## NPN Silicon Epitaxial Planar Transistor

for switching and AF amplifier applications.

The transistor is subdivided into four groups, O, Y, G and L , according to its DC current gain.

On special request, these transistors can be manufactured in different pin configurations.


## 1. Emitter 2. Collector 3. Base

TO-92 Plastic Package
Weight approx. 0.19g

Absolute Maximum Ratings $\left(\mathrm{T}_{\mathrm{a}}=25^{\circ} \mathrm{C}\right)$

|  | Symbol | Value | Unit |
| :--- | :---: | :---: | :---: |
| Collector Base Voltage | $\mathrm{V}_{\text {CBO }}$ | 60 | V |
| Collector Emitter Voltage | $\mathrm{V}_{\text {CEO }}$ | 50 | V |
| Emitter Base Voltage | $\mathrm{V}_{\text {EBO }}$ | 5 | V |
| Collector Current | $\mathrm{I}_{\mathrm{C}}$ | 150 | mA |
| Base Current | $\mathrm{I}_{\mathrm{B}}$ | 50 | mA |
| Power Dissipation | $\mathrm{P}_{\text {tot }}$ | 500 | mW |
| Junction Temperature | $\mathrm{T}_{\mathrm{j}}$ | 125 | ${ }^{\circ} \mathrm{C}$ |
| Storage Temperature Range | $\mathrm{T}_{\mathrm{S}}$ | -55 to +125 | ${ }^{\circ} \mathrm{C}$ |

Characteristics at $\mathrm{T}_{\mathrm{amb}}=25^{\circ} \mathrm{C}$

|  | Symbol | Min. | Typ. | Max. | Unit |
| :---: | :---: | :---: | :---: | :---: | :---: |
| DC Current Gain <br> at $\mathrm{V}_{\mathrm{CE}}=6 \mathrm{~V}, \mathrm{I}_{\mathrm{C}}=2 \mathrm{~mA}$ <br> Current Gain Group <br> at $\mathrm{V}_{\mathrm{CE}}=6 \mathrm{~V}, \mathrm{I}_{\mathrm{C}}=150 \mathrm{~mA}$ | $\begin{aligned} & \mathrm{h}_{\mathrm{FE}} \\ & \mathrm{~h}_{\mathrm{FE}} \\ & \mathrm{~h}_{\mathrm{FE}} \\ & \mathrm{~h}_{\mathrm{FE}} \\ & \mathrm{~h}_{\mathrm{FE}} \end{aligned}$ | $\begin{gathered} 70 \\ 120 \\ 200 \\ 350 \\ 25 \end{gathered}$ | $100$ | $\begin{aligned} & 140 \\ & 240 \\ & 400 \\ & 700 \end{aligned}$ |  |
| Collector Emitter Saturation Voltage at $I_{C}=100 \mathrm{~mA}, I_{B}=10 \mathrm{~mA}$ | $\mathrm{V}_{\text {CE(sat) }}$ | - | 0.1 | 0.25 | V |
| Base Emitter Saturation Voltage <br> at $I_{C}=100 \mathrm{~mA}, I_{\mathrm{B}}=10 \mathrm{~mA}$ | $V_{\text {BE(sat) }}$ | - | - | 1 | V |
| Collector Cutoff Current at $\mathrm{V}_{\mathrm{CB}}=60 \mathrm{~V}$ | $\mathrm{I}_{\text {cво }}$ | - | - | 0.1 | $\mu \mathrm{A}$ |
| Emitter Cutoff Current at $\mathrm{V}_{\mathrm{EB}}=5 \mathrm{~V}$ | $\mathrm{I}_{\text {Ebo }}$ | - | - | 0.1 | $\mu \mathrm{A}$ |
| Transition Frequency at $\mathrm{V}_{\mathrm{CE}}=10 \mathrm{~V}, \mathrm{I}_{\mathrm{E}}=1 \mathrm{~mA}$ | $\mathrm{f}_{T}$ | 80 | - | - | MHz |
| Collector Output Capacitance <br> at $\mathrm{V}_{\mathrm{CB}}=10 \mathrm{~V}, \mathrm{f}=1 \mathrm{MHz}$ | $\mathrm{Cob}^{\text {о }}$ | - | 2 | 3.5 | pF |
| Base Intrinsic Resistance <br> at $\mathrm{V}_{\mathrm{CB}}=10 \mathrm{~V} \mathrm{I}_{\mathrm{C}}=1 \mathrm{~mA}, \mathrm{f}=30 \mathrm{MHz}$ | Rbb' | - | 50 | - | $\Omega$ |
| Noise Figure $\begin{aligned} \text { at } V_{C E}=6 \mathrm{~V}, \mathrm{I}_{\mathrm{C}}=0.1 \mathrm{Ma} \\ \mathrm{f}=1 \mathrm{KHz}, \mathrm{R}_{\mathrm{G}}=10 \mathrm{~K} \Omega \end{aligned}$ | NF | - | 1 | 10 | dB |

