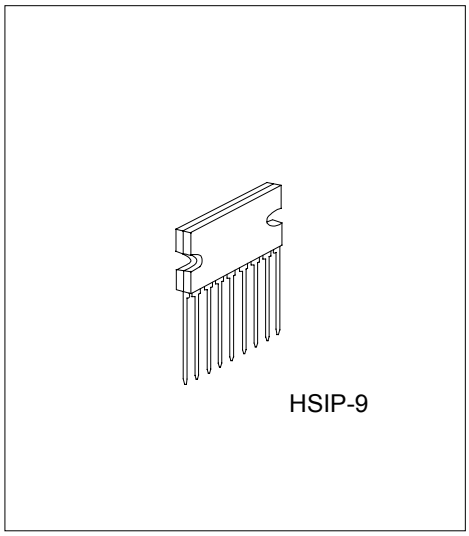
22W BTL OR 2×11W STEREO POWER AMPLIFIER



*Pb-free plating product number: TDA1519CL

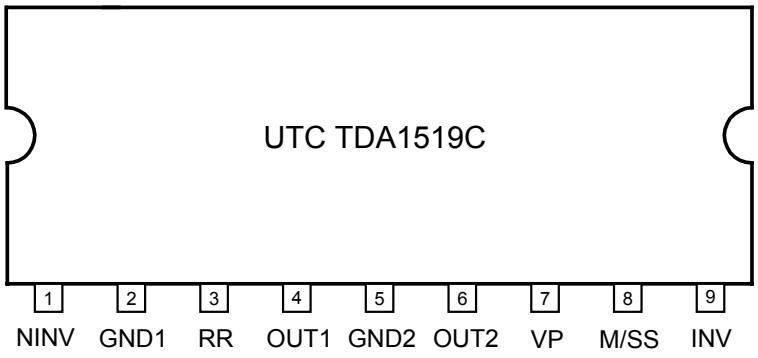
DESCRIPTION

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 (<100 μA)

