ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

NTE975 & NTE975SM Integrated Circuit Operational Amplifier

Description:

The NTE975 and NTE975SM are general purpose operational amplifiers built on a single chip. The resulting close match and tight thermal coupling gives low offsets and temperature drift as well as fast recovery from thermal transients.

The unity–gain compensation specified makes the circuit stable for all feedback configurations, even with capacitive loads. However, it is possible to optimize compensation for the best high frequency performance at any gain. As a comparator, the output can be clamped at any desired level to make it compatible with logic circuits.

Features:

- Available in 8–Lead Mini DIP (NTE975) and Surface Mount, SOIC–8 (NTE975SM)
- Frequency Compensation with a Single 30pF Capacitor
- Operation From ±5V to ±20V
- Low Current Drain: 1.8mA @ ±20V
- Continuous Short–Circuit Protection
- Operation as a Comparator with Differential Inputs as High as ±30V
- No Latch–Up when Common Mode Range is Exceeded

Absolute Maximum Ratings:

Supply Voltage, V_S . . . . ±22V
Power Dissipation (Note 1), P_D 500mW
Differential Input Voltage, V_{ID} . . . . ±30V
Input Voltage (Note 2), V_{IN} . . . . ±15V
Output Short–Circuit Duration (Note 3), t_s . . . . Indefinite
Operating Temperature Range, T_A . . . . 0° to +70°C
Storage Temperature Range, T_{stg} . . . . –65° to +150°C
Lead Temperature (During Soldering, 10sec), T_L . . . . +300°C

Note 1. For operating at elevated temperatures the devices must be derated based on a maximum junction to case thermal resistance of +45°C/W, or +150°C/W junction to ambient.

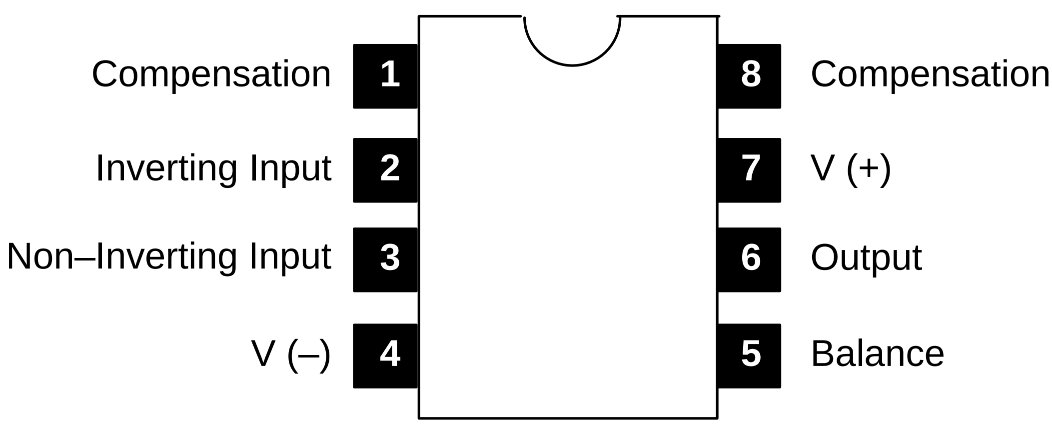
Note 2. For supply voltages less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

Note 3. Continuous short circuit is allow for ambient temperatures to +70°C.

