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NTE1171
Integrated Circuit
Operational Amplifier

Description:

The NTE1171 is a general purpose operational amplifier in an 8–Lead Metal Can type package. Advanced processing techniques make possible an order of magnitude reduction in input currents, and a redesign of the biasing circuitry reduces the temperature drift of the input current.

This amplifier offers many features which make its application nearly foolproof: overload protection on the input, no latch–up when the common mode range is exceeded, freedom from oscillations and compensations with a single 30pF capacitor. It has advantages over internally compensated amplifiers in that the frequency compensation can be tailored to the particular application. For example, in low frequency circuits it can be overcompensated for increased stability margin. Or the compensation can be optimized to give more than a factor of ten improvement in high frequency performance for most applications.

Feature:

- Low Input Offset Current: 20na Maximum Over Temperature Range
- External Frequency Compensation for Flexibility
- Class AB Output Provides Excellent Linearity
- Output Short–Circuit Protection
- Guaranteed Drift Characteristics

Absolute Maximum Ratings:

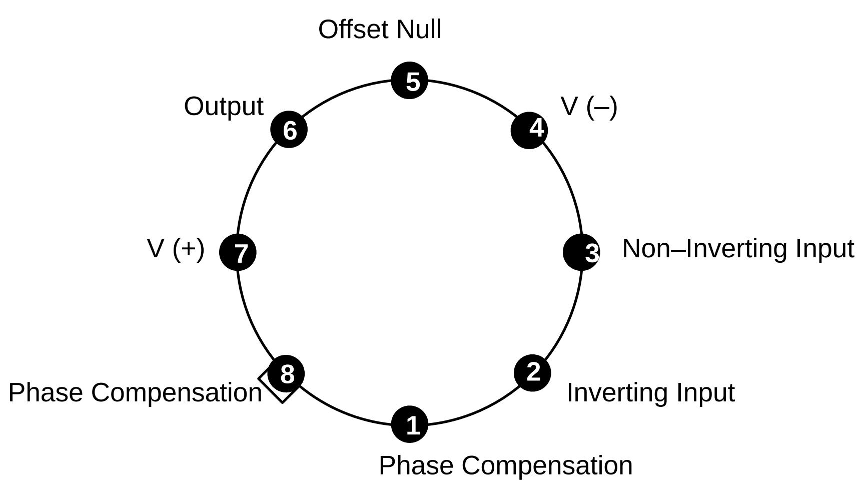
Power Supply Voltage, V_{CC}, V_{EE} . . . . ±18V
Input Differential Voltage, V_{ID} . . . . ±30V
Input Common–Mode Range (Note 1), V_{ICR} . . . . ±15V
Output Short–Circuit Duration, t_S . . . . Continuous
Power Dissipation (Package Limitation, T_A = +25°C), P_D 500mW
Derate Above T_A = +75°C . . . . 6.8mW/°C
Operating Ambient Temperature Range, T_A . . . . 0° to +70°C
Storage Temperature Range, T_{stg} . . . . –65° to +150°C

