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NTE996
Linear Integrated Circuit
Operational Transconductance Amplifier

Description:

The NTE996 is a programmable transconductance block intended to fulfill a wide variety of variable gain applications. This device has differential inputs and high impedance push–pull outputs. The NTE996 has high input impedance and its transconductance (g_m) is directly proportional to the amplifier bias current (I_{ABC}).

High slew rate together with programmable gain make the NTE996 an ideal choice for variable gain applications such as sample and hold, multiplexing, filtering, and multiplying,

Features:

- Slew Rate (Unity Gain Compensated): 50V/μs
- Fully Adjustable Gain: 0 to $g_m \bullet R_L$ Limit
- Extended g_m Linearity: 3 Decades
- Flexible Supply Voltage Range: ±2V to ±18V
- Adjustable Power Consumption

Absolute Maximum Ratings:

DC Supply Voltage, V_S . . . . . ±18V
Power Dissipation, P_D 250mW
Differential Input Voltage . . . . . ±5V
Amplifier Bias Current, I_{ABC} 2mA
DC Input Voltage . . . . . $+V_S$ to $–V_S$
Output Short Circuit Duration . . . . . Indefinite
Operating Temperature Range, T_{opr} . . . . . 0° to +70°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C
Lead Temperature (During Soldering, 10sec), T_L . . . . . +260°C

Electrical Characteristics: (V_S = ±15V, I_{ABC} = 500µA, T_A = +25°C unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
Input Offset Voltage		–	0.4	5.0	mV
	T_A = 0° to +70°C, I_{ABC} = 5µA	–	0.3	–	
Input Offset Voltage Charge	5µA ≤ I_{ABC} ≤ 500µA	–	0.1	–	mV
Input Offset Current		–	0.1	–	µA
Input Bias Current		–	0.4	5.0	µA
	T_A = 0° to +70°C	–	1.0	7.0	
Forward Transconductance (g_m)		6700	9600	13000	µmho
	T_A = 0° to +70°C	5400	–	–	
Peak Output Current	R_L = 0, I_{ABC} = 5µA	–	5	–	µA
	R_L = 0	350	500	650	
	R_L = 0, T_A = 0° to +70°C	300	–	–	
Peak Output Voltage Positive	R_L = ∞, 5µA ≤ I_{ABC} ≤ 500µA	+12.0	+14.2	–	V
Negative	R_L = ∞, 5µA ≤ I_{ABC} ≤ 500µA	–12.0	–14.4	–	
Amplifier Supply Current		–	1.1	–	mA
Input Offset Voltage Sensitivity Positive	$\Delta V_{OFFSET}/\Delta V+$	–	20	150	µV/V
Negative	$\Delta V_{OFFSET}/\Delta V-$	–	20	150	
Common Mode Rejection Ratio		80	110	–	dB
Common Mode Range		±12	±14	–	V
Input Resistance		10	26	–	kΩ
Magnitude of Leakage Current	I_{ABC} = 0	–	0.2	100	nA
Differential Input Current	I_{ABC} = 0, Input = ±4V	–	0.02	100	nA
Open Loop Bandwidth		–	2.0	–	MHz
Slew Rate	Unity Gain Compensated	–	50	–	V/µs

Pin Connection Diagram