NTE ELECTRONICS, INC.

NTE953
Linear Integrated Circuit
4–Terminal Positive Adjustable Voltage Regulator

Description:

The NTE953 4–Terminal adjustable voltage regulator is designed to deliver continuous load currents of up to 1.0A with a maximum input voltage of +40V. Output current capability can be increased to greater than 1.0A through the use of one or more external transistors. The output voltage range is 5V to 30V. For systems requiring both a positive and negative, the NTE953 and NTE954 are excellent for use as a dual tracking regulator with appropriate external circuitry.

Features:

- Output Current in Excess of 1A
- Positive Output 5V to 30V
- Internal Thermal Overload Protection
- Internal Short Circuit Protection
- Output Transistor Safe–Area Protection
- Power Watt Package

Absolute Maximum Ratings:

Input Voltage 40V
Control Pin Voltage . . . . . $0 \le V \le V_{OUT}$
Power Dissipation . . . . . Internally Limited
Operating Junction Temperature Range . . . . . 0°C to 150°C
Storage Temperature Range . . . . . –55°C to +150°C
Lead Temperature (During soldering, 10s) . . . . . +230°C

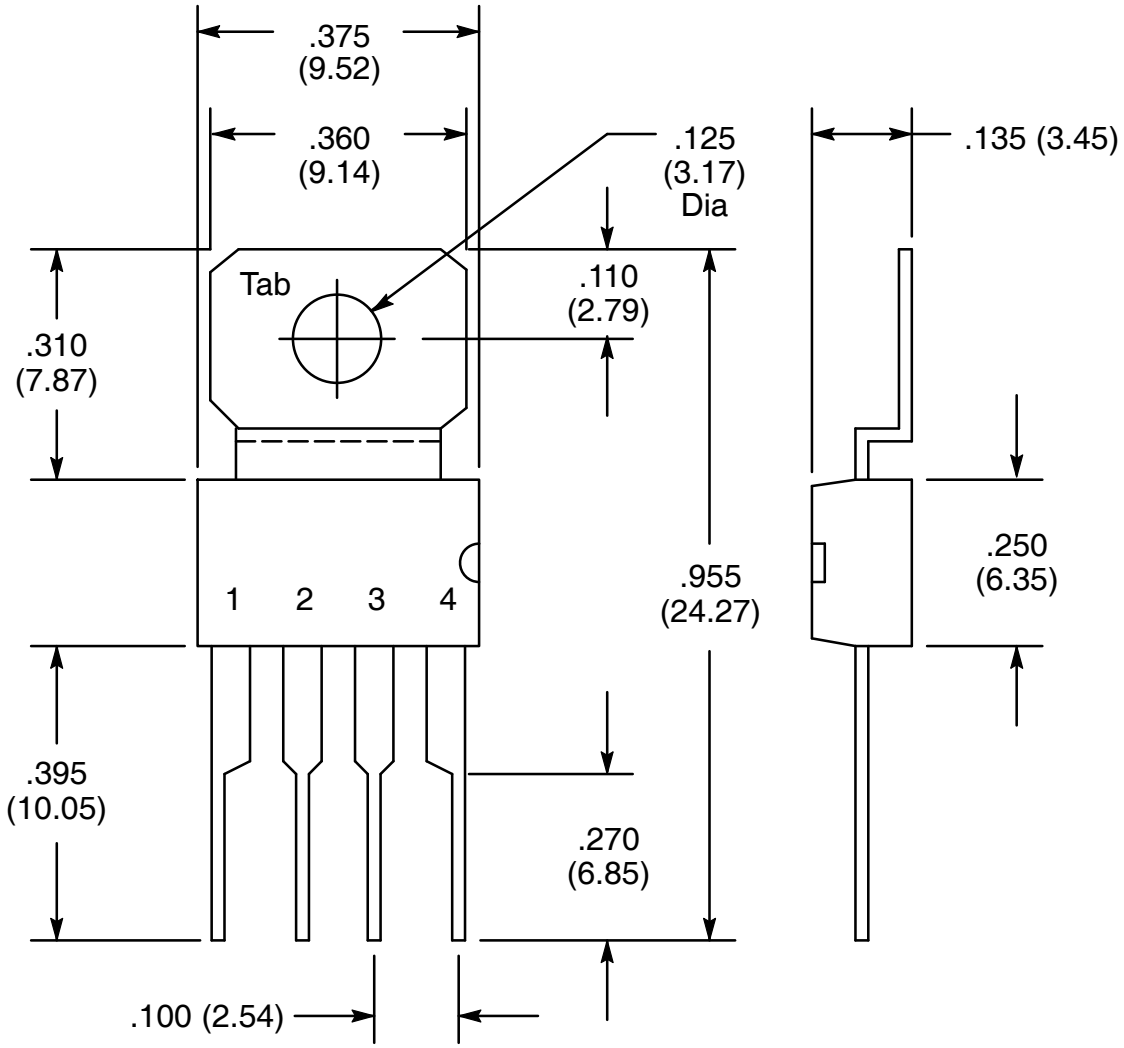
Electrical Characteristics: ($-0°C \le T_J \le 125°C$, $V_{IN} = 10V$, $I_{OUT} = 500mA$, $C_{IN} = 0.33\mu F$, $C_{OUT} = 0.1\mu F$, unless otherwise specified.)

