

NTE778A & NTE778SM Integrated Circuit Dual Operational Amplifier

Description:

The NTE778A (8-Lead DIP) and NTE778SM (SOIC-8 Surface Mount) are linear integrated circuits designed for use as a summing amplifier, integrator, or amplifier with operating characteristics as a function of the external feedback components.

Features:

- No Frequency Compensation Required
- Short-Circuit Protection
- Wide Common-Mode and Differential Voltage Ranges
- Low Power Consumption
- No Latch Up

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Power Supply Voltage, V_{CC} , V_{EE}	$\pm 18\text{V}$
Input Differential Voltage, V_{ID}	$\pm 30\text{V}$
Input Common Mode Voltage (Note 1), V_{ICM}	$\pm 15\text{V}$
Output Short-Circuit Duration (Note 2), t_S	Continuous
Operating Junction Temperature, T_J	$+150^\circ\text{C}$
Operating Ambient Temperature Range, T_A	0° to $+70^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+125^\circ\text{C}$

Note 1. For supply voltages less than $\pm 15\text{V}$, the absolute maximum input voltage is equal to the supply voltage.

Note 2. Supply voltage equal to or less than $\pm 15\text{V}$.

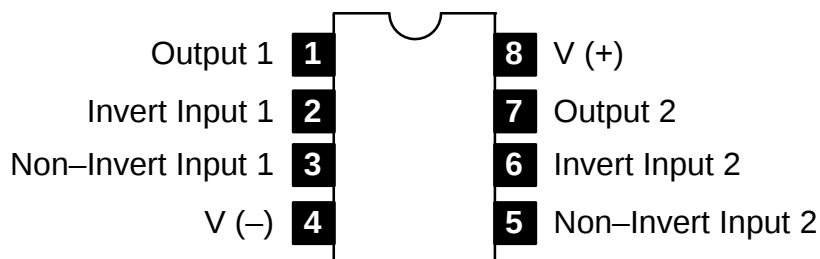
Electrical Characteristics: ($T_A = 0^\circ$ to $+70^\circ\text{C}$, $V_{CC} = +15\text{V}$, $V_{EE} = -15\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Offset Voltage	V_{IO}	$R_S \leq 10\text{k}\Omega$	—	—	7.5	V
		$R_S \leq 10\text{k}\Omega$, $T_A = +25^\circ\text{C}$	—	2.0	6.0	V
Input Offset Current	I_{IO}		—	—	300	nA
		$T_A = +25^\circ\text{C}$	—	20	200	nA
Input Bias Current	I_{IB}		—	—	800	nA
		$T_A = +25^\circ\text{C}$	—	80	500	nA

