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NTE915 Integrated Circuit High-Speed Operational Amplifier

Description:

The NTE915 is a High-Speed, High-Gain, Monolithic Operational Amplifier. It is intended for use in a wide range of applications where fast signal acquisition or wide bandwidth is required. The NTE915 features fast settling time, high slew rate, low offsets and high output swing for large signal applications. In addition, the device displays excellent temperature stability and will operate over a wide range of supply voltages. The NTE915 is ideally suited for use in A/D and D/A converters, active filters, deflection amplifiers, video amplifiers, phase-locked loops, multiplexed analog gates, precision comparators, sample and holds and general feedback applications requiring DC wide bandwidth operation.

Features:

- High Slew Rate: 100V/ μ s
- Fast Settling Time: 800ns
- Wide Bandwidth: 65MHz
- Wide Operating Supply Range
- Wide Input Voltage Ranges

Absolute Maximum Ratings:

Supply Voltage	$\pm 18V$
Internal Power Dissipation (Note 1)	500mW
Differential Input Voltage	$\pm 15V$
Input Voltage (Note 2)	$\pm 15V$
Storage Temperature Range	-65° to $+150^{\circ}C$
Operating Temperature Range	0° to $+70^{\circ}C$
Pin Temperature (Soldering, 60s)	$+300^{\circ}C$

Note 1. Rating applies to ambient temperature up to $+70^{\circ}C$. Above $+70^{\circ}C$ ambient derate linearly at 6.3mW/ $^{\circ}C$

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

Electrical Characteristics: ($V_S = \pm 15V$, $T_A = +25^{\circ}C$ unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
Input Offset Voltage	$R_S \leq 10k\Omega$	–	2.0	7.5	mV
	$0^{\circ} \leq T_A \leq +70^{\circ}C$	–	–	10	mV
Input Offset Current		–	70	250	nA
	$T_A = +70^{\circ}C$	–	–	250	nA
	$T_A = 0^{\circ}C$	–	–	750	nA

Electrical Characteristics (Cont'd): ($V_S = \pm 15V$, $T_A = +25^\circ C$ unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
Input Bias Current		–	0.4	1.5	μA
	$T_A = +70^\circ C$	–	–	1500	nA
	$T_A = 0^\circ C$	–	–	7.5	μA
Input Resistance		–	1.0	–	$M\Omega$
Input Voltage Range		± 10	± 12	–	V
Large Signal Voltage Gain	$R_L \geq 2k\Omega$, $V_{OUT} = \pm 10V$	10,000	30,000	–	–
	$0^\circ \leq T_A \leq +70^\circ C$	8,000	–	–	–
Output Resistance		–	75	–	Ω
Supply Current		–	5.5	10	mA
Power Consumption		–	165	300	mW
Settling Time (Unity Gain)	$V_{OUT} = \pm 5V$	–	800	–	ns
Transient Response (Unity Gain)					
Rise Time	$V_{IN} = 400mV$	–	30	75	ns
Overshoot		–	25	50	%
Slew Rate	$A_V = 100$	–	70	–	V/ μs
	$A_V = 10$	–	38	–	V/ μs
	$A_V = 1$ (non-inverting)	10	18	–	V/ μs
	$A_V = 1$ (inverting)	–	100	–	V/ μs
Common Mode Rejection Ratio	$R_S \leq 10k\Omega$	74	92	–	dB
Supply Voltage Rejection Ratio	$R_S \leq 10k\Omega$, $0^\circ \leq T_A \leq +70^\circ C$	–	45 (Note 3)	400 (Note 1)	$\mu V/V$
Output Voltage Swing	$R_L \geq 2k\Omega$, $0^\circ \leq T_A \leq +70^\circ C$	± 10	± 13	–	V

Note 1. Rating applies to ambient temperature up to $+70^\circ C$. Above $+70^\circ C$ ambient derate linearly at $6.3mW/^\circ C$

Note 3. Specification applies to $T_A = +25^\circ C$ only.



