

**NTE319P**  
**Silicon NPN Transistor**  
**VHF Amp <sup>w</sup>/Forward AGC**

**Absolute Maximum Ratings:**

|  |                                     |
|--|-------------------------------------|
| Collector–Emitter Voltage, $V_{CEO}$ .....   | 20V                                 |
| Collector–Base Voltage, $V_{CBO}$ .....  | 20V                                 |
| Emitter–Base Voltage, $V_{EBO}$ .....  | 3V                                  |
| Collector Current, $I_C$ .....   | 50mA                                |
| Total Power Dissipation ( $T_A = +25^\circ\text{C}$ ), $P_T$ .....                   | 625mW                               |
| Derate above $+25^\circ\text{C}$ .....   | 5mW/ $^\circ\text{C}$               |
| Operating Junction Temperature, $T_J$ .....  | $+150^\circ\text{C}$                |
| Storage Temperature Range, $T_{stg}$ .....   | $-55^\circ$ to $+150^\circ\text{C}$ |
| Lead Temperature (During Soldering, 1/16" $\pm$ 1/32" from case, 10sec), $T_L$ ..... | $+230^\circ\text{C}$                |

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

| Parameter                            | Symbol         | Test Conditions   | Min | Typ  | Max  | Unit |
|--------------------------------------|----------------|---|-----|------|------|------|
| Collector–Base Breakdown Voltage     | $V_{(BR)CBO}$  | $I_C = 100\mu\text{A}$ , $I_E = 0$                                  | 20  | –    | –    | V    |
| Emitter–Base Breakdown Voltage       | $V_{(BR)EBO}$  | $I_E = 100\mu\text{A}$ , $I_C = 0$                                  | 3   | –    | –    | V    |
| Collector Cutoff Current             | $I_{CBO}$      | $V_{CB} = 20\text{V}$ , $I_E = 0$                                   | –   | –    | 50   | nA   |
| DC Current Gain                      | $h_{FE}$       | $I_C = 2\text{mA}$ , $V_{CE} = 10\text{V}$                          | 20  | 80   | 220  |      |
| Collector Saturation Voltage         | $V_{CE(sat)}$  | $I_C = 10\text{mA}$ , $I_B = 5\text{mA}$                            | –   | –    | 2.75 | V    |
| Collector–Emitter Sustaining Voltage | $V_{CEO(sus)}$ | $I_C = 1\text{mA}$ , $I_B = 0$                                      | 20  | –    | –    | V    |
| Current Gain–Bandwidth Product       | $f_T$          | $I_C = 2\text{mA}$ , $V_{CE} = 10\text{V}$ ,<br>$f = 100\text{MHz}$ | 300 | –    | 500  | MHz  |
| Power Gain                           | $G_{pe}$       | $V_{BE} = 2\text{V}$ , $f = 45\text{MHz}$                           | 27  | 29   | –    | dB   |
| Capacitance                          | $C_{cb}$       | $I_E = 0$ , $V_{CB} = 10\text{V}$ , $f = 1\text{MHz}$               | –   | 0.13 | 0.22 | pF   |
| Noise Figure                         | NF             | $V_{BE} = 2\text{V}$ , $f = 45\text{MHz}$                           | –   | 2.7  | 5.0  | dB   |

