

NTE1724 Integrated Circuit Audio Power Amplifier, 20W

Description:

This device is a monolithic integrated circuit and a power amplifier designed for Hi-Fi audio sets and in a 10 pin single in-line plastic package. NTE1724 can provide 20W (Typ) to 8Ω at 1% THD and ±22V supply voltage.

Features:

- High Output Power:
20W Typ ($V_{CC} = \pm 22V$, $A_v = 40dB$, $f = 20Hz$ to $20kHz$, $R_L = 8\Omega$, THD = 1%)
20W Typ ($V_{CC} = \pm 22V$, $A_v = 27.5dB$, $f = 20Hz$ to $20kHz$, $R_L = 8\Omega$, THD = 0.5%)
- Low Distortion:
0.02% Typ ($V_{CC} = \pm 22V$, $A_v = 40dB$, $f = 1kHz$, $R_L = 8\Omega$, $P_{OUT} = 5.0W$)
0.005% Typ ($V_{CC} = \pm 22V$, $A_v = 27.5dB$, $f = 1kHz$, $R_L = 8\Omega$, $P_{OUT} = 5.0W$)
- Wide Frequency Bandwidth: $f = 250kHz$ (−3dB)

Absolute Maximum Ratings:

Supply Voltage (Quiescent), V_{CC} ±30V
Circuit Current, $I_{CC(peak)}$ 5A
Package Dissipation ($T_{tab} = +60^\circ C$), P_D 30W
Operating Temperature Range, T_{opt} −20° to +70°C
Storage Temperature Range, T_{stg} −55° to +150°C
Thermal Resistance Junction to Case, R_{thJC} 3°C/W

Recommended Operating Conditions: ($T_A = +25^\circ C$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--------------------------|--------|-----------------|-----|-----|-----|------|
| Operating Supply Voltage | | | ±17 | ±22 | ±23 | V |
| Input Impedance | | | 47 | 56 | 100 | kΩ |
| Closed Loop Voltage Gain | | | 26 | 40 | – | dB |
| Load Impedance | | | 4 | 8 | – | Ω |

Electrical Characteristics: ($V_{CC} = \pm 22V$, $A_v = 40dB$, $R_L = 8\Omega$, $T_G = 600\Omega$, $T_A = +25^\circ C$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|-----------------------|----------|-----------------------------------|------|-----|------|------|
| Output Offset Voltage | V_{10} | No Signal | −100 | 0 | +100 | mV |
| Circuit Current | I_{CC} | No Signal | 30 | 60 | 120 | mA |
| Output Power | P_O | THD = 0.5%, $f = 20Hz$ to $20kHz$ | 16 | 18 | – | W |

Electrical Characteristics (Cont'd): ($V_{CC} = \pm 22V$, $A_V = 40dB$, $R_L = 8\Omega$, $T_G = 600\Omega$, $T_A = +25^\circ C$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--------------------------------|----------|---|-----|-----|-----|------|
| Open Loop Voltage Gain | A_{VO} | $P_O = 0.3W$, $f = 1kHz$ | 65 | 75 | – | dB |
| Total Harmonic Distortion | THD | $P_O = 10W$, $f = 20Hz$ to $20kHz$ | – | 0.1 | 0.3 | % |
| Output Noise Voltage | NV | $R_G = 2.2k\Omega$, No Filter | – | 0.4 | 1.0 | mV |
| Power Band Width | PBW | $P_O = 0.3W$, $-3dB$ | – | 250 | – | kHz |
| Supply Voltage Rejection Ratio | SVR | $R_G = 2.2k\Omega$ $f_{ripple} = 100Hz$ | 50 | 56 | – | dB |

Pin Connection Diagram
(Front View)

