ELECTRONICS, INC.
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NTE961
Linear Integrated Circuit
Voltage Regulator, Negative, 5V, 1A

Description:

The NTE961 voltage regulator employs current limiting, thermal shutdown, and safe–area compensation which makes it remarkably rugged under most operating conditions. With adequate heat–sinking they can deliver output currents in excess of 1.0 amperes.

Features:

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

Absolute Maximum Ratings:

Input Voltage, V_{IN} . . . . . –35V

Input–Output Differential 25V

Internal Power Dissipation (Note 1), P_D . . . . . Internally Limited

Operating Junction Temperature Range, T_J . . . . . 0° to +125°C

Storage Temperature Range, T_{stg} . . . . . –65° to +150°C

Lead Temperature (Soldering, 10sec.), T_L . . . . . +230°C

Note 1. For calculations of junction temperature rise due to power dissipation, thermal resistance junction to ambient (Θ_{JA}) is 50°C/W (no heat sink) and 5°C/W (infinite heat sink).

Electrical Characteristics: (V_{OUT} = 5V, V_{IN} = –10V, 0°C ≤ T_J ≤ +125°C, I_O = 500mA, C_{IN} = 2.2µF, C_{OUT} = 1µF, P_D ≤ 1.5W unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_O	T_J = +25°C,	–4.8	–5.0	–5.2	V
		5mA ≤ I_O ≤ 1A, P ≤ 15W	–4.75	–	–5.25	V
			(–20 ≤ V_{IN} ≤ –7)			V

Electrical Characteristics Cont'd): (V_{OUT} = 5V, V_{IN} = –10V, 0°C ≤ T_J ≤ +125°C, I_O = 500mA, C_{IN} = 2.2µF, C_{OUT} = 1µF, P_D ≤ 1.5W unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Line Regulation	ΔV_O	T_J = +25°C, Note 2		–	8	50	mV
				(–25 ≤ V_{IN} ≤ –7)			V
				–	2	15	mV
				(–12 ≤ V_{IN} ≤ –8)			V
Load Regulation	ΔV_O	T_J = +25°C	5mA ≤ I_O ≤ 1.5A	–	15	100	mV
		Note 2	250mA ≤ I_O ≤ 750mA	–	5	50	mV
Quiescent Current	I_Q	T_J = +25°C		–	1	2	mA
Quiescent Current Change	ΔI_Q	With Line		–	–	0.5	mA
				(–25 ≤ V_{IN} ≤ –7)			V
		With Load, 5mA ≤ I_O ≤ 1A		–	–	0.5	mA
Output Noise Voltage	V_n	T_A = +25°C, 10Hz ≤ f ≤ 100Hz		–	125	–	µV
Ripple Rejection		f = 120Hz		54	66	–	dB
				(–18 ≤ V_{IN} ≤ –8)			V
Dropout Voltage		T_J = +25°C, I_O = 1A		–	1.1	–	V
Peak Output Current	I_{OMAX}	T_J = +25°C		–	2.2	–	A
Average Temperature Coefficient of Output Voltage		I_O = 5mA, 0°C ≤ T_J ≤ 100°C		–	0.4	–	mV/°C

Note 2. Regulation is measured at a constant junction temperature by pulse testing with a low duty cycle. Changes in output voltage due to heating effects must be taken into account.