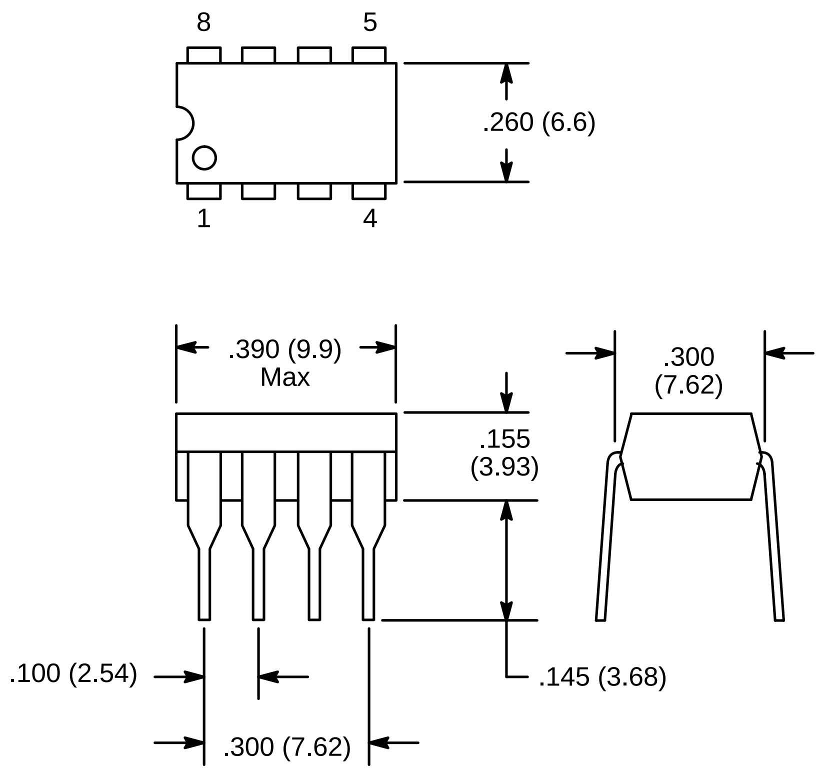
Electrical Characteristics: (0° ≤ T_A ≤ +70°C, ±5V ≤ V_S ≤ ±15V unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Offset Voltage	V_{IO}	T_A = +25°C, R_S ≤ 10kΩ	–	1.0	5.0	mV
		R_S ≤ 10kΩ	–	–	6.0	mV
Input Offset Current	I_{IO}	T_A = +25°C	–	40	200	nA
			–	–	300	nA
Input Bias Current	I_{IB}	T_A = +25°C	–	120	500	nA
			–	–	0.8	µA
Input Resistance	r_i	T_A = +25°C	300	800	–	kΩ
Supply Current	I_D	T_A = +25°C, V_S = ±15V	–	1.8	2.8	mA
		T_A = +125°C, V_S = ±15V	–	1.2	2.25	mA
Large Signal Voltage Gain	A_v	T_A = +25°C, V_S = ±15V, V_{OUT} = ±10V, R_L ≥ 2kΩ	50	160	–	V/mV
		V_S = ±15V, V_{OUT} = ±10V, R_L ≥ 2kΩ	25	–	–	V/mV
Average Temperature Coefficient of Input Offset Voltage	TCV_{IO}	R_S ≤ 50Ω	–	3.0	–	µV/°C
		R_S ≤ 10kΩ	–	6.0	–	µV/°C
Output Voltage Swing	V_O	V_S = ±15V, R_L = 10Ω	±12	±14	–	V
		V_S = ±15V, R_L = 2kΩ	±10	±13	–	V
Input Voltage Range	V_{ICR}	V_S = ±15V	±12	–	–	V
Common Mode Rejection Ratio	CMRR	R_S ≤ 10kΩ	70	90	–	dB
Supply Voltage Rejection Ratio	PSRR	R_S ≤ 10kΩ	77	90	–	dB

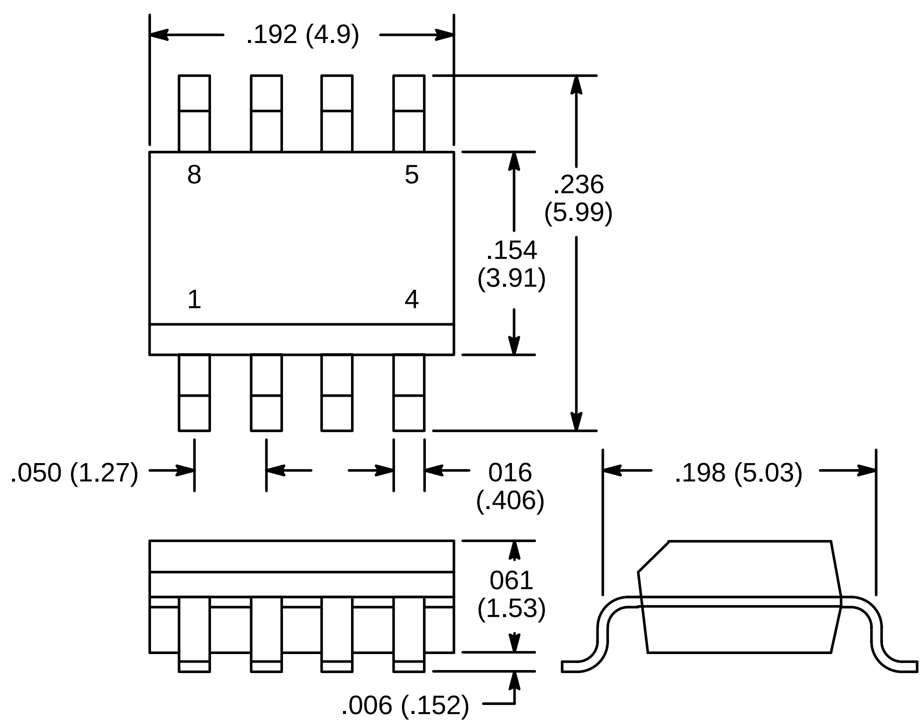
Pin Connection Diagram



NTE975



NTE975SM



NOTE: Pin1 on Beveled Edge