



ELECTRONICS, INC.  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089  
<http://www.nteinc.com>

## NTE1957 Integrated Circuit Positive 3 Terminal Voltage Regulator, Low Dropout Voltage, 9V, 1A

**Description:**

The NTE1957 is a positive voltage regulator in a TO220 type package with a low input/output voltage. This device is suitable for low-voltage, battery-driven equipment, and home appliances and industrial equipment with great fluctuation of the supply voltage.

**Features:**

- Dropout Voltage Typically 0.5V @  $I_O = 1A$
- Output Current in Excess of 1A
- Output Voltage Trimmed Before Assembly
- Reverse Battery Protection
- Internal Short Circuit Current Limit
- Mirror Image Insertion Protection

**Absolute Maximum Ratings:** (Note 1 unless otherwise specified)

Supply Voltage, $V_{IN}$ .....	26V
Internal Power Dissipation (Note 2), $P_D$ .....	Internally Limited
Maximum Junction Temperature, $T_J$ .....	+150°C
Operating Ambient Temperature Range, $T_{opr}$ .....	-40° to +125°C
Storage Temperature Range, $T_{stg}$ .....	-65° to +150°C
Lead Temperature (During Soldering, 10sec max.), $T_L$ .....	+260°C
Thermal Resistance, Junction-to-Ambient, $R_{thJA}$ .....	60°C/W
Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	4°C/W
ESD Susceptibility (Note 3) .....	2kV

**Recommended Operating Conditions:** (Note 1 unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Operating Supply Voltage Range	$V_{IN}$		10.5	-	26.0	V
Temperature Range	$T_J$		-40	-	+125	°C

Note 1. Absolute Maximum Ratings are limits beyond which damage to the device may occur. Operating Conditions are conditions under which the device functions but the specifications might not be guaranteed. For guaranteed specifications and test conditions, see the Electrical Characteristics.

Note 2. The maximum allowable power dissipation is a function of the maximum junction temperature,  $T_J$ , the junction-to-ambient thermal resistance,  $R_{thJA}$ , and the ambient temperature,  $T_A$ . Exceeding the maximum allowable dissipation will cause excessive die temperature, and the regulator will go into thermal shutdown. The value of  $R_{thJA}$  (for devices in still air with no heatsink) is +60/W. The effective value of  $R_{thJA}$  can be reduced by using a heatsink.

Note 3. ESD rating is based on the human body model, 100pF discharged through 1.5kΩ.

**Electrical Characteristics:** ( $V_{IN} = 14V$ ,  $I_O = 1A$ ,  $T_A = T_J = +25^\circ C$  unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$5mA \leq I_O \leq 1A$	8.73	9.00	9.27	V
		Note 4	8.55	9.00	9.45
Line Regulation	$11V \leq V_{IN} \leq 26V$ , $I_O = 5mA$	-	20	90	mV
Load Regulation	$50mA \leq I_O \leq 1A$	-	60	90	mV
		Note 4	-	-	150
Output Impedance	$100mADC$ and $20mA_{rms}$ , $f_o = 120Hz$	-	60	-	$m\Omega$
Quiescent Current	$11V \leq V_{IN} \leq 26V$ , $I_O = 5mA$	-	10	15	mA
		Note 4	-	-	20
	$V_{IN} = 14V$ , $I_O = 1A$	-	30	45	mA
		Note 4	-	-	60
Output Noise Voltage	$f_o = 10Hz$ to $100kHz$ , $I_O = 5mA$	-	270	-	$\mu V_{rms}$
Ripple Rejection	$f_o = 120Hz$ , $1V_{rms}$ , $I_O = 100mA$	52	64	-	dB
		Note 4	46	-	-
Long Term Stability		-	34	-	mV/1000 Hr
Dropout Voltage	$I_O = 1A$	-	0.8	-	V
		Note 4	-	-	1.0
	$I_O = 100mA$	-	110	150	mV
		Note 4	-	-	200
Short Circuit Current	Note 5	1.6	1.9	-	A
Maximum Line Transient	$R_O = 100\Omega$ , $T \leq 100ms$	60	75	-	V
		Note 4	60	-	-
Reverse Polarity DC Input Voltage	$R_O = 100\Omega$	-15	-30	-	V
		Note 4	-15	-	-
Reverse Polarity Transient Input Voltage	$R_O = 100\Omega$ , $T \leq 100ms$	-50	-75	-	V
		Note 4	-50	-	-

Note 4. Limits apply for  $10.5V \leq V_{IN} \leq 26V$ ,  $-40^\circ \leq T_J \leq +125^\circ C$ .

Note 5. Output current will decrease with increasing temperature but will not drop below 1A at the maximum specified temperature.

