

POWER AMPLIFIER FOR HEADPHONE STEREOS—YD7000

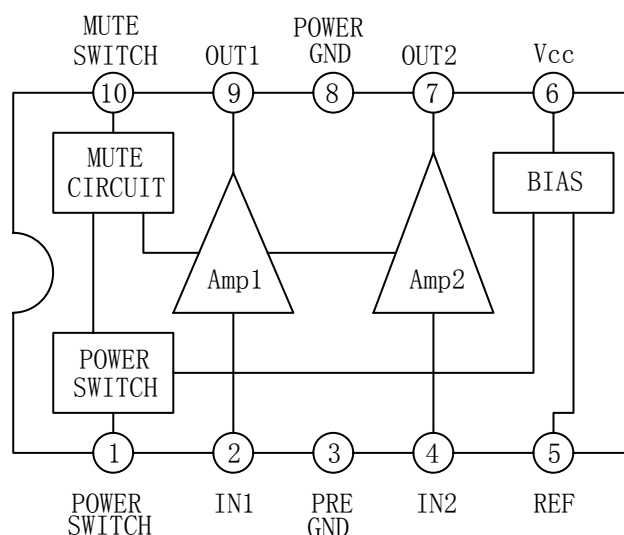
DESCRIPTION

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 Ω 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°C)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	V _{cc}	4.5	V
Allowable Power Dissipation	P _D	300	mW
Operating Temperature	T _{opr}	-20~+75	°C
Storage Temperature	T _{stg}	-40~+125	°C

RECOMMENDED OPERATING CONDITIONS (Tamb=25°C)

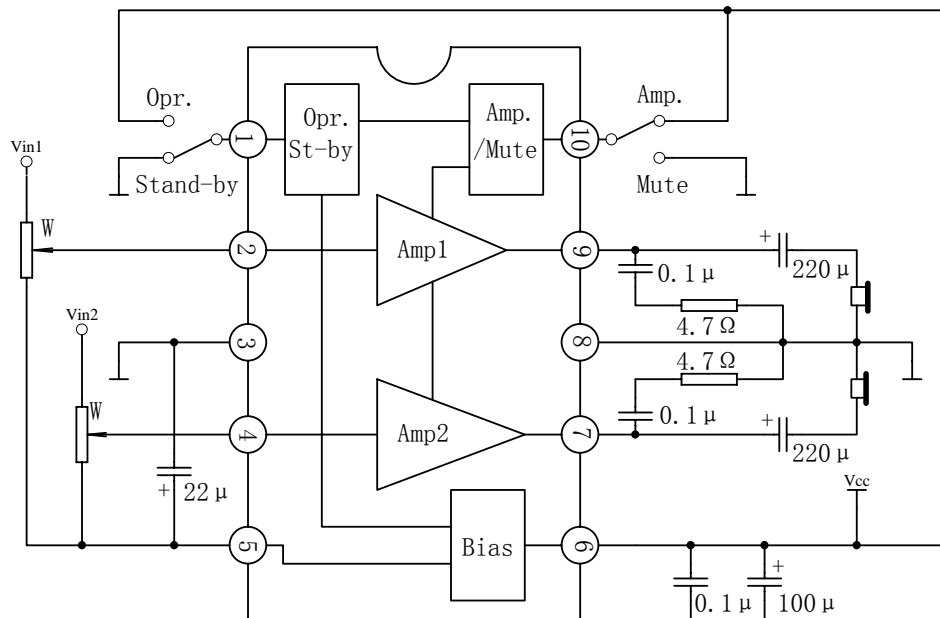
PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	V _{cc}	3.0	V
Operating Voltage Range	V _{cc}	1.6~4.0	V
Recommended Load Resistance	R _L	16~32	Ω

ELECTRICAL CHARACTERISTICS(Tamb=25°C, R_L=16 Ω, R_g=600 Ω, See specified Test Circuit.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Current	I _{cco} (1)	V _{cc} =2.4V, quiescent		5.4	10	mA
	I _{cco} (2)	V _{cc} =4.5V, pin10→GND		1.1	2.0	mA
	I _{cco} (3)	V _{cc} =4.5V, pin1→GND			1.0	μ A
Voltage Gain	G _v (1)	V _{cc} =2.4V, f=1kHz, V _o =-10dBm	30	32	34	dB
	G _v (2)	V _{cc} =1.6V, f=1kHz, V _o =-20dBm	29	32	34	dB
Voltage Gain Difference	Δ G _v (1)	V _{cc} =2.4V, f=1kHz, V _o =-10dBm			1.0	dB
	Δ G _v (2)	V _{cc} =1.6V, f=1kHz, V _o =-20dBm			1.0	dB
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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Crosstalk	CT	V _{cc} =2.4V, f=100Hz, R _g =1K Ω V _o =-10dB	40	50		dB
Ripple Rejection	SVRR	V _{cc} =1.6V, f=100Hz, R _g =1 K Ω V _R =-20dBm, BPF=100Hz	45	60		dB
Output Noise Voltage	V _{NO}	V _{cc} =4.5V, R _g =1 K Ω BPF=20Hz~20kHz		62	100	μ V
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, V ₅ ≧0.85V		0.05	1.0	μ A
Power OFF Voltage Sensitivity	V _{1(off)}	V _{cc} =1.5V, V ₅ ≦0.1V	0.5	0.6		V
Muting OFF Current Sensitivity	I _{10(off)}	V _{cc} =1.5V, V ₅ ≧0.85V		0.2	1.0	μ A
Muting ON Voltage Sensitivity	V _{10(on)}	V _{cc} =1.5V, V ₅ ≦0.1V	0.5	0.65		V

APPLICATION CIRCUIT



OUTLINE DRAWING

