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# NTE325
# Silicon NPN RF Power Transistor
# 50W @ 30MHz

**Description:**

The NTE325 is a silicon NPN RF power transistor in a T72H type package designed for power amplifier applications in industrial, commercial, and amateur radio equipment to 30MHz.

**Features:**

- Specified 12.5V, 30MHz Characteristics:
  - Output Power = 50W
  - Minimum Gain = 11dB
  - Efficiency = 50%

**Absolute Maximum Ratings:**

Collector–Emitter Voltage, $V_{CEO}$ . . . . . 20V
Collector–Base Voltage, $V_{CBO}$ . . . . . 40V
Emitter–Base Voltage, $V_{EBO}$ . . . . . 4V
Continuous Collector Current, $I_C$ . . . . . 7.5A
Total Device Dissipation ($T_C$ = +25°C), $P_D$ . . . . . 115W
Derate Above 25°C . . . . . 0.66W/°C
Storage Temperature Range, $T_{stg}$ . . . . . –65° to +150°C
Thermal Resistance, Junction to Case, $R_{\Theta JC}$ . . . . . 1.53°C/W

**Electrical Characteristics:** ($T_C$ = +25°C unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **OFF Characteristics** | | | | | | |
| Collector–Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$ = 100mA, $I_B$ = 0 | 20 | – | – | V |
| | $V_{(BR)CES}$ | $I_C$ = 20mA, $V_{BE}$ = 0 | 40 | – | – | V |
| Collector–Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C$ = 20mA, $I_E$ = 0 | 40 | – | – | V |
| Emitter–Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E$ = 10mA, $I_C$ = 0 | 4 | – | – | V |
| **ON Characteristics** | | | | | | |
| DC Current Gain | $h_{FE}$ | $I_C$ = 1A, $V_{CE}$ = 5V | 10 | – | – | |
| **Dynamic Characteristics** | | | | | | |
| Output Capacitance | $C_{ob}$ | $V_{CB}$ = 15V, $I_E$ = 0, f = 1MHz | – | – | 200 | pF |

**Electrical Characteristics (Cont'd):** ($T_C$ = +25°C unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Functional Test** | | | | | | |
| Common–Emitter Amplifier Power Gain | $G_{PE}$ | $V_{CC}$ = 13.6V, $P_{OUT}$ = 50W, $I_C$(max) = 6.13A, f = 30MHz | 11 | 15 | – | dB |
| Collector Efficiency | $\eta$ | | 50 | – | – | % |
| Series Equivalent Input Impedance | $Z_{in}$ | $V_{CC}$ = 13.6V, $P_{OUT}$ = 50W, f = 30MHz | – | 1.56–j.89 | – | Ω |
| Series Equivalent Output Imnpedance | $Z_{out}$ | | – | 174–j.50 | – | Ω |