1.5W Audio Power Amplifier with Shutdown Mode

DESCRIPTOIN

controlled, low-power

The GA4871 is a bridge-connected audio power amplifier capable of delivering typically 1.1W of continuous average power to an 8Ωload with 1% (THD) from a 5V power supply. Audio power amplifiers were designed specifically to provide high quality output power with a minimal amount of external components. Since the GA4871 does not require output coupling capacitors, bootstrap capacitors, or snubber networks, it is optionally suited for low-power portable systems.

The GA4871 features an externally controlled, low-power consumption shutdown mode, as well as an internal thermal shutdown protection mechanism.

The unity-gain stable GA4871 can be configured by external gain-setting resistors.

GA4871 PIN3 connected to PIN2 internally, hence GA4871 can only used to single-ended input.

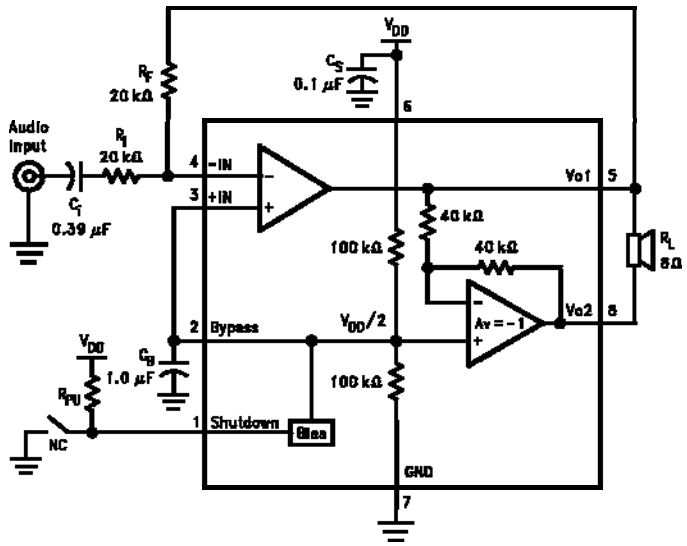
FEATURES

- Output power at 10% THD+N at 1 kHz into 8Ω is 1.5W(TYP)
- THD at 1 kHz at 1.1W continuous average output power into 8Ω is 1%(MAX)
- No output coupling capacitors, bootstrap capacitors, or snubber circuits are necessary
- SOP packaging
- Unity-gain stable
- External gain configuration capability

APPLICATIONS

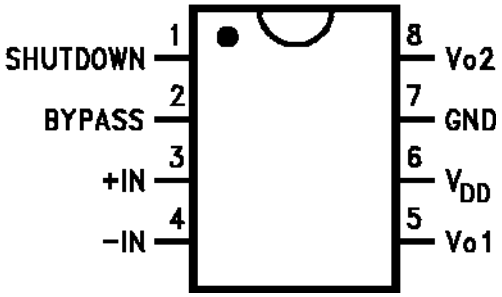
- Notebook PC
- LCD Monitors
- Pocket PC

TYPICAL APPLICATION



PACKAGE

Top View (SOP8)



Absolute Maximum Ratings

Supply voltage, V_{DD} ---------- 6V
Input voltage, V_I ---------- –0.3 V to V_{DD} +0.3 V
Operating free-air temperature range, T_A ---------- –40˚C to 85˚ C
Operating junction temperature range, T_J ---------- –40˚C to 150˚C
Storage temperature range, T_{stg} ---------- –65˚C to 150˚C

External Components Description

Components		Functional Description
1.	R_i	Inverting input resistance which sets the closed-loop gain in conjunction with R_f. This resistor also forms a high pass filter with C_i at $f_C = 1/(2\delta R_i C_i)$.
2.	C_i	Input coupling capacitor which blocks the DC voltage at the amplifiers input terminals. Also creates a highpass filter with R_i at $f_c = 1/(2\delta R_i C_i)$. Refer to the section, Proper Selection of External Components, for an explanation of how to determine the value of C_i.
3.	R_f	Feedback resistance which sets the closed-loop gain in conjunction with R_i.
4.	C_S	Supply bypass capacitor which provides power supply filtering. Refer to the Power Supply Bypassing section for information concerning proper placement and selection of the supply bypass capacitor.
5.	C_B	Bypass pin capacitor which provides half-supply filtering. Refer to the section, Proper Selection of External Components, for information concerning proper placement and selection of C_B.

Electrical Characteristics

The following specifications apply for V_{DD} = 5V unless otherwise specified. Limits apply for T_A = 25˚C

Symbol	Parameter	Conditions	GA4871		Units (Limits)
			Typical	Limit	
V_{DD}	Supply Voltage			2.0 6	V (min) V (max)
I_{DD}	Quiescent Power Supply Current	V_{IN} = 0V, I_O = 0A,No Load	3.7		mA
		V_{IN} = 0V, I_O = 0A,8Ω Load	3.8		mA
I_{SD}	Shutdown Current	$V_{SHUTDOWN}$=1	0	1	μA
V_{OS}	Output Offset Voltage	V_{IN} = 0V	4	50	mV
P_O	Output Power	THD = 1% ; f = 1 kHz THD+N = 10%; f = 1 kHz	1.10 1.5	1.0	W W
THD+N	Total Harmonic Distortion+Noise	P_O = 1 Wrms; A_{VD} = 2; f=20 Hz-20 kHz	0.25		%
PSRR	Power Supply Rejection Ratio	V_{DD} = 4.9V to 5.1V	65		dB
T_{WU}	Start-up Time		90		ms

Ordering and Marking Information

Device	Package Type	Marking	Quantity
GA4871	SOP−8	M4871 XXXXXX	

Package Information (SOP-8)

DIM.	mm.			inch		
	MI	TY	MAX.	MI	TYP	MAX.
A	1.35		1.75	0.053		0.069
A1	0.10		0.25	0.04		0.010
A2	1.10		1.65	0.043		0.065
B	0.33		0.51	0.013		0.020
C	0.19		0.25	0.007		0.010
D	4.80		5.00	0.189		0.197
E	3.80		4.00	0.150		0.157
e		1.27			0.050	
H	5.80		6.20	0.228		0.244
h	0.25		0.50	0.010		0.020
L	0.40		1.27	0.016		0.050
k	8°					
ddd			0.1			0.04