

SANYO

No.2667A

LA4538M

Ripple Filter-Provided Stereo Power Amp for 1.5V Headphone Stereos

Features

- Low current dissipation
- Excellent reduced voltage characteristics
- Minimum number of external parts required
- On-chip power switch function
- Power amp section
 - Output power 8mW typ ($V_{CC}=1.5V, R_L=16\Omega, f=1kHz, THD=10\%$)
 - Ripple rejection 46dB typ ($V_{CC}=1.0V, V_R=-30dBm, f_R=100Hz$)
 - On-chip muting function
- Ripple filter section
 - Ripple rejection 39dB typ ($V_{CC}=1.0V, V_R=-35dBm, f_R=100Hz$)
 - Less output voltage loss
 - Pin 8 can be used to perform the muting function.

Maximum Ratings at $T_a=25^\circ C$

			unit
Maximum Supply Voltage	V_{CC} max	Quiescent	4.5 V
Maximum Output Current	I_{o7}	Pin 7 flow-out current	5.0 mA
Allowable Power Dissipation	P_d max		300 mW
Operating Temperature	T_{opr}		-20 to +75 $^\circ C$
Storage Temperature	T_{stg}		-40 to +125 $^\circ C$

Operating Conditions at $T_a=25^\circ C$

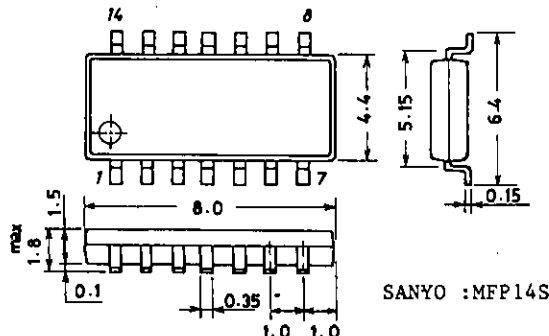
			unit
Recommended Operating Voltage	V_{CC}		1.5 V
Operating Voltage Range	V_{CC} op		0.9 to 4.0 V
Recommended Load Resistance	R_L		16 to 32 Ω

Operating Characteristics at $T_a=25^\circ C, R_L=16\Omega, R_g=600\Omega$, See specified Test Circuit.

			min	typ	max	unit
Quiescent Current	$I_{CCO(1)}$	$V_{CC}=1.20V, \text{quiescent}, R_{L3} \rightarrow \text{OFF}$		4.5	7.0	mA
	$I_{CCO(2)}$	$V_{CC}=2.50V, \text{pin } 14 \rightarrow \text{GND}, R_{L3} \rightarrow \text{OFF}$		1.5	2.5	mA
	$I_{CCO(3)}$	$V_{CC}=2.50V, \text{pin } 1 \rightarrow \text{GND}, R_{L3} \rightarrow \text{OFF}$			1.0	μA
Voltage Gain	VG	$V_{CC}=0.90V, f=1kHz, V_o=-20dBm$	27.5	29	31.5	dB
Voltage Gain Difference	ΔVG	$V_{CC}=0.90V, f=1kHz, V_o=-20dBm$			1.0	dB
Total Harmonic Distortion	THD	$V_{CC}=1.20V, f=1kHz, P_o=0.5mW$		0.9	1.5	%
Output Power	P_o	$V_{CC}=1.50V, f=1kHz, THD=10\%$		5	8	mW

Continued on next page.

Package Dimensions 3111-M14SIC (unit: mm)



SANYO Electric Co., Ltd. Semiconductor Business Headquarters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

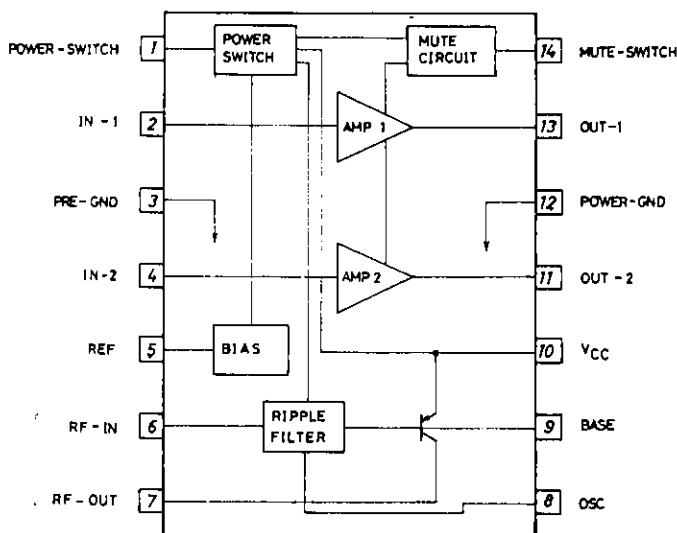
3239YT/N197TA, TS No2667-1/3

LA4538M

Continued from preceding page.

