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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/μs
- Flexible supply voltage range: ±2V to ±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°C unless otherwise specified)

DC Supply Voltage (between V+ and V– Pins) 36V
Differential Input Voltage . . . . . ±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°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C
Lead Temperature (During Soldering), T_L
(At distance 1/16 ± 1/32in. (1.59 ± 0.79mm) from case for 10s max) . . . . . +300°C

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

Electrical Characteristics: (V+ = 15V, V– = –15V, I_{ABC} = 500µA, T_A = +25°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°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°C	–	–	7	
Forward Transconductance (Large signal)	g_m		6700	9600	13000	µmho
		T_A = 0 to +70°C	5400	–	–	
Peak Output Current	$\lvert I_{OM} \rvert$	R_L = 0	350	500	650	µA
		R_L = 0, T_A = 0 to +70°C	300	–	–	
Peak Output Voltage: Positive	$V+_{OM}$	R_L = ∞	12.0	13.5	–	V
Negative	$V–_{OM}$		–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	$\Delta V_{IO}/\Delta V+$		–	–	150	µV/V
Negative	$\Delta V_{IO}/\Delta V–$		–	–	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	–	kΩ
Amplifier Bias Voltage	V_{ABC}		–	0.71	–	V
Slew Rate: Maximum (uncompensated)	SR		–	75	–	V/µs
Unity gain (compensated)			–	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	–	MΩ
Input–to–Output Capacitance	$C_{I–O}$	f = 1MHz	–	0.024	–	pF

Pin Connection Diagram

Top View