

NTE1923

3 Terminal Negative Voltage Regulator

-18V, 1.5A

Description:

The NTE1923 is a negative 3-terminal voltage regulator in a TO3 type package suitable for numerous applications including local, on-card regulation requiring up to 1.5A. This device features thermal shutdown and current limiting making the NTE1923 remarkably rugged.

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

Features:

- Internal Thermal Overload Protection
- Output Transistor Safe Area Protection
- Internal Short Circuit Current Limit
- No External Components Required

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Input Voltage, V_{IN} -35V
 Internal Power Dissipation ($T_A = +25^\circ\text{C}$), P_D Internally Limited
 Derate Above 25°C 22.2mW/ $^\circ\text{C}$
 Internal Power Dissipation ($T_C = +25^\circ\text{C}$), P_D Internally Limited
 Derate Above 25°C 182mW/ $^\circ\text{C}$
 Operating Junction Temperature Range, T_J 0° to $+150^\circ\text{C}$
 Storage Temperature Range, T_{stg} -65° to $+150^\circ\text{C}$
 Thermal Resistance, Junction-to-Case, R_{thJC} 5.5°C/W
 Thermal Resistance, Junction-to-Ambient, R_{thJA} 45°C/W

Electrical Characteristics: ($0^\circ \leq T_J \leq +125^\circ\text{C}$, $V_{IN} = -27\text{V}$, $I_O = 0.5\text{A}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_O	$T_J = +25^\circ\text{C}$	-17.3	-18.0	-18.7	V
		$5\text{mA} \leq I_O \leq 1\text{A}$, $-33\text{V} \leq V_{IN} \leq -21\text{V}$, $P_O \leq 15\text{W}$	-17.1	-18.0	-18.9	V
Line Regulation	Reg_{line}	$T_J = +25^\circ\text{C}$, $-33\text{V} \leq V_{IN} \leq -21\text{V}$, Note 1	—	90	360	mV
		$T_J = +25^\circ\text{C}$, $-30\text{V} \leq V_{IN} \leq -24\text{V}$, Note 1	—	50	180	mV
Load Regulation	Reg_{load}	$T_J = +25^\circ\text{C}$, $5\text{mA} \leq I_O \leq 1.5\text{A}$, Note 1	—	110	360	mV
		$T_J = +25^\circ\text{C}$, $250\text{mA} \leq I_O \leq 750\text{mA}$, Note 1	—	55	180	mV

Note 1. 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): ($0^{\circ} \leq T_J \leq +125^{\circ}\text{C}$, $V_{IN} = -27\text{V}$, $I_O = 0.5\text{A}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Bias Current	I_B	$T_J = +25^{\circ}\text{C}$	–	4.5	8.0	mA
Input Bias Current Change	I_B	$-33\text{V} \leq V_{IN} \leq -21\text{V}$	–	–	1.0	mA
		$5\text{mA} \leq I_O \leq 1.5\text{A}$	–	–	0.5	mA
Output Noise Voltage	V_n	$T_A = +25^{\circ}\text{C}$, $f = 10\text{Hz}$ to 100kHz	–	110	–	μV
Ripple Rejection Ratio	RR	$I_O = 20\text{mA}$, $f = 120\text{Hz}$	–	59	–	dB
Dropout Voltage		$T_J = +25^{\circ}\text{C}$, $I_O = 1\text{A}$	–	2.0	–	V
Peak Output Current	$I_{O\text{max}}$	$T_J = +25^{\circ}\text{C}$	1.3	2.5	3.3	A
Average Temperature Coefficient of Output Voltage		$I_O = 5\text{mA}$	–	–1.0	–	$\text{mV}/^{\circ}\text{C}$

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.

