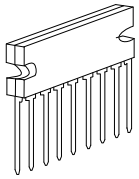
TDA1519C

LINEAR INTEGRATED CIRCUIT

22W BTL OR 2×11W STEREO POWER AMPLIFIER



HSIP-9B

■ DESCRIPTION

The UTC **TDA1519C** is an integrated class-B dual output amplifier with gain fixed at 40dB. It's packed in a 9-lead plastic single in-line power package for Low thermal resistance and high heat dissipation.

■ FEATURES

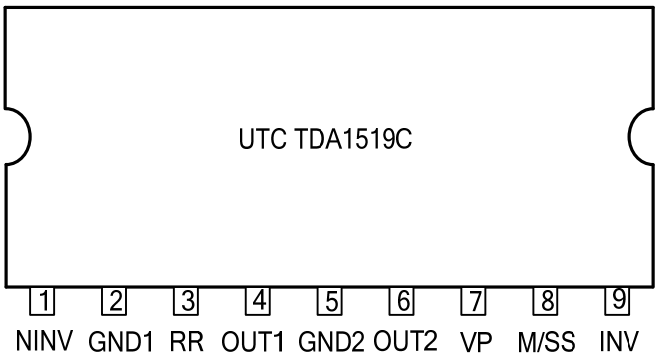
* Two identical amplifiers with Identical differential input stages suitable for Stereo or BTL application.
* Load dump, reverse polarity , short-circuit and over temperature protections
* Fixed gain at 40dB with Good ripple rejection
* Mute/standby switch with low switching current
* Requires very few external components for Bridge -Tied Load (BTL) operation
* No switch-on/switch-off pops
* Low standby current (<100μA)

■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
TDA1519CL-H09-B-T	TDA1519CG-H09-B-T	HSIP-9B	Tube

TDA1519CL-H09-B-T (1) Packing Type (2) Package Type (3) Lead Free	(1) T: Tube (2) H09-B: HISP9B (3) G: Halogen Free, L: Lead Free

