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NTE941 Integrated Circuit Operational Amplifier

Description:

The NTE941 is a general purpose operational amplifier in an 8-Lead TO5 Metal Can 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
Junction Temperature, T_J	$+100^{\circ}C$
Operating Temperature Range, T_{opr}	0° to $+70^{\circ}C$
Storage Temperature Range, T_{stg}	-65° to $+150^{\circ}C$
Lead Temperature (During Soldering, 10sec), T_L	$+300^{\circ}C$
Thermal Resistance, Junction-to-Ambient, R_{thJA}	$+150^{\circ}C/W$
Thermal Resistance, Junction-to-Case, R_{thJC}	$+80^{\circ}C/W$

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	
Supply 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	



