



LA4537M

Power Amplifier for 1.5V Headphone Stereos

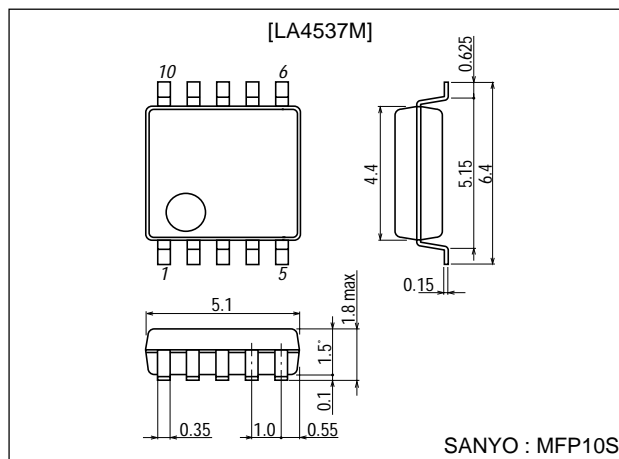
Features

- 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.

Package Dimensions

unit:mm

3086A-MFP10S



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	Pd 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

Operating Characteristics at Ta = 25°C, R_L=16Ω, R_g=600Ω, See specified Test Circuit.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	I _{cco1}	V _{CC} =1.2V, quiescent		3.5	6.0	mA
	I _{cco2}	V _{CC} =2.5V, pin 10 → GND		1.4	2.5	mA
	I _{cco3}	V _{CC} =2.5V, pin 1 → GND			1.0	μA
Voltage gain	VG	V _{CC} =1.2V, f=1kHz, V _O =-20dBm	28.5	30.0	31.5	dB
Voltage gain difference	ΔVG	V _{CC} =1.2V, f=1kHz, V _O =-20dBm			1.0	dB

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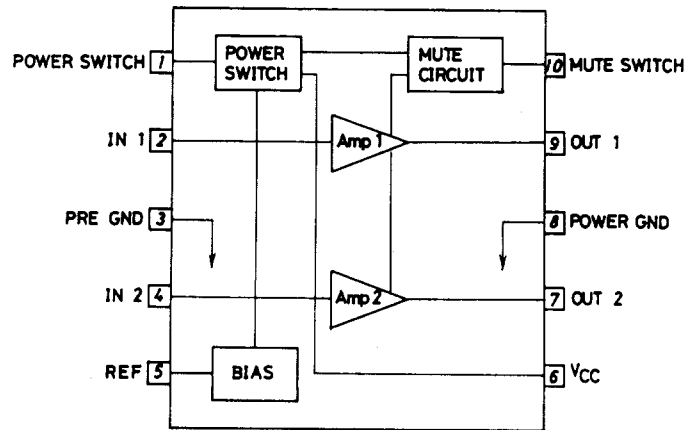
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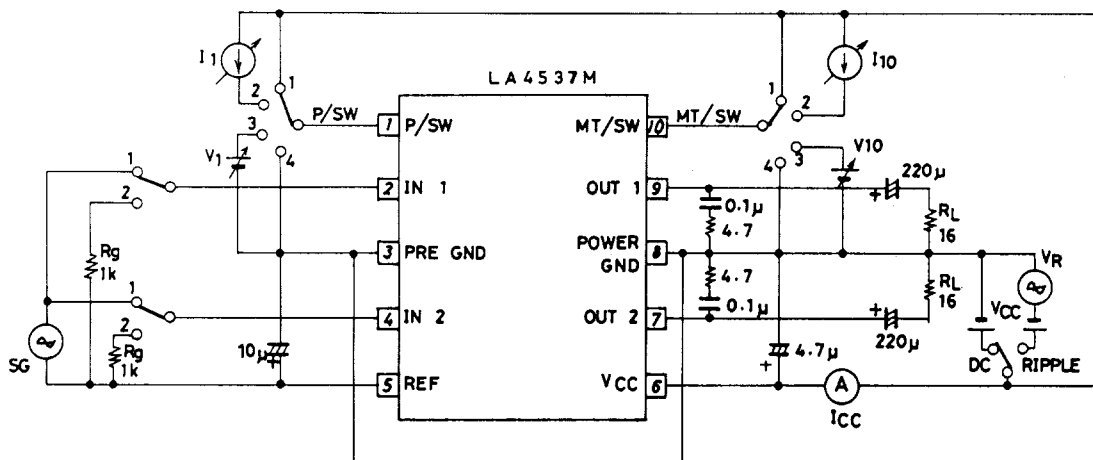
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total harmonic distortion	THD	$V_{CC}=1.2V$, $f=1kHz$, $P_O=0.5mW$		0.5	1.5	%
Output power	P_O	$V_{CC}=1.5V$, $f=1kHz$, $THD=10\%$	5	8		mW
Crosstalk	CT	$V_{CC}=1.2V$, $f=100Hz$, $R_g=1k\Omega$, $V_O=-20dB$	40	45		dB
Ripple rejection	SVRR	$V_{CC}=1.0V$, $f=100Hz$, $R_g=1k\Omega$, $V_R=-30dBm$, $BPF=100Hz$	40	46		dB
Output noise voltage	V_{NO}	$V_{CC}=2.5V$, $R_g=1k\Omega$, $BPF=20Hz$ to $20kHz$		55	80	μV
Power on current sensitivity	I_1 (on)	$V_{CC}=0.85V$, $V_5 \geq 0.5V$		0.1	1.0	μA
Power off voltage sensitivity	V_1 (off)	$V_{CC}=0.85V$, $V_5 \leq 0.1V$	0.5	0.6		V
Muting off current sensitivity	I_{10} (off)	$V_{CC}=0.85V$, $V_5 \geq 0.5V$		0.1	1.0	μA
Muting on voltage sensitivity	V_{10} (on)	$V_{CC}=0.85V$, $V_5 \leq 0.1V$	0.5	0.6		V

