ELECTRONICS, INC.
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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°C unless otherwise specified)

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

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

Note 2. Supply voltage equal to or less than ±15V.

Electrical Characteristics: (T_A = 0° to +70°C, V_{CC} = +15V, V_{EE} = –15V unless otherwise specified)

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

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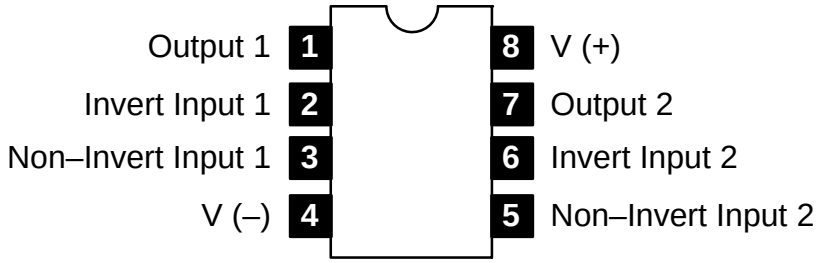
Electrical Characteristics (Cont'd): (T_A = 0° to +70°C, V_{CC} = +15V, V_{EE} = –15V unless otherwise specified)

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

Pin Connection Diagram



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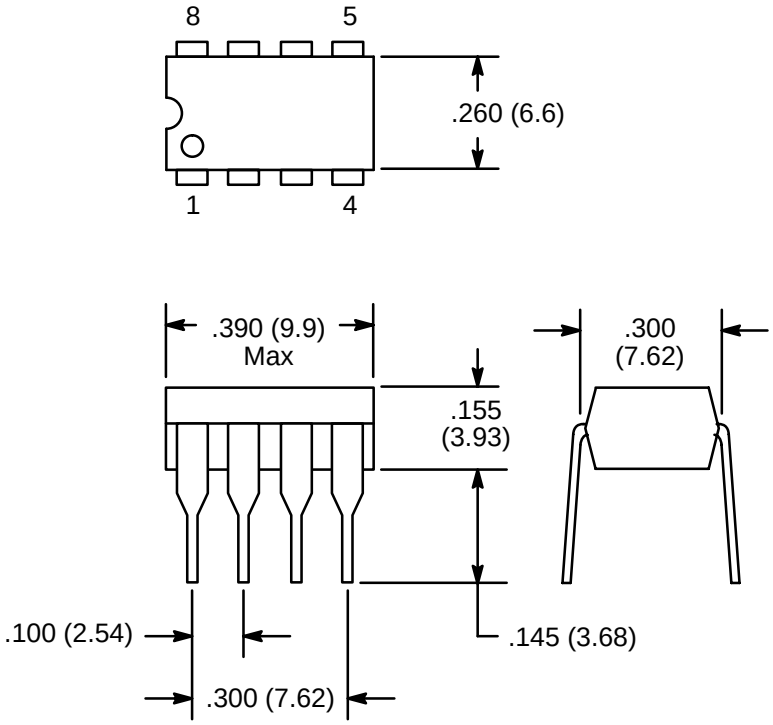
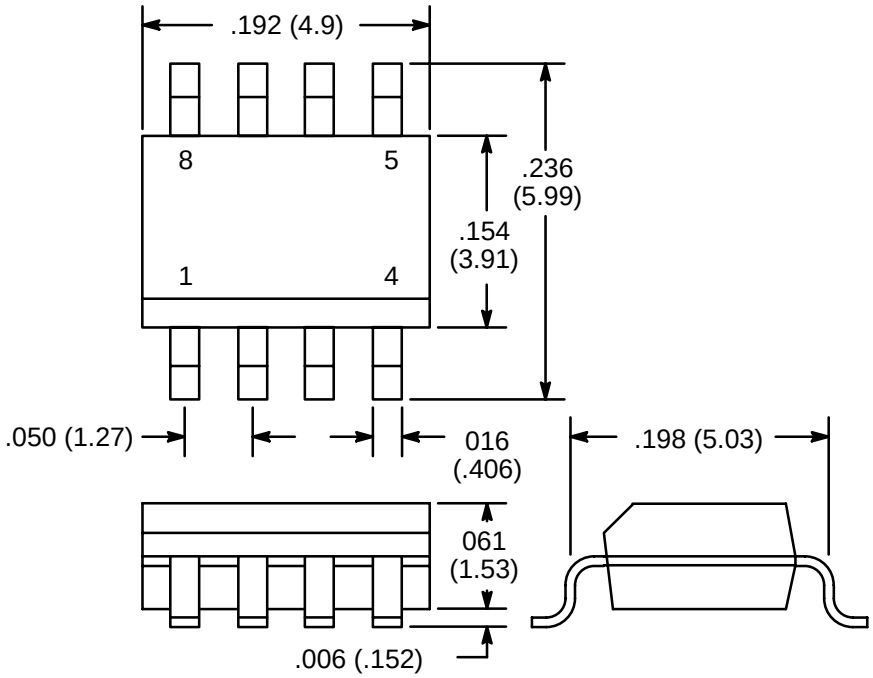
NTE778A



NTE778SM



NOTE: Pin1 on Beveled Edge

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