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# NTE7040
# Integrated Circuit
# Audio Power Amplifier, 20W

**Features:**

- High Output Power:
  20W Typ ($\pm B_1$ = ±22V, $R_L$ = 8Ω, f = 20Hz to 20kHz, THD = 1%)
  18W Typ ($\pm B_1$ = ±22V, $R_L$ = 8Ω, 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 ($\pm B_1$ = ±22V, $R_L$ = 8Ω, f = 1kHz, $P_{out}$ = 2W)
  0.04% Typ ($\pm B_1$ = ±22V, $R_L$ = 8Ω, 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°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, $V_{i(peak)}$ . . . . . ±10V
Power Dissipation ($T_C$ = +60°C), $P_T$ . . . . . 30W
Junction Temperature, $T_J$ . . . . . +150°C
Operating Temperature Range, $T_{opr}$ . . . . . –20° to +70°C
Storage Temperature Range, $T_{stg}$ . . . . . –55° to +125°C
Thermal Resistance, Junction–to–Case, $R_{thJC}$ . . . . . 2.5°C/W

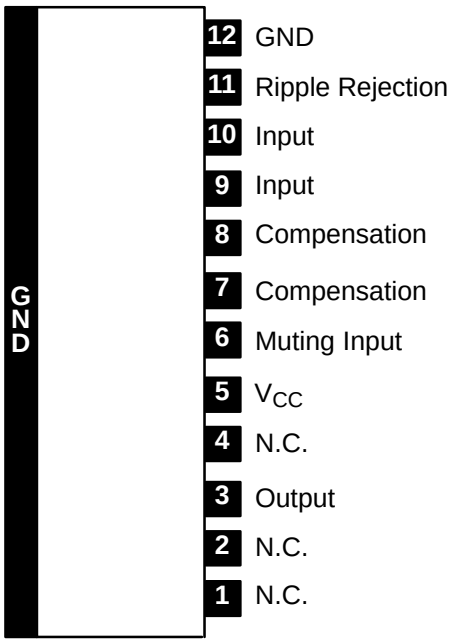
Note 1. Standard operating voltages are as follows: $+B_2$ = +25V, $\pm B_1$ = ±22V, ±19V

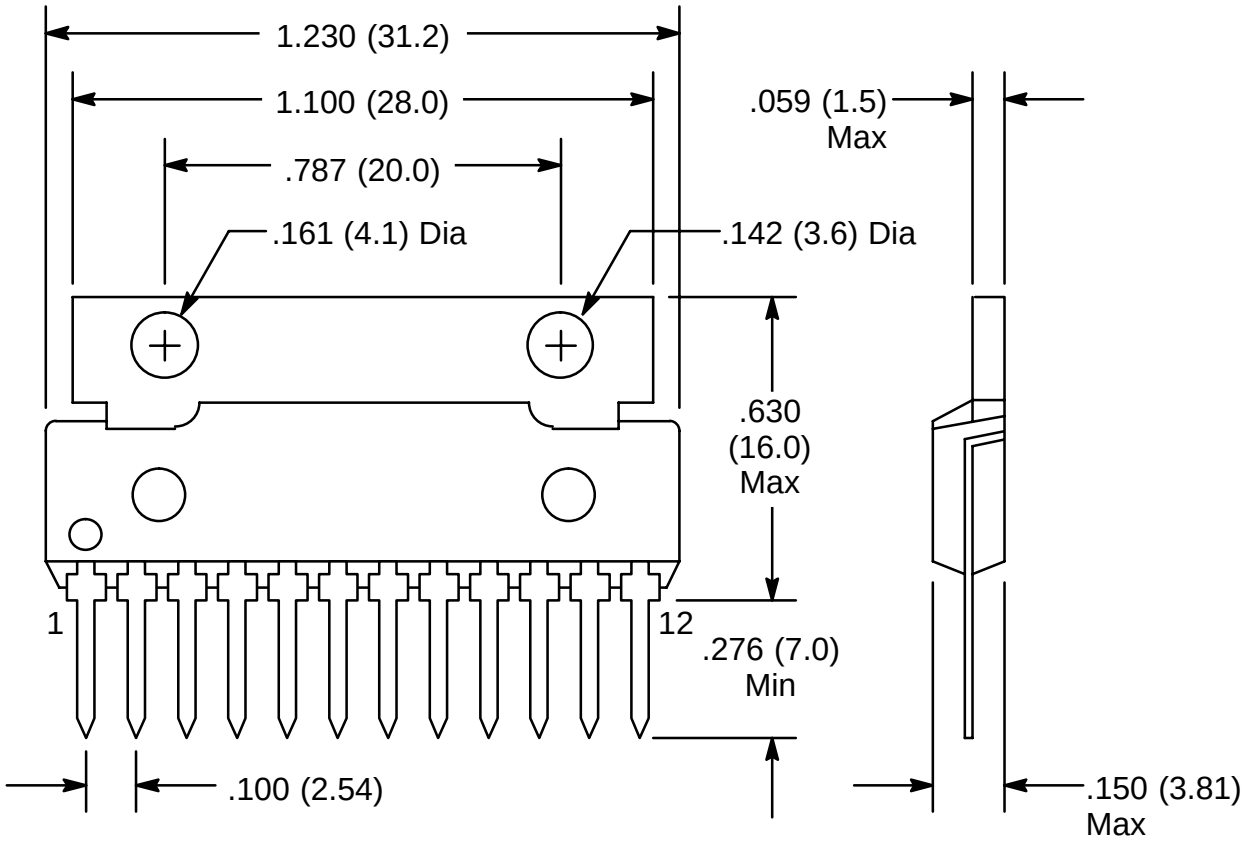
**Electrical Characteristics:** ($T_A$ = +25°C, $\pm B_1$ = ±25V, $+B_2$ = 25V, $R_L$ = 8Ω, $R_g$ = 600Ω unless otherwise specified)

| Parameter | Symbol | Test Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| Quiescent Current | $+I_{Q1}$ | $V_{in}$ = 0 | between $+B_1$ and Pin5 | 20 | 60 | 120 | mA |
| | $+I_{Q2}$ | | between $+B_2$ and Pin6 | – | – | 22 | mA |
| | $-I_{Q1}$ | | between $-B_1$ and Pin12 | – | – | 152 | mA |
| Output Offset Voltage | $\Delta V_O$ | $V_{in}$ = 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, Note 2 | THD = 0.5%, $R_L$ = 8Ω | 15 | 18 | – | W |
| | $P_{O2}$ | | THD = 0.7%, $R_L$ = 4Ω | 15 | 18 | – | W |
| 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: $P_{O1}$: $\pm B_1$ = ±22V, $P_{O2}$: $\pm B_1$ = ±19V

**Pin Connection Diagram**
(Front View)




1.230 (31.2)
1.100 (28.0)
.787 (20.0)
.161 (4.1) Dia
.142 (3.6) Dia
.059 (1.5)
Max
.630
(16.0)
Max
1
12
.276 (7.0)
Min
.100 (2.54)
.150 (3.81)
Max