



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)



