Ordering number: EN2248B

Monolithic Linear IC

No.2248B

LA4533M

Power Amplifier for 3V Headphone Stereos

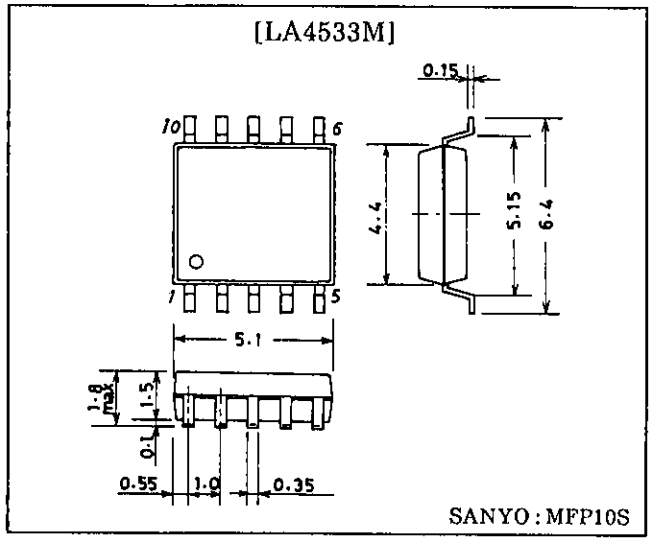
Features

- 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_{CC} max	Quiescent	4.5	V
Allowable Power Dissipation	Pd max		300	mW
Operating Temperature	Topr		−20 to +75	°C
Storage Temperature	Tstg		−40 to +125	°C

Operating Conditions at Ta = 25°C

			Unit
Recommended Supply Voltage	V_{CC}	3.0	V
Operating Voltage Range	V_{CC} op	1.6 to 4.0	V
Recommended Load Resistance	R_L	16 to 32	Ω

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

			min	typ	max	Unit
Quiescent Current	Icco (1)	V_{CC} = 2.4V, quiescent		5.4	10	mA
	Icco (2)	V_{CC} = 4.5V, pin 10→GND		1.1	2.0	mA
	Icco (3)	V_{CC} = 4.5V, pin 1→GND			1.0	μA
Voltage Gain	VG (1)	V_{CC} = 2.4V, f = 1kHz, V_O = −10dBm	30	32	34	dB
	VG (2)	V_{CC} = 1.6V, f = 1kHz, V_O = −20dBm	29	32	34	dB
Voltage Gain Difference	ΔVG (1)	V_{CC} = 2.4V, f = 1kHz, V_O = −10dBm			1.0	dB
	ΔVG (2)	V_{CC} = 1.6V, f = 1kHz, V_O = −20dBm			1.0	dB

