

NTE69 Silicon NPN Transistor UHF/VHF Amplifier

Absolute Maximum Ratings:

| | |
|---|-------------------------------------|
| Collector–Emitter Voltage, V_{CEO} | 25V |
| Collector–Base Voltage, V_{CBO} | 35V |
| Emitter–Base Voltage, V_{EBO} | 3V |
| Continuous Collector Current, I_C | 50mA |
| Total Device Dissipation ($T_A = +25^\circ\text{C}$), P_D | 350mW |
| Derate above 25°C | 2.8mW/ $^\circ\text{C}$ |
| Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_D | 1.0W |
| Derate above 25°C | 8.0mW/ $^\circ\text{C}$ |
| Operating Junction Temperature Range, T_J | -55° to $+150^\circ\text{C}$ |
| Storage Temperature Range, T_{stg} | -55° to $+150^\circ\text{C}$ |
| Thermal Resistance, Junction–to–Case, R_{thJC} | 125 $^\circ\text{C}/\text{W}$ |
| Thermal Resistance, Junction–to–Ambient (Note 1), R_{thJA} | 357 $^\circ\text{C}/\text{W}$ |

Note 1 R_{thJA} is measured with the device soldered into a typical printed circuit board.

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------|---|-----|------|-----|------|
| OFF Characteristics | | | | | | |
| Collector–Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = 1\text{mA}$, $I_B = 0$, Note 2 | 25 | – | – | V |
| Collector–Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = 100\mu\text{A}$, $I_E = 0$ | 35 | – | – | V |
| Emitter–Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = 100\mu\text{A}$, $I_C = 0$ | 3 | – | – | V |
| ON Characteristics | | | | | | |
| DC Current Gain | h_{FE} | $V_{CE} = 4\text{V}$, $I_C = 4\text{mA}$ | 25 | 60 | – | |
| Collector–Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 10\text{mA}$, $I_B = 1\text{mA}$ | – | 200 | 350 | mV |
| Base–Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C = 10\text{mA}$, $I_B = 1\text{mA}$ | – | 750 | 950 | mV |
| Small–Signal Characteristics | | | | | | |
| Current Gain–Bandwidth Product | f_T | $V_{CE} = 12\text{V}$, $I_C = 4\text{mA}$, $f = 100\text{MHz}$ | 750 | 1100 | – | MHz |
| Output Capacitance | C_{obo} | $V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$ | – | 0.8 | 1.0 | pF |
| Collector–Base Time Constant | τ_{bc} | $V_{CE} = 12\text{V}$, $I_E = 4\text{mA}$, $f = 31.8\text{MHz}$ | – | – | 9.5 | ps |

Note 2 Pulse test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$

