

NTE1932 Integrated Circuit 3-Terminal Positive Voltage Regulator, 10V, 1A

The NTE1932 fixed-voltage regulator is a monolithic integrated circuit in a TO220 type package designed for use in a wide variety of applications including local, on-card regulation. This regulator employs internal current limiting, thermal shutdown, and safe-area compensation. With adequate heat-sinking it can deliver output currents in excess of 1.0 ampere. Although designed primarily as a fixed voltage regulator, this device can be used with external components to obtain adjustable voltages and currents.

Features:

- Thermal Overload Protection
- Internal Short-Circuit Current Limiting
- Output Transistor Safe-Area Compensation

Absolute Maximum Ratings:

Input Voltage, V_{in} 35V
 Power Dissipation ($T_A = +25^\circ\text{C}$), P_D 1.75W
 Power Dissipation ($T_C = +25^\circ\text{C}$), P_D 20W
 Operating Junction Temperature Range, T_J 0° to $+150^\circ\text{C}$
 Storage Junction Temperature Range, T_{stg} -65° to $+150^\circ\text{C}$
 Thermal Resistance, Junction-to-Ambient, R_{thJA} 65°C/W
 Thermal Resistance, Junction-to-Case, R_{thJC} 5°C/W

Electrical Characteristics: ($V_{in} = 16\text{V}$, $I_O = 500\text{mA}$, $C_I = 0.33\mu\text{F}$, $C_O = 0.1\mu\text{F}$, $T_J = 0^\circ$ to $+125^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Output Voltage	V_O	$T_J = +25^\circ\text{C}$		9.6	10.0	10.4	V
		$5\text{mA} \leq I_O \leq 1\text{A}$, $P_O \leq 15\text{W}$, $12.5\text{V} \leq V_{in} \leq 25\text{V}$		9.5	10.0	10.5	V
Line Regulation	Reg_{line}	$T_J = +25^\circ\text{C}$, Note 1	$12.5\text{V} \leq V_{in} \leq 25\text{V}$	—	10	200	mV
			$13\text{V} \leq V_{in} \leq 20\text{V}$	—	3	100	mV
Load Regulation	Reg_{load}	$T_J = +25^\circ\text{C}$, Note 1	$5\text{mA} \leq I_O \leq 1.5\text{A}$	—	12	200	mV
			$250\text{mA} \leq I_O \leq 750\text{mA}$	—	4	100	mV

Note 1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

Electrical Characteristics: ($V_{in} = 16V$, $I_O = 500mA$, $C_I = 0.33\mu F$, $C_O = 0.1\mu F$, $T_J = 0^\circ$ to $+125^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current	I_B	$T_J = +25^\circ C$	–	4.3	8.0	mA
Quiescent Current Change	ΔI_B	$12.5V \leq V_{in} \leq 29V$	–	–	1.0	mA
		$5mA \leq I_O \leq 1A$	–	–	0.5	mA
Ripple Rejection	RR	$14V \leq V_{in} \leq 23V$, $f = 120Hz$	56	71	–	dB
Dropout Voltage	$V_{in} - V_O$	$T_J = +25^\circ C$, $I_O = 1A$	–	2	–	V
Output Noise Voltage	V_n	$T_A = +25^\circ C$, $10Hz \leq f \leq 100kHz$	–	58	–	$\mu V/V_O$
Output Resistance	r_O	$f = 1kHz$	–	17	–	$m\Omega$
Short-Circuit Current Limit	I_{sc}	$T_A = +25^\circ C$, $V_{in} = 35V$	–	420	–	mA
Peak Output Current	I_{max}	$T_J = +25^\circ C$	–	2.2	–	A

