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NTE7052 Integrated Circuit Mono BTL Audio Amplifier, 3W

Description:

The NTE7052 is a mono output amplifier in a 9-Lead SIP type package designed for use in battery-fed portable radios and mains-fed equipment such as televisions. This device needs no external components because it makes use of the Bridge-Tied-Load (BTL) principle. Consequently it has, at the same supply voltage, a higher output power compared to a conventional Single Ended output stages. The NTE7052 is capable of delivering an output power of 1W into a loudspeaker load of 8Ω with a 6V supply or 3W into a 16Ω loudspeaker at 11V without the need of an external heatsink. The gain is internally fixed at 40dB. Special attention is given to ON/OFF switch click suppression, and it has a good overall stability. The load can be short circuited at all input conditions.

Features:

- No External Components
- No ON/OFF Switch Clicks
- Good Overall Stability
- Low Power Consumption
- Short-Circuit Protection
- ESD Protected on All Pins

Absolute Maximum Ratings:

Supply Voltage, V_P	18V
Peak Repetitive Output Current, I_{ORM}	1A
Peak Non-Repetitive Output Current, I_{OSM}	1.5A
Total Power Dissipation ($T_C < +60^\circ\text{C}$), P_{tot}	9W
Short Circuit Time (Note 1), T_{SC}	1Hr
Junction Temperature, T_J	+150°C
Storage Temperature Range, T_{stg}	-55° to +150°C
Thermal Resistance, Junction-to-Case, R_{thJC}	10K/W
Thermal Resistance, Junction-to-Ambient, R_{thJA}	55K/W

Note 1. The load can be short-circuited at all input conditions.

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_P = 11\text{V}$, $f = 1\text{kHz}$, $R_L = 16\Omega$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Operating Supply Voltage	V_P		3	11	18	V
Repetitive Peak Output Current	I_{ORM}		–	–	600	mA
Total Quiescent Current	I_P	$R_L = \infty$, Note 2	–	5	7	mA
Output Power	P_O	THD = 10%	2.5	3.0	–	W
Total Harmonic Distortion	THD	$P_O = 500\text{mW}$	–	0.25	1.0	%
Voltage Gain	G_V		39.0	40.5	42.0	dB
Noise Output Voltage	V_{no}	Note 3	–	180	300	μV
		Note 4	–	60	–	μV
Frequency Response			20 to 20,000			Hz
Ripple Rejection	RR	Note 5	36	50	–	dB
DC Output Offset Voltage	ΔV	$R_S = 5\text{k}\Omega$	–	–	200	mV
Input Impedance	$ Z_i $		–	100	–	$\text{k}\Omega$
Input Bias Current	I_I		–	100	300	nA

Note 2. With a load connected to the outputs the quiescent current will increase, the maximum value of this increase being equal to the DC output offset voltage divided by R_L .

Note 3. The noise output voltage (RMS value) is measured with $R_S = 5\text{k}\Omega$ unweighted (20Hz to 20kHz).

Note 4. The noise output voltage (RMS value) at $f = 500\text{kHz}$ is measured with $R_S = 0\Omega$ and $\text{BW} = 5\text{kHz}$. With a practical load ($R_L = 16\Omega$, $L_L = 200\mu\text{H}$) the noise output current is only 50nA.

Note 5. The ripple rejection is measured with $R_S = 0\Omega$ and $f = 100\text{Hz}$ to 10kHz . The ripple voltage (200mV) is applied to the positive supply rail.