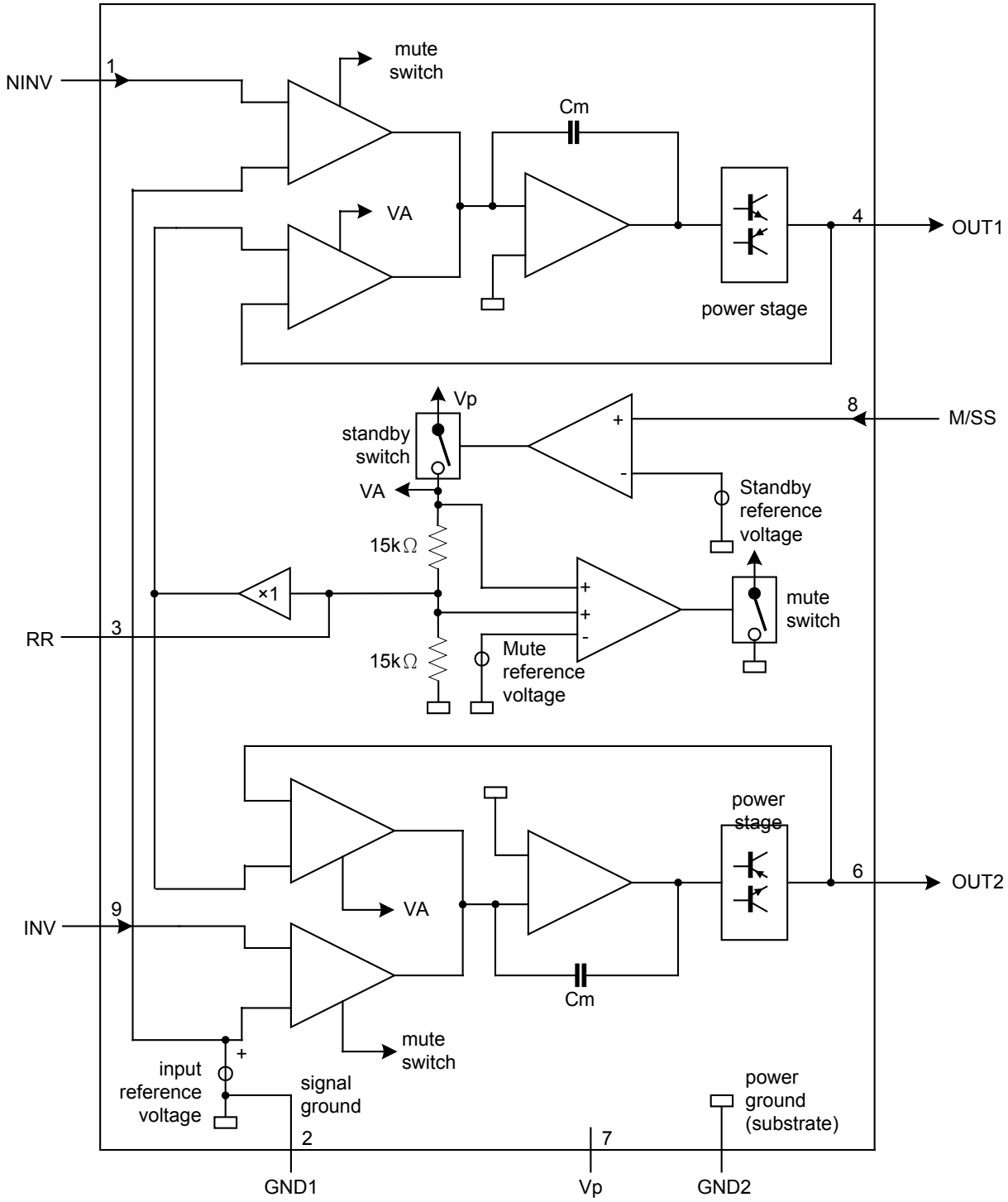
PIN CONFIGURATION



PIN DESCRIPION

PIN NO.	PIN NAME	DESCRIPION
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	Vp	Positive Supply Voltage
8	M/SS	Mute/standby switch input
9	INV	Inverting Input

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage operating Non-operating Load dump protected (during 50ms, tr≧2.5ms)	V_p	 17.5 30 45	V
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
Total Power Dissipation	P_{tot}	25	W
Junction Temperature	T_J	0 ~ +125	℃
Storage Temperature	T_{STG}	-65 ~ +125	℃
Energy handling capability at outputs (V_p=0V)	Eo	200	mJ

QUICK REFERENCE DATA

PARAMETER	SYMBOL	TEST CONDITONS	MIN	TYP	MAX	UNIT
Supply						
Supply Voltage operating Non-operating Load dump protected	V_p		6.0	14.4	 17.5 30 45	V
Repetitive Peak Output Current	I_{ORM}				4	A
Total Quiescent Current	$I_{q(tot)}$			40	80	mA
Standby Current	I_{stb}			0.1	100	μA
Switch-on Current	$I_{sw(on)}$				40	μA
Inputs						
Input Impedance BTL stereo	| Zi |		 25 50			kΩ
Stereo Application						
Noise Output Voltage(RMS value)	$V_{n(o)(rms)}$			150		μV
Output Power	Po	THD=10%				
		R_L=4Ω		6		W
		R_L=2Ω		11		W
Channel Separation	α_{cs}		40			dB
BTL Application						
DC Output Offset Voltage	| ΔVoo |				250	mV
Output Power	Po	THD=10%, R_L=4Ω		22		W
Junction Temperature	T_j				150	℃
Supply Voltage Ripple Rejection	SVRR	Rs=0Ω, f_i=100Hz	34			dB
		Rs=0Ω, f_i=1 ~ 10kHz	48			dB

DC CHARACTERISTICS

(Vp=14.4V, Ta=25℃, measured from test circuit, Fig 1.)