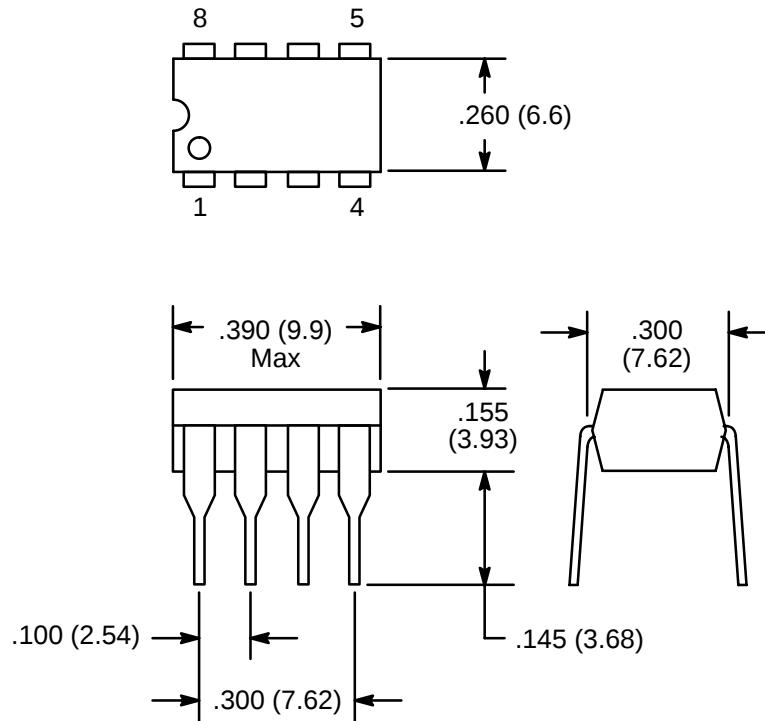
Electrical Characteristics (Cont'd): ($T_A = 0^\circ$ to $+70^\circ\text{C}$, $V_{CC} = +15\text{V}$, $V_{EE} = -15\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	C_i	$T_A = +25^\circ\text{C}$	–	1.4	–	pF
Common–Mode Input Voltage Range	V_{ICR}	$T_A = +25^\circ\text{C}$	± 12	± 13	–	V
Large Signal Voltage Gain	A_V	$V_O = \pm 10\text{V}$, $R_L = 2\text{k}\Omega$	15	–	–	V/mV
		$V_O = \pm 10\text{V}$, $R_L = 2\text{k}\Omega$, $T_A = +25^\circ\text{C}$	20	200	–	V/mV
Output Resistance	t_o	$T_A = +25^\circ\text{C}$	–	75	–	Ω
Common–Mode Rejection Ratio	CMRR	$R_S \leq 10\text{k}\Omega$, $T_A = +25^\circ\text{C}$	70	90	–	dB
Supply Voltage Rejection Ratio	PSRR	$R_S \leq 10\text{k}\Omega$, $T_A = +25^\circ\text{C}$	–	30	150	$\mu\text{V/V}$
Output Voltage Swing	V_O	$R_S \geq 10\text{k}\Omega$	± 12	± 14	–	V
		$R_S \geq 10\text{k}\Omega$, $T_A = +25^\circ\text{C}$	± 12	± 14	–	V
		$R_S \geq 2\text{k}\Omega$	± 10	± 13	–	V
		$R_S \geq 2\text{k}\Omega$, $T_A = +25^\circ\text{C}$	± 10	± 13	–	V
Output Short–Circuit Current	I_{os}	$T_A = +25^\circ\text{C}$	10	20	40	mA
Supply Currents (Both Amplifiers)	I_D	$T_A = +25^\circ\text{C}$	–	2.3	5.6	mA
Power Consumption (Both Amplifiers)	P_C	$T_A = +25^\circ\text{C}$	–	70	170	mW
Transient Response (Unity Gain, $T_A = +25^\circ\text{C}$)						
Rise Time	t_{TLH}	$V_I = 20\text{mV}$, $R_L \geq 2\text{k}\Omega$, $C_L \leq 100\text{pF}$	–	0.3	–	μs
Overshoot	os		–	15	–	%
Slew Rate NTE778A	SR	$V_I = 10\text{V}$, $R_L \geq 2\text{k}\Omega$, $C_L \leq 100\text{pF}$	–	0.5	–	V/ μs
			1.0	1.6	–	V/ μs
NTE778SM						

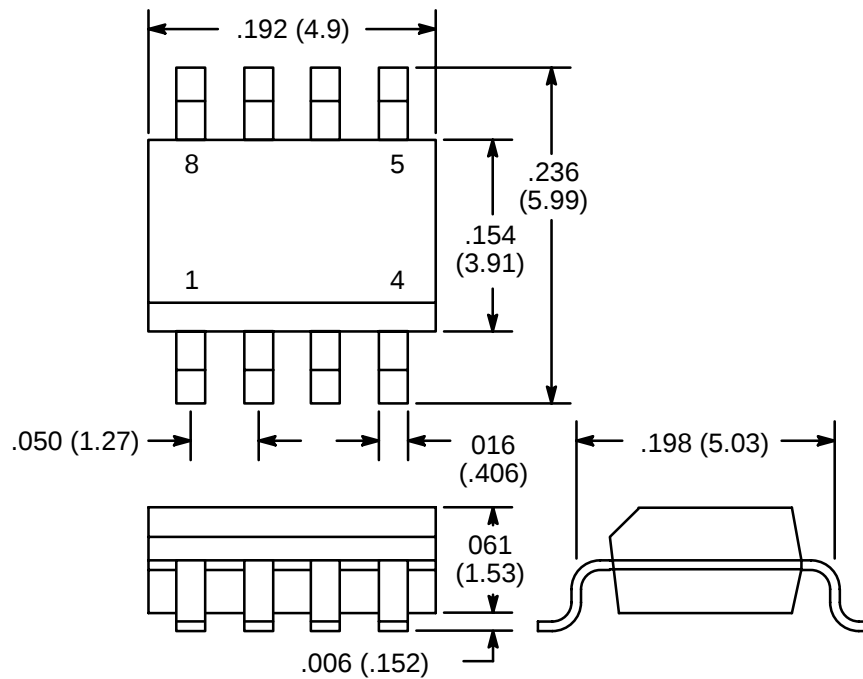
Pin Connection Diagram



NTE778A



NTE778SM



NOTE: Pin1 on Beveled Edge