



ELECTRONICS, INC.

44 FARRAND STREET  
BLOOMFIELD, NJ 07003  
(973) 748-5089

<http://www.nteinc.com>

## 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	$\mu\text{V}$
		Note 4	–	60	–	$\mu\text{V}$
Frequency Response			20 to 20,000			Hz
Ripple Rejection	RR	Note 5	36	50	–	dB
DC Output Offset Voltage	$\Delta V$	$R_S = 5\text{k}\Omega$	–	–	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  $10\text{kHz}$ . The ripple voltage (200mV) is applied to the positive supply rail.