PARAMETER	SYMBOL	TECT CONDITONS	MIN	TYP	MAX	UNIT
Supply						
Supply Voltage	Vp	Note 1	6.0	14.4	17.5	V
DC Output Voltage	Vo	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	Vo	Mute mode;Vi=1V(maximum); 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

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

AC CHARACTERISTICS

(Vp=14.4V, R_L=4Ω, Ta=25℃, f =1kHz, unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITONS	MIN	TYP	MAX	UNIT
Stereo Application (See Fig.1)						
Noise output Voltage(RMS value)	$V_{n(o)(rms)}$	Bandwidth 20Hz ~ 20kHz.				
		On, Rs=0Ω		150		μV
		On, Rs=10kΩ		250	500	μV
		Mute, Note 4		120		μV
Input Impedance	$\lvert Z_i \rvert$		50	60	75	kΩ
Output Power	Po	Note 1				
		THD=0.5%	4	5		W
		THD=10%	5.5	6.0		W
		RL=2Ω, Note 1				
		THD=0.5%	7.5	8.5		W
		THD=10%	10	11		W
Channel Separation	α_{cs}	Rs=10kΩ	40			dB
Channel Unalance	$\lvert\Delta G_{v(ub)}\rvert$			0.1	1	dB
Closed-loop voltage Gain	Gv(cl)		39	40	41	dB
Supply voltage Ripple rejection	SVRR	On, f =100Hz. Note 3	40			dB
		On, f=1 to 10kHz. Note 3	45			dB
		Mute, 100Hz to 10kHz. Note 3	45			dB
		Standby, 100Hz to10kHz Note 3	80			dB
High Frequency roll-off	fro(h)	-1dB	20			KHz
Low Frequency roll-off	fro(l)	-3dB, Note 2		45		Hz
Total Harmonic Distortion	THD	Po=1W		0.1		%

PARAMETER	SYMBOL	TEST CONDITONS	MIN	TYP	MAX	UNIT
BTL Application (see Fig 2)						
Noise Output Voltage (RMS value)	$V_{n(o)(rms)}$	Bandwidth 20Hz ~ 20kHz.				
		On, Rs=0Ω		200		μV
		On, Rs=10kΩ		350	700	μV
		Mute, Note 4		180		μV
Input Impedance	| Zi |		25	30	38	kΩ
Output Power	Po	Note 1				
		THD=0.5%	15	17		W
		THD=10%	20	22		W
		Vp=13.2V, Note 1				
		THD=0.5%		13		W
		THD=10%		17.5		W
Closed-loop Voltage Gain	Gv(cl)		45	46	47	dB
Supply Voltage Ripple Rejection	SVRR	On, f =100Hz. Note 3	34			dB
		On, f=1 to 10kHz. Note 3	48			dB
		Mute, 100Hz to 10kHz. Note 3	48			dB
		Standby, 100Hz to10kHz Note 3	80			dB
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%, Po=-1dB with respect to 15W		35 to 15000		Hz
Total Harmonic Distortion	THD	Po=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 Rs (Vi=0V).

