

## NTE1914

### 3 Terminal Positive Voltage Regulator

### 12V, 1A

**Description:**

The NTE1914 is a positive 3-terminal voltage regulator in a TO3 type package suitable for numerous applications requiring up to 1A. One of these is local on card regulation, eliminating the distribution problems associated with single point regulation. Other applications include; logic systems, instrumentation, HiFi, and other solid state electronic equipment. Although designed primarily as a fixed voltage regulator, the NTE1914 can be used with external components to obtain adjustable voltages and currents.

**Features:**

- Output Current in Excess of 1A
- Internal Thermal Overload Protection
- No External Components Required
- 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:** ( $0^\circ \leq T_J \leq +125^\circ\text{C}$ ,  $V_O = 12\text{V}$ ,  $V_{IN} = 19\text{V}$ , Note 2 unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$V_O$	$T_A = +25^\circ\text{C}$ , $5\text{mA} \leq I_O \leq 1\text{A}$	11.5	12.0	12.5	V
		$5\text{mA} \leq I_O \leq 1\text{A}$ , $14.5\text{V} \leq V_{IN} \leq 27\text{V}$ , $P \leq 15\text{W}$	11.4	12.0	12.6	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  $\leq 5\%$ ). Output voltage changes due to changes in internal temperature must be taken into account separately.

**Electrical Characteristics (Cont'd):** ( $0^{\circ} \leq T_J \leq +125^{\circ}\text{C}$ ,  $V_O = 12\text{V}$ ,  $V_{IN} = 19\text{V}$ , Note 2 unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Line Regulation	Reg <sub>line</sub>	$T_J = +25^{\circ}\text{C}$	-	4	120	mV	
		$14.5\text{V} \leq V_{IN} \leq 30\text{V}, I_O = 500\text{mA}$					
			$14.6\text{V} \leq V_{IN} \leq 27\text{V}, I_O \leq 1\text{A}$	-	-	120	mV
			$15\text{V} \leq V_{IN} \leq 27\text{V}, I_O = 500\text{mA}$	-	-	120	mV
Load Regulation	Reg <sub>load</sub>	$T_J = +25^{\circ}\text{C}$	-	12	120	mV	
		$5\text{mA} \leq I_O \leq 1.5\text{A}$					
			$250\text{mA} \leq I_O \leq 750\text{mA}$	-	-	60	mV
Quiescent Current	I <sub>Q</sub>	$T_J = +25^{\circ}\text{C}, I_O \leq 1\text{A}$	-	-	8.0	mA	
		$I_O \leq 1\text{A}$	-	-	8.5	mA	
Quiescent Current Change	I <sub>Q</sub>	$5\text{mA} \leq I_O \leq 1\text{A}$	-	-	0.5	mA	
		$T_A = +25^{\circ}\text{C}, I_O \leq 1\text{A}, 14.8\text{V} \leq V_{IN} \leq 27\text{V}$	-	-	1.0	mA	
		$I_O \leq 500\text{mA}, 14.5\text{V} \leq V_{IN} \leq 30\text{V}$	-	-	0.5	mA	
Output Noise Voltage	V <sub>n</sub>	$T_A = +25^{\circ}\text{C}, f = 10\text{Hz to } 100\text{kHz}$	-	75	-	μV	
Ripple Rejection Ratio	RR	$T_A = +25^{\circ}\text{C}, 15\text{V} \leq V_{IN} \leq 25\text{V}, f = 120\text{Hz}, I_O \leq 1\text{A}$	55	72	-	dB	
		$15\text{V} \leq V_{IN} \leq 25\text{V}, f = 120\text{Hz}, I_O \leq 500\text{mA}$	55	-	-	dB	
Dropout Voltage		$T_J = +25^{\circ}\text{C}, I_O = 1\text{A}$	-	2.0	-	V	
Peak Output Current	I <sub>Omax</sub>	$T_J = +25^{\circ}\text{C}$	-	2.4	-	A	
Average Temperature Coefficient of Output Voltage		$I_O = 5\text{mA}$	-	1.5	-	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.

