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NTE1915 Integrated Circuit Negative 3 Terminal Voltage Regulator -12V, 1.5A

Description:

The NTE1915 is a 3 terminal negative regulator in a TO3 type package with a fixed output voltage of -12V and up to 1.5A load current capability. Where other voltages are required, the NTE1911 provides an output voltage range of -1.2V to -37V.

This device needs only one external component – a compensation capacitor at the output, making it easy to apply. Worst case guarantees on output voltage deviation due to any combination of line, load, or temperature variation assure satisfactory system operation.

Exceptional effort has been made to make the NTE1915 immune to onerload conditions. This regulator has current limiting which is independent of temperature, combined with thermal overload protection. Internal current limiting protects against momentary faults while thermal shutdown prevents junction temperatures from exceeding safe limits during prolonged overloads.

Although primarily intended for fixed output voltage applications, the NTE1915 may be programmed for higher output voltages with a single resistive divider. The low quiescent drain current of the device allows this technique to be used with good regulation.

Features:

- Preset Output Voltage Error Less Than $\pm 3\%$
- Preset Current Limit
- Internal Thermal Shutdown
- Operates with Input-Output Voltage Differential Down to 1V
- Excellent Ripple Rejection
- Low Temperature Drift
- Easily Adjustable to Higher Output Voltage

Absolute Maximum Ratings:

Input Voltage, V_{IN}	-35V
Input-Output Voltage Differential, V_I-V_O	30V
Power Dissipation, P_D	Internally Limited
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	+300°C
Thermal Resistance, Junction-to-Case, R_{thJC}	3°C/W
Thermal Resistance, Junction-to-Ambient, R_{thJA}	35°C/W

Electrical Characteristics: ($0^{\circ} \leq T_J \leq +125^{\circ}\text{C}$, $I_O = 1\text{A}$, $P_D = 20\text{W}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$T_J = +25^{\circ}\text{C}$, $V_{IN} = 17\text{V}$, $I_{LOAD} = 5\text{mA}$	-12.4	-12.0	-11.6	V
		$14.5\text{V} \leq V_{IN} \leq V_{MAX}$, $5\text{mA} \leq I_{LOAD} \leq I_O$, $P \leq P_D$	-12.6	-12.0	-11.4	V
Input Voltage	V_{IN}		-32	-	-14	V
Line Regulation	Reg_{LINE}	$T_J = +25^{\circ}\text{C}$, $I_{LOAD} = 5\text{mA}$, $V_{MIN} \leq V_{IN} \leq V_{MAX}$	-	4	20	mV
Ripple Rejection	RR	$f = 120\text{Hz}$	56	80	-	dB
Load Regulation	Reg_{LOAD}	$T_J = +25^{\circ}\text{C}$, $V_{IN} = 17\text{V}$, $5\text{mA} \leq I_{LOAD} \leq I_O$, Note 1	-	30	80	mV
Quiescent Current	I_B	$V_{MIN} \leq V_{IN} \leq V_{MAX}$	-	2	4	mA
Quiescent Current Change	ΔI_B	$T_J = +25^{\circ}\text{C}$, $V_{MIN} \leq V_{IN} \leq V_{MAX}$	-	0.1	0.4	mA
		$5\text{mA} \leq I_{LOAD} \leq I_O$	-	0.1	0.4	mA
Output Noise Voltage	V_n	$T_A = +25^{\circ}\text{C}$, $C_L = 1\mu\text{F}$, $I_L = 5\text{mA}$, $V_{IN} = 17\text{V}$, $10\text{Hz} \leq f \leq 100\text{kHz}$	-	400	-	μV
Long Term Stability			-	12	120	mV

Note 1. Regulation is measured at constant junction temperature. Changes in output voltage due to heating effects must be taken into account separately. To ensure constant junction temperature, low duty cycle, pulse testing is used. The NTE1915 does have low thermal feedback, improving line and load regulation. On all other tests, even though power dissipation is internally limited, electrical specifications apply only up to P_D .

