



ELECTRONICS, INC.  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089  
<http://www.nteinc.com>

## NTE236

### Silicon NPN Transistor Final RF Power Output (P<sub>O</sub> = 16W, 27MHz, SSB)

**Description:**

The NTE236 is a silicon NPN epitaxial planer type transistor designed for RF power amplifiers on HF band mobile radio applications.

**Features:**

- High Power Gain: G<sub>pe</sub> ≥ 12dB (V<sub>CC</sub> = 12V, P<sub>O</sub> = 16W, f = 27MHz)
- Ability to Withstand Infinite VSWR Load when Operated at:  
     V<sub>CC</sub> = 16V, P<sub>O</sub> = 20W, f = 27MHz

**Application:**

- 10 to 14 Watt Output Power Class AB Amplifier Applications in HF band

**Absolute Maximum Ratings:** (T<sub>C</sub> = +25°C unless otherwise specified)

|                                                                         |                |
|-------------------------------------------------------------------------|----------------|
| Collector–Base Voltage, V <sub>CBO</sub> .....                          | 60V            |
| Collector–Emitter Voltage (R <sub>BE</sub> = ∞), V <sub>CEO</sub> ..... | 25V            |
| Emitter–Base Voltage, V <sub>EBO</sub> .....                            | 5V             |
| Collector Current, I <sub>C</sub> .....                                 | 6A             |
| Collector Dissipation, P <sub>C</sub>                                   |                |
| T <sub>A</sub> = 25°C .....                                             | 1.7W           |
| T <sub>C</sub> = 25°C .....                                             | 20W            |
| Operating Junction Temperature, T <sub>J</sub> .....                    | +150°C         |
| Storage Temperature Range, T <sub>stg</sub> .....                       | -55° to +150°C |
| Thermal Resistance, Junction–to–Ambient, R <sub>thJA</sub> .....        | 73.5°C/W       |
| Thermal Resistance, Junction–to–Case, R <sub>thJC</sub> .....           | 6.25°C/W       |

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

| Parameter                           | Symbol        | Test Conditions                                             | Min | Typ | Max | Unit          |
|-------------------------------------|---------------|-------------------------------------------------------------|-----|-----|-----|---------------|
| Emitter-Base Breakdown Voltage      | $V_{(BR)EBO}$ | $I_E = 5\text{mA}, I_C = 0$                                 | 5   | -   | -   | V             |
| Collector-Base Breakdown Voltage    | $V_{(BR)CBO}$ | $I_C = 1\text{mA}, I_E = 0$                                 | 60  | -   | -   | V             |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = 10\text{mA}, R_{BE} = \infty$                        | 25  | -   | -   | V             |
| Collector Cutoff Current            | $I_{CBO}$     | $V_{CB} = 30\text{V}, I_E = 0$                              | -   | -   | 100 | $\mu\text{A}$ |
| Emitter Cutoff Current              | $I_{EBO}$     | $V_{EB} = 4\text{V}, I_C = 0$                               | -   | -   | 100 | $\mu\text{A}$ |
| DC Forward Current Gain             | $h_{FE}$      | $V_{CE} = 12\text{V}, I_C = 10\text{mA}, \text{Note 1}$     | 10  | 50  | 180 | -             |
| Output Power                        | $P_O$         | $V_{CC} = 12\text{V}, P_{in} = 1\text{W}, f = 27\text{MHz}$ | 16  | 18  | -   | W             |
| Collector Efficiency                | $h_C$         | $V_{CC} = 12\text{V}, P_{in} = 1\text{W}, f = 27\text{MHz}$ | 60  | 70  | -   | %             |

Note 1. Pulse Test: Pulse Width =  $150\mu\text{s}$ , Duty Cycle = 5%.

