

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: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

| | |
|---|---------------------------------------|
| Input Voltage, V_{IN} | -35V |
| Internal Power Dissipation, P_D | Internally Limited |
| Derate Above $+25^\circ\text{C}$ | 15.4mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient, R_{thJA} | 65 $^\circ\text{C}/\text{W}$ |
| Internal Power Dissipation ($T_C = +25^\circ\text{C}$), P_D | Internally Limited |
| Derate Above $+75^\circ\text{C}$ | 200mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient ($T_C = +25^\circ\text{C}$), R_{thJA} | 5 $^\circ\text{C}/\text{W}$ |
| Maximum Junction Temperature Range, T_J | 0 $^\circ$ to +150 $^\circ\text{C}$ |
| Storage Temperature Range, T_{stg} | -65 $^\circ$ to +150 $^\circ\text{C}$ |

Electrical Characteristics: ($V_{IN} = -11\text{V}$, $I_O = 500\text{mA}$, $0^\circ\text{C} \leq T_J \leq +125^\circ\text{C}$ unless otherwise specified)

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

Electrical Characteristics: ($V_{IN} = -11V$, $I_O = 500mA$, $0^\circ C \leq T_J \leq +125^\circ C$ unless otherwise specified)

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

