

## 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,  $T_J$  .....  $0^\circ$  to  $+150^\circ\text{C}$   
 Storage Temperature Range,  $T_{stg}$  .....  $-65^\circ$  to  $+150^\circ\text{C}$   
 Thermal Resistance, Junction-to-Case,  $R_{thJC}$  .....  $2.5^\circ\text{C/W}$   
 Thermal Resistance, Junction-to-Ambient,  $R_{thJA}$  .....  $35^\circ\text{C/W}$

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	$\text{Reg}_{line}$	$T_J = +25^\circ\text{C}$ , $20\text{V} \leq V_{IN} \leq 26\text{V}$ , 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	$\text{Reg}_{load}$	$T_J = +25^\circ\text{C}$ , $5\text{mA} \leq I_O \leq 3\text{A}$ , 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 $100\text{kHz}$	–	10	–	$\mu\text{V}$
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.

