

NTE235 Silicon NPN Transistor Final RF Power Output

Description:

The NTE235 is an NPN silicon transistor in a TO220 type case designed for use in high power output amplifier stages such as citizen band communications equipment.

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

| | |
|---|-------------------------------------|
| Collector–Emitter Voltage ($R_{BE} = 150\Omega$), V_{CER} | 75V |
| Collector–Base Voltage, V_{CBO} | 80V |
| Emitter–Base Voltage, V_{EBO} | 5V |
| Collector Current, I_C | |
| Continuous | 3A |
| Peak | 5A |
| Collector Dissipation, P_C | |
| $T_A = +25^\circ\text{C}$ | 1.2W |
| $T_C = +50^\circ\text{C}$ | 10W |
| Operating Junction Temperature, T_J | $+150^\circ\text{C}$ |
| Storage Temperature Range, T_{stg} | -55° to $+150^\circ\text{C}$ |

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------|---|-----|------|-----|---------------|
| Collector–Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = 100\mu\text{A}, I_B = 0$ | 80 | – | – | V |
| Collector–Emitter Breakdown Voltage | $V_{(BR)CER}$ | $I_C = 1\text{mA}, R_{BE} = 150\Omega$ | 75 | – | – | V |
| Emitter–Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = 100\mu\text{A}, I_C = 0$ | 5 | – | – | V |
| Collector Cutoff Current | I_{CBO} | $V_{CB} = 40\text{V}, I_E = 0$ | – | – | 10 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = 4\text{V}, I_C = 0$ | – | – | 10 | μA |
| DC Current Gain | h_{FE} | $V_{CE} = 5\text{V}, I_C = 500\text{mA}$ | 25 | – | 200 | |
| Collector–Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 1\text{A}, I_B = 100\text{mA}$ | – | 0.15 | 0.6 | V |
| Base–Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C = 1\text{A}, I_B = 100\text{mA}$ | – | 0.9 | 1.2 | V |
| Current Gain–Bandwidth Product | f_T | $V_{CE} = 10\text{V}, I_C = 100\text{mA}$ | 100 | 150 | – | MHz |
| Output Capacitance | C_{ob} | $V_{CB} = 10\text{V}, f = 1\text{MHz}$ | – | 45 | 60 | pF |
| Power Output | P_O | $V_{CC} = 12\text{V}, P_{in} = 0.2\text{W}, f = 27\text{MHz}$ | 4.0 | – | – | W |
| Collector Efficiency | η | | 60 | – | – | % |