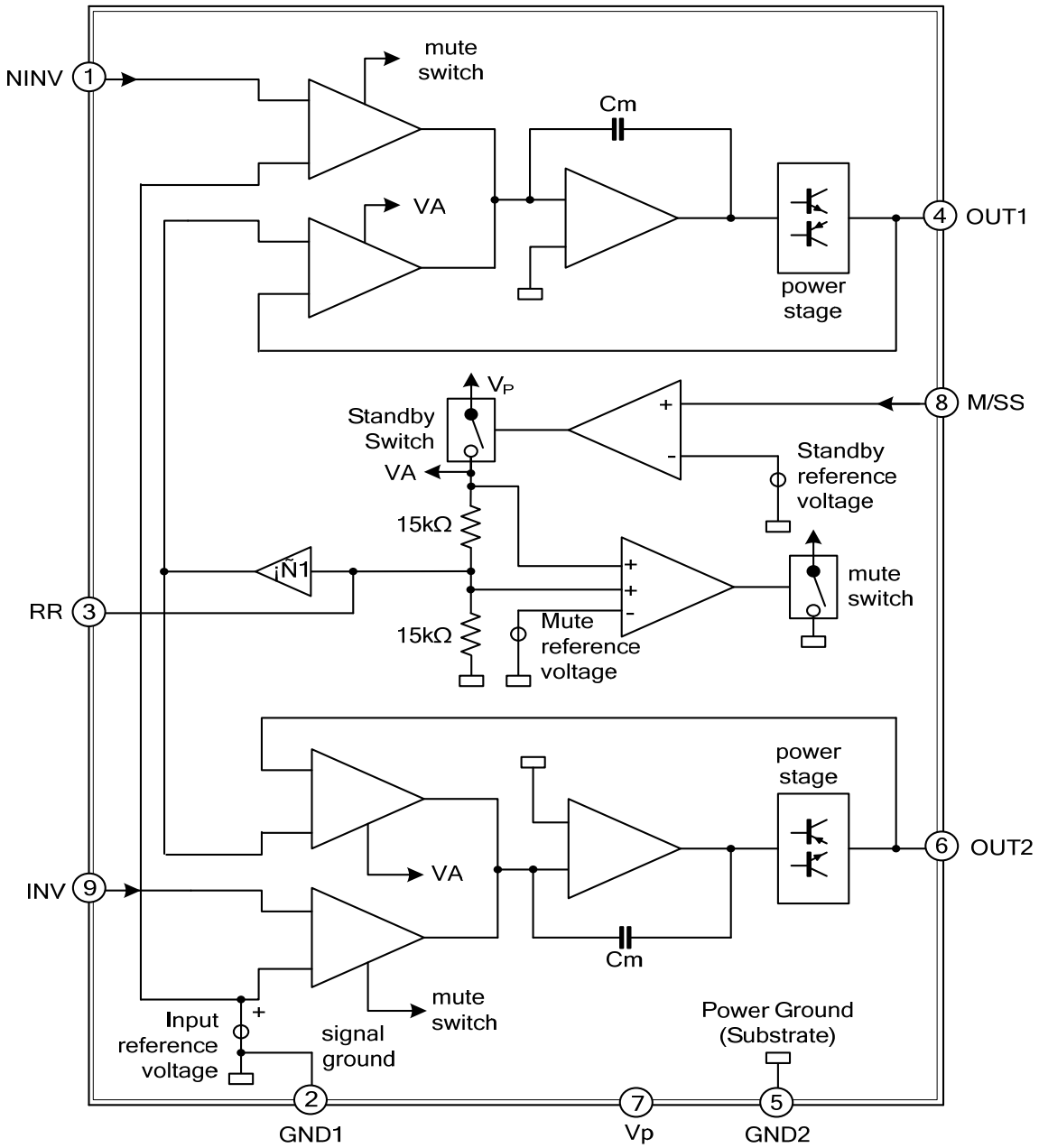
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO	PIN NAME	DESCRIPTION
1	NINV	Non-inverting input
2	GND1	Ground 1(signal)
3	PSRR	Supply Voltage Ripple Rejection
4	OUT1	Output 1
5	GND2	Ground 2(substrate)
6	OUT2	Output 2
7	V_P	Positive Supply Voltage
8	M/SS	Mute/standby switch input
9	INV	Inverting Input

■ BLOCK DIAGRAM



■ ABSUTE MAXIMUM RATINGS (T_a=25℃)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage	Operating	V_P	17.5	V
	Non-operating		30	
	Load dump protected (Note 2)		45	
AC and DC Short-Circuit Safe Voltage		V_{sc}	17.5	V
Reverse Polarity Voltage		V_{rp}	6	V
Non-repetitive Peak Output Current		I_{osM}	6	A
Repetitive Peak Output Current		I_{oRM}	4	A
Energy Handling Capability At Outputs (V_p=0V)		Eo	200	mJ
Power Dissipation		P_D	25	W
Junction Temperature		T_J	0 ~ +125	℃
Storage Temperature		T_{STG}	-65 ~ +125	℃

Note: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. During 50ms, tr ≥2.5ms

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction-to-Ambient	θ_{JA}	210	℃/W

■ DC CHARACTERISTICS (V_P=14.4V, Ta=25°C, measured from test circuit, fig 1.)

PARAMETER	SYMBOL	TECT CONDITONS	MIN	TYP	MAX	UNIT
SUPPLY						
Supply Voltage	V_P	(Note 1)	6.0	14.4	17.5	V
DC Output Voltage	V_{OUT}	(Note 2)		6.95		V
DC Output Offset Voltage	$\lvert\Delta V_{OO}\rvert$				250	mV
Total Quiescent Current	$I_{Q(TOT)}$			40	80	mA
MUTE/STANDBY SWITCH						
Switch-ON voltage Level	$V_{SW(ON)}$		8.5			V
Mute Voltage Level	V_{MUTE}		3.3		6.4	V
Standby Voltage Level	V_{STB}		0		2	V
MUTE/STANDBY CONDITION						
Output Voltage	V_{OUT}	Mute mode; $V_{IN(MAX)}$=1V; fi=20Hz ~ 15kHz			20	mV
DC Output Offset Voltage	$\lvert\Delta V_{OO}\rvert$	Mute mode			250	mV
Standby Current	I_{STB}	Standby mode			100	μA
Switch-ON Current	$I_{SW(ON)}$			12	40	μA

