



NTE969

Linear Integrated Circuit

Voltage Regulator, Negative, -15V, 1A

Description:

The NTE969 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: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Input Voltage, V_{IN}	-35V
Internal Power Dissipation, P_D	Internally Limited
Derate Above $+25^\circ\text{C}$	15.4mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient, R_{thJA}	65 $^\circ\text{C}/\text{W}$
Internal Power Dissipation ($T_C = +25^\circ\text{C}$), P_D	Internally Limited
Derate Above $+25^\circ\text{C}$	200mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient ($T_C = +25^\circ\text{C}$), R_{thJA}	5 $^\circ\text{C}/\text{W}$
Maximum Junction Temperature Range, T_J	-55 $^\circ$ to +150 $^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65 $^\circ$ to +150 $^\circ\text{C}$

Electrical Characteristics: ($V_{IN} = -23\text{V}$, $I_O = 500\text{mA}$, $0^\circ\text{C} \leq T_J \leq +125^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Output Voltage	V_O	$T_J = +25^\circ\text{C}$	-14.4	-15.0	-15.6	V	
		$5\text{mA} \leq I_O \leq 1\text{A}$, $P_O \leq 15\text{W}$, $-17.5\text{V} \leq V_{IN} \leq -30\text{V}$	-14.25	-	-15.75	V	
Line Regulation	Reg_{Line}	$T_J = +25^\circ\text{C}$	$-17.5\text{V} \leq V_{IN} \leq -30\text{V}$	-	57	300	mV
			$-20\text{V} \leq V_{IN} \leq -26\text{V}$	-	27	150	

Electrical Characteristics: ($V_{IN} = -23V$, $I_O = 500mA$, $0^{\circ}C \leq T_J \leq +125^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Load Regulation	Reg_{Load}	$T_J = +25^{\circ}C$				
		$5mA \leq I_O \leq 1.5A$	–	68	300	mV
		$250mA \leq I_O \leq 750mA$	–	25	150	
Quiescent Current	I_B	$T_J = +25^{\circ}C$	–	4.4	8.0	mA
Quiescent Current Change	ΔI_B	$-17.5V \leq V_{IN} \leq -30V$	–	–	1.0	mA
		$5mA \leq I_O \leq 1A$	–	–	0.5	
Ripple Rejection	RR	$I_O = 20mA$, $f = 120Hz$	–	60	–	dB
Dropout Voltage	$V_{IN} - V_O$	$T_J = +25^{\circ}C$, $I_O = 1A$	–	2	–	V
Output Noise Voltage	V_n	$T_A = +25^{\circ}C$, $10Hz \leq f \leq 100kHz$	–	90	–	$\mu V/V_O$
Output Resistance	r_O	$f = 1kHz$	–	19	–	$m\Omega$
Short-Circuit Current Limit	I_{sc}	$T_A = +25^{\circ}C$, $V_{IN} = -35V$	–	0.2	–	A
Peak Output Current	I_{max}	$T_J = +25^{\circ}C$	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O		–	-1.0	–	$mV/^{\circ}C$

