

**SANYO**

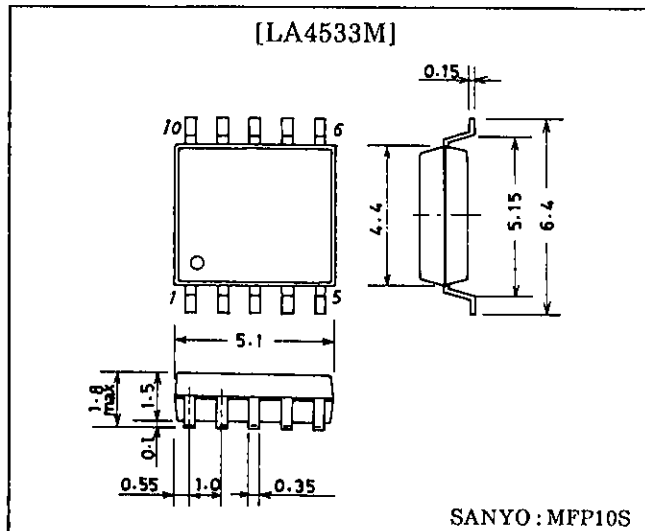
No.2248B

**LA4533M**Power Amplifier for 3V Headphone  
Stereos**Features**

- Low current consumption.
- 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).
- Applicable to radio sets because of high voltage gain.
- Less harmonic interference in radio band.
- On-chip power switch function, muting function.

**Package Dimensions**

(unit: mm)

**3086A-MFP10S****Specifications****Maximum Ratings at Ta = 25°C**

Parameter	Symbol	Value	Unit
Maximum Supply Voltage	V <sub>CC</sub> max	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	Value	Unit
Recommended Supply Voltage	V <sub>CC</sub>	3.0	V
Operating Voltage Range	V <sub>CC op</sub>	1.6 to 4.0	V
Recommended Load Resistance	R <sub>L</sub>	16 to 32	Ω

**Operating Characteristics at Ta = 25°C, R<sub>L</sub> = 16Ω, R<sub>g</sub> = 600Ω, See specified Test Circuit.**

Parameter	Symbol	Condition	min	typ	max	Unit
Quiescent Current	I <sub>cco</sub> (1)	V <sub>CC</sub> = 2.4V, quiescent		5.4	10	mA
	I <sub>cco</sub> (2)	V <sub>CC</sub> = 4.5V, pin 10 → GND		1.1	2.0	mA
	I <sub>cco</sub> (3)	V <sub>CC</sub> = 4.5V, pin 1 → GND			1.0	μA
Voltage Gain	VG (1)	V <sub>CC</sub> = 2.4V, f = 1kHz, V <sub>O</sub> = -10dBm	30	32	34	dB
	VG (2)	V <sub>CC</sub> = 1.6V, f = 1kHz, V <sub>O</sub> = -20dBm	29	32	34	dB
Voltage Gain Difference	ΔVG (1)	V <sub>CC</sub> = 2.4V, f = 1kHz, V <sub>O</sub> = -10dBm			1.0	dB
	ΔVG (2)	V <sub>CC</sub> = 1.6V, f = 1kHz, V <sub>O</sub> = -20dBm			1.0	dB

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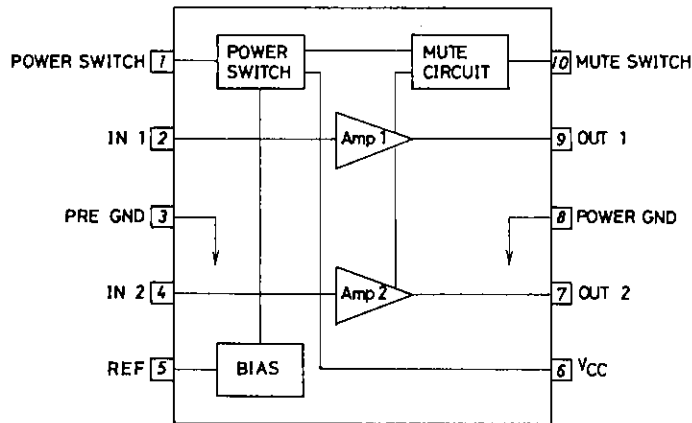
# LA4533M

