ELECTRONICS, INC.
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NTE1960, NTE1962, NTE1964, NTE1966, NTE1968, NTE1970, NTE1972, NTE1974, NTE1976 Integrated Circuit Positive, 3–Terminal Voltage Regulator

Description:

The NTE1960 through NTE1976 series of monolithic 3–terminal positive voltage regulators employ internal current limiting, thermal shut–down, and safe–area compensation in a TO220 full pack type package making them essentially indestructible. If adequate heat sinking is provided, they can deliver over 1A output current. These devices are intended for use as fixed voltage regulators in a wide range of applications including local (on card) regulation for elimination of distribution problems associated with single point regulation.

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

Input Voltage, V_{IN}
- NTE1960, NTE1962, NTE1964, NTE1966, NTE1968, NTE1970, NTE1972 . . . . . 35V
- NTE1974, NTE1976 . . . . . 40V

Power Dissipation ($T_C \le +70°C$), P_D 16W
Operating Junction Temperature Range, T_J . . . . . –30° to +150°C
Operating Ambient Temperature Range, T_{opr} . . . . . –30° to +75°C
Storage Temperature Range, T_{stg} . . . . . –40° to +125°C
Thermal Resistance, Junction–to–Ambient, R_{thJA} . . . . . 60°C/W
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 5°C/W

Electrical Characteristics: (T_J = +25°C, C_I = 0.33μF, C_O = 0.1μF, Note 1 unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage NTE1960	V_{OUT}	V_{IN} = 10V, I_O = 0.5A	4.8	5.0	5.25	V
NTE1962		V_{IN} = 11V, I_O = 0.5A	5.75	6.0	6.25	V
NTE1964		V_{IN} = 14V, I_O = 0.5A	7.7	8.0	8.3	V
NTE1966		V_{IN} = 15V, I_O = 0.5A	8.65	9.0	9.35	V
NTE1968		V_{IN} = 16V, I_O = 0.5A	9.6	10.0	10.4	V
NTE1970		V_{IN} = 19V, I_O = 0.5A	11.5	12.0	12.5	V
NTE1972		V_{IN} = 23V, I_O = 0.5A	14.4	15.0	15.6	V
NTE1974		V_{IN} = 27V, I_O = 0.5A	17.3	18.0	18.7	V
NTE1976		V_{IN} = 33V, I_O = 0.5A	23.0	24.0	25.0	V

Note 1. Measurement is to be conducted in pulse testing.

Electrical Characteristics (Cont'd): (T_J = +25°C, C_I = 0.33μF, C_O = 0.1μF, Note 1 unless otherwise specified)

