

**NTE1951**  
**Integrated Circuit**  
**Positive 3 Terminal Voltage Regulator,**  
**Low Dropout Voltage, 5V, 1A**

**Description:**

The NTE1951 positive voltage regulator features the ability to source 1A of output current with a dropout voltage of typically 0.5V and a maximum of 1V over the entire temperature range. Furthermore, a quiescent current reduction circuit has been included which reduces the ground current when the differential between the input voltage and the output voltage exceeds approximately 3V. The quiescent current with 1A of output current and an input-output differential of 5V is therefore only 30mA. High quiescent currents only exist when the regulator is in the dropout mode ( $V_{IN} - V_{OUT} \leq 3V$ ).

**Features:**

- Dropout Voltage: 0.5V (Typ) @  $I_O = 1A$
- Output Current in Excess of 1A
- Reverse Battery Protection
- Internal Short Circuit Current Limit

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

Input Voltage, $V_I$	
Survival Voltage ( $\leq 100ms$ )	60V
Operational Voltage	26V
Internal Power Dissipation (Note 1), $P_D$	Internally Limited
maximum Junction Temperature, $T_J$	+150°C
Operating Temperature Range, $T_A$	-40° to +125°C
Storage Junction Temperature Range, $T_{stg}$	-65° to +150°C
Lead Temperature (During Soldering, 10sec max), $T_L$	+230°C

Note 1. Thermal resistance without a heatsink for junction-to-case temperature is 3°C/W. Thermal resistance case-to-ambient is 50°C/W

**Electrical Characteristics:** ( $V_{IN} = 10V$ ,  $I_O = 1A$ ,  $C_{OUT} = 22\mu F$ ,  $C_O = 0.1\mu F$ ,  $T_J = +25^\circ C$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$V_{OUT}$	$5mA \leq I_O \leq 1A$	4.85	5.00	5.15	V
Line Regulation	$Reg_{line}$	$7V \geq V_{IN} \geq 26V$ , $I_O = 5mA$	-	20	50	mV
Load Regulation	$Reg_{load}$	$50mA \leq I_O \leq 1A$	-	35	50	mV
Output Impedance	$Z_O$	100mADC and 20mA <sub>rms</sub> , $f_o = 120Hz$	-	35	-	MΩ
Quiescent Current		$7V \geq V_{IN} \geq 26V$ , $I_O = 5mA$	-	10	15	mA
		$V_{IN} = 10V$ , $I_O = 1A$	-	30	45	mA
Output Noise Voltage	$V_n$	10Hz – 100kHz, $I_O = 5mA$	-	150	-	$\mu V_{rms}$
Ripple Rejection	RR	$f_o = 120Hz$ , $1V_{rms}$ , $I_I = 100mA$	60	72	-	dB
Long Term Stability	S		-	20	-	mV/1000Hr
Dropout Voltage	$V_{IN}-V_O$	$I_O = 1A$	-	0.5	0.8	V
		$I_O = 100mA$	-	110	150	mA
Short Circuit Current	$I_{SC}$		1.6	1.9	-	A
Maximum Line Transient		$V_O \leq 6V$ , $R_O = 100\Omega$ , $T \leq 100ms$	60	75	-	V
Maximum Operational Input Voltage			26	31	-	$V_{dc}$
Reverse Polarity Input Voltage DC		$R_O = 100\Omega$	-15	-30	-	V
Reverse Polarity Input Voltage Transient		$T \leq 100ms$ , $R_O = 100\Omega$	-50	-75	-	V