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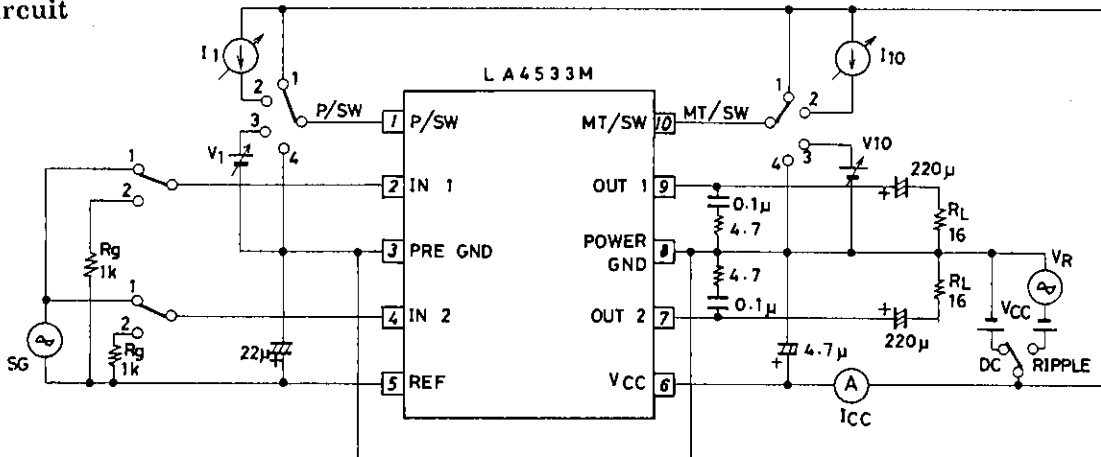
			min	typ	max	Unit
Total Harmonic Distortion	THD	$V_{CC}=2.0V, f=1kHz, P_O=1mW$		0.5	1.5	%
Output Power	$P_O$	$V_{CC}=3.0V, f=1kHz, THD=10%$	20	40		mW
Crosstalk	CT	$V_{CC}=2.4V, f=100Hz, R_g=1k\Omega$ $V_O=-10dB$	40	50		dB
Ripple Rejection	SVRR	$V_{CC}=1.6V, f=100Hz, R_g=1k\Omega$ $V_R=-20dBm, BPF=100Hz$	45	60		dB
Output Noise Voltage	$V_{NO}$	$V_{CC}=4.5V, R_g=1k\Omega$ , BPF=20Hz to 20kHz		62	100	$\mu V$
Power OFF Effect	$V_O$ (off)	$V_{CC}=1.6V, f=100Hz, pin1 \rightarrow GND$ , $V_{IN}=-10dB$			-80	dB
Muting Effect	$V_O$ (MT)	$V_{CC}=1.6V, f=100Hz, pin10 \rightarrow GND$ , $V_{IN}=-10dB$			-80	dB
Power ON	$I_1$ (on)	$V_{CC}=1.5V, V_5 \geq 0.85V$		0.05	1.0	$\mu A$
Current Sensitivity	$V_1$ (off)	$V_{CC}=1.5V, V_5 \leq 0.1V$	0.5	0.6		V
Power OFF	$I_{10}$ (off)	$V_{CC}=1.5V, V_5 \geq 0.85V$		0.2	1.0	$\mu A$
Voltage Sensitivity	$V_{10}$ (on)	$V_{CC}=1.5V, V_5 \leq 0.1V$	0.5	0.65		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 (pinvoltage - 0.5) / 16 [V/k $\Omega$ ] and the total current increases by these current values.

## Equivalent Circuit Block Diagram and Application Circuit

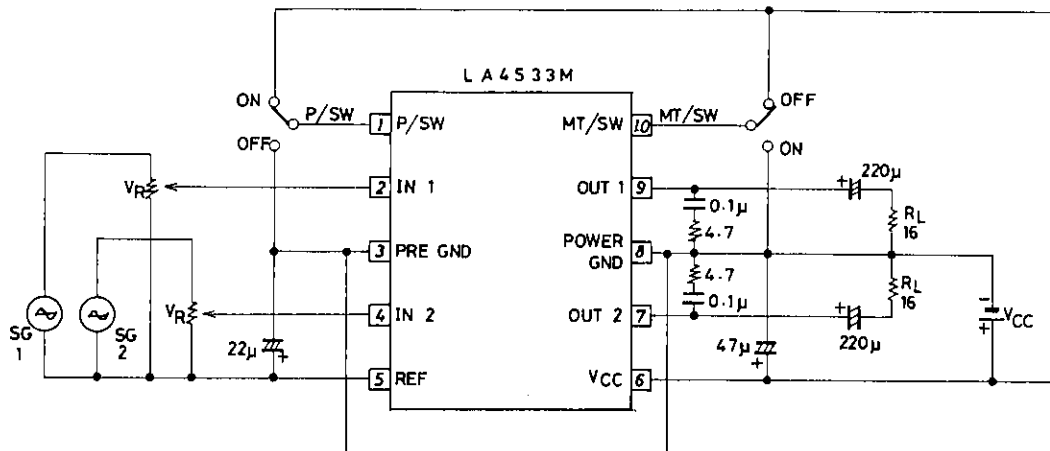


## Test Circuit



Unit (resistance :  $\Omega$ , capacitance : F)

## Sample Application Circuit

Unit (resistance :  $\Omega$ , capacitance : F)

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