ELECTRONICS, INC.
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NTE1869 & NTE1869SM
Integrated Circuit
3 Terminal Variable Voltage Regulator

Description:

The NTE1869 and NTE1869SM are semiconductor integrated circuits designed for general–purpose output voltage regulation. A high–performance variable output voltage regulator with small input–output voltage differences can be made in combination with externally connected PNP transistors. These devices include a reference voltage circuit, error amplifier, and driver, and the output voltage can be set freely by externally connected resistors, and a small, compact power supply circuit can be achieved making the device suitable for use in small electronic equipment, such as car stereo, radio cassette recorder and portable stereo equipment.

Features:

- Wide Operating Voltage Range: V_{IN} = 3.5V to 36V, V_O = 1.5V to 33V
- Output Voltage can be Freely Set by Externally Connected Resistors
- Built–In ASO Protection and Thermal Cutoff Circuits
- Available in 2 Package Styles:
  NTE1869 (Giant TO92 Type)
  NTE1869SM (SOT–89 Surface Mount)

Applications:

- Car Stereo Equipment
- Radio Cassette Recorder
- Portable Stereo
- Other General Electronic Equipment

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Input Voltage, V_{IN} 36V
Drive Current, I_D 30mA
Input–Output Voltage Difference, V_I–V_O 30V
Power Dissipation, P_D
  NTE1869 . . . . . 900mW
  NTE1869SM 500mW
Operating Temperature Range, T_{opr} . . . . . –20° to +75°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C

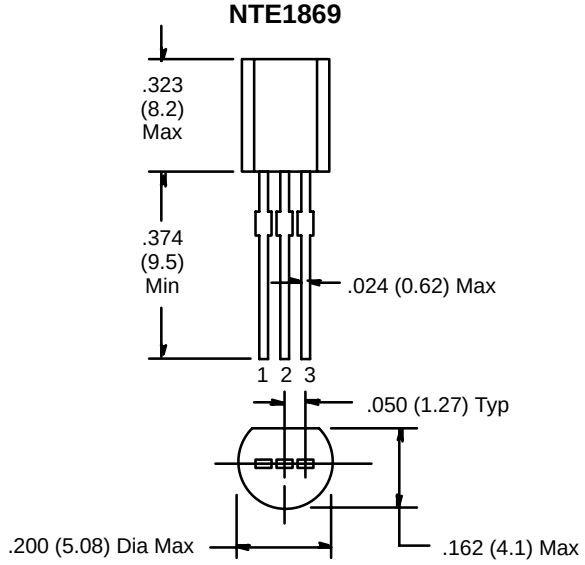
Recommended Operating Conditions:

Supply Voltage Range, V_{IN} . . . . . 3.5V to 30V
Rated Supply Voltage, V_O . . . . . 1.5V to 25V

Electrical Characteristics: (T_A = +25°C, V_i = 15V, V_0 = 12V, I_L = 200mA, C_{REF} = 1μF, R_1 = 4.3kΩ, unless otherwise specified)

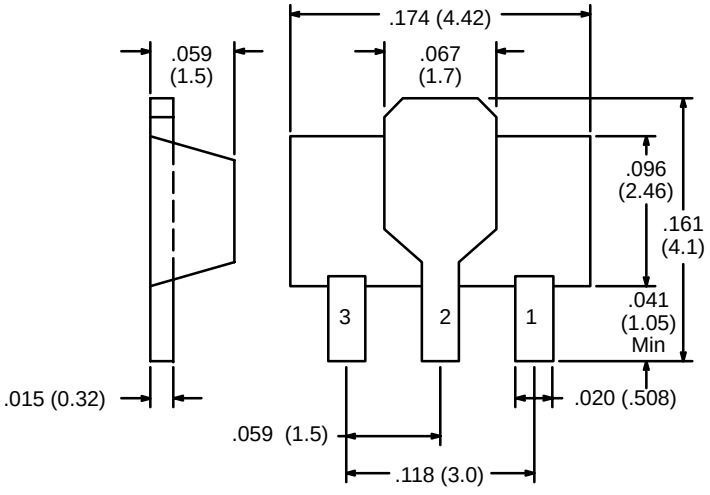
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Voltage	V_{IN}	Between Pin1 and Pin2	3.5	–	36	V
Output Voltage	V_O	R_2 □ 0.82kΩ to 108kΩ	1.5	–	33	V
Minimum Input–Output Voltage Difference	V_I–V_O		–	0.2	–	V
Reference Voltage	V_{REF}	Between Pin3 and Pin2	1.20	1.26	1.32	V
Input Regulation	$R_{eg–In}$	V_I = 15V to 20V	–	0.02	0.1	%/V
Load Regulation	$R_{eg–L}$	I_L = 10mA to 200mA	–	0.02	0.1	%
Bias Current	I_B	I_L = 0 (disregarding the current in resistors R_1, R_2	–	1.7	3.0	mA
Temperature Coefficient of Output Voltage	TC_{VO}	T_A = 0° to +75°C	–	0.02	–	%/°C
Ripple Rejection Ratio	RR	f = 120Hz	–	68	–	dB
Output Noise Voltage	V_{NO}	f = 20Hz to 100kHz	–	33	–	μV_{rms}

NTE1869



Pin 1. Input
2. GND
3. Reference

NTE1869SM



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