ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

NTE1911
3 Terminal Adjustable Negative Voltage Regulator
–1.2V to –37V, 1.5A

Description:

The NTE1911 is an adjustable 3–terminal negative voltage regulator capable of supplying in excess of 1.5A over an output voltage range of –1.2V to 37V. This regulator is exceptionally easy to apply, requiring only 2 external resistors to set the output voltage and 1 output capacitor for frequency compensation. The circuit design has been optimized for excellent regulation and low thermal transients. Further, if features internal current limiting, thermal shutdown and safe–area compensation, making the, virtually blowout–proof against overloads.

The NTE1911 serves a wide variety of applications including local on–card regulation, programmable–output voltage regulation or precision current regulation.

Features:

- Output Voltage Adjustable from –1.2V to –37V
- 1.5A Output Current Guaranteed, –55°C to +150°C
- Line Regulation Typically 0.01%/V
- Load Regulation Typically 0.3%
- Excellent Thermal Regulation, 0.002%/W
- 77dB Ripple Rejection
- Excellent Rejection of Thermal Transients
- 50ppm/°C Temperature Coefficient
- Temperature–Independent Current Limit
- Internal Thermal Overload Protection

Absolute Maximum Ratings:

Power Dissipation, P_D 20W
Input–Output Voltage Differential, $V_{I–O}$ 40V
Operating Junction Temperature Range, T_J . . . . . 0° to +125°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C
Lead Temperature (Soldering, 10 sec), T_L . . . . . 300°C

Electrical Characteristics: (Note 1)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Line Regulation	Reg_{line}	T_A = +25°C, 3V ≤ V_I – V_O ≤ 40V, Note 2	–	0.01	0.04	%/V
		3V ≤ V_I – V_O ≤ 40V, Note 2	–	0.02	0.07	%/V

Note 1. Unless otherwise noted, these specifications apply: 0° ≤ T_J ≤ +125°C, (V_I –V_O) = 5V, P_{max} = 20W, and I_{MAX} = 1.5A.

Note 2. Load and line regulation are specified at constant junction temperature. Pulse testing with a low duty cycle is used. Change in V_O because of heating effects is covered under the Thermal Regulation specification.

Electrical Characteristics (Cont'd): (Note 1)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Load Regulation	Reg_{load}	$V_O \le 5V$, Note 2	T_A = +25°C, 10mA ≤ I_O ≤ 1.5A	–	15	50	mV
			10mA ≤ I_O ≤ 3A	–	20	70	mV
		$V_O \ge 5V$, Note 2	T_A = +25°C, 10mA ≤ I_O ≤ 1.5A	–	0.3	1.0	%
			10mA ≤ I_O ≤ 3A	–	0.3	1.5	%
Thermal Regulation	Reg_{therm}	T_A = +25°C, Pulse = 10ms		–	0.003	0.04	$\%V_O/W$
Adjustment Pin Current	I_{Adj}			–	65	100	µA
Adjustment Pin Current Change	ΔI_{Adj}	T_A = +25°C, 10mA ≤ I_L ≤ 1.5A, 2.5V ≤ (V_I – V_O) ≤ 40V, P ≤ 20W		–	0.2	5.0	µA
Reference Voltage	V_{ref}	10mA ≤ I_O ≤ 1.5A, 3V ≤ (V_I – V_O) ≤ 40V, P ≤ 20W, T_A = +25°C, Note 3		1.20	1.25	1.30	V
		10mA ≤ I_O ≤ 1.5A, 3V ≤ (V_I – V_O) ≤ 40V, P ≤ 20W, Note 3		1.213	1.250	1.287	V
Temperature Stability	T_S	0° ≤ T_J ≤ +125°C		–	0.6	–	$\%V_O$
Minimum Load Current	I_{Lmin}	V_I – V_O ≤ 10V		–	1.5	6.0	mA
		V_I – V_O ≤ 40V		–	2.5	10	mA
Maximum Output Current Limit	I_{max}	V_I – V_O ≤ 15V, P ≤ 20W		1.5	2.2	–	A
		V_I – V_O ≤ 40V, P ≤ 20W, T_A = +25°C		0.15	0.4	–	A
RMS Noise, % of V_O	N	T_A = +25°C, 10Hz ≤ f ≤ 10kHz		–	0.003	–	$\%V_O$
Ripple Rejection Ratio	RR	V_O = 10V, f = 120Hz, C_{Adj} = 0		–	60	–	dB
		V_O = 10V, f = 120Hz, C_{Adj} = 10µF		66	77	–	dB
Long Term Stability	S	T_A = +125°C, 1000 Hours		–	0.3	1.0	%/1.0k

Note 1. Unless otherwise noted, these specifications apply: 0° ≤ T_J ≤ +125°C, (V_I –V_O) = 5V, P_{max} = 20W, and I_{MAX} = 1.5A.

Note 2. Load and line regulation are specified at constant junction temperature. Pulse testing with a low duty cycle is used. Change in V_O because of heating effects is covered under the Thermal Regulation specification.

Note 3. C_{Adj}, when used, is connected between the adjustment pin and GND.