



**ELECTRONICS, INC.**  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089

## NTE1905 Integrated Circuit Negative 3 Terminal Voltage Regulator, -15V, 100mA

**Description:**

The NTE1905 voltage regulator is an inexpensive, easy-to-use device in a TO92 type package suitable for a multitude of applications that require a regulated supply of up to 100mA. This device features internal current limiting and thermal shutdown making the NTE1905 remarkably rugged. No external components are required in many applications.

The NTE1905 offers a substantial performance advantage over the traditional zener diode-resistor combination, as output impedance and quiescent current are substantially reduced.

**Features:**

- Low Cost
- ±5% Tolerance
- Internal Short-Circuit Current Limiting
- Internal Thermal Overload Protection
- No External Components Required

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

Input Voltage,  $V_I$  ..... -35V  
 Operating Junction Temperature Range,  $T_J$  .....  $0^\circ$  to  $+150^\circ\text{C}$   
 Storage Junction Temperature Range,  $T_{stg}$  .....  $-65^\circ$  to  $+150^\circ\text{C}$

**Electrical Characteristics:** ( $V_I = -33\text{V}$ ,  $I_O = 40\text{mA}$ ,  $C_I = 0.33\mu\text{F}$ ,  $C_O = 0.1\mu\text{F}$ ,  $0^\circ < T_J < +125^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Output Voltage	$V_O$	$T_J = +25^\circ\text{C}$	-14.4	-15	-15.6	V	
		$-17.5\text{V} \geq V_I \geq -30\text{V}$ , $1.0\text{mA} \leq I_O \leq 40\text{mA}$	-14.25	-	-15.75	V	
		$V_I = -23\text{V}$ , $1.0\text{mA} \leq I_O \leq 70\text{mA}$	-14.25	-	-15.75	V	
Line Regulation	$\text{Reg}_{line}$	$T_J = +25^\circ\text{C}$	$-17.5\text{V} \geq V_I \geq -30\text{V}$	-	-	300	mV
			$-20\text{V} \geq V_I \geq -30\text{V}$	-	-	250	mV

**Electrical Characteristics (Cont'd):** ( $V_I = -33V$ ,  $I_O = 40mA$ ,  $C_I = 0.33\mu F$ ,  $C_O = 0.1\mu F$ ,  $0^\circ < T_J < +125^\circ C$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Load Regulation	$Reg_{load}$	$T_J = +25^\circ C$	$1.0mA \leq I_O \leq 100mA$	-	-	150	mV
			$1.0mA \leq I_O \leq 40mA$	-	-	75	mV
Input Bias Current	$I_{IB}$	$T_J = +25^\circ C$	-	-	6.5	mA	
		$T_J = +125^\circ C$	-	-	6.0	mA	
Input Bias Current Change	$\Delta I_{IB}$	$-20V \geq V_I \geq -30V$	-	-	1.5	mA	
			$1.0mA \leq I_O \leq 40mA$	-	-	0.1	mA
Output Noise Voltage	$V_n$	$T_A = +25^\circ C$ , $10Hz \leq f \leq 100kHz$	-	90	-	$\mu V$	
Long-Term Stability	$\Delta V_O/\Delta t$		-	30	-	mV/1.0kHrs	
Ripple Rejection	RR	$-18.5V \leq V_I \leq -28.5V$ , $f = 120Hz$	34	39	-	dB	
Input-Output Voltage Differential	$ V_I/V_O $	$I_O = 40mA$ , $T_J = +25^\circ C$	-	1.7	-	V	

