



ELECTRONICS, INC.

44 FARRAND STREET  
BLOOMFIELD, NJ 07003  
(973) 748-5089  
<http://www.nteinc.com>

## NTE7169 Integrated Circuit Audio Power Amplifier, 32W

### **Description:**

The NTE7169 is a monolithic integrated circuit in a 5-Lead TO220 type package intended for use as an audio class AB audio amplifier. Thanks to its high power capability, the NTE7169 is able to provide up to 35W true RMS power into a 4Ω load (THD = 10%,  $V_S = \pm 18V$ ,  $f = 1kHz$ ) and up to 32W into an 8Ω load (THD = 10%,  $V_S = \pm 22V$ ,  $f = 1kHz$ ). Moreover, the NTE7169 delivers typically 50W music power into a 4Ω load over 1sec at  $V_S = 22.5V$ ,  $f = 1kHz$ . The high power and very low harmonic and crossover distortion (THD = 0.05% Typ., @  $V_S = \pm 22V$ ,  $P_O = 0.1$  to 15W,  $R_L = 8\Omega$ ,  $f = 100Hz$  to 15kHz) make the device most suitable for both HiFi and high class TV sets.

### **Features:**

- High Output Power (50W Music Power IEC 268.3 Rules)
- High Operating Supply Voltage
- Single or Split Supply Operations
- Very Low Distortion
- Short Circuit Protection (OUT-TO-GND)
- Thermal Shutdown

### **Absolute Maximum Ratings:**

Supply Voltage, $V_S$ .....	$\pm 25V$
Input Voltage, $V_i$ .....	$V_S$
Differential Input Voltage, $V_i$ .....	$\pm 15V$
Output Peak Current (Internally Limited), $I_O$ .....	5A
Power Dissipation ( $T_C = +75^\circ C$ ), $P_{tot}$ .....	25W
Operating Junction Temperature Range, $T_J$ .....	$-40^\circ$ to $+150^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-40^\circ$ to $+150^\circ C$
Maximum Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	$3^\circ C/W$

**Electrical Characteristics:** ( $V_S = \pm 18V$ ,  $T_A = +25^\circ C$ ,  $f = 1kHz$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Supply Voltage Range	$V_S$		$\pm 4.5$	-	$\pm 25$	V	
Quiescent Drain Current	$I_d$	$V_S = \pm 4.5V$	-	30	50	mA	
		$V_S = \pm 25V$	-	55	90	mA	
Input Bias Current	$I_D$	$V_S = \pm 22V$	-	0.1	0.5	$\mu A$	
Input Offset Voltage	$V_{OS}$	$V_S = \pm 22V$	-	-	$\pm 15$	mV	
Input Offset Current	$I_{OS}$	$V_S = \pm 22V$	-	-	$\pm 200$	nA	
RMS Output Power	$P_O$	d = 0.5%	$R_L = 4\Omega$	24	28	-	W
			$R_L = 8\Omega$	-	18	-	W
			$V_S = \pm 22V$ , $R_L = 8\Omega$	22	25	-	W
		d = 10%	$R_L = 4\Omega$	-	35	-	V
			$R_L = 8\Omega$	-	22	-	W
			$V_S = \pm 22V$ , $R_L = 8\Omega$	-	32	-	W
Music Power IEC268.3		d = 10%, T = 1s, $V_S = \pm 22.5V$ , $R_L = 4\Omega$	-	50	-	W	
Total Harmonic Distortion	d	$R_L = 4\Omega$	$P_O = 0.1$ to 24W, f = 1kHz	-	0.03	0.5	%
			$P_O = 0.1$ to 18W, f = 100Hz to 10kHz	-	-	0.5	%
		$V_S = \pm 22V$ , $R_L = 8\Omega$	$P_O = 0.1$ to 20W, f = 1kHz	-	0.02	-	%
			$P_O = 0.1$ to 15W, f = 100Hz to 10kHz	-	-	0.1	%
Slew Rate	SR		5	8	-	V/ $\mu s$	
Open Loop Voltage Gain	$G_V$		-	80	-	dB	
Closed Loop Voltage Gain	$G_V$		30.0	30.5	31.0	dB	
Power Bandwidth (-3dB)	BW	$R_L = 4\Omega$ , $V_i = 2000mV$	20 to 80,000			Hz	
Total Input Noise	$e_N$	A = Curve	-	4	-	$\mu V$	
		f = 22Hz to 22kHz	-	5	10	$\mu V$	
Input Resistance (Pin1)	$R_i$		500	-	-	k $\Omega$	
Supply Voltage Rejection	SVR	$R_S = 22k\Omega$ , f = 100Hz, $V_{ripple} = 0.5V_{rms}$	-	45	-	dB	
Efficiency	$\eta$	$P_O = 28W$ , $R_L = 4\Omega$	-	65	-	%	
		$P_O = 25W$ , $R_L = 8\Omega$ , $V_S = \pm 22V$	-	67	-	%	
Thermal Shutdown	$T_S$		-	150	-	$^\circ C$	

**Pin Connection Diagram**  
(Front View)

