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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 heatsinking 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°C), P_D 1.75W
Power Dissipation (T_C = +25°C), P_D 20W
Operating Junction Temperature Range, T_J . . . . . 0° to +150°C
Storage Junction Temperature Range, T_{stg} . . . . . –65° to +150°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} = 16V, I_O = 500mA, C_I = 0.33µF, C_O = 0.1µF, T_J = 0° to +125°C unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Output Voltage	V_O	T_J = +25°C		9.6	10.0	10.4	V
		5mA ≤ I_O ≤ 1A, P_O ≤ 15W, 12.5V ≤ V_{in} ≤ 25V		9.5	10.0	10.5	V
Line Regulation	Reg_{line}	T_J = +25°C, Note 1	12.5V ≤ V_{in} ≤ 25V	–	10	200	mV
			13V ≤ V_{in} ≤ 20V	–	3	100	mV
Load Regulation	Reg_{load}	T_J = +25°C, Note 1	5mA ≤ I_O ≤ 1.5A	–	12	200	mV
			250mA ≤ I_O ≤ 750mA	–	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 = 0.33µF, C_O = 0.1µF, T_J = 0° to +125°C unless otherwise specified)

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