



ELECTRONICS, INC.

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## NTE318 Silicon NPN Transistor RF Power Output

### **Description:**

The NTE318 is a 12.5V epitaxial silicon NPN planar transistor designed primarily for HF communications. This device utilizes improved metallization systems to achieve extreme ruggedness under severe operating conditions.

### **Features:**

- Designed for HF military and commercial equipment 40W minimum with greater than 10.0dB gain
- Withstands severe mismatch under operating conditions
- Low inductance Stripline Package

### **Absolute Maximum Ratings:**

|  |                |
|--|----------------|
| Collector Base Voltage, $V_{CBO}$ .....                | 36V            |
| Collector–Emitter Voltage, $V_{CEO}$ .....             | 18V            |
| Emitter–Base Voltage, $V_{EBO}$ .....                  | 4V             |
| Maximum Collector Current, $I_C$ .....                 | 6A             |
| Total Device Dissipation (+25°C), $P_T$ .....          | 80W            |
| Thermal Resistance, Junction–to–Case, $R_{thJC}$ ..... | 2.2°C/W        |
| Junction Temperature Range, $T_J$ .....                | –65° to +200°C |
| Storage Temperature Range, $T_{stg}$ .....             | –65° to +200°C |

### **Electrical Characteristics:**

| Parameter                           | Symbol        | Test Conditions                          | Min | Typ | Max | Unit |
|-------------------------------------|---------------|--|-----|-----|-----|------|
| Collector–Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = 200mA, I_B = 0, \text{Note 1}$    | 18  | –   | –   | V    |
| Collector–Emitter Breakdown Voltage | $V_{(BR)CES}$ | $I_C = 200mA, V_{BE} = 0, \text{Note 1}$ | 36  | –   | –   | V    |
| Emitter–Base Breakdown Voltage      | $V_{(BR)EBO}$ | $I_E = 2.5mA, I_C = 0$                   | 4   | –   | –   | V    |
| Collector Cut–Off Current           | $I_{CBO}$     | $V_{CB} = 15V, I_E = 0$                  | –   | –   | 1   | mA   |
| DC Current Gain                     | $h_{FE}$      | $V_{CE} = 5V, I_C = 250mA$               | 10  | –   | –   |      |
| Gain Bandwidth                      | $f_t$         | $V_{CE} = 13.5V, I_C = 100mA$            | 200 | –   | –   | MHz  |
| Output Capacitance                  | $C_{ob}$      | $V_{CB} = 12.5V, I_C = 0, -F_O = 1.0MHz$ | –   | –   | 200 | pF   |
| Amplifier Power Out                 | $P_O$         | 28MHz/12.5V                              | 47  | –   | –   | W    |
| Amplifier Power Gain                | $P_g$         |  | 10  | –   | –   | dB   |

Note 1. Pulsed through 25mH Inductor