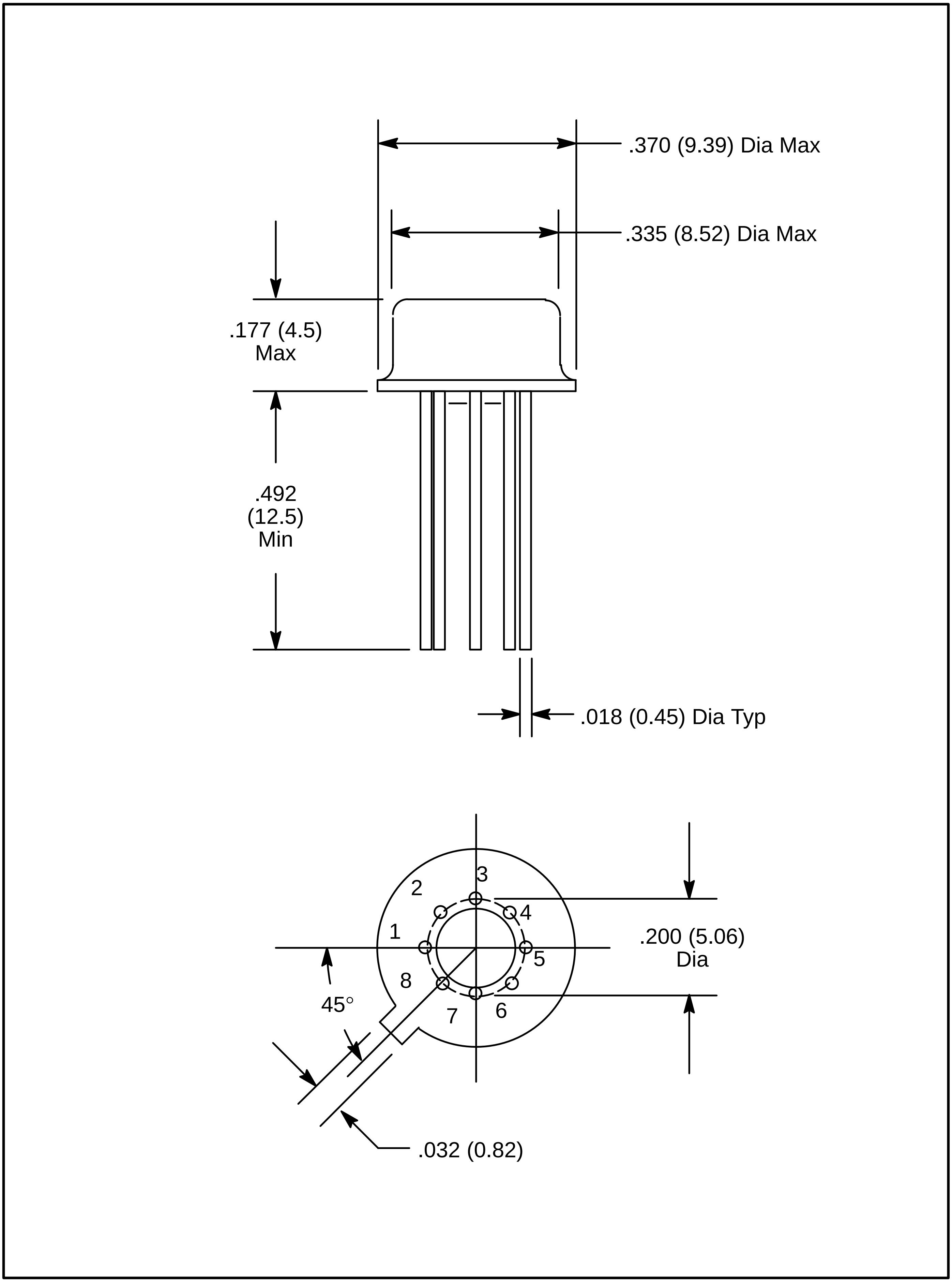
Note 1. For supply voltages less than ±15V, the avbsolute maximum input voltage is equal to the supply voltage.

Electrical Characteristics: (T_A = +25°C, V_{CC} = ±5V to ±15V unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Offset Voltage	V_{IO}	$R_S \leq 50k\Omega$	–	2.0	7.5	mV
Input Offset Current	I_{IO}		–	3.0	50	nA
Input Bias Current	I_{IB}		–	70	250	nA
Input Resistance	r_i		0.5	2.0	–	MΩ
Supply Current	I_{CC}, I_{EE}	V_{CC}/V_{EE} =±15V	–	1.8	3.0	mA
Large Signal Voltage Gain	A_V	V_{CC}/V_{EE} = ±15V, V_O = ±10V, R_L > 2kΩ	25	160	–	V/mV
Note: The following specifications apply over the operating temperature range.						
Input Offset Voltage	V_{IO}	$R_S \leq 50k\Omega$	–	–	10	mV
Input Offset Current	I_{IO}		–	–	70	nA
Average Temperature Coefficient of Input Offset Voltage	$\Delta V_{IO}/\Delta T$	$T_A(min) \leq T_A \leq T_A(max)$	–	6.0	30	µV/°C
Average Temperature Coefficient of Input Offset Current	$\Delta I_{IO}/\Delta T$	$+25°C \leq T_A \leq T_A(max)$	–	0.01	0.3	nA/°C
		$T_A(min) \leq T_A \leq +25°C$	–	0.02	0.6	nA/°C
Input Bias Current	I_{IB}		–	–	300	nA
Large Signal Voltage Gain	A_V	V_{CC}/V_{EE} = ±15V, V_O = ±10V, R_L > 2kΩ	15	–	–	V/mV
Input Voltage Range	V_I	V_{CC}/V_{EE} = ±15V	±12	–	–	V
Common–Mode Rejection Ratio	CMRR	$R_S \leq 50k\Omega$	70	90	–	dB
Supply Voltage Rejection Ratio	PSRR	$R_S \leq 50k\Omega$	70	96	–	dB
Output Voltage Swing	V_O	V_{CC}/V_{EE} = ±15V, R_L = 10kΩ	±12	±14	–	V
		V_{CC}/V_{EE} = ±15V, R_L = 2kΩ	±10	±13	–	V

Pin Connection Diagram
(Top View)





.370 (9.39) Dia Max
.335 (8.52) Dia Max
.177 (4.5)
Max
.492
(12.5)
Min
.018 (0.45) Dia Typ
3
2
4
1
5
8
6
7
.200 (5.06)
Dia
45°
.032 (0.82)