ELECTRONICS, INC.
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# NTE486
# Silicon NPN Transistor
# RF High Frequency Amplifier

**Description:**

The NTE486 is a silicon NPN high frequency RF transistor in a TO39 type package designed for use in 12.5V UHF large–signal applications required in industrial equipment.

**Features:**

- Specified 12.5V, 470MHz Characteristics:
  Output Power = 0.75W
  Minimum Gain = 8dB
  Effeciency = 50%
- S Parameter Data from 100MHz to 1GHz

**Absolute Maximum Ratings:**

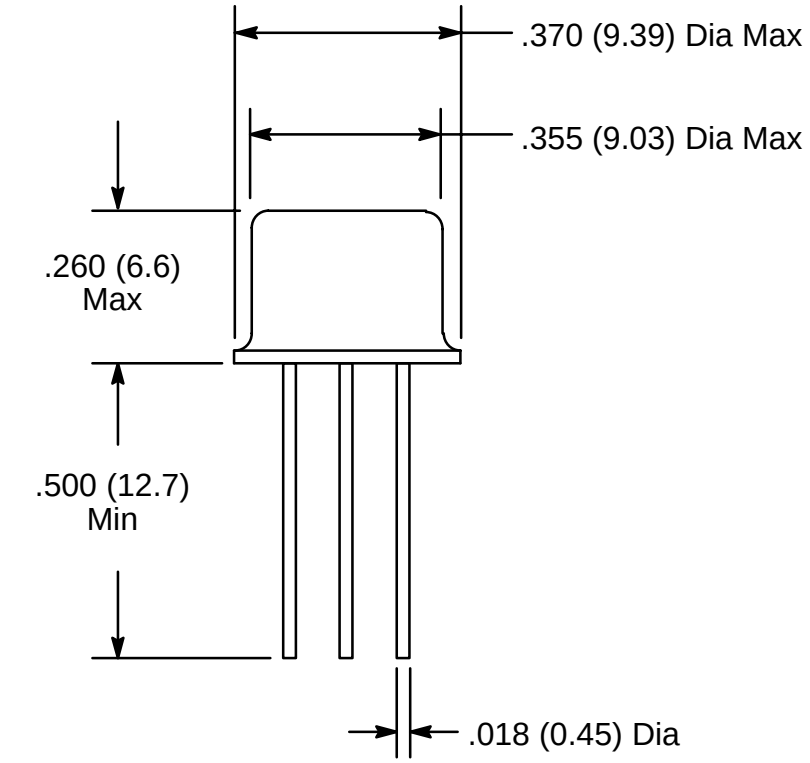
Collector–Emitter Voltage, $V_{CEO}$ . . . . . 20V
Collector–Base Voltage, $V_{CBO}$ . . . . . 35V
Emitter–Base Voltage, $V_{EBO}$ . . . . . 4V
Continuous Collector Current, $I_C$ . . . . . 150mA
Total Device Dissipation ($T_C$ = +25°C), $P_D$ . . . . . 2.5W
Derate Above 25°C . . . . . 14.3mW/°C
Storage Temperature Range, $T_{stg}$ . . . . . –65° to +200°C

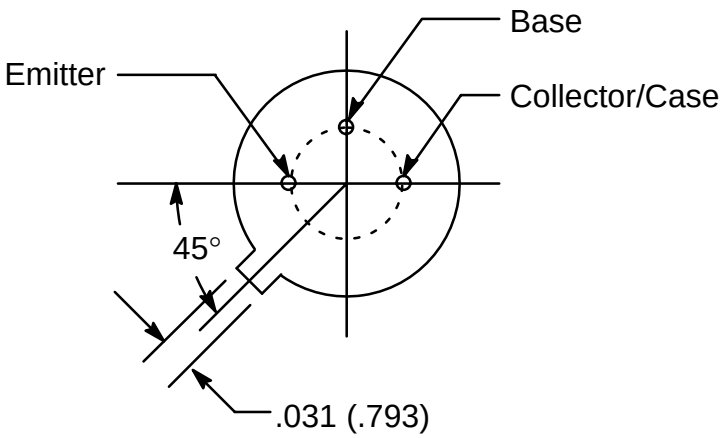
**Electrical Characteristics:** ($T_C$ = +25°C unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **OFF Characteristics** | | | | | | |
| Collector–Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$ = 5mA, $I_B$ = 0 | 20 | – | – | V |
| Collector–Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C$ = 100μA, $I_E$ = 0 | 35 | – | – | V |
| Emitter–Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E$ = 100μA, $I_C$ = 0 | 4 | – | – | V |
| Collector Cutoff Current | $I_{CEO}$ | $V_{CE}$ = 15V, $I_B$ = 0 | – | – | 10 | μA |
| **ON Characteristics** | | | | | | |
| DC Current Gain | $h_{FE}$ | $V_{CE}$ = 10V, $I_C$ = 50mA | 20 | 60 | 150 | |
| Collector–Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$ = 50mA, $I_B$ = 5mA | – | – | 0.5 | V |

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Dynamic Characteristics** | | | | | | |
| Current Gain–Bandwidth Product | $f_T$ | $V_{CE}$ = 10V, $I_C$ = 100mA, f = 200MHz | 1800 | 2000 | – | MHz |
| Output Capacitance | $C_{ob}$ | $V_{CB}$ = 12.5V, $I_E$ = 0, f = 1MHz | – | 3.5 | 4.0 | pF |
| **Functional Tests** | | | | | | |
| Common–Emitter Amplifier Power Gain | $G_{PE}$ | $V_{CC}$ = 12.5V, $P_O$ = 0.75W, f = 470MHz | 8.0 | 8.5 | – | dB |
| Collector Efficiency | $\eta$ | | 50 | 70 | – | % |
| Series Equivalent Input Impedance | $Z_{in}$ | | – | 14+j4.0 | – | Ω |
| Series Equivalent Output Impedance | $Z_{out}$ | | – | 28–j38 | – | Ω |



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