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NTE947 & NTE947D
Integrated Circuit
Dual Operational Amplifier

Description:

The NTE947 and NTE947D are general purpose dual operational amplifiers in a 10–Lead Metal Can and 14–Lead DIP type packages respectively. These two amplifiers share a common bias network and power supply leads. Otherwise, their operation is completely independent.

Features:

- No Frequency Compensation Required
- Short–Circuit Protection
- Wide Common–Mode and Differential Voltage Ranges
- Low–Power Consumption
- No Latch–Up
- Balanced Offset Null
- Choice of Package Types:
  NTE947: 10–Lead Metal Can
  NTE947D: 14–Lead DIP

Absolute Maximum Ratings:

Supply Voltage, V_{CC} . . . . . ±18V
Power Dissipation (Note 1), P_D 800mW
Differential Input Voltage, V_{ID} . . . . . ±30V
Common–Mode Input Swing Voltage (Note 2), V_{ICR} . . . . . ±15V
Output Short–Circuit Duration, t_{OS} . . . . . Indefinite
Operating Ambient 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. The maximum junction temperature of the NTE947 and NTE947D is 100°C. For operating at elevated temperatures, the NTE947 must be derated based on a thermal resistance of +150°C/W, junction–to–ambient, or +45°C/W, junction–to–case. The thermal resistance of the NTE947D is +100°C, junction–to–ambient.

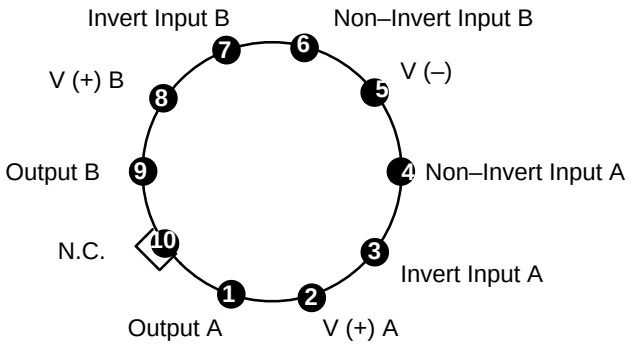
Note 2. For supply voltages less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

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

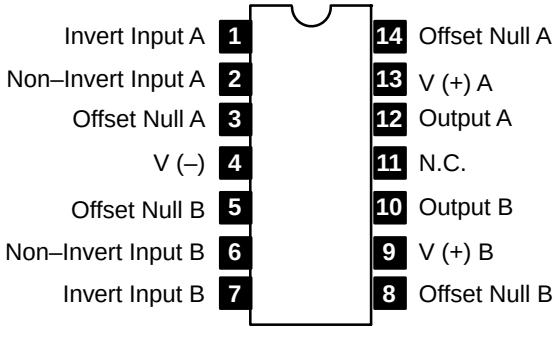
Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Input Offset Voltage	V_{IO}	R_S ≤ 10kΩ	T_A = +25°C	–	2.0	6.0	mV
			0° ≤ T_A ≤ +70°C	–	–	7.5	mV
Input Offset Voltage Adjustment Range		T_A = +25°C, V_S = ±20V		–	±15	–	mV
Input Offset Current	I_{IO}	T_A = +25°C		–	20	200	nA
		0° ≤ T_A ≤ +70°C		–	–	300	nA
Input Bias Current	I_{IB}	T_A = +25°C		–	80	500	nA
		0° ≤ T_A ≤ +70°C		–	–	0.8	µA
Input Resistance	r_i	T_A = +25°C, V_S = ±20V		0.3	2.0	–	MΩ
Common–Mode Input Voltage Swing	V_{ICR}	T_A = +25°C		±12	±13	–	V
Large Signal Voltage Gain		V_S = ±15V, V_O = ± 10V, R_L ≥ 2kΩ	T_A = +25°C	20	200	–	V/mV
			0° ≤ T_A ≤ +70°C	15	–	–	V/mV
Output Voltage Swing	V_{OR}	V_S = ±15V	R_L ≥ 10kΩ	±12	±14	–	V
			R_L ≥ 2kΩ	±10	±13	–	V
Output Short–Circuit Current	I_{OS}	T_A = +25°C		–	25	–	mA
Common–Mode Rejection Ratio	CMRR	0° ≤ T_A ≤ +70°C, R_S ≤ 10kΩ, V_{CM} = ±12V		70	90	–	dB
Supply Voltage Rejection Ratio	SVRR	0° ≤ T_A ≤ +70°C, R_S ≤ 10kΩ, V_S = ±20V to ±5V		77	96	–	dB
Transient Response Rise Time	t_{PLH}	T_A = +25°C, Unity Gain		–	0.3	–	µs
Overshoot				–	5	–	%
Slew Rate	SR	T_A = +25°C, Unity Gain		–	0.5	–	V/µs
Supply Current (Per Amplifier)	I_{CC}, I_{EE}	T_A = +25°C		–	1.7	2.8	mA
Power Consumption (Per Amplifier)	P_C	T_A = +25°C, V_S = ±15V		–	50	85	mW

