

NTE1294 Integrated Circuit Audio Power Amplifier, 1.2W

Description:

The NTE1294 is a monolithic integrated audio amplifier in an 8-Lead DIP type package designed for use as a low frequency class B power amplifier with a wide supply voltage range (3V to 16V) in portable radios, cassette recorders, and players etc.

Features:

- Minimum Working Supplu Voltage: $V_s = 3V$ Min
- Low Quiescent Current
- Low Number of External Components
- Good Ripple Rejection
- No Cross-over Distortion
- Low Power Dissipation
- Output Power:
 $P_o = 2W$ at $12V/8\Omega$
 $P_o = 1.6W$ at $9V/4\Omega$
 $P_o = 1.2W$ at $9V/8\Omega$

Absolute Maximum Ratings:

Supply Voltage, V_s 16V
 Output Peak Current, I_o 1.5A
 Power Dissipation ($T_A = +50^\circ C$), P_{tot} 1W
 Junction Temperature Range, T_J -40° to $+150^\circ C$
 Storage Temperature Range, T_{stg} -40° to $+150^\circ C$
 Maximum Thermal Resistance, Junction-to-Ambient, R_{thJA} $100^\circ C/W$

Electrical Characteristics: ($V_s = 9V$, $T_A = +25^\circ C$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|----------------------------------|--------|-----------------|-----|-----|-----|---------|
| Supply Voltage | V_s | | 3 | – | 16 | V |
| Quiescent Output Voiltage (Pin5) | V_o | | 4.0 | 4.5 | 5.0 | V |
| Quiescent Drain Current | I_d | | – | 4 | 12 | mA |
| Bias Current (Pin3) | I_b | | – | 0.1 | – | μA |

Electrical Characteristics (Cont'd): ($V_S = 9V$, $T_A = +25^\circ C$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit | |
|----------------------------|-----------------|---------------------------------------------------------------------------------|--------------------------------|-------------|------|------------|----|
| Output Power | P_o | $d = 10\%$, $f = 1kHz$, $R_f = 120\Omega$ | $V_S = 12V$, $R_L = 8\Omega$ | – | 2 | – | W |
| | | | $V_S = 9V$, $R_L = 4\Omega$ | – | 1.6 | – | W |
| | | | $V_S = 9V$, $R_L = 8\Omega$ | 0.9 | 1.2 | – | W |
| | | | $V_S = 6V$, $R_L = 4\Omega$ | – | 0.75 | – | W |
| | | | $V_S = 3.5V$, $R_L = 4\Omega$ | – | 0.25 | – | W |
| | | | $V_S = 3V$, $R_L = 4\Omega$ | – | 0.20 | – | W |
| Input Sensitivity | $V_{i(rms)}$ | $P_o = 1.2W$, $R_L = 8\Omega$, $f = 1kHz$ | $R_f = 33\Omega$ | – | 16 | – | mV |
| | | | $R_f = 120\Omega$ | – | 60 | – | mV |
| | | $P_o = 50mW$, $R_L = 8\Omega$, $f = 1kHz$ | $R_f = 33\Omega$ | – | 3.5 | – | mV |
| | | | $R_f = 120\Omega$ | – | 12 | – | mV |
| Input Resistance (Pin3) | R_i | $f = 1kHz$ | – | 5 | – | M Ω | |
| Frequency Response (–3dB) | B | $R_L = 8\Omega$, $C_5 = 1000\mu F$, $R_f = 120\Omega$ | $C_B = 680pF$ | 25 to 7000 | | Hz | |
| | | | $C_B = 220pF$ | 25 to 20000 | | Hz | |
| Distortion | d | $P_o = 500mW$, $R_L = 8\Omega$, $f = 1kHz$ | $R_f = 33\Omega$ | – | 0.8 | – | % |
| | | | $R_f = 120\Omega$ | – | 0.4 | – | % |
| Voltage Gain (Open Loop) | G_v | $f = 1kHz$, $R_L = 8\Omega$ | – | 75 | – | dB | |
| Voltage Gain (Closed Loop) | G_v | $R_L = 8\Omega$, $f = 1kHz$ | $R_f = 33\Omega$ | – | 45 | – | dB |
| | | | $R_f = 120\Omega$ | – | 34 | – | dB |
| Input Noise Voltage | e_N | Note 1 | – | 3 | – | μV | |
| Input Noise Current | i_N | Note 1 | – | 0.4 | – | nA | |
| Signal to Noise Ratio | $\frac{S+N}{N}$ | $P_o = 1.2W$, $R_L = 8\Omega$, $G_v = 34dB$, Note 1 | $R_1 = 10k\Omega$ | – | 80 | – | dB |
| | | | $R_1 = 50k\Omega$ | – | 70 | – | dB |
| Supply Voltage Rejection | SVR | $R_L = 8\Omega$, $f_{ripple} = 100Hz$, $C_6 = 47\mu F$, $R_f = 120\Omega$ | – | 42 | – | dB | |

Note 1. B = 22Hz to 22kHz

Pin Connection Diagram

