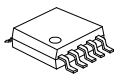
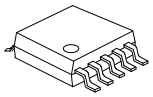
A4533

LINEAR INTEGRATED CIRCUIT

LOW POWER AMPLIFIER FOR HEADPHONE STEREOS



MSOP-10



SSOP-10

■ FEATURES

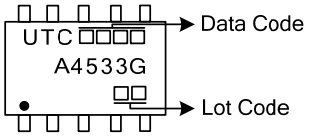
* Low current consumption.
* 16Ω load drive capability.
* Excellent reduced voltage characteristics.
* High power supply ripple rejection.
* Fewer external components required.
* High voltage gain.
* Less harmonic interference in radio band.
* Built in power switch and muting function.

■ ORDERING INFORMATION

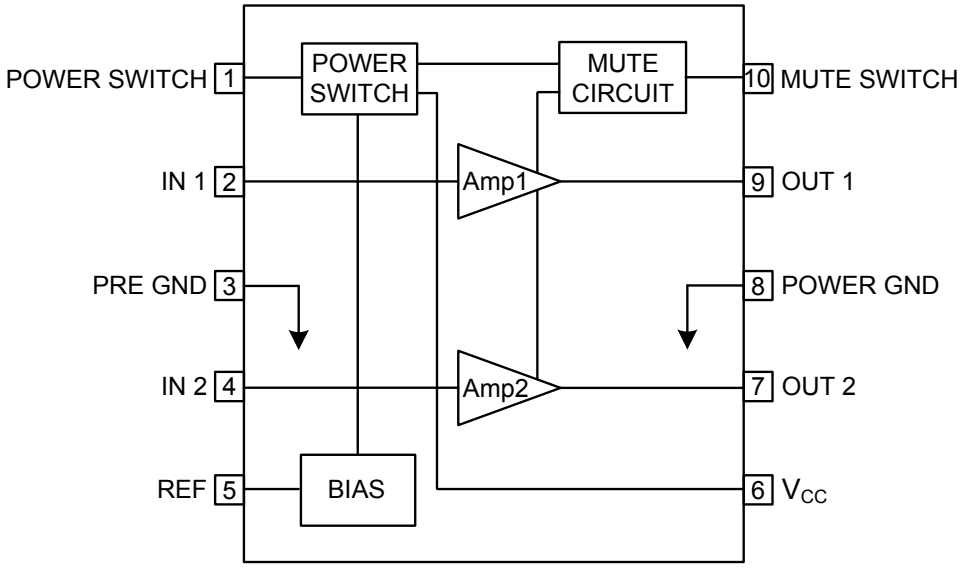
Order Number	Package	Packing
A4533G-SM2-R	MSOP-10	Tape Reel
A4533G-SM2-T	MSOP-10	Tube
A4533G-R10-R	SSOP-10	Tape Reel
A4533G-R10-T	SSOP-10	Tube

A4533G-SM2-R (1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube, R: Tape Reel (2) SM2: MSOP-10, R10: SSOP-10 (3) G: Halogen Free and Lead Free

■ MARKING



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (T_A = 25°C, unless Otherwise specified)

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

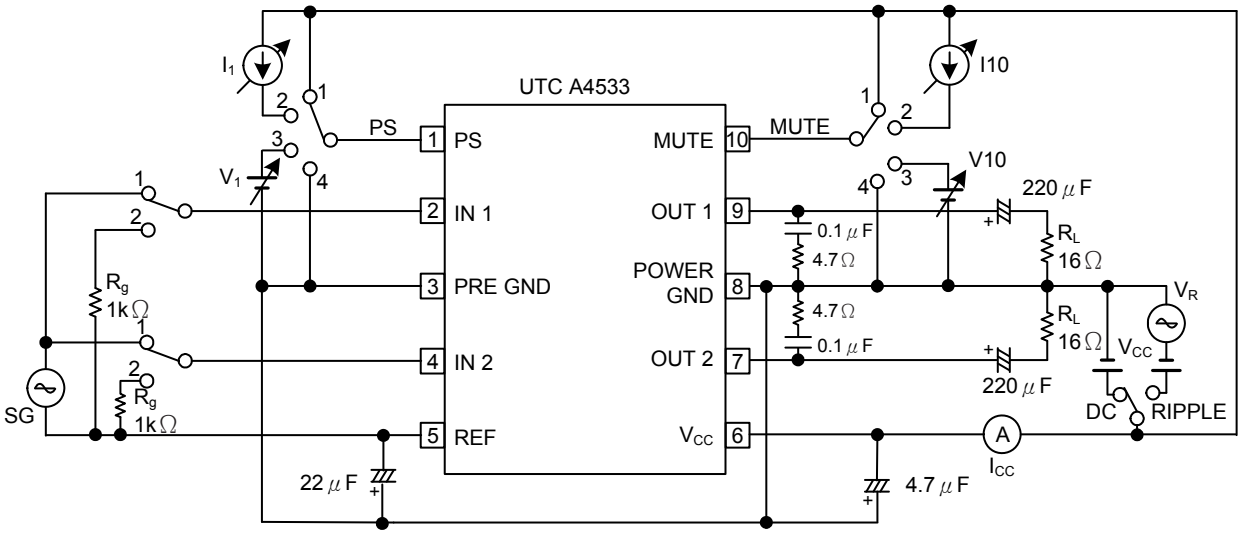
PARAMETER	SYMBOL	RATINGS	UNIT
Recommended Supply Voltage	V_{CC}	3	V
Operating Voltage Range	V_{OPR}	1.6 ~ 4	V
Load Resistance	R_L	16 ~ 32	Ω

■ 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, Rg=1kW, V_{OUT}=–10dB	40	50		dB
Ripple Rejection	RR	V_{CC}=1.6V, f=100Hz, Rg=1kΩ, V_R=–20dBm, BPF=100Hz	45	60		dB
Output Noise Voltage	eN	V_{CC}=4.5V, Rg=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 APPLICATON CIRCUIT