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NTE902 Integrated Circuit Operational Transconductance Amplifier

Description:

The NTE902 has a differential input and a single-ended, push-pull, class A output. In addition there is a bias input for linear gain control, whose transconductance (g_m) is directly proportional to the amplifier bias current (I_{ABC}).

Features:

- Slew rate (unity gain, compensated): 50V/ μ s
- Flexible supply voltage range: $\pm 2V$ to $\pm 15V$
- Fully adjustable gain: 0 to $g_m R_L$ limit

Applications:

- Sample and hold
- Multiplex
- Voltage follower
- Multiplier
- Comparator

Absolute Maximum Ratings: ($T_A = +25^\circ C$ unless otherwise specified)

DC Supply Voltage (between V+ and V- Pins)	36V
Differential Input Voltage	$\pm 5V$
DC Input Voltage	V+ to V-
Input Signal Current	1mA
Amplifier Bias Current	2mA
Output Short-Circuit Duration (Note 1)	No limitation
Device Dissipation, P_D	125mW
Operating Temperature Range, T_{op}	0° to $+70^\circ C$
Storage Temperature Range, T_{stg}	-65° to $+150^\circ C$
Lead Temperature (During Soldering), T_L	
(At distance $1/16 \pm 1/32$ in. (1.59 ± 0.79 mm) from case for 10s max)	$+300^\circ C$

Note 1. Short circuit may be applied to GND or to either supply.

Electrical Characteristics: ($V_+ = 15V$, $V_- = -15V$, $I_{ABC} = 500\mu A$, $T_A = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Offset Voltage	V_{IO}		–	0.4	5.0	mV
		$T_A = 0$ to $+70^\circ C$	–	–	6.0	
Input Offset Current	I_{IO}		–	0.12	0.6	μA
Input Bias Current	I_I		–	2	5	μA
		$T_A = 0$ to $+70^\circ C$	–	–	7	
Forward Transconductance (Large signal)	g_m		6700	9600	13000	μmho
		$T_A = 0$ to $+70^\circ C$	5400	–	–	
Peak Output Current	$ I_{OM} $	$R_L = 0$	350	500	650	μA
		$R_L = 0$, $T_A = 0$ to $+70^\circ C$	300	–	–	
Peak Output Voltage: Positive Negative	V_{+OM}	$R_L = \infty$	12.0	13.5	–	V
	V_{-OM}		–12	–14.4	–	
Amplifier Supply Current	I_A		0.8	1	1.2	mA
Device Dissipation	P_D		24	30	36	mW
Input Offset Voltage Sensitivity: Positive Negative	$\Delta V_{IO}/\Delta V_+$		–	–	150	$\mu V/V$
	$\Delta V_{IO}/\Delta V_-$		–	–	150	
Common-Mode Rejection Ratio	CMRR		80	110	–	dB
Common-Mode Input Voltage Range	V_{ICR}		12 to –12	13.6 to –14.6	–	V
Input Resistance	R_I		10	26	–	k Ω
Amplifier Bias Voltage	V_{ABC}		–	0.71	–	V
Slew Rate: Maximum (uncompensated) Unity gain (compensated)	SR		–	75	–	V/ μs
			–	50	–	
Open-Loop Bandwidth	BW_{OL}		–	2	–	MHz
Input Capacitance	C_I	$f = 1MHz$	–	3.6	–	pF
Output Capacitance	C_O	$f = 1MHz$	–	5.6	–	pF
Output Resistance	R_O		–	15	–	M Ω
Input-to-Output Capacitance	C_{I-O}	$f = 1MHz$	–	0.024	–	pF

Pin Connection Diagram

Top View