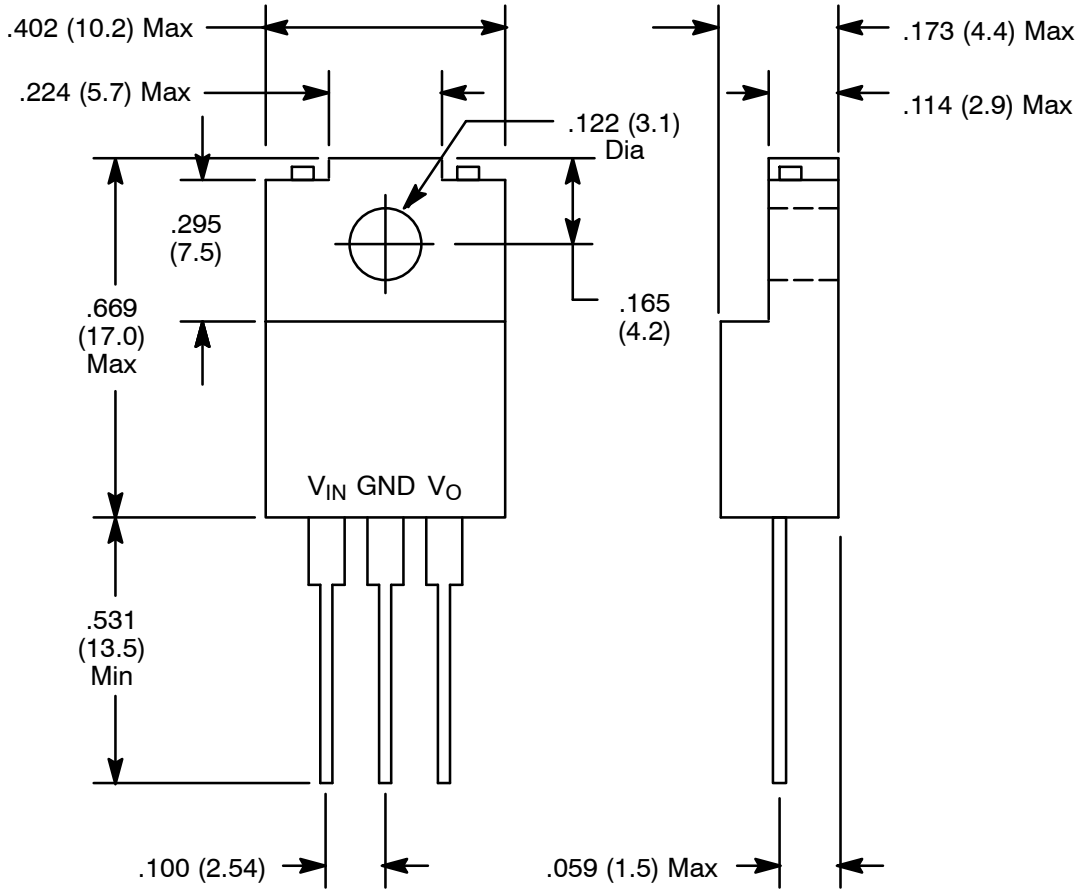
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current						
NTE1960	I_Q	V_{IN} = 10V, I_O = 0mA	–	4.2	6.0	mA
NTE1962		V_{IN} = 11V, I_O = 0mA	–	4.3	6.0	mA
NTE1964		V_{IN} = 14V, I_O = 0mA	–	4.3	6.0	mA
NTE1966		V_{IN} = 15V, I_O = 0mA	–	4.3	6.0	mA
NTE1968		V_{IN} = 16V, I_O = 0mA	–	4.3	6.0	mA
NTE1970		V_{IN} = 19V, I_O = 0mA	–	4.3	6.0	mA
NTE1972		V_{IN} = 23V, I_O = 0mA	–	4.4	6.0	mA
NTE1974		V_{IN} = 27V, I_O = 0mA	–	4.5	6.0	mA
NTE1976		V_{IN} = 33V, I_O = 0mA	–	4.6	6.0	mA
Load Regulation						
NTE1960	$\Delta V_O - I_O$	V_{IN} = 10V, I_O = 0.005 to 1.5A	–	15	50	mV
NTE1962		V_{IN} = 11V, I_O = 0.005 to 1.5A	–	15	60	mV
NTE1964		V_{IN} = 14V, I_O = 0.005 to 1.5A	–	15	80	mV
NTE1966		V_{IN} = 15V, I_O = 0.005 to 1.5A	–	15	90	mV
NTE1968		V_{IN} = 16V, I_O = 0.005 to 1.5A	–	15	100	mV
NTE1970		V_{IN} = 19V, I_O = 0.005 to 1.5A	–	25	120	mV
NTE1972		V_{IN} = 23V, I_O = 0.005 to 1.5A	–	35	150	mV
NTE1974		V_{IN} = 27V, I_O = 0.005 to 1.5A	–	55	180	mV
NTE1976		V_{IN} = 33V, I_O = 0.005 to 1.5A	–	65	240	mV
Line Regulation						
NTE1960	$\Delta V_O - V_{IN}$	V_{IN} = 7V to 25V, I_O = 0.5A	–	3	50	mV
NTE1962		V_{IN} = 8V to 25V, I_O = 0.5A	–	5	60	mV
NTE1964		V_{IN} = 10.5V to 25V, I_O = 0.5A	–	6	80	mV
NTE1966		V_{IN} = 11.5V to 25V, I_O = 0.5A	–	7	90	mV
NTE1968		V_{IN} = 12.5V to 25V, I_O = 0.5A	–	8	100	mV
NTE1970		V_{IN} = 14.5V to 30V, I_O = 0.5A	–	10	120	mV
NTE1972		V_{IN} = 17.5V to 30V, I_O = 0.5A	–	11	150	mV
NTE1974		V_{IN} = 21V to 33V, I_O = 0.5A	–	15	180	mV
NTE1976		V_{IN} = 27V to 38V, I_O = 0.5A	–	18	240	mV
Ripple Rejection						
NTE1960	RR	V_{IN} = 10V, I_O = 0.5A, e_{in} = $2V_{P-P}$, f = 120Hz	68	78	–	dB
NTE1962		V_{IN} = 11V, I_O = 0.5A, e_{in} = $2V_{P-P}$, f = 120Hz	65	75	–	dB
NTE1964		V_{IN} = 14V, I_O = 0.5A, e_{in} = $2V_{P-P}$, f = 120Hz	62	72	–	dB
NTE1966		V_{IN} = 15V, I_O = 0.5A, e_{in} = $2V_{P-P}$, f = 120Hz	62	72	–	dB
NTE1968		V_{IN} = 16V, I_O = 0.5A, e_{in} = $2V_{P-P}$, f = 120Hz	62	72	–	dB
NTE1970		V_{IN} = 19V, I_O = 0.5A, e_{in} = $2V_{P-P}$, f = 120Hz	62	71	–	dB
NTE1972		V_{IN} = 23V, I_O = 0.5A, e_{in} = $2V_{P-P}$, f = 120Hz	60	70	–	dB
NTE1974		V_{IN} = 27V, I_O = 0.5A, e_{in} = $2V_{P-P}$, f = 120Hz	59	69	–	dB
NTE1976		V_{IN} = 33V, I_O = 0.5A, e_{in} = $2V_{P-P}$, f = 120Hz	56	66	–	dB
Output Noise Voltage						
NTE1960	V_{NO}	V_{IN} = 10V, BW = 10Hz to 100kHz, I_O = 0.5A	–	45	–	μV
NTE1962		V_{IN} = 11V, BW = 10Hz to 100kHz, I_O = 0.5A	–	45	–	μV
NTE1964		V_{IN} = 14V, BW = 10Hz to 100kHz, I_O = 0.5A	–	55	–	μV
NTE1966		V_{IN} = 15V, BW = 10Hz to 100kHz, I_O = 0.5A	–	60	–	μV
NTE1968		V_{IN} = 16V, BW = 10Hz to 100kHz, I_O = 0.5A	–	65	–	μV

