



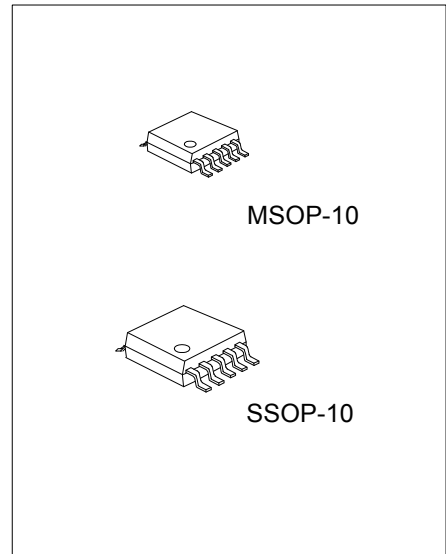
A4533

LINEAR INTEGRATED CIRCUIT

LOW POWER AMPLIFIER FOR HEADPHONE STEREOS

FEATURES

- * Low current consumption.
- * 16Ω load drive capability.
- * Excellent reduced voltage characteristics.
- * High power supply ripple rejection.
- * Fewer external components required.
- * High voltage gain.
- * Less harmonic interference in radio band.
- * Built in power switch and muting function.

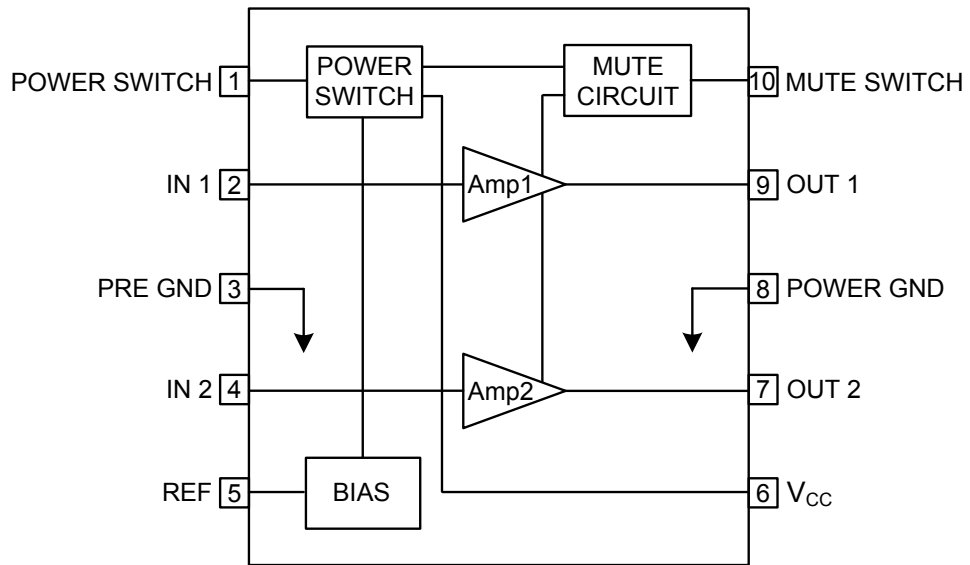


ORDERING INFORMATION

Order Number		Package	Packing
Lead Free	Halogen free		
A4533L-SM2-R	A4533G-SM2-R	MSOP-10	Tape Reel
A4533L-SM2-T	A4533G-SM2-T	MSOP-10	Tube
A4533L-R10-R	A4533G-R10-R	SSOP-10	Tape Reel
A4533L-R10-T	A4533G-R10-T	SSOP-10	Tube

<p>A4533L-SM2-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Plating</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) SM2: MSOP-10, R10: SSOP-10</p> <p>(3) L: Lead Free, G: Halogen free</p>
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■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Power Supply Voltage	V _{CC}	4.5	V
Power Dissipation	P _D	300	mW
Junction Temperature	T _J	125	°C
Operating Temperature	T _{OPR}	-20 ~ +85	°C
Storage Temperature	T _{STG}	-40 ~ +150	°C

Note: 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.

■ RECOMMENDED OPERATING CONDITIONS

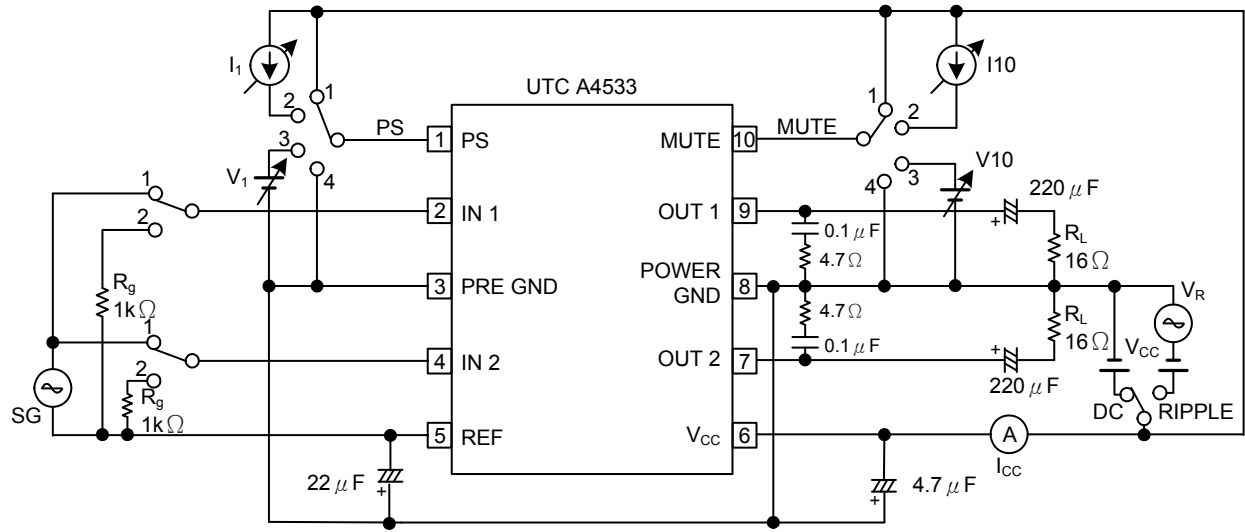
PARAMETER	SYMBOL	RATINGS	UNIT
Recommended Supply Voltage	V _{CC}	3	V
Operating Voltage Range	V _{OPR}	1.6 ~ 4	V
Load Resistance	R _L	16 ~ 32	Ω

