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

NTE1928
Integrated Circuit
Positive Adjustable Voltage Regulator, 4.5V to 40V, 45mA

Description

The NTE1928 is an adjustable positive voltage regulator that features fast response to both load and line transients, freedom from oscillations with varying resistive and reactive loads, and the ability to start reliabity on any load within rating. This device also contains a biasing circuitry that removes any minimum load current requirement and at the same time reduces standby current drain, permitting higher voltage operation.

Features:

- Output Voltage Adjustable from 4.5V to 40V
- Output Currents in Excess of 10A Possible by Adding External Transistors
- Load Regulation Better than 0.1%, Full Load with Current Limiting
- DC Line Regulation Guaranteed at 0.03%/V
- Ripple Rejection on 0.01%V

Absolute Maximum Ratings:

Input Voltage, V_{IN} 40V
Input–Output Differential, $V_{I–O}$ 40V
Power Dissipation (Note 1), P_D 800mW
Operating Temperature Range, T_{opr} . . . . . –0° to +70°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C
Thermal Resistance, Junction–to–Ambient, R_{thJA} . . . . . 230°C/W
Lead Temperature (During Soldering, 10sec), T_L . . . . . +300°C

Note 1. The maximum junction temperature of the NTE1928 is +85°C. For operation at elevated temperatures, this device must be derated based on a thermal resistance of 230°C/W junction to ambient, or 25°C/W junction–to–case. Peak dissipations to 1W are allowable providing the dissipation rating is not exceeded with the power average over a two second internal.

Electrical Characteristics: (Note 2)

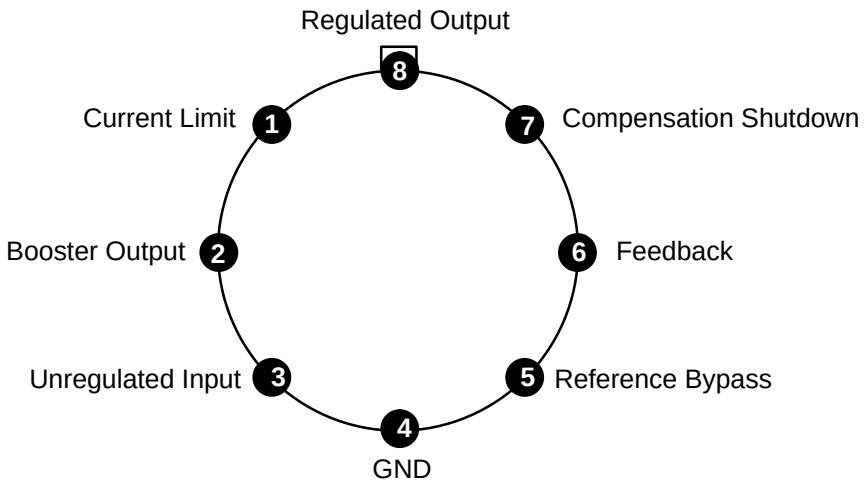
Parameter	Conditions	Min	Typ	Max	Units
Input Voltage Range		8.5	–	40	V
Output Voltage Range		4.5	–	30	V
Input–Output Voltage Differential		3.0	–	30	V
Load Regulation (Note 3)	R_{SC} = 10Ω, T_A = +25°C	–	0.02	0.05	%
	R_{SC} = 10Ω, T_A = +70°C	–	0.03	0.1	%
	R_{SC} = 10Ω, T_A = 0°C	–	0.03	0.1	%
		$0 \le I_O \le 12mA$			
Line Regulation	$V_{IN} - V_{OUT} \le 5V$, T_A = +25°C	–	0.025	0.06	%/V
	$V_{IN} - V_{OUT} \ge 5V$, T_A = +25°C	–	0.015	0.03	%/V
Temperature Stability	$T_A = 0°C \le T_A \le T_A = +70°C$	–	0.3	1.0	%
Feedback Sense Voltage		1.63	1.7	1.81	V
Output Noise Voltage	C_{REF} = 0	–	0.005	–	%
	C_{REF} = 0.1µF	–	0.002	–	%
Standby Current Drain	V_{IN} = 40V	–	0.8	2.0	mA
Current Limit Sense Voltage	T_A = +25°C, R_{SC} = 10Ω, V_{OUT} = 0V, (Note 4)	225	300	375	mV
Long Term Stability			0.1		%
Ripple rejection	C_{REF} = 10µF, f = 120H_Z	–	0.003	–	%/V

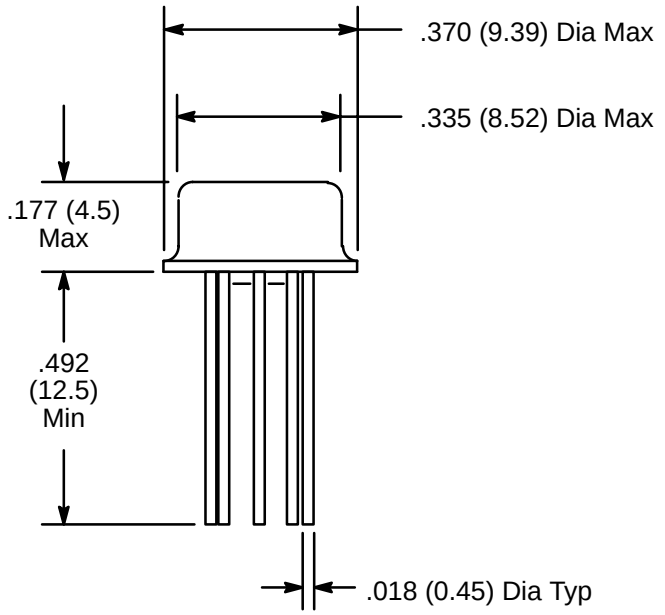
Note 2. Unless otherwise specified, these specifications apply for temperatures within the operating temperature range, for input and output voltages within the range given, and for a divider impedance seen by the feedback terminal of 2kΩ. Load and line regulation specifications are for a constant junction temperature. Temperature drift effects must be taken into account separately when the unit is operating under conditions of high dissipation.

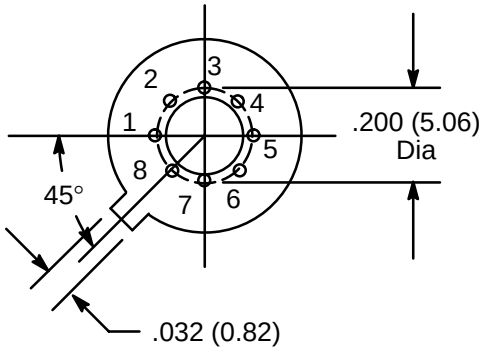
Note 3. The output currents given, as well as the load regulation, can be increased by the addition of external transistors. The improvement factor will be roughly equal to the composite current gain of the added transistors.

Note 4. With no external pass transistor.

Pin Connection Diagram
(Top View)




.370 (9.39) Dia Max
.335 (8.52) Dia Max
.177 (4.5)
Max
.492
(12.5)
Min
.018 (0.45) Dia Typ


1
2
3
4
5
6
7
8
.200 (5.06)
Dia
45°
.032 (0.82)