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NTE335 & NTE336 Silicon NPN Transistor RF Power Output

Description:

The NTE335 and NTE336 are silicon NPN RF power transistors designed for power amplifier applications in industrial, commercial and amateur radio equipment to 30MHz.

Features:

- Specified 12.5V, 30MHz Characteristics:
 Output Power = 80W
 Minimum Gain = 12dB
 Efficiency = 50%
- Available in Two Different Package Designs:
 NTE335 (W52N, Flange Mount)
 NTE336 (T93D, Stud Mount)

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO} 25V
 Collector–Base Voltage, V_{CBO} 45V
 Emitter–Base Voltage, V_{EBO} 4V
 Continuous Collector Current, I_C 20A
 Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_D 250W
 Derate above 25°C 1.43W/ $^\circ\text{C}$
 Storage Temperature Range, T_{stg} -65° to $+150^\circ\text{C}$
 Thermal Resistance, Junction–to–Case, R_{thJC} 0.7°C/W

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|-------------------------------------|---------------|---------------------------------|-----|-----|-----|------|
| OFF Characteristics | | | | | | |
| Collector–Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = 100\text{mA}, I_B = 0$ | 18 | – | – | V |
| | $V_{(BR)CES}$ | $I_C = 50\text{mA}, V_{BE} = 0$ | 36 | – | – | V |
| Emitter–Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = 10\text{mA}, I_C = 0$ | 4 | – | – | V |

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--------------------------------------|-----------|--|-----|-------------------------|-----|----------|
| ON Characteristics | | | | | | |
| DC Current Gain | h_{FE} | $I_C = 5A, V_{CE} = 5V$ | 10 | - | 150 | |
| Dynamic Characteristics | | | | | | |
| Output Capacitance | C_{ob} | $V_{CB} = 15V, I_E = 0, f = 1MHz$ | - | - | 250 | pF |
| Functional Tests | | | | | | |
| Common-Emitter Amplifier Power Gain | G_{pe} | $V_{CC} = 12.5V, P_{OUT} = 80W, f = 30MHz$ | 12 | - | - | dB |
| Collector Efficiency | η | | 50 | - | - | % |
| Series Equivalent Input Impedance | Z_{in} | | - | .938 - j.341 | - | Ω |
| Series Equivalent Output Impedance | Z_{out} | | - | 1.16 - j.201 | - | Ω |
| Parallel Equivalent Input Impedance | - | | - | 1.06 Ω 1817pF | - | |
| Parallel Equivalent Output Impedance | - | | - | 1.19 Ω 777pF | - | |