APPLICATION INFORMATION

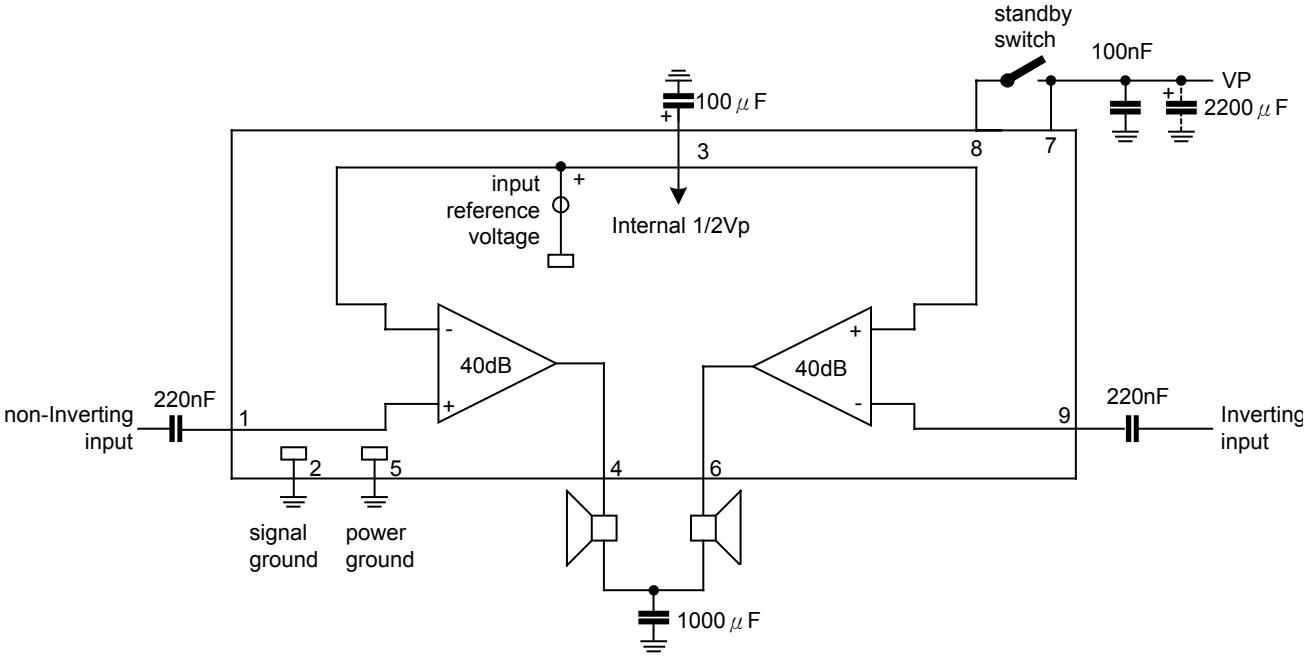


Fig.1 Stereo application diagram

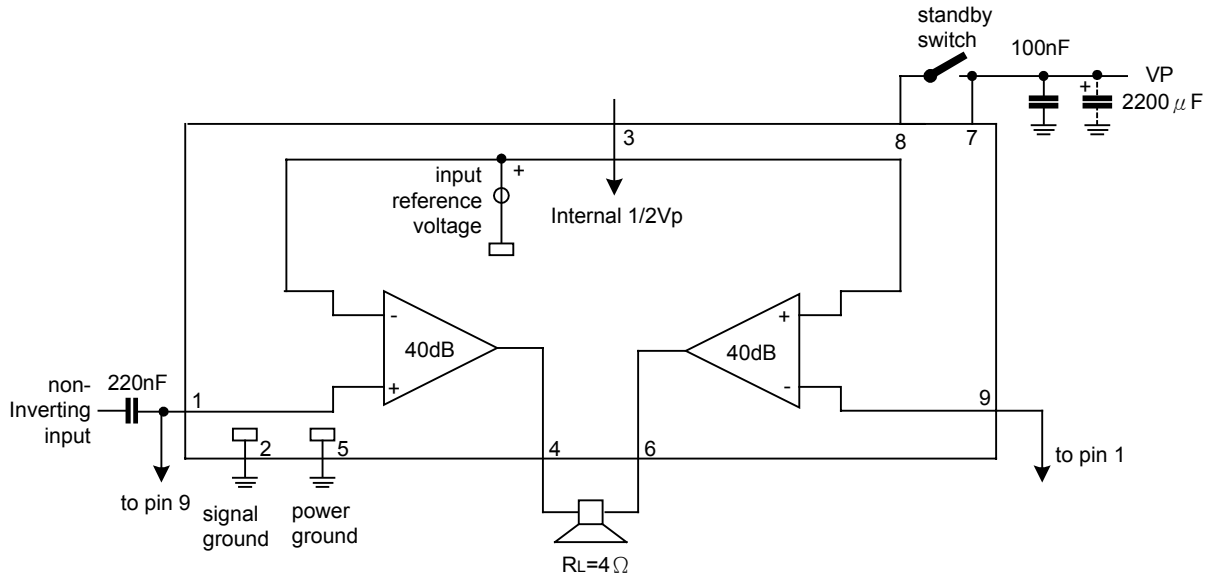


Fig.2 BTL application diagram

ELECTRICAL CHARCTERISTIC

Fig.3 Total quiescent current as a function of the supply voltage(V_P)

