



ELECTRONICS, INC.

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NTE7040 Integrated Circuit Audio Power Amplifier, 20W

Features:

- High Output Power:
 - 20W Typ ($\pm B_1 = \pm 22V$, $R_L = 8\Omega$, $f = 20Hz$ to $20kHz$, THD = 1%)
 - 18W Typ ($\pm B_1 = \pm 22V$, $R_L = 8\Omega$, $f = 20Hz$ to $20kHz$, THD = 0.5%)
 where: $\pm B_1$: Supply Voltage, R_L : Load Frequency, f : Frequency,
 THD: Total Harmonic Distortion, $\pm B_2 = 25V$ constant
- Very Low Harmonic and Crossover Distortion:
 - 0.02% Typ ($\pm B_1 = \pm 22V$, $R_L = 8\Omega$, $f = 1kHz$, $P_{out} = 2W$)
 - 0.04% Typ ($\pm B_1 = \pm 22V$, $R_L = 8\Omega$, $f = 20Hz$ to $20kHz$, $P_{out} = 2W$)
- Wide Frequency Range: From 5Hz to 120kHz (at -1dB frequency response)
- Thermal Shut-down Circuit Included
- Muting Circuit Included

Absolute Maximum Ratings: ($T_A = +25^\circ C$ unless otherwise specified)

Positive Supply Voltage (Note 1), $+B_1, +B_2$	30V
Negative Supply Voltage (Note 1), $-B_1$	-30V
Output Current, $I_{O(peak)}$	7.5A
Input Voltage, $V_{i(peak)}$	$\pm 10V$
Power Dissipation ($T_C = +60^\circ C$), P_T	30W
Junction Temperature, T_J	$+150^\circ C$
Operating Temperature Range, T_{opr}	-20° to $+70^\circ C$
Storage Temperature Range, T_{stg}	-55° to $+125^\circ C$
Thermal Resistance, Junction-to-Case, R_{thJC}	$2.5^\circ C/W$

Note 1. Standard operating voltages are as follows: $+B_2 = +25V$, $\pm B_1 = \pm 22V$, $\pm 19V$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $\pm B_1 = \pm 25\text{V}$, $+B_2 = 25\text{V}$, $R_L = 8\Omega$, $R_g = 600\Omega$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current	+I _{Q1}	V _{in} = 0 between +B ₁ and Pin5	20	60	120	mA
	+I _{Q2}		–	–	22	mA
	–I _{Q1}	between –B ₁ and Pin12	–	–	152	mA
Output Offset Voltage	ΔV_O	V _{in} = 0, between Pin3 and GND	–	0	±0.1	V
Input Resistance	R _{in}	f = 1kHz, R ₁₀₂ = 56kΩ	–	55	–	kΩ
Voltage Gain (Closed Loop)	G _V	f = 1kHz, R ₁₀₃ = 680Ω, R ₁₀₄ = 56kΩ	–	38	–	dB
Voltage Gain (Open Loop)	G _{V(OL)}	f = 1kHz, R ₁₀₃ = 0	–	88	–	dB
Output Power	P _{O1}	f = 20kHz, THD = 0.5%, R _L = 8Ω Note 2	15	18	–	W
	P _{O2}		THD = 0.7%, R _L = 4Ω	15	18	–
Total Harmonic Distortion	THD	f = 20kHz, P _{out} = 2W	–	0.04	0.20	%
Output Noise Voltage	V _n	R _g = 5.1kΩ, BW = 20Hz to 20kHz	–	0.35	0.50	mV
Supply Voltage Rejection Ratio	SVR	R _g = 5.1kΩ, f _{ripple} = 100Hz (at Pin12)	52	60	–	dB

Note 2. Standard test conditions are as follows: P_{O1}: $\pm B_1 = \pm 22\text{V}$, P_{O2}: $\pm B_1 = \pm 19\text{V}$

Pin Connection Diagram
(Front View)



