NTE ELECTRONICS, INC.

NTE967
Linear Integrated Circuit
Voltage Regulator, Negative, –12V, 1A

Description:

The NTE967 is a negative voltage regulator in a TO220 type package that 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:

- Thermal Short Circuit and safe Area Protection
- High Ripple Rejection

Absolute Maximum Ratings:

Input Voltage, V_{IN} . . . . . –40V
Input–Output Differential 30V
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 (During Soldering, 10sec), T_L . . . . . +230°C

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

Electrical Characteristics: (I_O = 500mA, C_{IN} = 2.2µF, C_{OUT} = 1µF, P_D = 1.5W, 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		–11.5	–12.0	–12.5	V
		5mA ≤ I_O ≤ 1A, P_O ≤ 15W, –27V ≤ V_{IN} ≤ –14.5V		–11.4	–12.0	–12.6	V
Line Regulation	Reg_{Line}	T_J = +25°C, Note 2	–30V ≤ V_{IN} ≤ –14.5V	–	5	80	mV
			–22V ≤ V_{IN} ≤ –16V	–	3	30	
Load Regulation	Reg_{Load}	T_J = +25°C, Note 2	5mA ≤ I_O ≤ 1.5A	–	15	200	mV
			250mA ≤ I_O ≤ 750mA	–	5	75	mV

Electrical Characteristics: (I_O = 500mA, C_{IN} = 2.2µF, C_{OUT} = 1µF, P_D = 1.5W, 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	–	1.5	3.0	mA
Quiescent Current Change	ΔI_B	$-30V \le V_{IN} \le -14.5V$	–	–	0.5	mA
		$5mA \le I_O \le 1A$	–	–	0.5	
Ripple Rejection	RR	$-25V \le V_{IN} \le -15V$, f = 120Hz	54	70	–	dB
Dropout Voltage	$V_{IN} - V_O$	T_J = +25°C, I_O = 1A	–	1.1	–	V
Output Noise Voltage	V_n	T_A = +25°C, $10Hz \le f \le 100kHz$	–	300	–	$\mu V/V_O$
Peak Output Current	I_{max}	T_J = +25°C	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O	I_O = 5mA, $0° \le T_J \le +100°C$	–	–0.8	–	mV/°C

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