

POWER AMPLIFIER FOR HEADPHONE STEREOS—YD7000

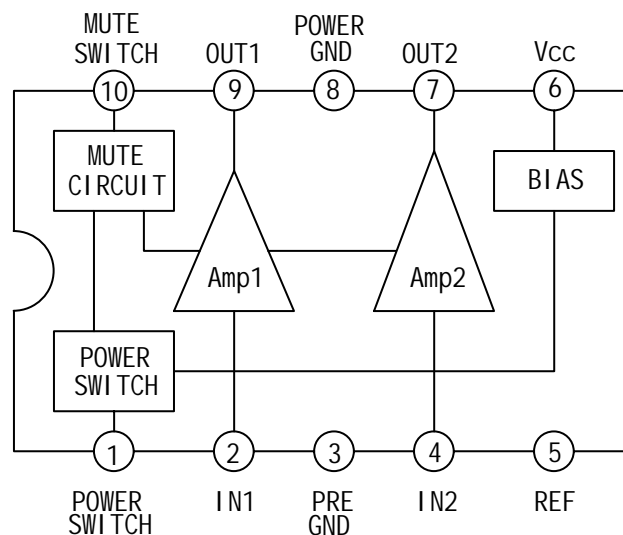
DESCRIPTION

The YD7000 is a low power audio amplifier integrated circuit for headphone. It provides differential speaker outputs to maximize output swing at low supply voltages.

FEATURES

- *Low current consumption.
- *16 load drive capability.
- *Excellent reduced voltage characteristics.
- *Excellent power supply ripple rejection.
- *Minimum number of external pares 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.

BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS (Tamb=25)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	Vcc	4.5	V
Allowable Power Dissipation	PD	300	mW
Operating Temperature	Topr	-20 ~ +75	
Storage Temperature	Tstg	-40 ~ +125	

RECOMMENDED OPERATING CONDITIONS (Tamb=25)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	Vcc	3.0	V
Operating Voltage Range	Vcc	1.6 ~ 4.0	V
Recommended Load Resistance	RL	16 ~ 32	

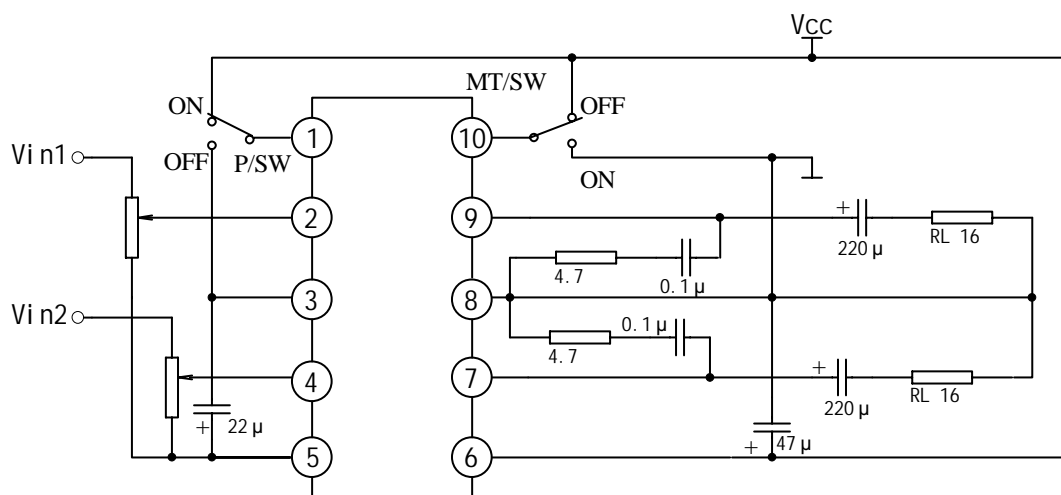
ELECTRICAL CHARACTERISTICS

(Tamb=25 , RL=16 , Rg=600 , See specified Test Circuit.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Current	Icco(1)	Vcc=2.4V, quiescent		5.4	10	mA
	Icco(2)	Vcc=4.5V, pin10 GND		1.1	2.0	mA
	Icco(3)	Vcc=4.5V, pin1 GND			1.0	μ A
Voltage Gain	Gv(1)	Vcc=2.4V, f=1kHz, Vo=-10dBm	30	32	34	dB
	Gv(2)	Vcc=1.6V, f=1kHz, Vo=-20dBm	29	32	34	dB
Voltage Gain Difference	Gv(1)	Vcc=2.4V, f=1kHz, Vo=-10dBm			1.0	dB
	Gv(2)	Vcc=1.6V, f=1kHz, Vo=-20dBm			1.0	dB
Total Harmonic Distortion	THD	Vcc=2.0V, f=1kHz, Po=1mW		0.5	1.5	%
Output Power	Po	Vcc=3.0V, f=1kHz, THD=10%	20	40		mW
Crosstalk	CT	Vcc=2.4V, f=100Hz, Rg=1K Vo=-10dB	40	50		dB
Ripple Rejection	SVRR	Vcc=1.6V, f=100Hz, Rg=1 K VR=-20dBm, BPF=100Hz	45	60		dB
Output Noise Voltage	VNO	Vcc=4.5V, Rg=1 K BPF=20Hz ~ 20kHz		62	100	μ V
Power OFF Effect	Vo(off)	Vcc=1.6V, f=100Hz, pin1 GND, VIN=-10dB			-80	dB

Muting Effect	$V_{O(MT)}$	$V_{CC}=1.6V, f=100Hz, \text{pin}10 \text{ GND}, V_{IN}=-10dB$			-80	dB
Power ON Current Sensitivity	$I_1(\text{on})$	$V_{CC}=1.5V, V_5 \ 0.85V$		0.05	1.0	μA
Power OFF Voltage Sensitivity	$V_1(\text{off})$	$V_{CC}=1.5V, V_5 \ 0.1V$	0.5	0.6		V
Muting OFF Current Sensitivity	$I_{10}(\text{off})$	$V_{CC}=1.5V, V_5 \ 0.85V$		0.2	1.0	μA
Muting ON Voltage Sensitivity	$V_{10}(\text{on})$	$V_{CC}=1.5V, V_5 \ 0.1V$	0.5	0.65		V

APPLICATION CIRCUIT



OUTLINE DRAWING