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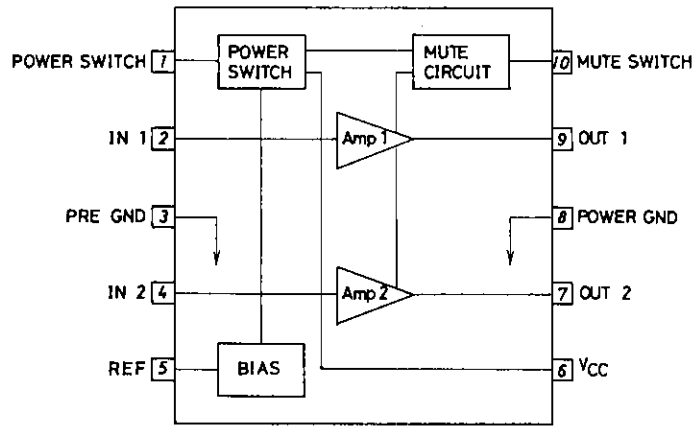
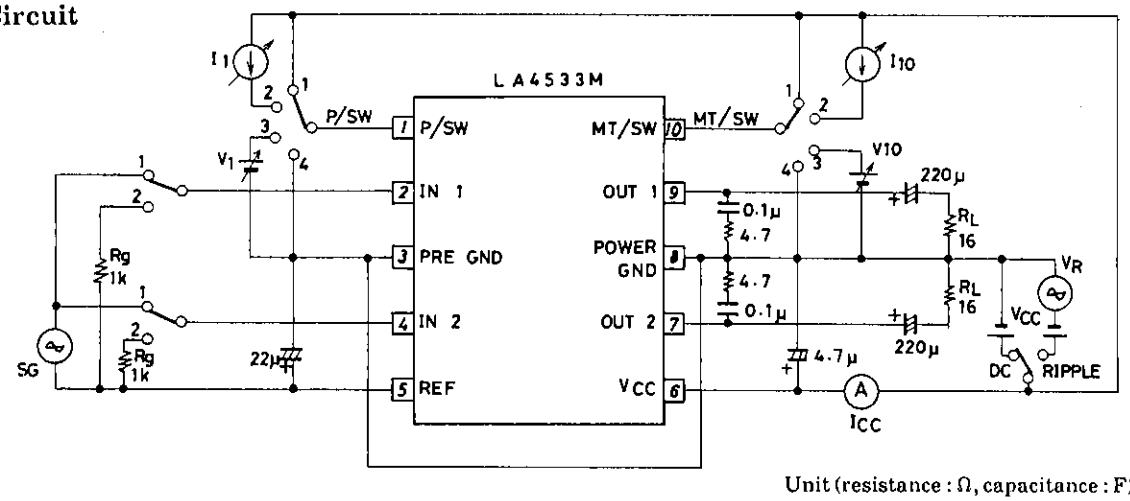
			min	typ	max	Unit
Total Harmonic Distortion	THD	$V_{CC}=2.0V$, f=1kHz, $P_O=1mW$		0.5	1.5	%
Output Power	P_O	$V_{CC}=3.0V$, f=1kHz, THD=10%	20	40		mW
Crosstalk	CT	$V_{CC}=2.4V$, f=100Hz, Rg=1kΩ, $V_O=-10dB$	40	50		dB
Ripple Rejection	SVRR	$V_{CC}=1.6V$, f=100Hz, Rg=1kΩ, $V_R=-20dBm$, BPF=100Hz	45	60		dB
Output Noise Voltage	V_{NO}	$V_{CC}=4.5V$, Rg=1kΩ, BPF=20Hz to 20kHz		62	100	μV
Power OFF Effect	V_O (off)	$V_{CC}=1.6V$, f=100Hz, pin1→GND, $V_{IN}=-10dB$			−80	dB
Muting Effect	V_O (MT)	$V_{CC}=1.6V$, f=100Hz, pin10→GND, $V_{IN}=-10dB$			−80	dB
Power ON Current Sensitivity	I_1 (on)	$V_{CC}=1.5V$, V5≧0.85V		0.05	1.0	μA
Power OFF Voltage Sensitivity	V_1 (off)	$V_{CC}=1.5V$, V5≦0.1V	0.5	0.6		V
Muting OFF Current Sensitivity	I_{10} (off)	$V_{CC}=1.5V$, V5≧0.85V		0.2	1.0	μA
Muting ON Voltage Sensitivity	V_{10} (on)	$V_{CC}=1.5V$, V5≦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/kΩ] and the total current increases by these current values.

Equivalent Circuit Block Diagram and Application Circuit

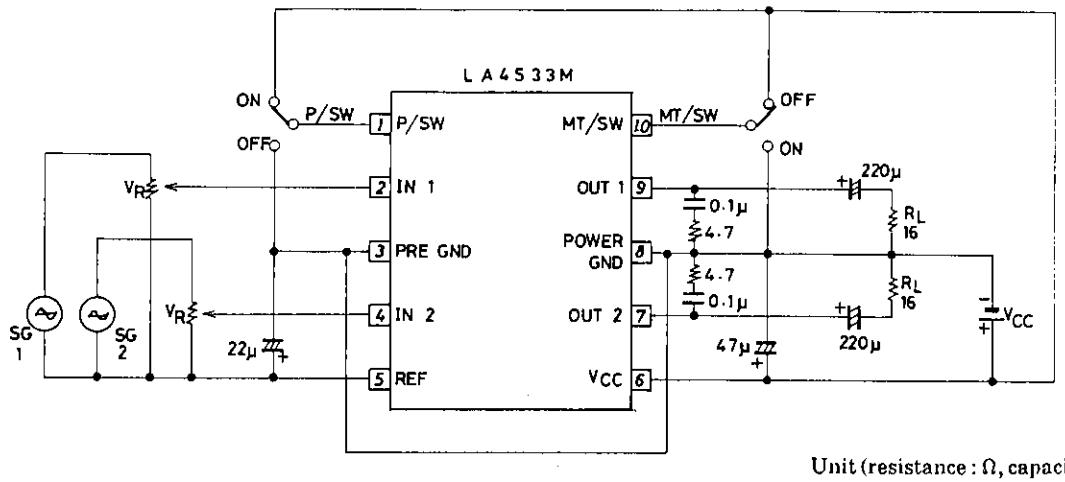


Test Circuit



Unit (resistance : Ω, capacitance : F)

Sample Application Circuit



Unit (resistance : Ω, capacitance : F)