

NTE1918

3 Terminal Positive Voltage Regulator

15V, 3A

Description:

The NTE1918 is a positive 3-terminal voltage regulator in a TO3 type package capable of driving loads in excess of 3A. This device employs internal current limiting, thermal shutdown, and safe-area compensation.

Although designed primarily as a fixed voltage regulator, the NTE1918 can be used with external components to obtain adjustable voltages and currents.

Features:

- Output Current in Excess of 3A
- Power Dissipation: 30W
- Internal Thermal Overload Protection
- Output Transistor Safe Area Protection
- Internal Short Circuit Current Limit
- No External Components Required

Absolute Maximum Ratings:

Input Voltage , V_{IN} 40V
 Power Dissipation ($T_A = +25^\circ\text{C}$, Note 1), P_D Internally Limited
 Power Dissipation ($T_C = +25^\circ\text{C}$, Note 1), P_D Internally Limited
 Operating Junction Temperature Range, T_J 0° to $+150^\circ\text{C}$
 Storage Temperature Range, T_{stg} -65° to $+150^\circ\text{C}$
 Thermal Resistance, Junction-to-Case, R_{thJC} 2.5°C/W
 Thermal Resistance, Junction-to-Ambient, R_{thJA} 35°C/W

Note 1. Although power dissipation is internally limited, specifications apply only for $P_O \leq 30\text{W}$.

Electrical Characteristics: ($0^\circ \leq T_J \leq +125^\circ\text{C}$, $V_{IN} = 20\text{V}$, $I_O = 3\text{A}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_O	$T_J = +25^\circ\text{C}$, $5\text{mA} \leq I_O \leq 3\text{A}$	14.4	15.0	15.6	V
		$5\text{mA} \leq I_O \leq 2\text{A}$, $17.5\text{V} \leq V_{IN} \leq 30\text{V}$	14.25	15.00	15.75	V
Line Regulation	Reg_{line}	$T_J = +25^\circ\text{C}$, $20\text{V} \leq V_{IN} \leq 26\text{V}$, Note 2	—	7.5	55	mV
		$18\text{V} \leq V_{IN} \leq 30\text{V}$, $I_O = 1\text{A}$, Note 2	—	7.5	55	mV
Load Regulation	Reg_{load}	$T_J = +25^\circ\text{C}$, $5\text{mA} \leq I_O \leq 3\text{A}$, Note 2	—	10	30	mV
		$5\text{mA} \leq I_O \leq 3\text{A}$, Note 2	—	15	80	mV

Note 2. Load and line regulation are specified at constant junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

Electrical Characteristics (Cont'd): ($0^{\circ} \leq T_J \leq +125^{\circ}\text{C}$, $V_{IN} = 20\text{V}$, $I_O = 3\text{A}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current	I_Q	$T_J = +25^{\circ}\text{C}$, $5\text{mA} \leq I_O \leq 3\text{A}$	–	3.5	5.0	mA
		$5\text{mA} \leq I_O \leq 3\text{A}$	–	4.0	6.0	mA
Quiescent Current Change	I_Q	$T_J = +25^{\circ}\text{C}$, $17.6\text{V} \leq V_{IN} \leq 40\text{V}$, $I_O = 5\text{mA}$	–	0.3	1.0	mA
		$18\text{V} \leq V_{IN} \leq 30\text{V}$, $I_O = 1\text{A}$	–	0.3	1.0	mA
Output Noise Voltage	V_n	$T_J = +25^{\circ}\text{C}$, $f = 10\text{Hz}$ to 100kHz	–	10	–	μV
Output Resistance	r_O	$f = 1\text{kHz}$	–	2	–	$\text{m}\Omega$
Short Circuit Current Limit	I_{sc}	$T_A = +25^{\circ}\text{C}$, $V_{IN} = 40\text{V}$	–	0.2	1.2	A
Ripple Rejection Ratio	RR	$T_J = +25^{\circ}\text{C}$, $18.5\text{V} \leq V_{IN} \leq 28.5\text{V}$, $f = 120\text{Hz}$, $I_O = 2\text{A}$	55	65	–	dB
Dropout Voltage		$T_J = +25^{\circ}\text{C}$, $I_O = 3\text{A}$	–	2.2	2.5	V
Peak Output Current	I_{Omax}	$T_J = +25^{\circ}\text{C}$	–	5	–	A
Average Temperature Coefficient of Output Voltage		$I_O = 5\text{mA}$	–	0.6	–	$\text{mV}/^{\circ}\text{C}$

Note 2. Load and line regulation are specified at constant junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

