

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 $\pm 20V$
 Input Voltage, V_I V_S
 Differential Input Voltage, V_{I_d} $\pm 15V$
 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 $+150^\circ C$
 Storage Temperature Range, T_{stg} -40° to $+150^\circ C$
 Thermal Resistance, Junction-to-Case, R_{thJC} $3^\circ C/W$
 Typical Thermal Shut-Down Junction Temperature ($V_S = \pm 16V$, $T_A = +25^\circ C$), T_{sd} $+145^\circ C$

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	μV
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	η	$f = 1kHz$, $P_O = 12W$, $R_L = 8\Omega$	–	66	–	%
		$f = 1kHz$, $P_O = 22W$, $R_L = 4\Omega$	–	63	–	%

Pin Connection Diagram
(Front View)



