

## NTE1908 Integrated Circuit Positive 3 Terminal Voltage Regulator, 24V, 100mA

**Description:**

The NTE1908 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 NTE1908 remarkably rugged. No external components are required in many applications.

The NTE1908 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
- Complementary to NTE1909 Negative Regulator

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

Input Voltage,  $V_I$  ..... 40V

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	$V_O$	$T_J = +25^\circ\text{C}$	22.1	24.0	25.9	V	
		$28\text{V} \leq V_I \leq 38\text{V}$ , $1\text{mA} \leq I_O \leq 40\text{mA}$	21.6	–	26.4	V	
		$28\text{V} \leq V_I \leq 33\text{V}$ , $1\text{mA} \leq I_O \leq 70\text{mA}$	21.6	–	26.4	V	
Line Regulation	$\text{Reg}_{line}$	$T_J = +25^\circ\text{C}$ , $I_O = 40\text{mA}$	$27.5\text{V} \leq V_I \leq 38\text{V}$	–	35	350	mV
			$28\text{V} \leq V_I \leq 80\text{V}$	–	30	300	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	$Reg_{load}$	$T_J = +25^\circ C$	-	40	200	mV
		$1mA \leq I_O \leq 100mA$			100	mV
Input Bias Current	$I_{IB}$	$T_J = +25^\circ C$	-	3.1	6.5	mA
		$T_J = +125^\circ C$	-	-	6.0	mA
Input Bias Current Change	$\Delta I_{IB}$	$28V \leq V_I \leq 38V$	-	-	1.5	mA
		$1mA \leq I_O \leq 40mA$	-	-	0.2	mA
Output Noise Voltage	$V_n$	$T_A = +25^\circ C$ , $10Hz \leq f \leq 100kHz$	-	200	-	$\mu V$
Long-Term Stability	$\Delta V_O/\Delta t$		-	56	-	mV/1kHrs
Ripple Rejection	RR	$I_O = 40mA$ , $f = 120Hz$ , $29V \leq V_I \leq 35V$ , $T_J = +25^\circ C$	30	43	-	dB
Input-Output Voltage Differential	$V_I/V_O$	$T_J = +25^\circ C$	-	1.7	-	V

