

NTE1954 Integrated Circuit Positive 3 Terminal Voltage Regulator, Low Dropout Voltage, 12V, 1A

Description:

The NTE1954 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	$+150^\circ C$
Operating Temperature Range, T_A	-40° to $+125^\circ C$
Storage Junction Temperature Range, T_{stg}	-65° to $+150^\circ C$
Lead Temperature (During Soldering, 10sec max), T_L	$+230^\circ C$

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

Electrical Characteristics: ($V_{IN} = 17V$, $I_O = 1A$, $C_{OUT} = 22\mu F$, $C_O = 0.1\mu F$, $T_J = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$5mA \leq I_O \leq 1A$	11.64	12.00	12.36	V
Line Regulation	Reg_{line}	$14V \geq V_{IN} \geq 26V$, $I_O = 5mA$	–	20	120	mV
Load Regulation	Reg_{load}	$50mA \leq I_O \leq 1A$	–	55	120	mV
Output Impedance	Z_O	100mADC and 20mArms, $f_o = 120Hz$	–	80	–	$M\Omega$
Quiescent Current		$14V \geq V_{IN} \geq 26V$, $I_O = 5mA$	–	10	15	mA
		$V_{IN} = 17V$, $I_O = 1A$	–	30	45	mA
Output Noise Voltage	V_n	10Hz – 100kHz, $I_O = 5mA$	–	360	–	μV_{rms}
Ripple Rejection	RR	$f_o = 120Hz$, $1V_{rms}$, $I_I = 100mA$	54	66	–	dB
Long Term Stability	S		–	48	–	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		$V_O \leq 13V$, $R_O = 100\Omega$, $T \leq 100ms$	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

