

NTE941M & NTE941SM Integrated Circuit Operational Amplifier

Description:

The NTE941M and NTE941SM (Surface Mount) are general purpose operational amplifiers in 8-Lead DIP type packages and offer many features which make their application nearly foolproof: overload protection on the input and output, no latch-up when the common mode range is exceeded, as well as freedom from oscillators.

Absolute Maximum Ratings:

Supply Voltage, V_S	$\pm 18V$
Differential Input Voltage, V_{ID}	$\pm 30V$
Common Mode Input Voltage (Note 2), V_{ICM}	$\pm 15V$
Power Dissipation (Note 1), P_D	500mW
Output Short-Circuit Duration, t_S	Continuous
Operating Temperature Range, T_{opr}	0° to $+70^\circ C$
Storage Temperature Range, T_{stg}	-65° to $+150^\circ C$
Junction Temperature, T_J	$+100^\circ C$
Lead Temperature (During Soldering, 10sec), T_L	$+260^\circ C$
Thermal Resistance, Junction-to-Ambient, R_{thJA}	
NTE941M	$+100^\circ C/W$
NTE941SM	$+195^\circ C/W$

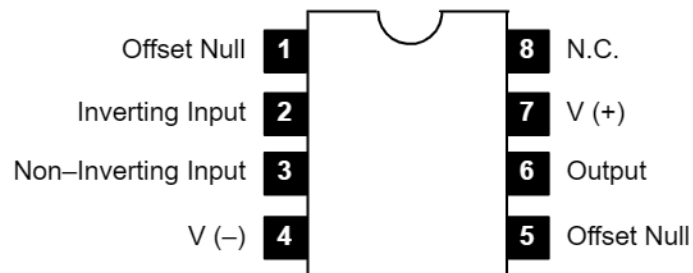
Note 1. For operation at elevated temperatures, these devices must be derated based on thermal resistance, and $T_J \text{ Max}$ ($T_J = T_A + (R_{thJA} P_D)$).

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

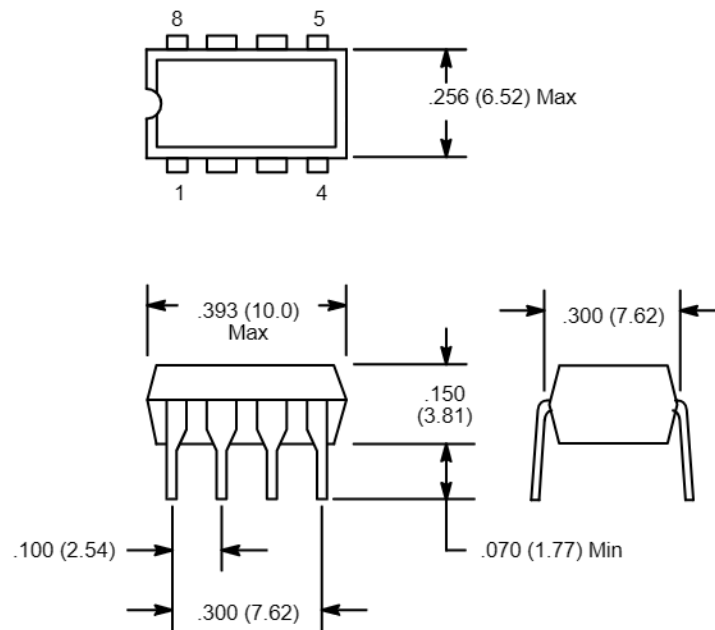
Electrical Characteristics: ($V_S = \pm 15V$, $0^\circ \leq T_A \leq +70^\circ C$ unless otherwise specified)

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
				–	–	7.5	mV
Input Offset Voltage Adjustment Range	V_{IOR}	$V_S = \pm 20V$, $T_A = +25^\circ C$		–	± 15	–	V
Input Offset Current	I_{IO}	$T_A = +25^\circ C$		–	20	200	nA
				–	–	300	nA
Input Bias Current	I_{IB}	$T_A = +25^\circ C$		–	80	500	nA
				–	–	0.8	μA
Input Resistance	r_i	$V_S = \pm 20V$, $T_A = +25^\circ C$		0.3	2.0	–	M Ω
Common Mode Input Voltage Range	V_{ICR}	$T_A = +25^\circ C$		–	± 12	± 13	V
Large Signal Voltage Gain	A_V	$V_O = \pm 10V$, $R_L \geq 2k\Omega$	$T_A = +25^\circ C$	20	200	–	V/mV
				15	–	–	V/mV
Output Voltage Swing	V_O	$R_L \geq 10k\Omega$		± 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	$R_S \leq 10k\Omega$, $V_{CM} = \pm 12V$		70	90	–	dB
Supply Voltage Rejection Ratio	PSRR	$V_S = \pm 20V$ to $\pm 5V$, $R_S \leq 10k\Omega$		77	96	–	dB
Transient Response Rise Time	t_{TLH}	$T_A = +25^\circ C$, Unity Gain		–	0.3	–	μs
Transient Response Overshoot	os			–	5	–	%
Transient Response Slew Rate	SR			–	0.5	–	V/ μs
Supply Current	I_D	$T_A = +25^\circ C$		–	1.7	2.8	mA
Power Consumption	P_C	$T_A = +25^\circ C$		–	50	85	mW

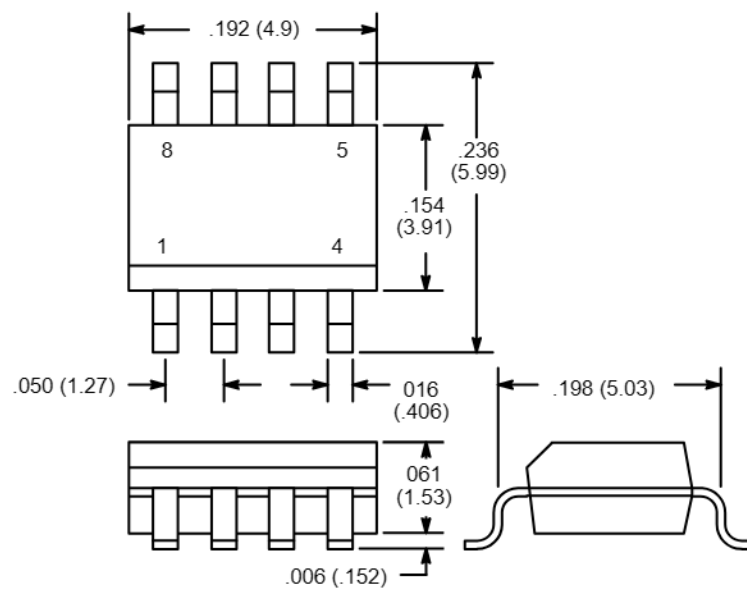
Pin Connection Diagram



NTE941M



NTE941SM



NOTE: Pin1 on Beveled Edge