

## NTE160 Germanium PNP Transistor RF-IF Amp, FM Mixer OSC

### Description:

The NTE160 is a germanium mesa PNP transistor in a TO72 metal case designed for use as a preamplifier mixer and oscillator up to 900MHz.

### Absolute Maximum Ratings:

|  |               |
|--|---------------|
| Collector-Emitter Voltage ( $V_{BE} = 0$ ), $V_{CES}$ .....            | 20V           |
| Collector-Emitter Voltage, ( $I_B = 0$ ), $V_{CEO}$ .....              | 16V           |
| Emitter-Base Voltage ( $I_C = 0$ ), $V_{EBO}$ .....                    | 0.3V          |
| Collector Current, $I_C$ .....   | 10mA          |
| Total Power Dissipation ( $T_A = +45^\circ\text{C}$ ), $P_{tot}$ ..... | 60mW          |
| Operating Junction Temperature, $T_J$ .....                            | +90°C         |
| Storage Temperature Range, $T_{stg}$ .....                             | -30° to +75°C |
| Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....                 | 400°C/W max   |
| Thermal Resistance, Junction-to-Ambient, $R_{thJA}$ .....              | 750°C/W max   |

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

| Parameter                | Symbol    | Test Conditions  | Min | Typ  | Max  | Unit          |
|--------------------------|-----------|--|-----|------|------|---------------|
| Collector Cutoff Current | $I_{CES}$ | $V_{CE} = -20V, V_{BE} = 0$  | -   | -    | -8   | $\mu\text{A}$ |
|                          | $I_{CEO}$ | $V_{CE} = -15V, I_B = 0$   | -   | -    | -500 | $\mu\text{A}$ |
| Emitter Cutoff Current   | $I_{EBO}$ | $V_{EB} = -0.3V, I_C = 0$  | -   | -    | -100 | $\mu\text{A}$ |
| Base-Emitter Voltage     | $V_{BE}$  | $I_C = -2\text{mA}, V_{CE} = -10V$   | -   | -350 | -    | mV            |
|                          |           | $I_C = -5\text{mA}, V_{CE} = -5V$  | -   | -400 | -    | mV            |
| DC Current Gain          | $h_{FE}$  | $I_C = -2\text{mA}, V_{CE} = -10V$   | -   | 50   | -    |               |
|                          |           | $I_C = -5\text{mA}, V_{CE} = -5V$  | -   | 42   | -    |               |
| Transition Frequency     | $f_T$     | $I_C = -2\text{mA}, V_{CE} = -10V, f = 100\text{MHz}$                        | -   | 700  | -    | MHz           |
| Reverse Capacitance      | $-C_{re}$ | $I_C = -2\text{mA}, V_{CE} = -10V, f = 450\text{kHz}$                        | -   | 0.23 | -    | pF            |
| Noise Figure             | NF        | $I_C = -2\text{mA}, V_{CE} = -10V, R_g = 60\Omega, f = 800\text{MHz}$        | -   | 5    | 6    | dB            |
| Power Gain               | $G_{pb}$  | $I_C = -2\text{mA}, V_{CE} = -10V, R_L = 2\text{k}\Omega, f = 800\text{MHz}$ | 11  | 14   | -    | dB            |