Note) The quiescent current is respresented 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.

Equivalent Circuit Block Diagram



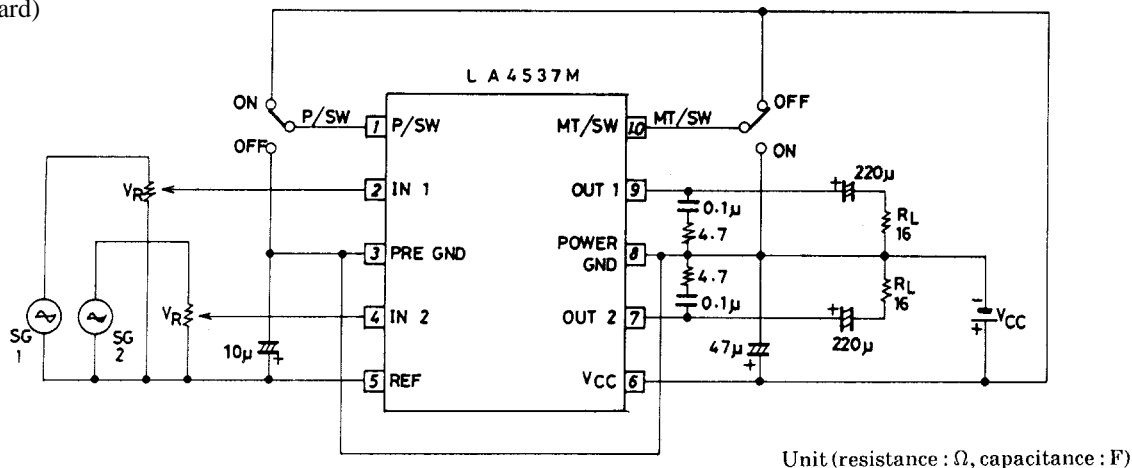
Test Circuit



Unit (resistance : Ω , capacitance : F)

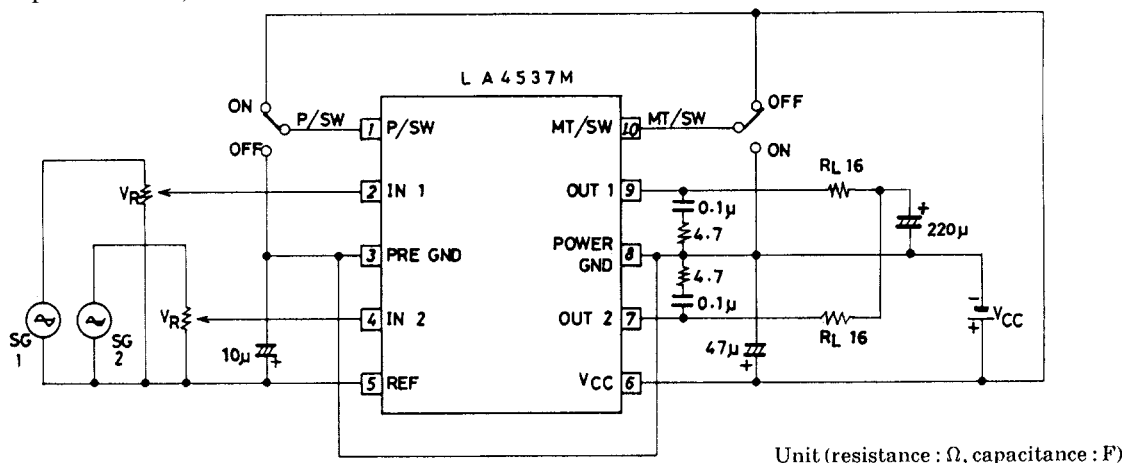
Sample Application Circuit 1

(Standard)



Sample Application Circuit 2

(Output capacitor shared)



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