

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: ($I_O = 500mA$, $C_{IN} = 2.2\mu F$, $C_{OUT} = 1\mu F$, $P_D = 1.5W$, $T_J = 0^\circ$ to +125°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Output Voltage	V_O	$T_J = +25^\circ C$	-11.5	-12.0	-12.5	V	
		$5mA \leq I_O \leq 1A$, $P_O \leq 15W$, $-27V \leq V_{IN} \leq -14.5V$	-11.4	-12.0	-12.6	V	
Line Regulation	Reg_{Line}	$T_J = +25^\circ C$, Note 2	$-30V \leq V_{IN} \leq -14.5V$	-	5	80	mV
			$-22V \leq V_{IN} \leq -16V$	-	3	30	
Load Regulation	Reg_{Load}	$T_J = +25^\circ C$, Note 2	$5mA \leq I_O \leq 1.5A$	-	15	200	mV
			$250mA \leq I_O \leq 750mA$	-	5	75	mV

Electrical Characteristics: ($I_O = 500\text{mA}$, $C_{IN} = 2.2\mu\text{F}$, $C_{OUT} = 1\mu\text{F}$, $P_D = 1.5\text{W}$, $T_J = 0^\circ$ to $+125^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current	I_B	$T_J = +25^\circ\text{C}$	–	1.5	3.0	mA
Quiescent Current Change	ΔI_B	$-30\text{V} \leq V_{IN} \leq -14.5\text{V}$	–	–	0.5	mA
		$5\text{mA} \leq I_O \leq 1\text{A}$	–	–	0.5	
Ripple Rejection	RR	$-25\text{V} \leq V_{IN} \leq -15\text{V}$, $f = 120\text{Hz}$	54	70	–	dB
Dropout Voltage	$V_{IN} - V_O$	$T_J = +25^\circ\text{C}$, $I_O = 1\text{A}$	–	1.1	–	V
Output Noise Voltage	V_n	$T_A = +25^\circ\text{C}$, $10\text{Hz} \leq f \leq 100\text{kHz}$	–	300	–	$\mu\text{V}/V_O$
Peak Output Current	I_{max}	$T_J = +25^\circ\text{C}$	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O	$I_O = 5\text{mA}$, $0^\circ \leq T_J \leq +100^\circ\text{C}$	–	-0.8	–	$\text{mV}/^\circ\text{C}$

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.

