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SANYO Semiconductors

## DATA SHEET

# LA4537M

Monolithic Linear IC  
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 <sub>CC</sub> max	Quiescent	4.5	V
Allowable power dissipation	P <sub>d</sub> max		300	mW
Operating temperature	T <sub>opr</sub>		-20 to +75	°C
Storage temperature	T <sub>stg</sub>		-40 to +125	°C

### Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V <sub>CC</sub>		1.5	V
Operating voltage range	V <sub>CC op</sub>		0.9 to 4.0	V
Recommended load resistance	R <sub>L</sub>		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.

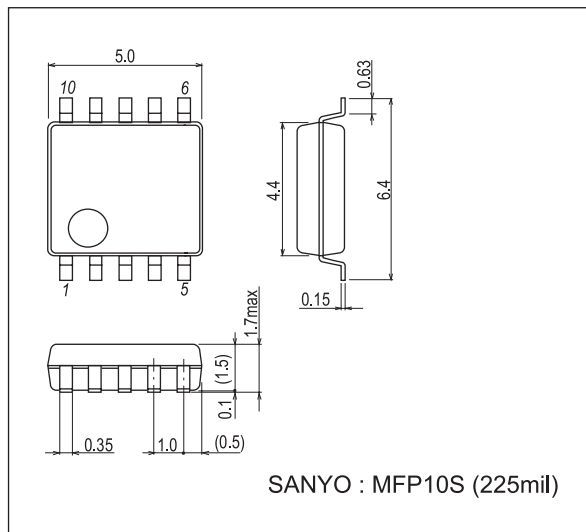
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	$I_{CCO1}$	$V_{CC} = 1.2\text{V}$ , quiescent		3.5	6.0	mA
	$I_{CCO2}$	$V_{CC} = 2.5\text{V}$ , pin 10 $\rightarrow$ GND		1.4	2.5	mA
	$I_{CCO3}$	$V_{CC} = 2.5\text{V}$ , pin 1 $\rightarrow$ GND			1.0	$\mu\text{A}$
Voltage gain	VG	$V_{CC} = 1.2\text{V}$ , $f = 1\text{kHz}$ , $V_O = -20\text{dBm}$	28.5	30.0	31.5	dB
Voltage gain difference	$\Delta\text{VG}$	$V_{CC} = 1.2\text{V}$ , $f = 1\text{kHz}$ , $V_O = -20\text{dBm}$			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	CT	$V_{CC} = 1.2\text{V}$ , $f = 100\text{Hz}$ , $R_g = 1\text{k}\Omega$ , $V_O = -20\text{dB}$	40	45		dB
Ripple rejection	SVRR	$V_{CC} = 1.0\text{V}$ , $f = 100\text{Hz}$ , $R_g = 1\text{k}\Omega$ , $V_R = -30\text{dBm}$ , 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	$\mu\text{V}$
Power on current sensitivity	$I_1$ (on)	$V_{CC} = 0.85\text{V}$ , $V_5 \geq 0.5\text{V}$		0.1	1.0	$\mu\text{A}$
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	$\mu\text{A}$
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 (pin voltage - 0.5) / 16 [V/k $\Omega$ ] and the total current increases by these current values.

## Package Dimensions

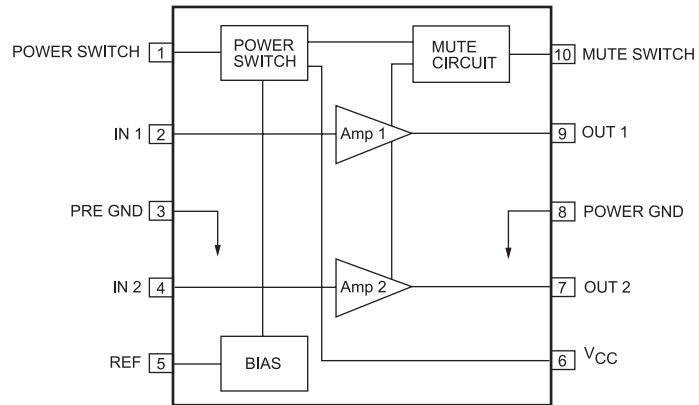
unit : mm (typ)