Parameter	Test Conditions (Note 1, Note 3)		Min	Typ	Max	Unit
Input Voltage Range	$T_J = 25°C$		7.5	–	40	V
Output Voltage Range	$V_{IN} = V_{OUT}$ +5V		5.0	–	30	V
Output Voltage Tolerance	V_{OUT} +3V ≤ V_{IN} ≤ V_{OUT} +15V, 5mA ≤ I_{OUT} ≤ 1.0A, $P_D \le 15W$, $V_{IN\ (max)} = 38V$	$T_J = 25°C$	–	–	4.0	%(V_{OUT})
			–	–	5.0	%(V_{OUT})
Line Regulation	$T_J = 25°C$, $V_{OUT} \le 10V$, (V_{OUT} 2.5V) ≤ V_{IN} ≤ (V_{OUT} +20V)		–	–	1.0	%(V_{OUT})
	$T_J = 25°C$, $V_{OUT} \ge 10V$, (V_{OUT} +3V) ≤ V_{IN} ≤ (V_{OUT} +15V) (V_{OUT} +3V) ≤ V_{IN} ≤ (V_{OUT} +7V)		– –	– –	0.75 0.67	%(V_{OUT})
Load Regulation	$T_J = 25°C$, $V_{IN} = V_{OUT}$ +5V	250mA ≤ I_{OUT} ≤ 750mA	–	–	1.0	%(V_{OUT})
		5mA ≤ I_{OUT} ≤ 1.5A	–	–	2.0	%(V_{OUT})
Control Pin Current	$T_J = 25°C$		–	1.0	5.0	μA
			–	–	8.0	μA
Quiescent Current	$T_J = 25°C$		–	3.2	5.0	μA
			–	–	6.0	μA
Ripple Rejection	8V ≤ V_{IN} ≤ 18V, V_{OUT} = 5V, f = 120Hz		62	78	–	dB
Output Noise Voltage	$T_J = 25°C$, 10Hz ≤ f ≤ 100kHz, V_{OUT} = 5V, I_{OUT} = 5mA		–	8	40	μV/V_{OUT}
Dropout Voltage	Note 2		–	–	2.5	V
Short Circuit Current	$T_J = 25°C$, V_{IN} = 30V		–	0.75	1.2	A
Peak Output Current	$T_J = 25°C$		1.3	2.2	3.3	A
Average Temperature Coefficient of Output Voltage	V_{OUT} = 5V, I_{OUT} = 5mA	T_J = –55°C to +25°C	–	–	0.4	mV/°C/ V_{OUT}
		T_J = +25°C to +150°C	–	–	0.3	
Control Pin Voltage (Reference)	$T_J = 25°C$		4.8	5.0	5.2	V
			4.75	–	5.25	V

Note 1. V_{OUT} is defined as: $V_{OUT} = \frac{R1 + R2}{R2}$ (5.0)

Note 2. Dropout Voltage is defined as that input–output voltage differential which causes the output voltage to decrease by 5% of its initial value.

Note 3. All characteristics except noise voltage and ripple rejection ratio are measured using pulse techniques ($t_W \le 10ms$, duty cycle ≤ 5%). Output voltage changes due to changes in internal temperature must be taken into account separately.



Pin 1. GND
2. V_{IN}
3. V_{OUT}
4. Adjust
Tab GND