■ ELECTRICAL CHARACTERIS (T_a = 25°C, R_L=16Ω, R_g=600Ω, Unless Otherwise specified)

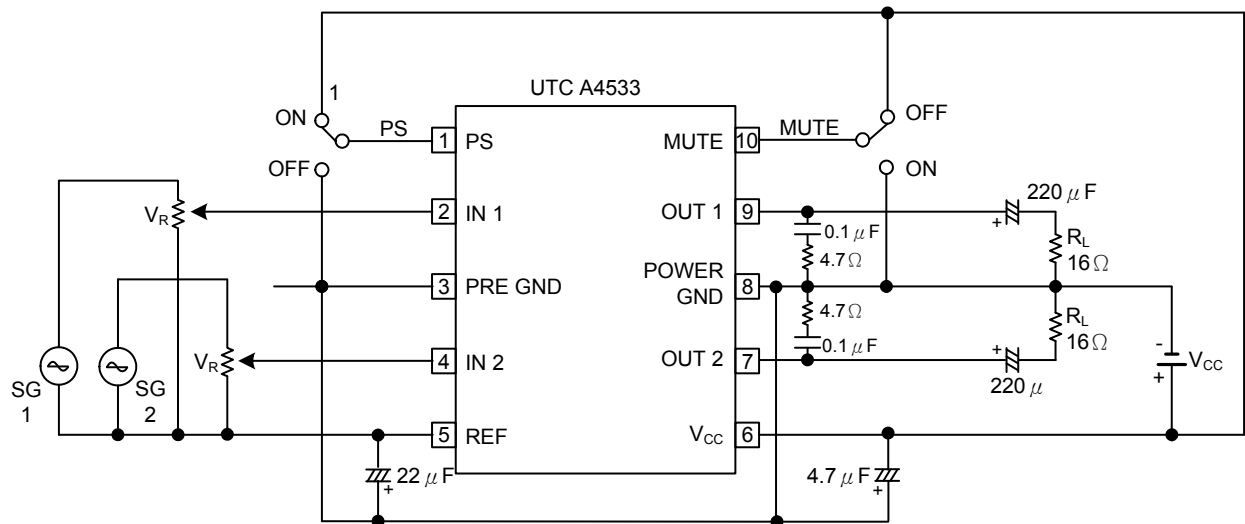
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Current	I _{Q1}	V _{CC} =2.4V		5.4	10	mA
	I _{Q2}	V _{CC} =4.5V, Mute =GND		1.1	2.0	mA
	I _{Q3}	V _{CC} =4.5V, PS = GND			1.0	μA
Voltage Gain	G _{V1}	V _{CC} =2.4V, f=1kHz, V _{OUT} =-10dBm	30	32	34	dB
	G _{V2}	V _{CC} =1.6V, f=1kHz, V _{OUT} =-20dBm	29	32	34	dB
Voltage Gain Difference	ΔG _{V1}	V _{CC} =2.4V, f=1kHz, V _{OUT} =-10dBm			1.0	dB
	ΔG _{V2}	V _{CC} =1.6V, f=1kHz, V _{OUT} =-20dBm			1.0	dB
Total Harmonic Distortion	THD	V _{CC} =2.0V, f=1kHz, P _{OUT} =1mW		0.5	1.5	%
Output Power	P _{OUT}	V _{CC} =3.0V, f=1kHz, THD=10%	20	40		mW
Cross Talk	CT	V _{CC} =2.4V, f=100Hz, R _g =1kΩ, V _{OUT} =-10dB	40	50		dB
Ripple Rejection	RR	V _{CC} =1.6V, f=100Hz, R _g =1kΩ, V _R =-20dBm, BPF=100Hz	45	60		dB
Output Noise Voltage	eN	V _{CC} =4.5V, R _g =1kΩ, BPF=20Hz ~ 20kHz		62	100	μV
Power Off Effect	V _{O(OFF)}	V _{CC} =1.6V, f=100Hz, PS = GND, V _{IN} =-10dB			-80	dB
Muting Effect	V _{O(MT)}	V _{CC} =1.6V, f=100Hz, Mute = GND, V _{IN} =-10dB			-80	dB
Power On Current Sensitivity	I _{PS(ON)}	V _{CC} =1.5V, V _{REF} ≥0.85V		0.05	1.0	μA
Power Off Voltage Sensitivity	V _{PS(OFF)}	V _{CC} =1.5V, V _{REF} ≤0.1V	0.5	0.6		V
Muting Off Current Sensitivity	I _{MUTE(OFF)}	V _{CC} =1.5V, V _{REF} ≥0.85V		0.2	1.0	μA
Muting On Voltage Sensitivity	V _{MUTE(ON)}	V _{CC} =1.5V, V _{REF} ≤0.1V	0.5	0.65		V

Note: The quiescent current is represented by the current flowing into pin 6. The respective maximum currents flowing into pin 1 and pin 10 are calculated by (pin voltage -0.5) / 16 [V/kΩ] and the total current increases by these current values.

■ TEST CIRCUIT



■ TYPICAL APPLICATION CIRCUIT



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