Note: 1. The circuit is DC adjusted at V_P=6~17.5V and AC operating at V_P=8.5~17.5V.
2. At V_P=17.5 ~ 30V, the DC output voltage is≦0.5Vp.

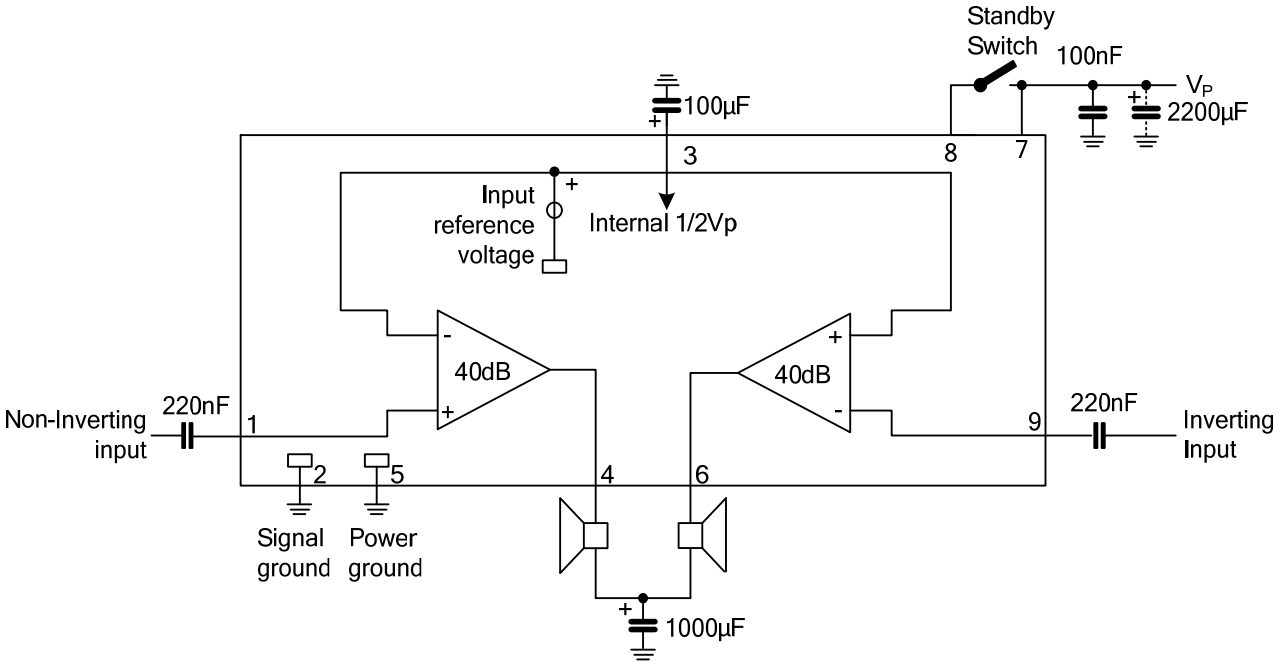
■ AC CHARACTERISTICS (V_P=14.4V, R_L=4Ω, T_a=25℃, f =1kHz, unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITONS		MIN	TYP	MAX	UNIT
STEREO APPLICATION (see fig.1)							
Noise output Voltage(RMS value)	$V_{N(O)(RMS)}$	ON, R_S=0Ω	Bandwidth 20Hz~20kHz.		150		μV
		ON, R_S=10kΩ			250	500	
		Mute, (Note 4)			120		
Input Impedance	| Zi |			50	60	75	kΩ
Output Power(Note 1)	P_{OUT}	THD=0.5%		4	5		W
		THD=10%		5.5	6.0		
		THD=0.5%, R_L=2Ω		7.5	8.5		
		THD=10%, R_L=2Ω		10	11		
Channel Separation	α_{CS}	R_S=10kΩ		40			dB
Channel Unalance	| ΔGv(ub) |				0.1	1	dB
Closed-loop voltage Gain	Gv(cl)			39	40	41	dB
Supply voltage Ripple rejection (Note 3)	SVRR	ON, f =100Hz.		40			dB
		ON, f=1 to 10kHz.		45			
		Mute, 100Hz to 10kHz.		45			
		Standby, 100Hz to10kHz		80			
High Frequency Roll-OFF	fro(h)	-1dB		20			KHz
Low Frequency Roll-OFF	fro(l)	-3dB (Note 2)			45		Hz
Total Harmonic Distortion	THD	P_{OUT}=1W			0.1		%
BTL APPLICATION (see fig 2)							
Noise Output Voltage (RMS Value)	$V_{N(O)(RMS)}$	ON, R_S=0Ω	Bandwidth 20Hz ~ 20kHz.		200		μV
		ON, R_S =10kΩ			350	700	
		Mute, Note 4			180		
Input Impedance	| Zi |			25	30	38	kΩ
Output Power(Note 1)	P_{OUT}	THD=0.5%		15	17		W
		THD=10%		20	22		
		THD=0.5%, V_P=13.2V			13		
		THD=10%, V_P=13.2V			17.5		W
Closed-Loop Voltage Gain	Gv(cl)			45	46	47	dB
Supply Voltage Ripple Rejection (Note 3)	SVRR	On, f =100Hz		34			dB
		On, f=1 to 10kHz		48			
		Mute, 100Hz to 10kHz.		48			
		Standby, 100Hz to10kHz		80			
High Frequency Roll-OFF	fro(h)	-1dB		20			KHz
Low Frequency Roll-OFF	fro(l)	-1dB, (Note 2)			45		Hz
Power Bandwidth	Bp	THD=0.5%, P_{OUT} =-1dB with respect to 15W			35 ~ 15000		Hz
Total Harmonic Distortion	THD	P_{OUT}=1W			0.1		%

