

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_O	$T_A = +25^\circ C$, $5mA \leq I_O \leq 1A$	11.5	12.0	12.5	V
		$5mA \leq I_O \leq 1A$, $14.5V \leq V_{IN} \leq 27V$, $P \leq 15W$	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 ($t_w \leq 10ms$, 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_{line}	$T_J = +25^{\circ}\text{C}$	–	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
		$16\text{V} \leq V_{IN} \leq 22\text{V}, I_O \leq 1\text{A}$	–	–	60	mV	
Load Regulation	Reg_{load}	$T_J = +25^{\circ}\text{C}$	–	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
		$5\text{mA} \leq I_O \leq 1\text{A}$	–	–	120	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	
		$T_A = +25^{\circ}\text{C}, I_O \leq 1\text{A}, 14.8\text{V} \leq V_{IN} \leq 27\text{V}$	–	–	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_n	$T_A = +25^{\circ}\text{C}, f = 10\text{Hz to } 100\text{kHz}$	–	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	$I_{O\text{max}}$	$T_J = +25^{\circ}\text{C}$	–	2.4	–	A	
Average Temperature Coefficient of Output Voltage		$I_O = 5\text{mA}$	–	1.5	–	$\text{mV}/^{\circ}\text{C}$	

Note 2. All characteristics are measured with a $0.22\mu\text{F}$ capacitor across the input and a $0.1\mu\text{F}$ 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.