Pin Connection Diagram

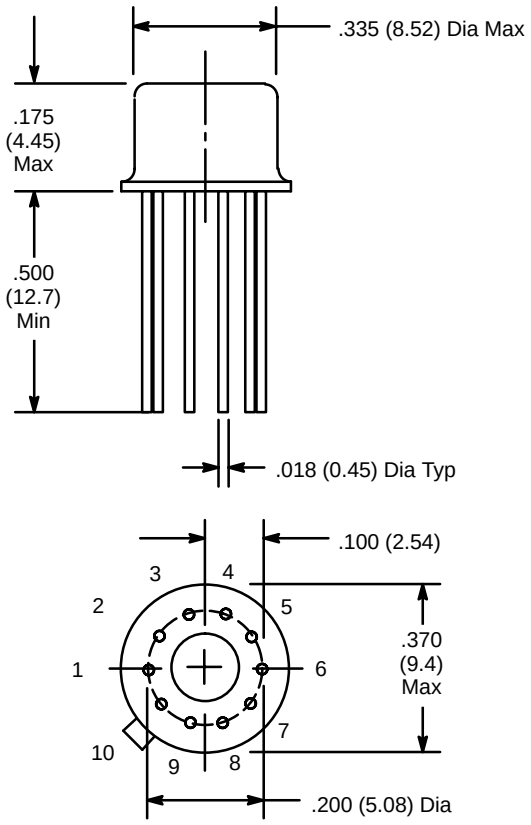
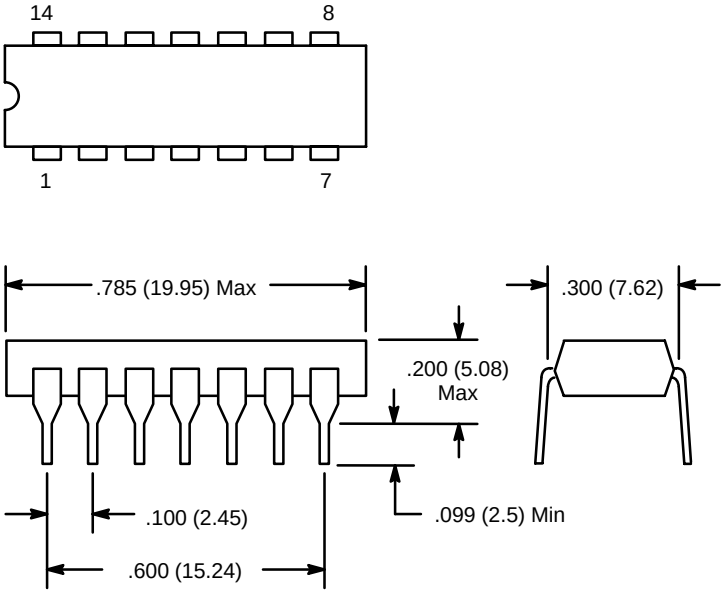
NTE947
(Top View)



NTE947D



NTE947



NTE947D