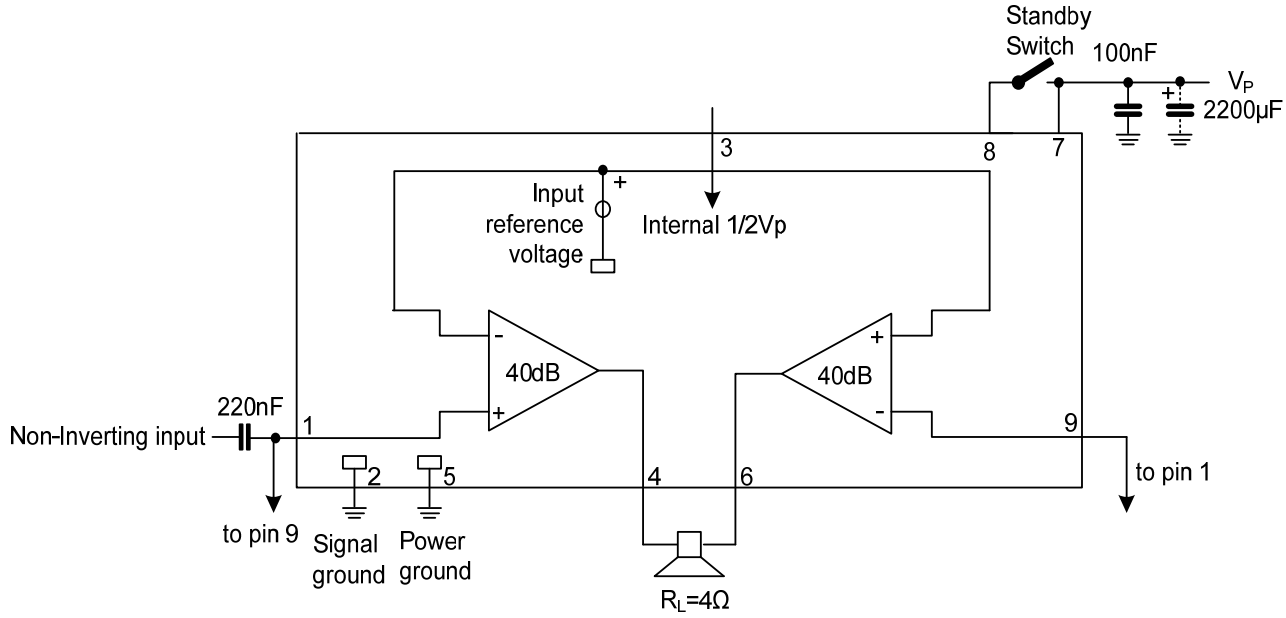
Note: 1. Output power is measured directly at the output pins of the device.
2. Frequency response is externally fixed.
3. Ripple rejection is measured at the output with a source impedance of 0Ω(maximum ripple amplitude of 2V).
4. Noise output voltage independent of R_S (V_{IN}=0V).

