



SANYO Semiconductors

DATA SHEET

Monolithic Linear IC

LA4537M — Power Amplifier For 1.5V Headphone Stereos

Features

- Low current drain
- 16Ω load drive capability
- Excellent reduced voltage characteristics
- Excellent power supply ripple rejection
- Minimum number of external parts required (no input capacitor, feedback capacitor required)
- Less harmonic interference in radio band
- On-chip power switch function, muting function

Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC} max	Quiescent	4.5	V
Allowable power dissipation	P _d max		300	mW
Operating temperature	T _{opr}		-20 to +75	°C
Storage temperature	T _{stg}		-40 to +125	°C

Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V _{CC}		1.5	V
Operating voltage range	V _{CC} op		0.9 to 4.0	V
Recommended load resistance	R _L		16 to 32	Ω

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LA4537M

Electrical Characteristics at $T_a = 25^\circ\text{C}$, $R_L = 16\Omega$, $R_g = 600\Omega$, See specified Test Circuit.

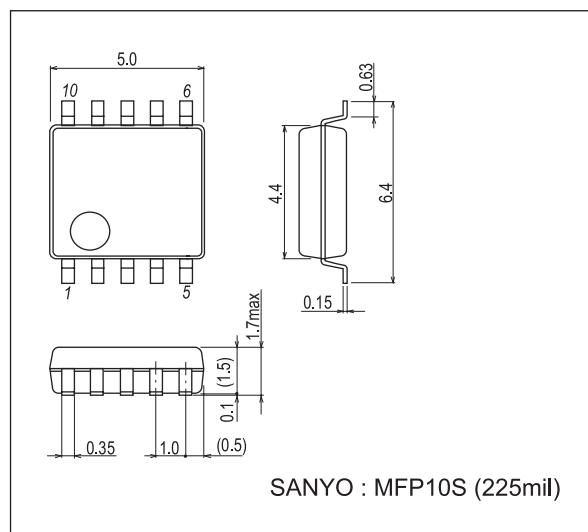
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	I _{CC01}	$V_{CC} = 1.2\text{V}$, quiescent		3.5	6.0	mA
	I _{CC02}	$V_{CC} = 2.5\text{V}$, pin 10 \rightarrow GND		1.4	2.5	mA
	I _{CC03}	$V_{CC} = 2.5\text{V}$, pin 1 \rightarrow GND			1.0	μA
Voltage gain	V _G	$V_{CC} = 1.2\text{V}$, $f = 1\text{kHz}$, $V_O = -20\text{dBm}$	28.5	30.0	31.5	dB
Voltage gain difference	ΔV_G	$V_{CC} = 1.2\text{V}$, $f = 1\text{kHz}$, $V_O = -20\text{dBm}$			1.0	dB
Total harmonic distortion	THD	$V_{CC} = 1.2\text{V}$, $f = 1\text{kHz}$, $P_O = 0.5\text{mW}$		0.5	1.5	%
Output power	P _O	$V_{CC} = 1.5\text{V}$, $f = 1\text{kHz}$, THD = 10%	5	8		mW
Crosstalk	C _T	$V_{CC} = 1.2\text{V}$, $f = 100\text{Hz}$, $R_g = 1\text{k}\Omega$, $V_O = -20\text{dB}$	40	45		dB
Ripple rejection	S _{VRR}	$V_{CC} = 1.0\text{V}$, $f = 100\text{Hz}$, $R_g = 1\text{k}\Omega$, $V_R = -30\text{dBm}$, BPF = 100Hz	40	46		dB
Output noise voltage	V _{NO}	$V_{CC} = 2.5\text{V}$, $R_g = 1\text{k}\Omega$, BPF = 20Hz to 20kHz		55	80	μV
Power on current sensitivity	I ₁ (on)	$V_{CC} = 0.85\text{V}$, $V_5 \geq 0.5\text{V}$		0.1	1.0	μA
Power off voltage sensitivity	V ₁ (off)	$V_{CC} = 0.85\text{V}$, $V_5 \leq 0.1\text{V}$	0.5	0.6		V
Muting off current sensitivity	I ₁₀ (off)	$V_{CC} = 0.85\text{V}$, $V_5 \geq 0.5\text{V}$		0.1	1.0	μA
Muting on voltage sensitivity	V ₁₀ (on)	$V_{CC} = 0.85\text{V}$, $V_5 \leq 0.1\text{V}$	0.5	0.6		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 $(\text{pin voltage } - 0.5) / 16 [\text{V}/\text{k}\Omega]$ and the total current increases by these current values.

