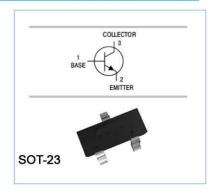


## **NPN Silicon Epitaxial Planar Transistor**

for switching and AF amplifier applications



Absolute Maximum Ratings (T<sub>a</sub> = 25 °C)

| Parameter                 | Symbol           | Value         | Unit |  |
|---------------------------|------------------|---------------|------|--|
| Collector Base Voltage    | V <sub>CBO</sub> | 50            | ٧    |  |
| Collector Emitter Voltage | V <sub>CEO</sub> | 45            | ٧    |  |
| Emitter Base Voltage      | V <sub>EBO</sub> | 5             | V    |  |
| Collector Current         | Ic               | 100           | mA   |  |
| Power Dissipation         | P <sub>tot</sub> | 200           | mW   |  |
| Junction Temperature      | T <sub>j</sub>   | 150           | °C   |  |
| Storage Temperature Range | Ts               | - 55 to + 150 | °C   |  |

Characteristics at T<sub>a</sub> = 25 °C

| Parameter  | Symbol               | Min. | Max. | Unit |
|--|----------------------|------|------|------|
| DC Current Gain at V <sub>CE</sub> = 5 V, I <sub>C</sub> = 1 mA                            | h <sub>FE</sub>      | 200  | 450  | -    |
| Collector Cutoff Current at V <sub>CB</sub> = 50 V   | I <sub>CBO</sub>     | -    | 50   | nA   |
| Emitter Cutoff Current at V <sub>EB</sub> = 5 V  | I <sub>EBO</sub>     | -    | 50   | nA   |
| Collector Base Breakdown Voltage at I <sub>C</sub> = 100 µA                                | V <sub>(BR)CBO</sub> | 50   | -    | ٧    |
| Collector Emitter Breakdown Voltage at I <sub>C</sub> = 1 mA                               | V <sub>(BR)CEO</sub> | 45   | -    | ٧    |
| Emitter Base Breakdown Voltage at I <sub>E</sub> = 100 µA                                  | V <sub>(BR)EBO</sub> | 5    | -    | ٧    |
| Collector Emitter Saturation Voltage at I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5 mA     | V <sub>CE(sat)</sub> | -    | 0.6  | ٧    |
| Base Emitter Saturation Voltage at $I_C$ = 100 mA, $I_B$ = 5 mA                            | V <sub>BE(sat)</sub> | -    | 1    | ٧    |
| Gain Bandwidth Product<br>at $V_{CE} = 5 \text{ V}$ , $I_{C} = 10 \text{ mA}$              | f <sub>T</sub>       | 100  | -    | MHz  |
| Output Capacitance<br>at V <sub>CB</sub> = 10 V, f = 1 MHz                                 | Сов                  | -    | 6    | pF   |
| Noise Figure at $V_{CE}$ = 5 V, $I_{C}$ = 200 $\mu$ A, $f$ = 1 KHz, $R_{G}$ = 2 K $\Omega$ | NF                   | .=   | 10   | dB   |

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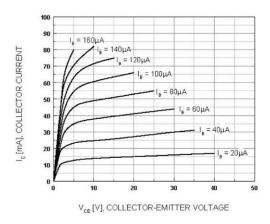


Figure 1. Static Characteristic

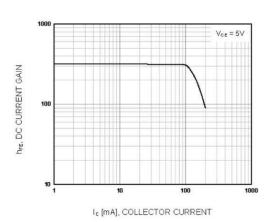


Figure 2. DC current Gain

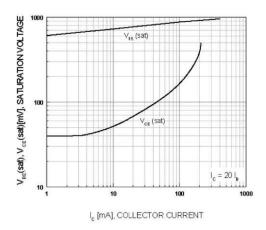


Figure 3. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

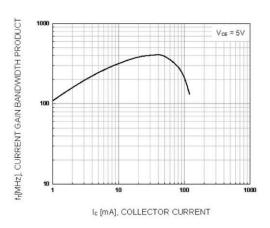


Figure 4. Current Gain Bandwidth Product



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