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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  $25^\circ\text{C}$  ..... 1.43W/ $^\circ\text{C}$   
 Storage Temperature Range,  $T_{stg}$  .....  $-65^\circ$  to  $+150^\circ\text{C}$   
 Thermal Resistance, Junction–to–Case,  $R_{thJC}$  .....  $0.7^\circ\text{C/W}$

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

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