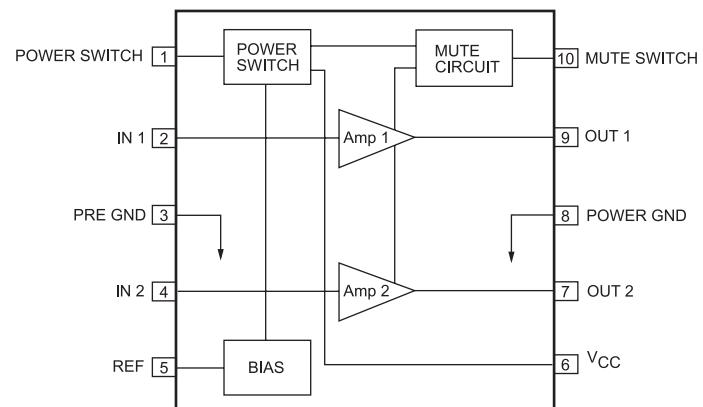
Package Dimensions

unit : mm (typ)

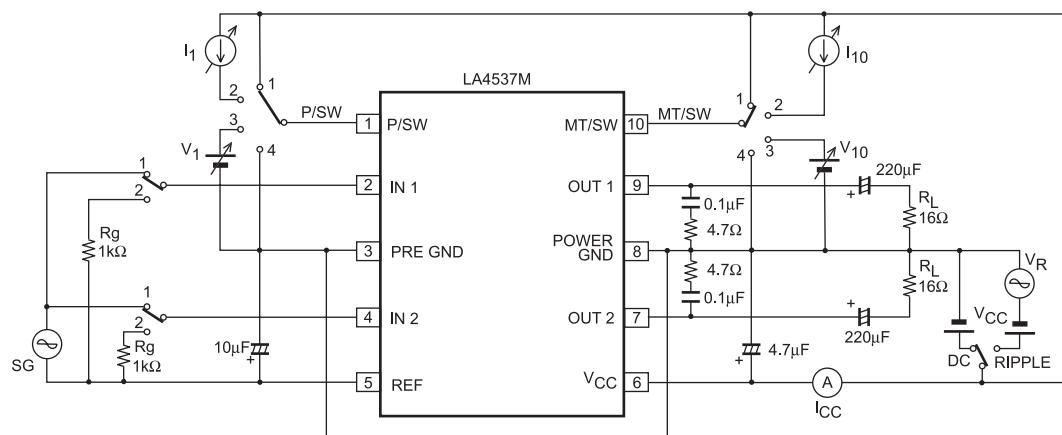
3086B



Block Diagram

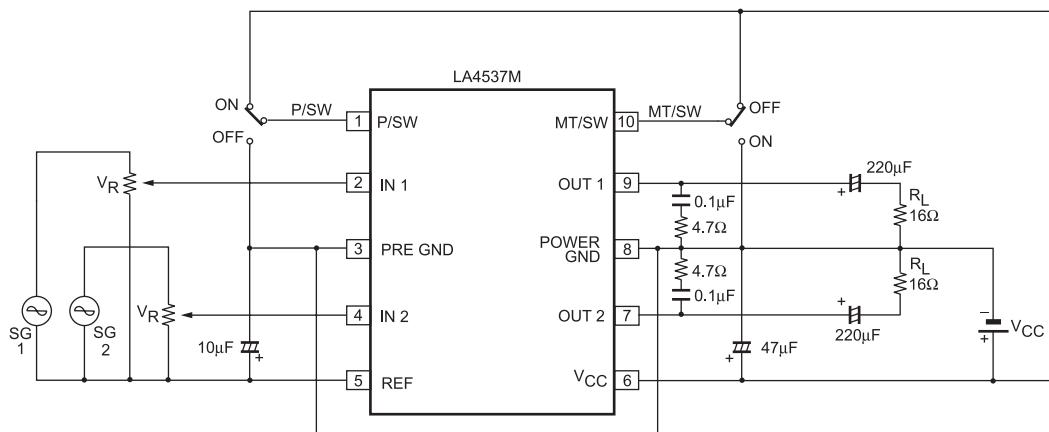


Test Circuit



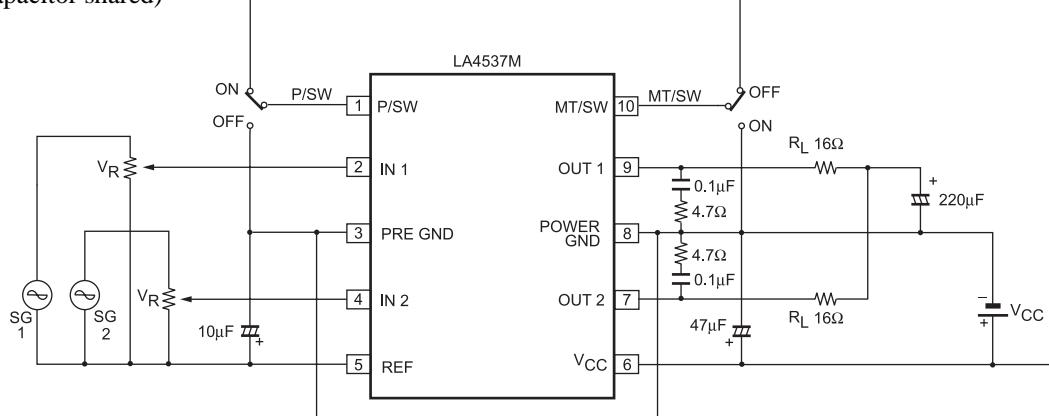
Sample Application Circuit 1

(Standard)



Sample Application Circuit 2

(Output capacitor shared)



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