

YOU DA INTEGRATED CIRCUIT

YD7000

POWER AMPLIFIER

FOR HEADPHONE STEREOS—YD7000

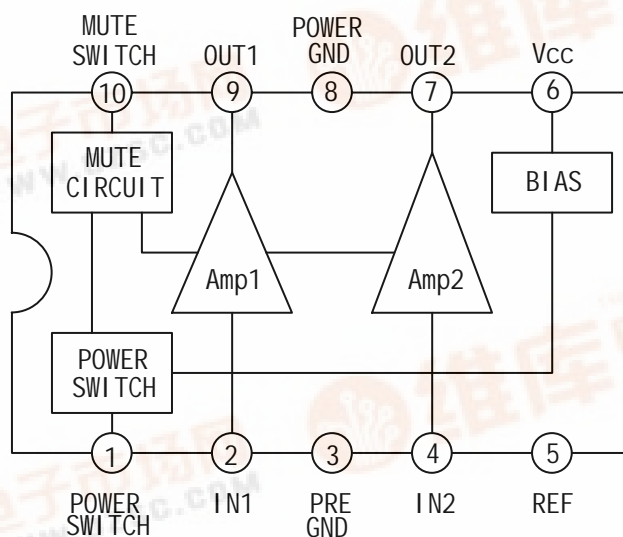
DESCRIPTION

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	P <sub>D</sub>	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	R <sub>L</sub>	16 ~ 32	

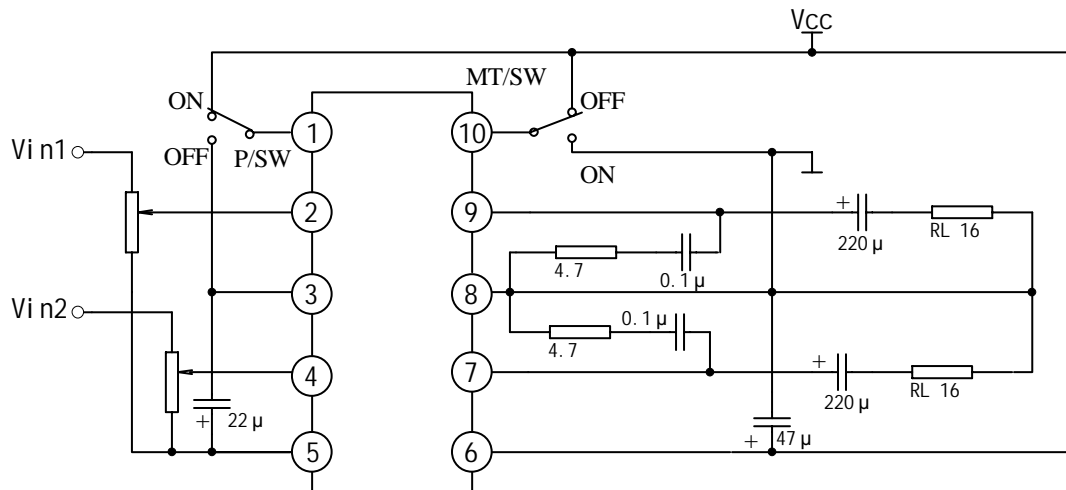
**ELECTRICAL CHARACTERISTICS**

(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	V <sub>NO</sub>	Vcc=4.5V, Rg=1 K BPF=20Hz ~ 20kHz		62	100	μ V
Power OFF Effect	V <sub>O(off)</sub>	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	$I_{I(on)}$	$V_{CC}=1.5V, V_5 = 0.85V$		0.05	1.0	$\mu A$
Power OFF Voltage Sensitivity	$V_{I(off)}$	$V_{CC}=1.5V, V_5 = 0.1V$	0.5	0.6		V
Muting OFF Current Sensitivity	$I_{I_0(off)}$	$V_{CC}=1.5V, V_5 = 0.85V$		0.2	1.0	$\mu A$
Muting ON Voltage Sensitivity	$V_{I_0(on)}$	$V_{CC}=1.5V, V_5 = 0.1V$	0.5	0.65		V

**APPLICATION CIRCUIT**



OUTLINE DRAWING