■ APPLICATION INFORMATION

Stereo application diagram



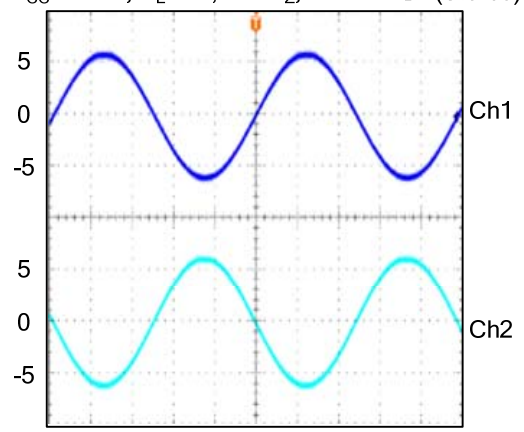
BTL application diagram



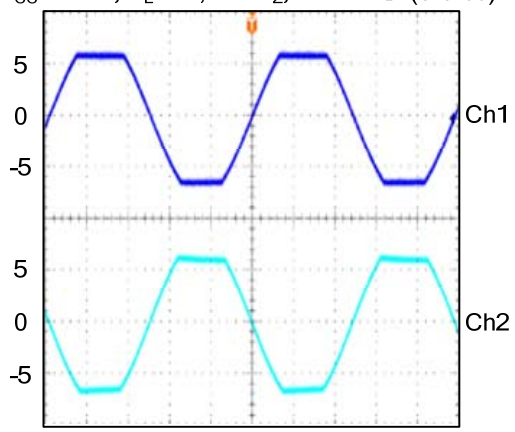
■ TYPICAL CHARACTERISTICS

P_O Output Waveform

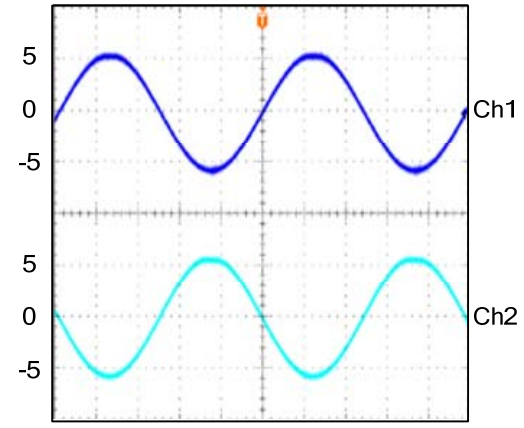
V_{CC}=14.4V, R_L=4Ω,f=1KH$_Z$, THD=0.5% (Stereo)