Note 1. Measurement is to be conducted in pulse testing.

Electrical Characteristics (Cont'd): (T_J = +25°C, C_I = 0.33μF, C_O = 0.1μF, Note 1 unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Noise Voltage NTE1970	V_{NO}	V_{IN} = 19V, BW = 10Hz to 100kHz, I_O = 0.5A	–	75	–	μV
NTE1972		V_{IN} = 23V, BW = 10Hz to 100kHz, I_O = 0.5A	–	90	–	μV
NTE1974		V_{IN} = 27V, BW = 10Hz to 100kHz, I_O = 0.5A	–	100	–	μV
NTE1976		V_{IN} = 33V, BW = 10Hz to 100kHz, I_O = 0.5A	–	120	–	μV
Average Temperature Coefficient of Output Voltage NTE1960	$\Delta V_O/\Delta T$	V_{IN} = 10V, I_O = 0.5A	–	–0.5	–	mV/°C
NTE1962		V_{IN} = 11V, I_O = 0.5A	–	–0.6	–	mV/°C
NTE1964		V_{IN} = 14V, I_O = 0.5A	–	–0.8	–	mV/°C
NTE1966		V_{IN} = 15V, I_O = 0.5A	–	–0.9	–	mV/°C
NTE1968		V_{IN} = 16V, I_O = 0.5A	–	–1.0	–	mV/°C
NTE1970		V_{IN} = 19V, I_O = 0.5A	–	–1.2	–	mV/°C
NTE1972		V_{IN} = 23V, I_O = 0.5A	–	–1.5	–	mV/°C
NTE1974		V_{IN} = 27V, I_O = 0.5A	–	–1.8	–	mV/°C
NTE1976		V_{IN} = 33V, I_O = 0.5A	–	–2.4	–	mV/°C

Note 1. Measurement is to be conducted in pulse testing.



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