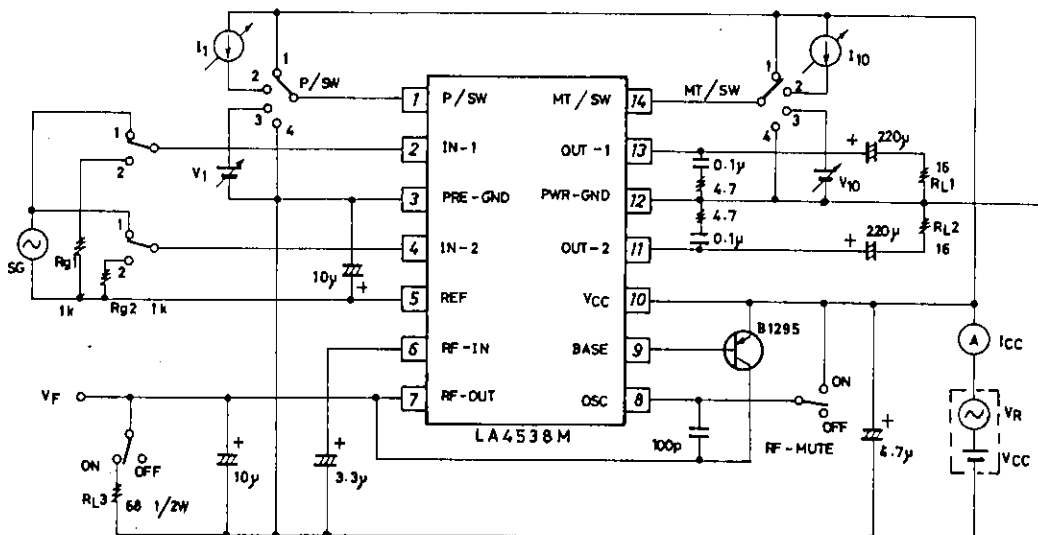
			min	typ	max	unit
Crosstalk	CT	$V_{CC} = 1.20V, f = 100Hz, R_g = 1k\Omega, V_o = -20dBm$	40	45		dB
Ripple Rejection (Amp Section)	SVRR(1)	$V_{CC} = 1.00V, f = 100Hz, R_g = 1k\Omega, V_R = -30dBm, BPF = 100Hz$	40	46		dB
Ripple Rejection (Filter Section)	SVRR(2)	$V_{CC} = 1.00V, f = 100Hz, V_R = -35dBm$	34	39		dB
Output Noise Voltage	V_{NO}	$V_{CC} = 2.50V, R_g = 1k\Omega, BPF = 20Hz$ to 20kHz		55	80	μV
Power ON-State Current Sensitivity	$I_{1(ON)}$	$V_{CC} = 0.85V, V_{pin5} \cong 0.5V$		0.1	1.0	μA
Power OFF-State Voltage Sensitivity	$V_{1(OFF)}$	$V_{CC} = 0.85V, V_{pin5} \leq 0.1V$	0.5	0.6		V
Muting ON-State Current Sensitivity	$I_{14(ON)}$	$V_{CC} = 0.85V, V_{pin5} \cong 0.5V$		0.1	1.0	μA
Muting OFF-State Voltage Sensitivity	$V_{14(OFF)}$	$V_{CC} = 0.85V, V_{pin5} \leq 0.1V$	0.5	0.6		V
Ripple Filter Output Voltage	V_F	$V_{CC} = 1.00V, R_L = 68\Omega$	0.90	0.94		V

Equivalent Circuit Block Diagram



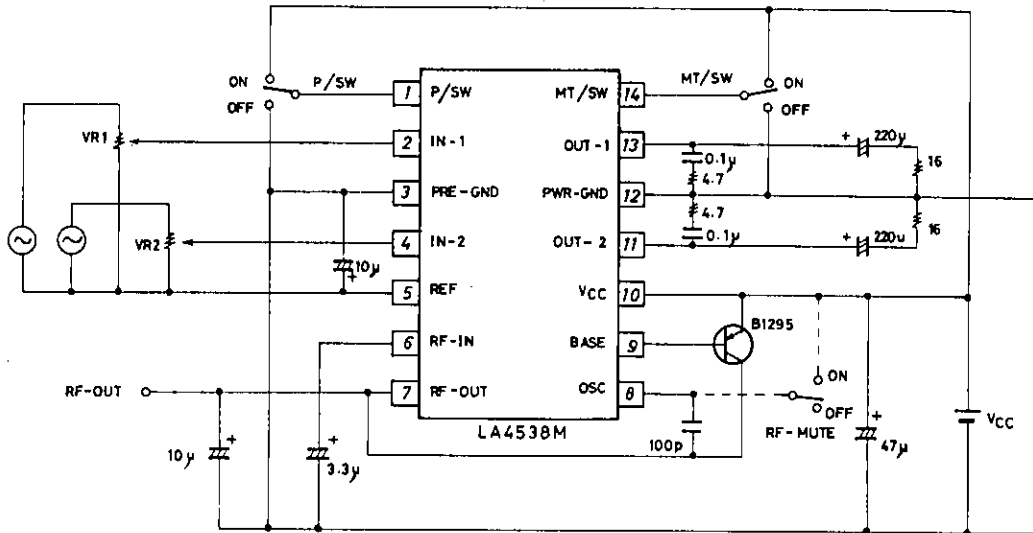
Test Circuit

Unit (resistance: Ω , capacitance: F)



LA4538M

Sample Application Circuit



Unit (resistance: Ω , 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.