	120	500	mV
mute	note 8	V _{no} (rms) a	-	-	-	mV
Channel separation	R _s = 10 kΩ	IDGvl	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 V_p= 6V to 18V and AC operating at V_p= 8,5V to 18 V.
3. At 18 V < V_p< 30 V 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 0 Ω (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_s (V_j = 0 V).