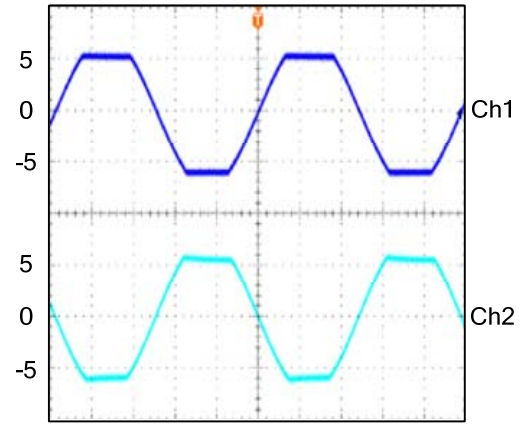
V_{CC}=14.4V, R_L=4Ω,f=1KH$_Z$, THD=10% (Stereo)



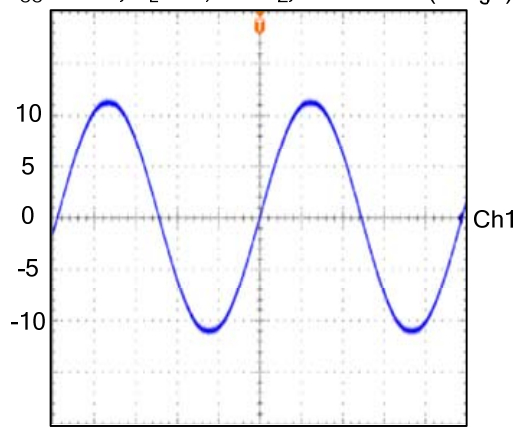
V_{CC}=14.4V, R_L=2Ω,f=1KH$_Z$, THD=0.5% (Stereo)



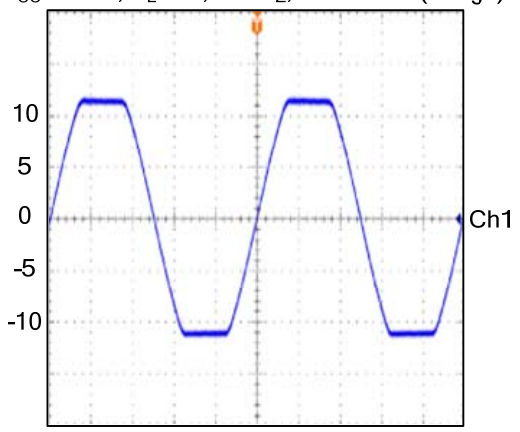
V_{CC}=14.4V, R_L=2Ω,f=1KH$_Z$, THD=10% (Stereo)



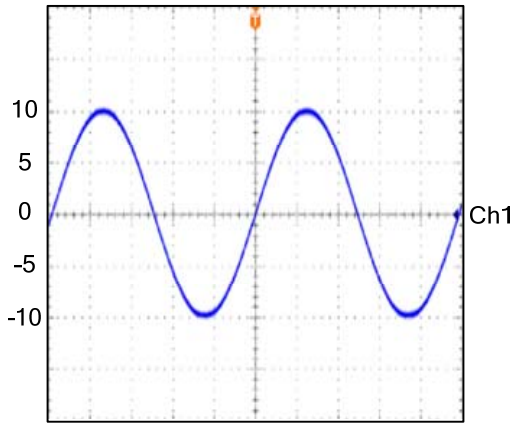
V_{CC}=14.4V, R_L=4Ω,f=1KH$_Z$, THD=0.5% (Bridge)



V_{CC}=14.4V, R_L=4Ω,f=1KH$_Z$, THD=10% (Bridge)



V_{CC}=13.2V, R_L=4Ω,f=1KH$_Z$, THD=0.5% (Bridge)



V_{CC}=13.2V, R_L=4Ω,f=1KH$_Z$, THD=10% (Bridge)