



ELECTRONICS, INC.
 44 FARRAND STREET
 BLOOMFIELD, NJ 07003
 (973) 748-5089

NTE1916

3 Terminal Positive Voltage Regulator

15V, 1.5A

Description:

The NTE1916 is a positive 3-terminal voltage regulator in a TO3 type package suitable for numerous applications requiring up to 1.5A. Current limiting is included to limit peak output current to a safe value. Safe area protection for the output transistor is provided to limit internal power dissipation. If internal power dissipation becomes too high for the heat sinking provided, the thermal shutdown circuit takes over limiting die temperature.

Although designed primarily as a fixed voltage regulator, the NTE1916 can be used with external components to obtain adjustable voltages and currents.

Features:

- Output Current in Excess of 1.5A
- Internal Thermal Overload Protection
- 100% Thermal Limit Burn-In
- Output Transistor Safe Area Protection
- Internal Short Circuit Current Limit

Absolute Maximum Ratings:

Input Voltage , V_{IN} 35V
 Power Dissipation (Note 1), P_D Internally Limited
 Maximum Junction Temperature, T_J +150°C
 Operating Junction Temperature Range, T_A 0° to +70°C
 Storage Temperature Range, T_{stg} -65° to +150°C
 Lead Temperature (During Soldering, 10 sec), T_L +300°C

Note 1. Thermal resistance is typically +4°C/W junction-to-case and +35°C/W junction-to-ambient.

Electrical Characteristics: (0° ≤ T_J ≤ +125°C, Note 2 unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_O	$T_J = +25^\circ\text{C}, 5\text{mA} \leq I_O \leq 1\text{A}$	14.4	15.0	15.6	V
		$5\text{mA} \leq I_O \leq 1\text{A}, 17.5\text{V} \leq V_{IN} \leq 30\text{V}, P \leq 15\text{W}$	14.25	15.00	15.75	V

Note 2. All characteristics are measured with a 0.22µF capacitor across the input and a 0.1µF capacitor across the output. All characteristics except noise voltage and ripple rejection ratio are measured using pulse techniques ($t_w \leq 10\text{ms}$, duty cycle ≤ 5%). Output voltage changes due to changes in internal temperature must be taken into account separately.

Electrical Characteristics (Cont'd): ($0^\circ \leq T_J \leq +125^\circ\text{C}$, Note 2 unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Line Regulation	Reg _{line}	$T_J = +25^\circ\text{C}$ $17.5\text{V} \leq V_{IN} \leq 30\text{V}, I_O = 500\text{mA}$	-	4	150	mV
		$17.7\text{V} \leq V_{IN} \leq 27\text{V}, I_O \leq 1\text{A}$	-	-	150	mV
		$18.5\text{V} \leq V_{IN} \leq 30\text{V}, I_O = 500\text{mA}$	-	-	150	mV
		$20\text{V} \leq V_{IN} \leq 26\text{V}, I_O \leq 1\text{A}$	-	-	75	mV
Load Regulation	Reg _{load}	$T_J = +25^\circ\text{C}$ $5\text{mA} \leq I_O \leq 1.5\text{A}$	-	12	150	mV
		$250\text{mA} \leq I_O \leq 750\text{mA}$	-	-	75	mV
		$5\text{mA} \leq I_O \leq 1\text{A}$	-	-	150	mV
Quiescent Current	I _Q	$T_J = +25^\circ\text{C}, I_O \leq 1\text{A}$	-	-	8.0	mA
		$I_O \leq 1\text{A}$	-	-	8.5	mA
Quiescent Current Change	I _Q	$5\text{mA} \leq I_O \leq 1\text{A}$	-	-	0.5	mA
		$T_A = +25^\circ\text{C}, I_O \leq 1\text{A}, 17.9\text{V} \leq V_{IN} \leq 30\text{V}$	-	-	1.0	mA
		$I_O \leq 500\text{mA}, 17.5\text{V} \leq V_{IN} \leq 30\text{V}$	-	-	1.0	mA
Output Noise Voltage	V _n	$T_A = +25^\circ\text{C}, f = 10\text{Hz to } 100\text{kHz}$	-	90	-	μV
Ripple Rejection Ratio	RR	$T_A = +25^\circ\text{C}, 18.5\text{V} \leq V_{IN} \leq 28.5\text{V}, f = 120\text{Hz}, I_O \leq 1\text{A}$	54	70	-	dB
		$18.5\text{V} \leq V_{IN} \leq 28.5\text{V}, f = 120\text{Hz}, I_O \leq 500\text{mA}$	54	-	-	dB
Dropout Voltage		$T_J = +25^\circ\text{C}, I_O = 1\text{A}$	-	2.0	-	V
Peak Output Current	I _{Omax}	$T_J = +25^\circ\text{C}$	-	2.4	-	A
Average Temperature Coefficient of Output Voltage		$I_O = 5\text{mA}$	-	1.8	-	mV/°C

Note 2. All characteristics are measured with a 0.22μF capacitor across the input and a 0.1μF capacitor across the output. All characteristics except noise voltage and ripple rejection ratio are measured using pulse techniques ($t_w \leq 10\text{ms}$, duty cycle $\leq 5\%$). Output voltage changes due to changes in internal temperature must be taken into account separately.

