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NTE1954
Integrated Circuit
Positive 3 Terminal Voltage Regulator, Low Dropout Voltage, 12V, 1A

Description:

The NTE1954 positive voltage regulator features the ability to source 1A of output current with a dropout voltage of typically 0.5V and a maximum of 1V over the entire temperature range. Furthermore, a quiescent current reduction circuit has been included which reduces the ground current when the differential between the input voltage and the output voltage exceeds approximately 3V. The quiescent current with 1A of output current and an input–output differential of 5V is therefore only 30mA. High quiescent currents only exist when the regulator is in the dropout mode ($V_{IN} – V_{OUT} \le 3V$).

Features:

- Dropout Voltage: 0.5V (Typ) @ I_O = 1A
- Output Current in Excess of 1A
- Reverse Battery Protection
- Internal Short Circuit Current Limit

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

Input Voltage, V_I
- Survival Voltage (≤100ms) 60V
- Operational Voltage 26V

Internal Power Dissipation (Note 1), P_D . . . . . Internally Limited

maximum Junction Temperature, T_J . . . . . +150°C

Operating Temperature Range, T_A . . . . . –40° to +125°C

Storage Junction Temperature Range, T_{stg} . . . . . –65° to +150°C

Lead Temperature (During Soldering, 10sec max), T_L . . . . . +230°C

Note 1. Thermal resistance without a heatsink for junction–to–case temperature is 3°C/W. Thermal resistance case–to–ambient is 50°C/W

Electrical Characteristics: (V_{IN} = 17V, I_O = 1A, C_{OUT} = 22µF, C_O = 0.1µF, T_J = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	5mA ≤ I_O ≤ 1A	11.64	12.00	12.36	V
Line Regulation	Reg_{line}	14V ≥ V_{IN} ≥ 26V, I_O = 5 mA	–	20	120	mV
Load Regulation	Reg_{load}	50mA ≤ I_O ≤ 1A	–	55	120	mV
Output Impedance	Z_O	100mADC and 20mArms, f_o = 120Hz	–	80	–	MΩ
Quiescent Current		14V ≥ V_{IN} ≥ 26V, I_O = 5 mA	–	10	15	mA
		V_{IN} = 17V, I_O = 1A	–	30	45	mA
Output Noise Voltage	V_n	10Hz – 100kHz, I_O = 5mA	–	360	–	μV_{rms}
Ripple Rejection	RR	f_o = 120Hz, 1V_{rms}, I_I = 100mA	54	66	–	dB
Long Term Stability	S		–	48	–	mV/1000Hr
Dropout Voltage	V_{IN}–V_O	I_O = 1A	–	0.5	0.8	V
		I_O = 100mA	–	110	150	mA
Short Circuit Current	I_{SC}		1.6	1.9	–	A
Maximum Line Transient		V_O ≤ 13V, R_O = 100Ω, T ≤ 100ms	60	75	–	V
Maximum Operational Input Voltage			26	31	–	V_{dc}
Reverse Polarity Input Voltage DC		R_O = 100Ω	–15	–30	–	V
Reverse Polarity Input Voltage Transient		T ≤ 100ms, R_O = 100Ω	–50	–75	–	V