

NTE311 Silicon NPN Transistor Frequency Multiplier, Driver, VHF/UHF

Absolute Maximum Ratings:

| | |
|---|-------------------------------------|
| Collector–Emitter Voltage, V_{CE0} | 30V |
| Collector–Base Voltage, V_{CBO} | 55V |
| Emitter–Base Voltage, V_{EBO} | 3.5V |
| Continuous Collector Current, I_C | 400mA |
| Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_D | 5W |
| Derate Above 25°C | 28.6mW/ $^\circ\text{C}$ |
| Storage Temperature Range, T_{stg} | -65° to $+200^\circ\text{C}$ |

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--------------------------------------|----------------|--|-----|-----|------|------|
| OFF Characteristics | | | | | | |
| Collector–Emitter Breakdown Voltage | $V_{CER(sus)}$ | $I_C = 5\text{mA}$, $R_{BE} = 10\Omega$ | 55 | – | – | V |
| Collector–Emitter Sustaining Voltage | $V_{CEO(sus)}$ | $I_C = 5\text{mA}$, $I_B = 0$ | 30 | – | – | V |
| Emitter–Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_F = 100\mu\text{A}$, $I_C = 0$ | 3.5 | – | – | V |
| Collector Cutoff Current | I_{CEO} | $V_{CE} = 28\text{V}$, $I_B = 0$ | — | – | 0.02 | mA |
| | | $V_{CE} = 30\text{V}$, $V_{BE} = -1.5\text{V}$, $T_C = +200^\circ\text{C}$ | – | – | 5.0 | mA |
| | | $V_{CE} = 55\text{V}$, $V_{BE} = -1.5\text{V}$ | – | – | 0.1 | mA |
| Emitter Cutoff Current | I_{EBO} | $V_{BE} = 3.5\text{V}$, $I_C = 0$ | – | – | 0.1 | mA |
| ON Characteristics | | | | | | |
| DC Current Gain | h_{FE} | $I_C = 50\text{mA}$, $V_{CE} = 5\text{V}$ | 25 | – | 200 | – |
| Collector–Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 100\text{mA}$, $I_B = 20\text{mA}$ | – | – | 1.0 | V |
| Small–Signal Characteristics | | | | | | |
| Current–Gain Bandwidth Product | f_T | $I_C = 50\text{mA}$, $V_{CE} = 15\text{V}$, $f = 200\text{MHz}$ | 800 | – | – | MHz |
| Output Capacitance | C_{obo} | $V_{CB} = 28\text{V}$, $I_E = 0$, $f = 1\text{MHz}$ | – | – | 3.0 | pF |
| Functional Test | | | | | | |
| Amplifier Power Gain | G_{pe} | $V_{CC} = 28\text{V}$, $P_{OUT} = 1\text{W}$, $f = 400\text{MHz}$ | 10 | – | – | dB |
| Collector Efficiency | h | $V_{CC} = 20\text{V}$, $P_{OUT} = 1\text{W}$, $f = 400\text{MHz}$ | 45 | – | – | % |

