

# NPN Bipolar Transistor

**multicomp** PRO



Low noise tuned amplifiers

**RoHS  
Compliant**

## Absolute Maximum Ratings

| Description  | Symbol         | Value       | Unit                        |
|--|----------------|-------------|-----------------------------|
| Collector-Base Voltage   | $V_{CB0}$      | 20          | V                           |
| Collector-Emitter Voltage  | $V_{CEO}$      | 12          | V                           |
| Emitter Base Voltage   | $V_{EBO}$      | 2.5         | V                           |
| Collector Current  | $I_C$          | 50          | mA                          |
| Power Dissipation at $T_A = 25^\circ\text{C}$<br>at $T_c = 25^\circ\text{C}$ | $P_{tot}$<br>- | 200<br>300  | mW                          |
| Operating and Storage Junction   | $T_J, T_{STG}$ | -65 to +200 | $^\circ\text{C}$            |
| Junction to Case   | $R_{th(j-c)}$  | 583         | $^\circ\text{C} / \text{W}$ |
| Junction to Ambient  | $R_{th(j-a)}$  | 875         | $^\circ\text{C} / \text{W}$ |

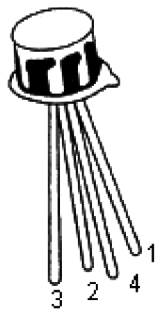
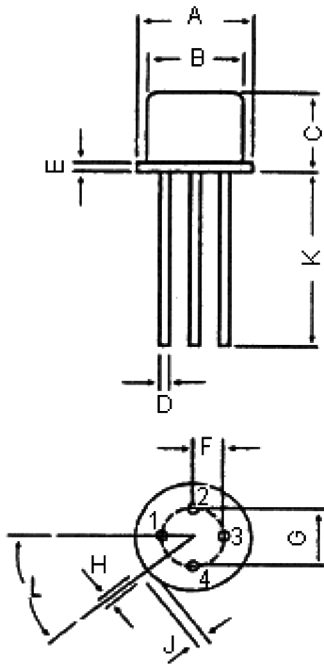
## Electrical Characteristics ( $T_A = 25^\circ\text{C}$ Unless Otherwise Specified)

| Description                            | Symbol            | Test Condition  | Min. | Max.  | Unit          |
|--|-------------------|---|------|-------|---------------|
| Collector Cut off Current              | $I_{CBO}$         | $V_{CB} = 15\text{V}, I_E = 0, T_A = 150^\circ\text{C}$       | -    | 20    | nA            |
|  |                   | $V_{CB} = 15\text{V}, I_E = 0$                                | -    | 1     | $\mu\text{A}$ |
| Collector-Base Voltage                 | $V_{CB0}$         | $I_C = 1\mu\text{A}, I_E = 0$                                 | 20   | -     | V             |
| Collector-Emitter Voltage              | $V_{CEO(sus)}$    | $I_C = 3\text{mA}, I_B = 0$                                   | 12   | -     | V             |
| Emitter Base Voltage                   | $V_{EBO}$         | $I_E = 10\mu\text{A}, I_C = 0$                                | 2.5  | -     | V             |
| Collector Emitter Saturation Voltage   | $V_{CE(sat)}$     | $I_C = 10\text{mA}, I_B = 1\text{mA}$                         | -    | 0.4   | V             |
| Base Emitter Saturation Voltage        | $V_{BE(sat)}$     | $I_C = 10\text{mA}, I_B = 1\text{mA}$                         | -    | 1     | V             |
| DC Current Gain                        | $h_{FE}$          | $I_C = 3\text{mA}, V_{CE} = 1\text{V}$                        | 25   | 250   | -             |
| <b>Dynamic Characteristics</b>         |                   |   |      |       |               |
| Forward Current Transfer Ratio         | $h_{fe}$          | $I_C = 2\text{mA}, V_{CE} = 6\text{V}, f = 1\text{kHz}$       | 25   | 300   | -             |
|  | $f_t$             | $I_C = 5\text{mA}, V_{CE} = 6\text{V}, f = 100\text{MHz}$     | 900  | 2,000 | MHz           |
| Out-Put Capacitance                    | $C_{ob}$          | $V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$               | -    | 1     | pF            |
| In-Put Capacitance                     | $C_{ib}$          | $V_{EB} = 0.5\text{V}, I_C = 0, f = 1\text{MHz}$              | -    | 2     | pF            |
| Collector Base Time Constant           | $r_{bb'} C_{b'c}$ | $I_C = 2\text{mA}, V_{CE} = \text{V}, f = 31.9\text{MHz}$     | 3    | 14    | ps            |
| Small-Signal Power Gain                | $G_p$             | $I_C = 5\text{mA}, V_{CE} = 12\text{V}, f = 200\text{MHz}$    | 15   | -     | dB            |
| Common Emitter Oscillator Power Output | $P_o$             | $I_E = -12\text{mA}, V_{CB} = 10\text{V}, f = >500\text{MHz}$ | 20   | -     | mW            |

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## TO-72 Metal Can Package



### Pin Configuration

1. Emitter
2. Base
3. Collector
4. Case

| Diameter | Min. | Max. |
|----------|------|------|
| A        | 5.24 | 5.84 |
| B        | 4.52 | 4.95 |
| C        | 4.31 | 5.33 |
| D        | 0.4  | 0.53 |
| E        | -    | 0.76 |
| F        | 1.14 | 1.39 |
| G        | 2.28 | 2.97 |
| H        | 0.91 | 1.17 |
| J        | 0.71 | 1.22 |
| K        | 12.7 | -    |
| L        | 12°  | 48°  |

### Part Number Table

| Description                               | Part Number |
|---|-------------|
| NPN Bipolar Transistor, 12V, 900MHz, 20mW | 2N5179-NRC  |

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