



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}	$\pm 18V$
Power Dissipation (Note 1), P_D	800mW
Differential Input Voltage, V_{ID}	$\pm 30V$
Common-Mode Input Swing Voltage (Note 2), V_{ICR}	$\pm 15V$
Output Short-Circuit Duration, t_{OS}	Indefinite
Operating Ambient Temperature Range, T_A	0° to $+70^\circ C$
Storage Temperature Range, T_{stg}	-65° to $+150^\circ C$
Lead Temperature (During Soldering, 10sec), T_L	$+300^\circ C$

Note 1. The maximum junction temperature of the NTE947 and NTE947D is $100^\circ C$. For operating at elevated temperatures, the NTE947 must be derated based on a thermal resistance of $+150^\circ C/W$, junction-to-ambient, or $+45^\circ C/W$, junction-to-case. The thermal resistance of the NTE947D is $+100^\circ C$, junction-to-ambient.

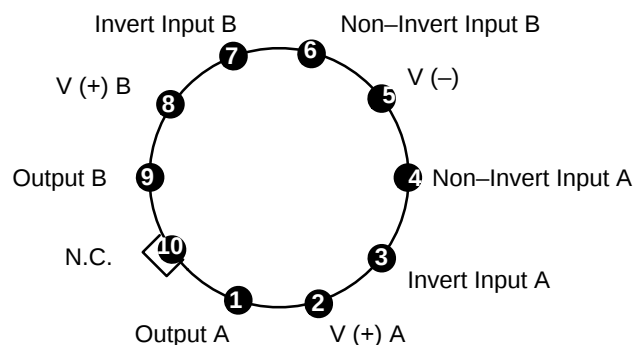
Note 2. For supply voltages less than $\pm 15V$, the absolute maximum input voltage is equal to the supply voltage.

Electrical Characteristics: ($V_S = \pm 15V$, $0^\circ \leq T_A \leq +70^\circ C$ unless otherwise specified)

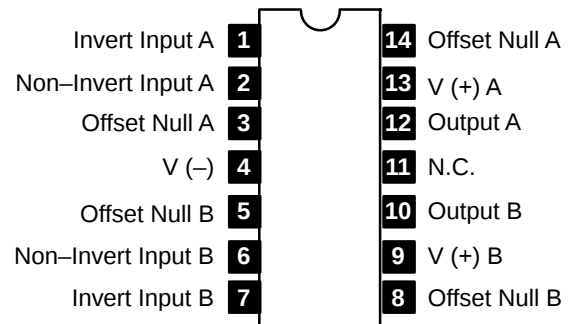
Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Input Offset Voltage	V_{IO}	$R_S \leq 10k\Omega$	$T_A = +25^\circ C$	–	2.0	6.0	mV
			$0^\circ \leq T_A \leq +70^\circ C$	–	–	7.5	mV
Input Offset Voltage Adjustment Range		$T_A = +25^\circ C$, $V_S = \pm 20V$		–	± 15	–	mV
Input Offset Current	I_{IO}	$T_A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

Pin Connection Diagram

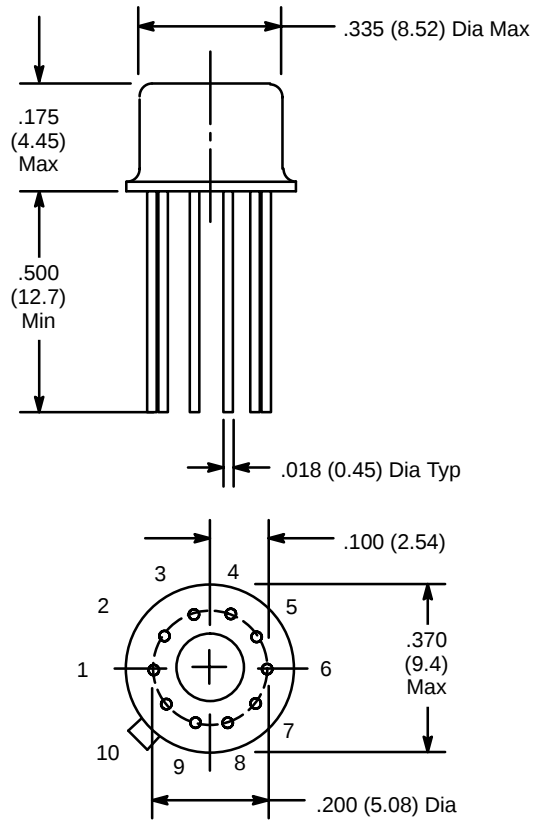
NTE947
(Top View)



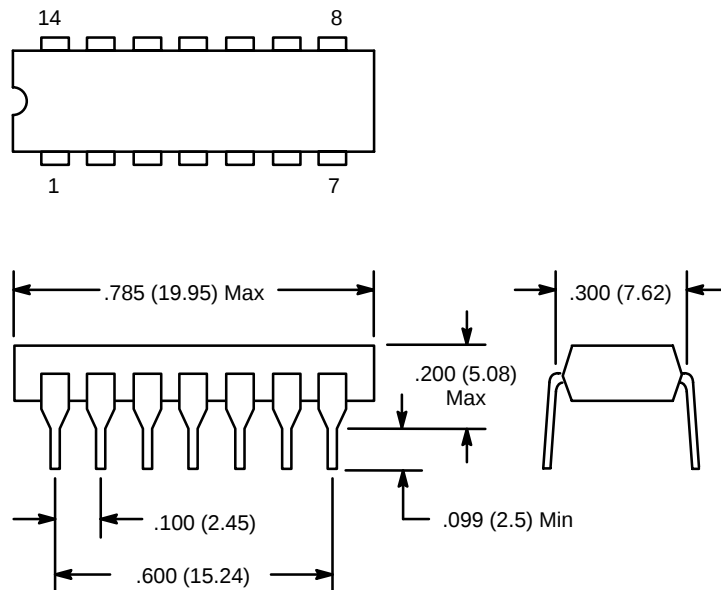
NTE947D



NTE947



NTE947D



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