

**SANYO**

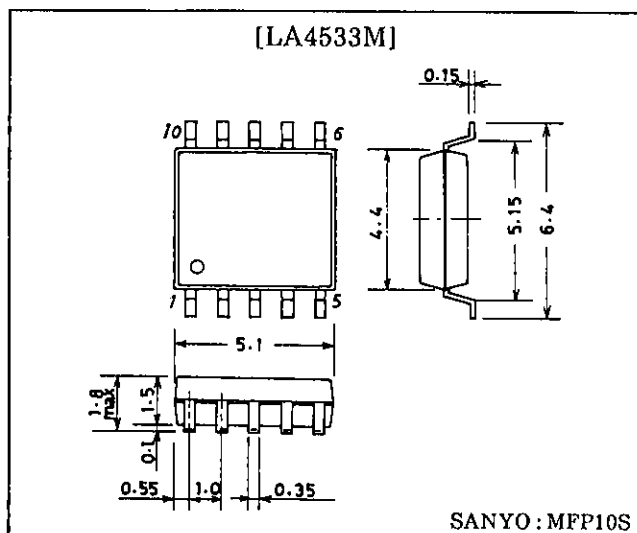
No.2248B

**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**

			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**

			Unit
Recommended Supply Voltage	V <sub>CC</sub>		3.0 V
Operating Voltage Range	V <sub>CC</sub> op		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.**

			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

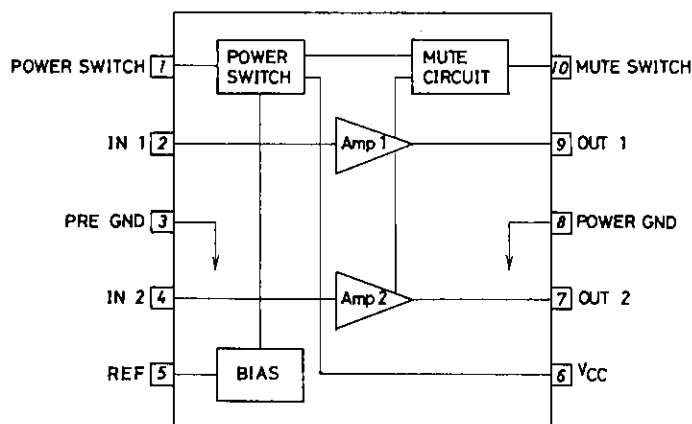
Continued on next page.

Continued from preceding page.

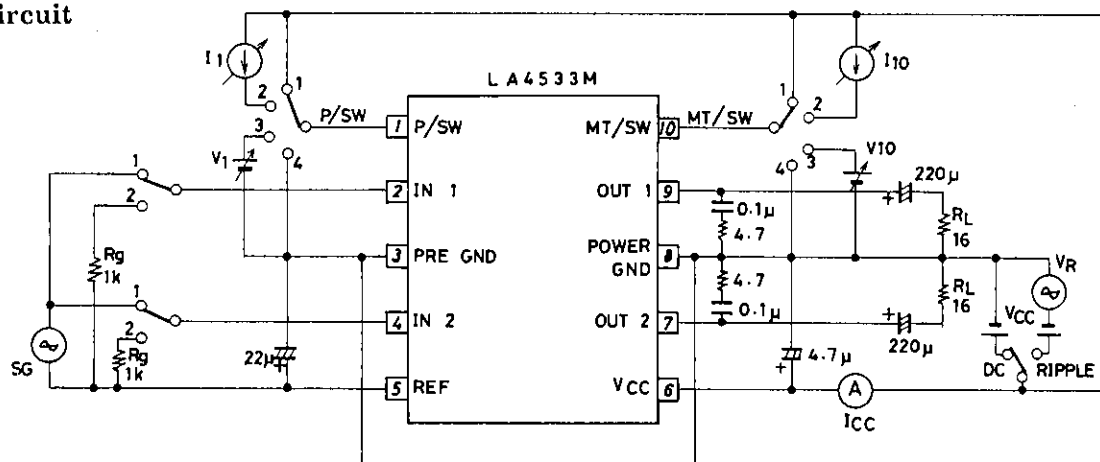
			min	typ	max	Unit
Total Harmonic Distortion	THD	$V_{CC}=2.0V, f=1kHz, P_O=1mW$		0.5	1.5	%
Output Power	$P_O$	$V_{CC}=3.0V, f=1kHz, THD=10\%$	20	40		mW
Crosstalk	CT	$V_{CC}=2.4V, f=100Hz, R_g=1k\Omega$ $V_O=-10dB$	40	50		dB
Ripple Rejection	SVRR	$V_{CC}=1.6V, f=100Hz, R_g=1k\Omega$ $V_R=-20dBm, BPF=100Hz$	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						
Power OFF	$V_1$ (off)	$V_{CC}=1.5V, V_5 \leq 0.1V$	0.5	0.6		V
Voltage Sensitivity						
Muting OFF	$I_{10}$ (off)	$V_{CC}=1.5V, V_5 \geq 0.85V$		0.2	1.0	$\mu A$
Current Sensitivity						
Muting ON	$V_{10}$ (on)	$V_{CC}=1.5V, V_5 \leq 0.1V$	0.5	0.65		V
Voltage Sensitivity						

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.

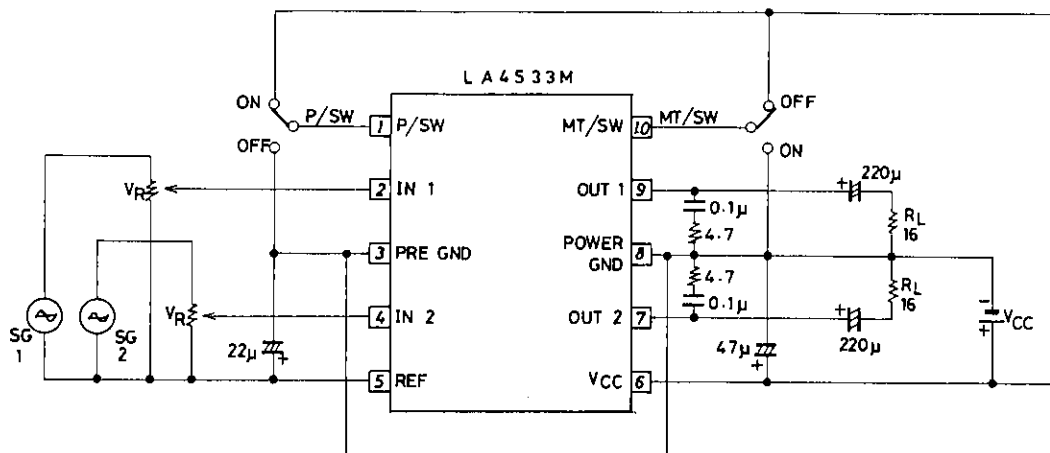
### Equivalent Circuit Block Diagram and Application Circuit



### Test Circuit

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

## Sample Application Circuit

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

- No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.
- Anyone purchasing any products described or contained herein for an above-mentioned use shall:
  - ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use:
  - ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

This catalog provides information as of June, 1995. Specifications and information herein are subject to change without notice.