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NTE932
Integrated Circuit
3–Terminal Positive Voltage Regulator
5V, 5A

Description:

The NTE932 is a 3–terminal fixed positive voltage regulator in a TO3 type package designed for use in applications requiring a well regulated positive output voltage. Outstanding features include full power usage up to 5A of load current, internal current limiting, thermal shutdown, and safe area protection on the chip, providing protection o he series pass Darlington, under most operating conditions. A low–noise, temperature stable band gap reference is the key design factor insuring excellent temperature regulation. This, coupled to a very low output impedance, insures superior load regulation.

Features:

- Guaranteed Power Dissipation: 50W @ T_C = +80°C
- Guaranteed Input–Output Differential
- Low Noise, Band Gap Reference
- Remote Sense Capability
- Sample Power Cycled Burn–In
- Guaranteed Thermal Resistance, Junction–to–Case: 0.9°C/W

Absolute Maximum Ratings:

Input Voltage (Note 1), V_{IN} 30V
Power Dissipation, P_D . . . . Internally Limited
  Derates Above 80°C . . . . 1.111W/°C
Operating Junction Temperature Range, T_J . . . . –55° to +150°C
Storage Temperature Range, T_{stg} . . . . –65° to +150°C
Typical Thermal Resistance, Junction–to–Case, R_{thJC} . . . . 0.9°C/W
Lead Temperature (Soldering, 60sec), T_L . . . . +300°C
Burn–In In Thermal Limit 100%

Note 1. Short circuit protection is only assured to V_{IN}max. In case of short circuit, with input–output voltages approaching V_{IN}max, regulator may require the removal of the input voltage to restart.

Electrical Characteristics: (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, V_{IN} = 8V to 15V, I_O = 10mA to 5A, Note 2	4.75	5.00	5.25	V
Input–Output Voltage Differential	V_{IN}–V_O	I_O = 5A	2.6	–	–	V
Line Regulation	Reg_{line}	T_J = +25°C, V_{IN} = 8V to 20V, I_O = 3A, Note 3	–	–	1.0	%/V_O
Load Regulation	Reg_{load}	T_J = +25°C, V_{IN} = 8V, I_O = 10mA to 5A, Note 3	–	–	0.6	%/V_O
Quiescent Current	I_Q	T_J = +25°C, V_{IN} = 8V, I_O = 10mA	–	–	25	mA
Quiescent Current, Line	$I_{Q(Line)}$	T_J = +25°C, V_{IN} = 8V to 15V, I_O = 10mA	–	–	5	mA
Quiescent Current, Load	$I_{Q(Load)}$	T_J = +25°C, V_{IN} = 8V, I_O = 10mA to 5A	–	–	5	mA
Current Limit	I_{LIM}	T_J = +25°C, V_{IN} = 10V, Note 2	–	–	15	A
Temperature Coefficient	T_C	V_{IN} = 8V, I_O = 100mA	–	–	5	mA
Output Noise Voltage	V_n	V_{IN} = 8V, I_O = 100mA, f = 10Hz to 100kHz	–	–	10	μV_{rms}
Ripple Attenuation	R_A	V_{IN} = 10V, I_O = 2A	60	–	–	dB
Power Dissipation	P_D	2.6V to 10V (V_{IN} – V_O), I_O = 10mA to 5A	–	–	50	W

Note 2. Low duty cycle pulse testing with Kelvin connections required. Die temperature changes must be accounted for separately.

Note 3. Ripple attenuation is specified for a $1V_{rms}$, 120Hz, input ripple. Ripple attenuation is minimum of 60dB at 5V output and is 1dB less for each volt increase in the output voltage.

Note 4. $V_O = V_C$ (1 + R1/R2) where:
R1 = Resistance from output to control
R2 = Resistance from control to common

Pin Connection Diagram