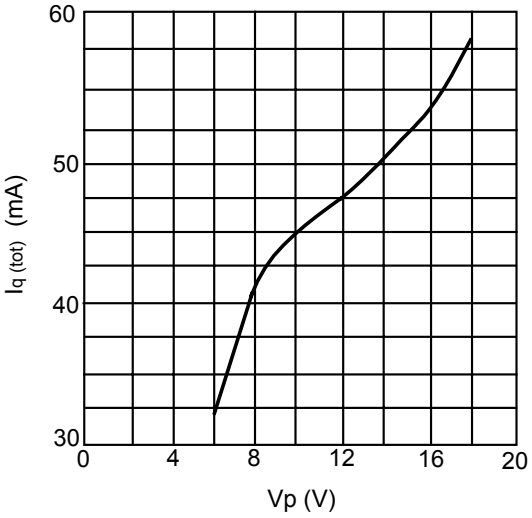


Fig.4 Output power as a function of the supply voltage

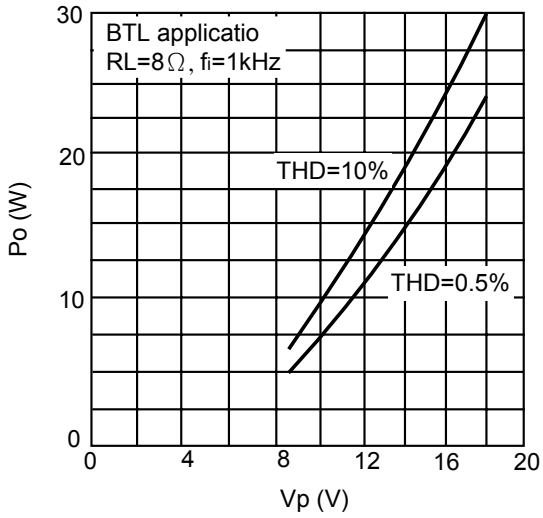


Fig.5 Total harmonic distortion as a function of the output power

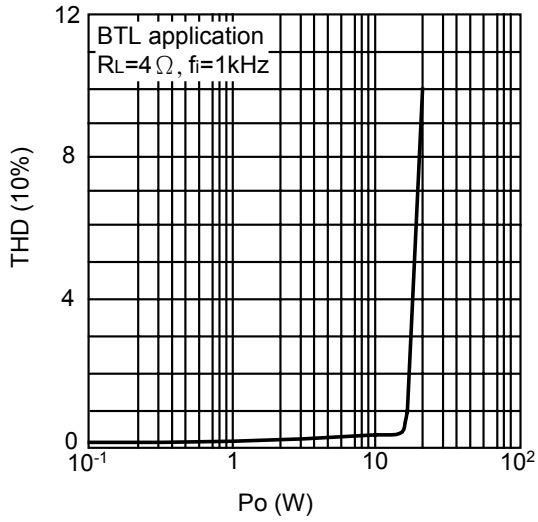
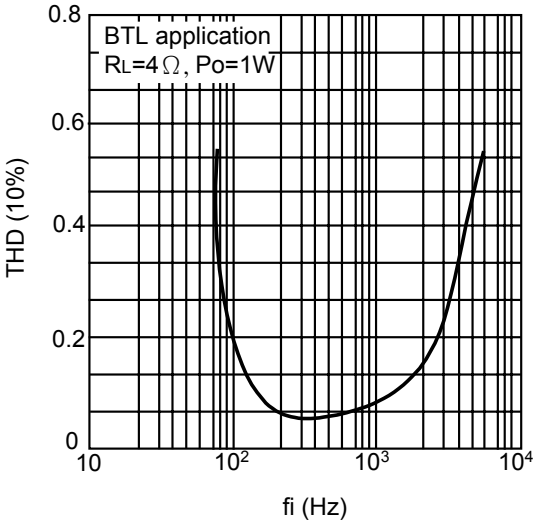


Fig.6 Total harmonic distortion as a function of the operating frequency



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