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## NTE1376 Integrated Circuit Audio Power Amplifier, 22W

### **Description:**

The NTE1376 is a monolithic integrated circuit in a 5-Lead TO220 type package intended for use as an audio class AB amplifier. Typically, it provides 22W output power (THD = 0.5%) at  $V_S = 32V/4\Omega$ . This device provides high output current and has very low harmonic and cross-over distortion. Further, the NTE1376 incorporates a short circuit protection system comprising an arrangement for automatically limiting the dissipated power so as to keep the working point of the output transistors within their safe operating area. A thermal shut-down system is also included.

### **Absolute Maximum Ratings:**

Supply Voltage, $V_S$ .....	±20V
Input Voltage, $V_I$ .....	$V_S$
Differential Input Voltage, $V_{I1}$ .....	±15V
Output Peak Current (Internally Limited), $I_O$ .....	4A
Power Dissipation ( $T_C = +75^\circ C$ ), $P_{tot}$ .....	25W
Operating Junction Temperature Range, $T_J$ .....	-40° to +150°C
Storage Temperature Range, $T_{stg}$ .....	-40° to +150°C
Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	3°C/W
Typical Thermal Shut-Down Junction Temperature ( $V_S = \pm 16V$ , $T_A = +25^\circ C$ ), $T_{sd}$ .....	+145°C

### **Electrical Characteristics:** ( $V_S = \pm 16V$ , $T_A = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	$V_S$		±2.5	–	±20	V
Quiescent Drain Current	$I_d$	$V_S = \pm 4.5V$	–	–	30	mA
		$V_S = \pm 20V$	–	45	100	mA
Input Bias Current	$I_b$	$V_S = \pm 20V$	–	0.3	1.0	µA
Input Offset Voltage	$V_{OS}$	$V_S = \pm 20V$	–	±2	±20	mV
Input Offset Current	$I_{OS}$		–	–	±200	nA
Output Power	$P_O$	THD = 0.5%, $T_C = +60^\circ C$ , $f = 1kHz$ , $R_L = 4\Omega$	20	22	–	W
		THD = 0.5%, $T_C = +60^\circ C$ , $f = 1kHz$ , $R_L = 8\Omega$	–	12	–	W
		THD = 0.5%, $T_C = +60^\circ C$ , $f = 1.5kHz$ , $R_L = 4\Omega$	15	18	–	W

**Electrical Characteristics (Cont'd):** ( $V_S = \pm 16V$ ,  $T_A = +25^\circ C$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Power Bandwidth	BW	$P_O = 1W$ , $R_L = 4\Omega$	–	100	–	kHz
Voltage Gain	$G_V$	$f = 1kHz$ , Open Loop	–	80	–	dB
		$f = 1kHz$ , Closed Loop	29.5	30.0	30.5	dB
Total Harmonic Distortion	THD	$P_O = 0.1$ to $10W$ , $R_L = 4\Omega$ , $f = 40$ to $15000Hz$	–	0.08	–	%
		$P_O = 0.1$ to $10W$ , $R_L = 4\Omega$ , $f = 1kHz$	–	0.03	–	%
Input Noise Voltage	$e_N$	$B = 22Hz$ to $22kHz$	–	3	10	$\mu V$
Input Noise Current	$I_N$	$B = 22Hz$ to $22kHz$	–	80	200	pA
Input Resistance (Pin1)	$R_I$		0.5	5.0	–	$M\Omega$
Supply Voltage Rejection	SVR	$R_L = 4\Omega$ , $R_g = 22k\Omega$ , $G_V = 30dB$ , $f = 100Hz$ , $V_{ripple} = 0.5V_{RMS}$	40	50	–	dB
Efficiency	$\eta$	$f = 1kHz$ , $P_O = 12W$ , $R_L = 8\Omega$	–	66	–	%
		$f = 1kHz$ , $P_O = 22W$ , $R_L = 4\Omega$	–	63	–	%

**Pin Connection Diagram**  
(Front View)



