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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: ($0° \le T_J \le +125°C$, Note 2 unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_O	T_J = +25°C, 5mA ≤ I_O ≤ 1A	14.4	15.0	15.6	V
		5mA ≤ I_O ≤ 1A, 17.5V ≤ V_{IN} ≤ 30V, P ≤ 15W	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 tecniques ($t_w \le 10$ms, duty cycle ≤ 5%). Output voltage changes due to changes in internal temperature must be taken into account separately.

Electrical Characteristics (Cont'd): ($0° \le T_J \le +125°C$, Note 2 unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Line Regulation	Reg_{line}	$T_J = +25°C$	$17.5V \le V_{IN} \le 30V$, $I_O = 500mA$	–	4	150	mV
			$17.7V \le V_{IN} \le 27V$, $I_O \le 1A$	–	–	150	mV
		$18.5V \le V_{IN} \le 30V$, $I_O = 500mA$		–	–	150	mV
		$20V \le V_{IN} \le 26V$, $I_O \le 1A$		–	–	75	mV
Load Regulation	Reg_{load}	$T_J = +25°C$	$5mA \le I_O \le 1.5A$	–	12	150	mV
			$250mA \le I_O \le 750mA$	–	–	75	mV
		$5mA \le I_O \le 1A$		–	–	150	mV
Quiescent Current	I_Q	$T_J = +25°C$, $I_O \le 1A$		–	–	8.0	mA
		$I_O \le 1A$		–	–	8.5	mA
Quiescent Current Change	I_Q	$5mA \le I_O \le 1A$		–	–	0.5	mA
		$T_A = +25°C$, $I_O \le 1A$, $17.9V \le V_{IN} \le 30V$		–	–	1.0	mA
		$I_O \le 500mA$, $17.5V \le V_{IN} \le 30V$		–	–	1.0	mA
Output Noise Voltage	V_n	$T_A = +25°C$, f = 10Hz to 100kHz		–	90	–	µV
Ripple Rejection Ratio	RR	$T_A = +25°C$, $18.5V \le V_{IN} \le 28.5V$, f = 120Hz, $I_O \le 1A$		54	70	–	dB
		$18.5V \le V_{IN} \le 28.5V$, f = 120Hz, $I_O \le 500mA$		54	–	–	dB
Dropout Voltage		$T_J = +25°C$, $I_O = 1A$		–	2.0	–	V
Peak Output Current	$I_O$max	$T_J = +25°C$		–	2.4	–	A
Average Temperature Coefficient of Output Voltage		$I_O = 5mA$		–	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 tecniques ($t_w \le 10ms$, duty cycle ≤ 5%). Output voltage changes due to changes in internal temperature must be taken into account separately.