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NTE891M & NTE891SM
Integrated Circuit
Dual Audio Operational Amplifier

Description:

The NTE891M and NTE891SM are dual general purpose operational amplifiers designed with particular emphasis on performance in audio systems. Thiese devices deliver low noise, high speed and wide bandwidth without increasing external components for all closed loop gains and is therefore optimized for all preamp and high level stages in PCM and HiFi systems.

Features:

- Wide Dynamic Range
- Low Input Noise Voltage
- High Slew Rate
- High Gain Bandwidth Product
- Wide Power Bandwidth
- Low Distortion
- Low Offset Voltage
- Large Phase Margin
- Available in 8–Lead Mini DIP (NTE891M) and Surface Mount SOIC–8 (NTE891SM)

Absolute Maximum Ratings:

Supply Voltage, $V_{CC} - V_{EE}$ 36V
Differential Input Voltage (Note 1), V_{ID} . . . . . ±30V
Input Voltage Range (Note 1), V_{IC} . . . . . ±15V
Power Dissipation (Note 2), P_D 500mW
Operating Temperature Range, T_{opr} . . . . . –40° to +85°C
Storage Temperature Range, T_{stg} . . . . . –60° to +150°C
Lead Soldering Temperature (10 seconds), T_L . . . . . +260°C

Note 1. If supply voltage is less than ±15V, it is equal to supply voltage.
Note 2. This is a permissible value at $T_A \leq +85°C$.

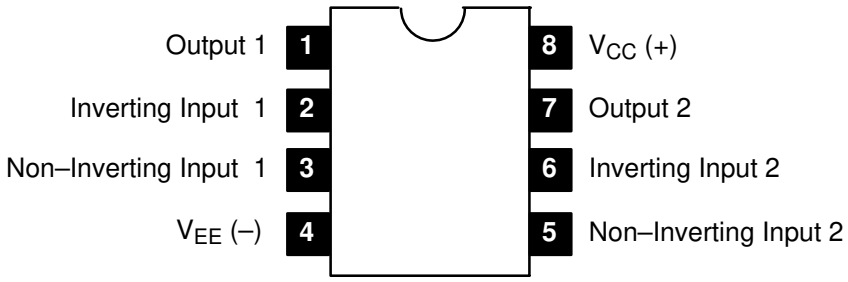
DC Electrical Characteristics: (T_A = +25°C, V_S = ±15V, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Offset Voltage	V_{OS}	R_S = 10Ω	–	0.3	5	mV
Input Offset Current	I_{OS}		–	10	200	nA
Input Bias Current	I_B		–	500	1000	nA
Voltage Gain	A_V	R_L = 2kΩ, V_O = ±10V	90	110	–	dB
Output Voltage Swing	V_{OM}	R_L = 10kΩ	±12	±13.5	–	V
		R_L = 2kΩ	±10	±13.4	–	
Input Common–Mode Range	V_{CM}		±12	±14.0	–	V
Common–Mode Rejection Ratio	CMRR	V_{IN} = ±12V	80	100	–	dB
Power Supply Rejection Ratio	PSRR	V_S = 15V to 5V, –15V to –5V	80	100	–	dB
Supply Current	I_Q	V_O = 0V, Both Amps	–	5	8	mA

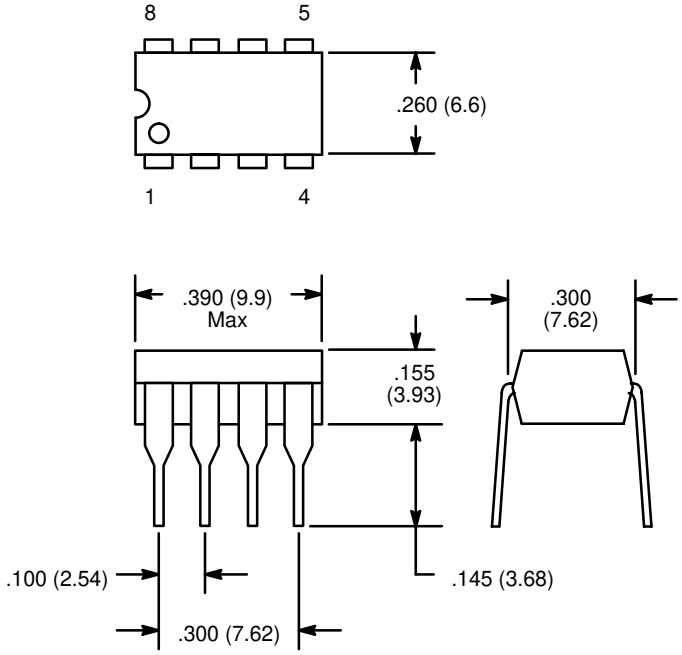
AC Electrical Characteristics: (T_A = +25°C, V_S = ±15V, R_L = 2kΩ, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Slew Rate	SR	R_L = 2kΩ	5	7	–	V/μs
Gain Bandwidth Product	GBW	f = 100kHz	10	15	–	MHz
Average Temperature Coefficient of Input Offset Voltage	$\Delta V_{OS}/\Delta T$		–	2	–	μV/°C
Distortion	THD	R_L = 2kΩ, f = 20 ~ 20kHz, V_{OUT} = $3V_{rms}$, A_V = 1	–	0.002	–	%
Input Referred Noise Voltage	e_n	R_S = 100Ω, f = 1kHz	–	4.5	–	nV/√Hz
Input Referred Noise Current	i_n	f = 1kHz	–	0.7	–	pA/√Hz
Power Bandwidth	PBW	V_O = $27V_{pp}$, R_L = 2kΩ, THD ≤ 1%	–	120	–	kHz
Unity Gain Frequency	f_U	Open Loop	–	9	–	MHz
Phase Margin	ϕ_M	Open Loop	–	60	–	deg
Input Referred Cross Talk		f = 20 ~ 20kHz	–	–120	–	dB

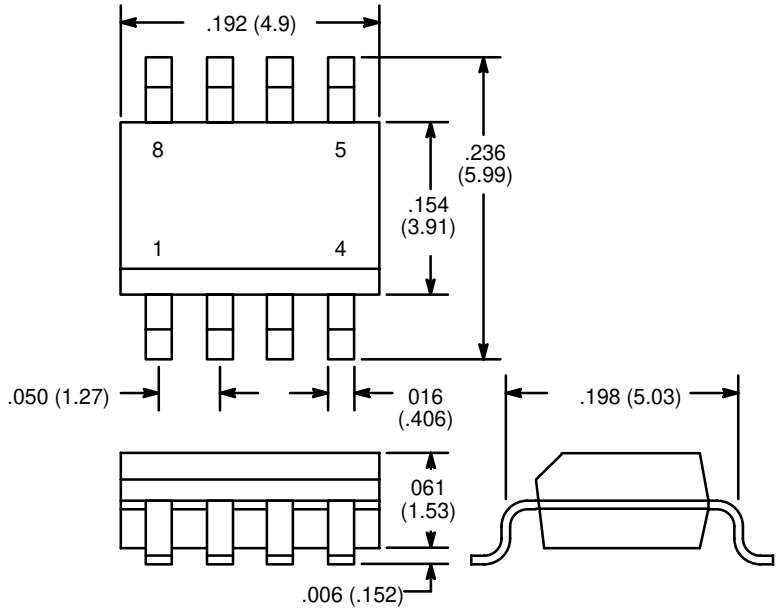
Pin Connection Diagram



NTE891M



NTE891SM



NOTE: Pin1 on Beveled Edge