3086B

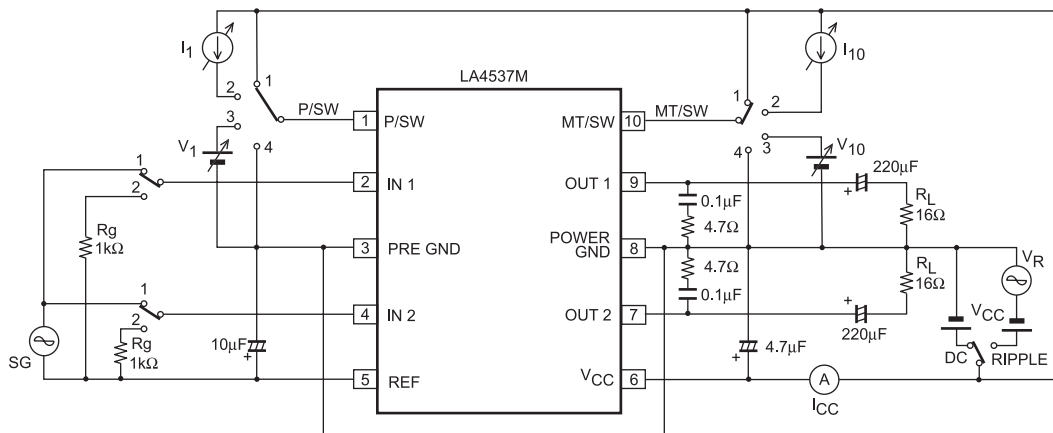


# LA4537M

## Block Diagram



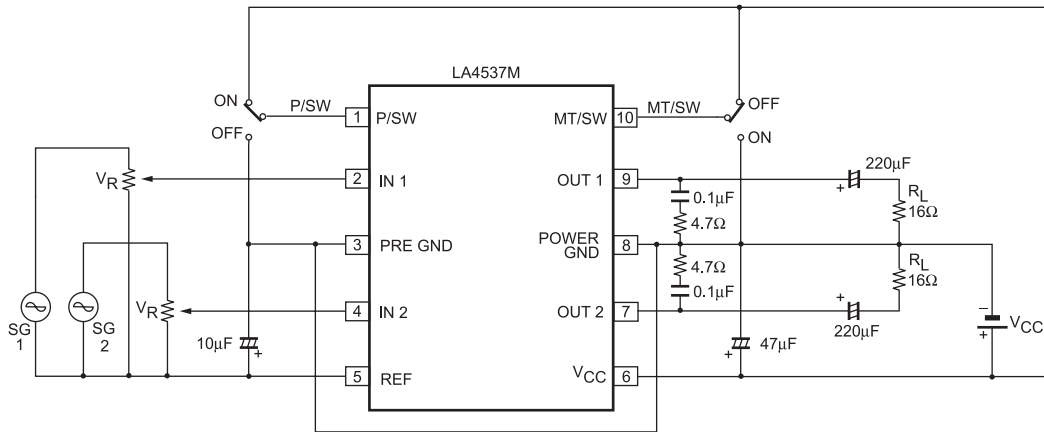
## Test Circuit





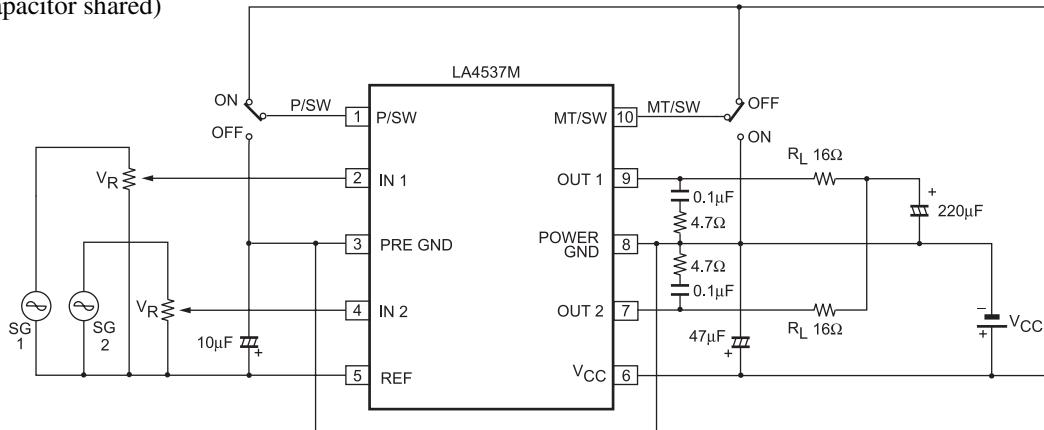
## Sample Application Circuit 1

(Standard)



## Sample Application Circuit 2

(Output capacitor shared)



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