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

NTE963
Linear Integrated Circuit
Voltage Regulator, Negative, –6V, 1A

Description:

The NTE963 voltage regulator employs current limiting, thermal shutdown, and safe–area compensation which makes it remarkably rugged under most operating conditions. With adequate heat–sinking they can deliver output currents in excess of 1.0 amperes.

Features:

- No External Components Required
- Internal Thermal Overload Protection
- Internal Short–Circuit Current Limiting
- Output Transistor Safe–Area Compensation

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

Input Voltage, V_{IN} . . . . . –35V

Internal Power Dissipation, P_D . . . . . Internally Limited
Derate Above +25°C . . . . . 15.4mW/°C

Thermal Resistance, Junction–to–Ambient, R_{thJA} . . . . . 65°C/W

Internal Power Dissipation (T_C = +25°C), P_D . . . . . Internally Limited
Derate Above +75°C . . . . . 200mW/°C

Thermal Resistance, Junction–to–Ambient (T_C = +25°C), R_{thJA} . . . . . 5°C/W

Maximum Junction Temperature Range, T_J . . . . . 0° to +150°C

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

Electrical Characteristics: (V_{IN} = –11V, I_O = 500mA, 0°C ≤ T_J ≤ +125°C unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Output Voltage	V_O	T_J = +25°C		–5.75	–6.0	–6.25	V
		5mA ≤ I_O ≤ 1A, P_O ≤ 15W, –8.0V ≤ V_{IN} ≤ –21V		–5.7	–	–6.3	V
Line Regulation	Reg_{Line}	T_J = +25°C	–8.0V ≤ V_{IN} ≤ –25V	–	43	120	mV
			–9.0V ≤ V_{IN} ≤ –13V	–	10	60	

Electrical Characteristics: (V_{IN} = –11V, I_O = 500mA, 0°C ≤ T_J ≤ +125°C unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Load Regulation	Reg_{Load}	T_J = +25°C	5mA ≤ I_O ≤ 1.5A	–	13	120	mV
			250mA ≤ I_O ≤ 750mA	–	5.0	60	
Quiescent Current	I_B	T_J = +25°C		–	4.3	8.0	mA
Quiescent Current Change	ΔI_B	–8.0V ≤ V_{IN} ≤ –25V		–	–	1.3	mA
		5mA ≤ I_O ≤ 1A		–	–	0.5	
Ripple Rejection	RR	9.0V ≤ V_{IN} ≤ 19.0V, f = 120Hz		–	65	–	dB
Dropout Voltage	$V_{IN} – V_O$	T_J = +25°C, I_O = 1A		–	2.0	–	V
Output Noise Voltage	V_n	T_A = +25°C, 10Hz ≤ f ≤ 100kHz		–	45	–	$\mu V/V_O$
Output Resistance	r_O	f = 1kHz		–	17	–	mΩ
Short–Circuit Current Limit	I_{sc}	T_A = +25°C, V_{IN} = 35V		–	0.2	–	A
Peak Output Current	I_{max}	T_J = +25°C		–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O			–	–1.0	–	mV/°C