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NTE941D Integrated Circuit Operational Amplifier

Description:

The NTE941D is a general purpose operational amplifier in a 14-Lead DIP type package and offers many features which make its application nearly foolproof: overload protection on the input and output, no latch-up when the common mode range is exceeded, as well as freedom from oscillators.

Absolute Maximum Ratings:

| | |
|---|-------------------------------|
| Supply Voltage, V_S | $\pm 18V$ |
| Differential Input Voltage, V_{ID} | $\pm 30V$ |
| Common Mode Input Voltage (Note 2), V_{ICM} | $\pm 15V$ |
| Power Dissipation (Note 1), P_D | 500mW |
| Output Short-Circuit Duration, t_S | Continuous |
| Operating Temperature Range, T_{opr} | 0° to $+70^\circ C$ |
| Storage Temperature Range, T_{stg} | -65° to $+150^\circ C$ |
| Junction Temperature, T_J | $+100^\circ C$ |
| Lead Temperature (During Soldering, 10sec), T_L | $+260^\circ C$ |
| Thermal Resistance, Junction-to-Ambient, R_{thJA} | $+100^\circ C/W$ |

Note 1. For operation at elevated temperatures, these devices must be derated based on thermal resistance, and T_J Max ($T_J = T_A + (R_{thJA} P_D)$).

Note 2. For supply voltage less than $\pm 15V$, the absolute maximum input voltage is equal to the supply voltage.

Electrical Characteristics: ($V_S = \pm 15V$, $0^\circ \leq T_A \leq +70^\circ C$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit | |
|---------------------------------------|-----------|--|---------------------|----------|----------|------------|---------|
| Input Offset Voltage | V_{IO} | $R_S \leq 10k\Omega$ | $T_A = +25^\circ C$ | – | 2.0 | 6.0 | mV |
| | | | | – | – | 7.5 | mV |
| Input Offset Voltage Adjustment Range | V_{IOR} | $V_S = \pm 20V$, $T_A = +25^\circ C$ | – | ± 15 | – | V | |
| Input Offset Current | I_{IO} | $T_A = +25^\circ C$ | | – | 20 | 200 | nA |
| | | | | – | – | 300 | nA |
| Input Bias Current | I_{IB} | $T_A = +25^\circ C$ | | – | 80 | 500 | nA |
| | | | | – | – | 0.8 | μA |
| Input Resistance | r_i | $V_S = \pm 20V$, $T_A = +25^\circ C$ | 0.3 | 2.0 | – | $M\Omega$ | |
| Common Mode Input Voltage Range | V_{ICR} | $T_A = +25^\circ C$ | – | ± 12 | ± 13 | V | |
| Large Signal Voltage Gain | A_V | $V_O = \pm 10V$, $R_L \geq 2k\Omega$ | $T_A = +25^\circ C$ | 20 | 200 | – | V/mV |
| | | | | 15 | – | – | V/mV |
| Output Voltage Swing | V_O | $R_L \geq 10k\Omega$ | ± 12 | ± 14 | – | V | |
| | | $R_L \geq 2k\Omega$ | ± 10 | ± 13 | – | V | |
| Output Short–Circuit Current | I_{OS} | $T_A = +25^\circ C$ | – | 25 | – | mA | |
| Common–Mode Rejection Ratio | CMRR | $R_S \leq 10k\Omega$, $V_{CM} = \pm 12V$ | 70 | 90 | – | dB | |
| Supply Voltage Rejection Ratio | PSRR | $V_S = \pm 20V$ to $\pm 5V$, $R_S \leq 10k\Omega$ | 77 | 96 | – | dB | |
| Transient Response Rise Time | t_{TLH} | $T_A = +25^\circ C$, Unity Gain | – | 0.3 | – | μs | |
| Transient Response Overshoot | os | | – | 5 | – | % | |
| Transient Response Slew Rate | SR | | – | 0.5 | – | V/ μs | |
| Supplu Current | I_D | $T_A = +25^\circ C$ | – | 1.7 | 2.8 | mA | |
| Power Consumption | P_C | $T_A = +25^\circ C$ | – | 50 | 85 | mW | |

Pin Connection Diagram



