# 2SC3199 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

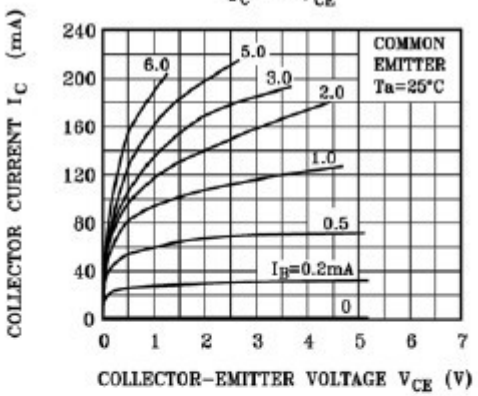
## Absolute Maximum Ratings ($T_a$ = 25 °C)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Collector Base Voltage | $V_{CBO}$ | 50 | V |
| Collector Emitter Voltage | $V_{CEO}$ | 50 | V |
| Emitter Base Voltage | $V_{EBO}$ | 5 | V |
| Collector Current | $I_C$ | 150 | mA |
| Emitter Current | $I_E$ | -150 | mA |
| Power Dissipation | $P_{tot}$ | 400 | mW |
| Junction Temperature | $T_j$ | 150 | °C |
| Storage Temperature Range | $T_{stg}$ | - 55 to + 150 | °C |

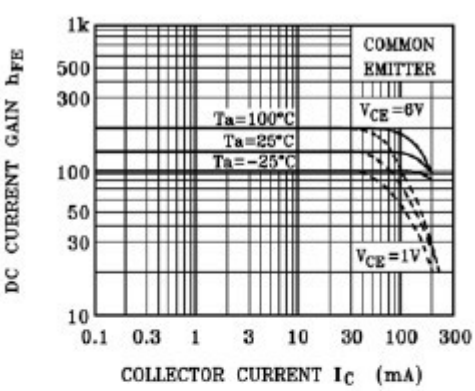
## Characteristics at $T_a$ = 25 °C

| Parameter | | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| DC Current Gain at $V_{CE}$ = 6 V, $I_C$ = 2 mA | Current Gain Group O | $h_{FE}$ | 70 | - | 140 | - |
| | Y | $h_{FE}$ | 120 | - | 240 | - |
| | G | $h_{FE}$ | 200 | - | 400 | - |
| | L | $h_{FE}$ | 350 | - | 700 | - |
| Collector Base Cutoff Current at $V_{CB}$ = 50 V | | $I_{CBO}$ | - | - | 0.1 | µA |
| Emitter Base Cutoff Current at $V_{EB}$ = 5 V | | $I_{EBO}$ | - | - | 0.1 | µA |
| Collector Emitter Saturation Voltage at $I_C$ = 100 mA, $I_B$ = 10 mA | | $V_{CE(sat)}$ | - | 0.1 | 0.25 | V |
| Transition Frequency at $V_{CE}$ = 10 V, $I_C$ = 1 mA | | $f_T$ | 80 | - | - | MHz |
| Collector Output Capacitance at $V_{CB}$ = 10 V, f = 1 MHz | | $C_{ob}$ | - | 2 | 3.5 | pF |
| Noise Figure at $V_{CE}$ = 6 V, $I_C$ = 0.1 mA, f = 1 KHz, $R_G$ = 10 KΩ | | NF | - | 1 | 10 | dB |

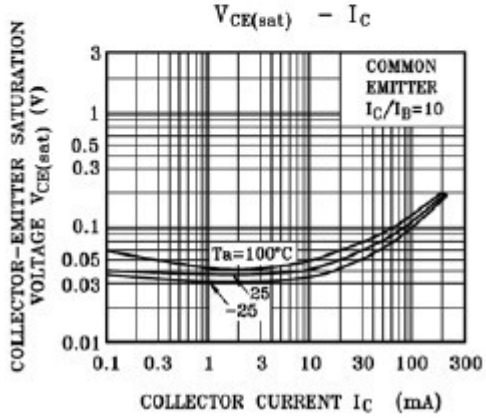
$I_C - V_{CE}$



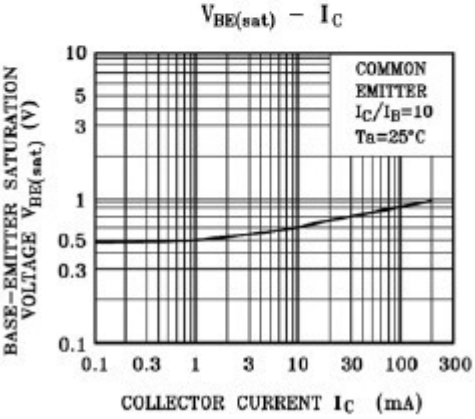

$h_{FE} - I_C$



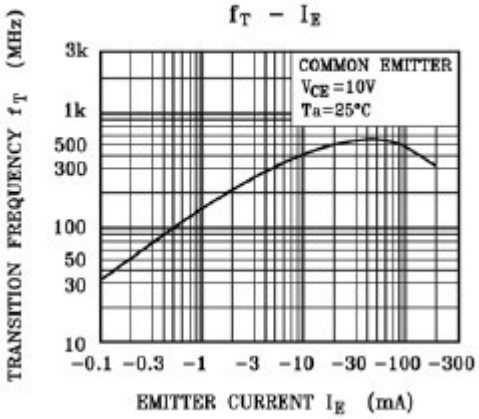

$V_{CE(sat)} - I_C$



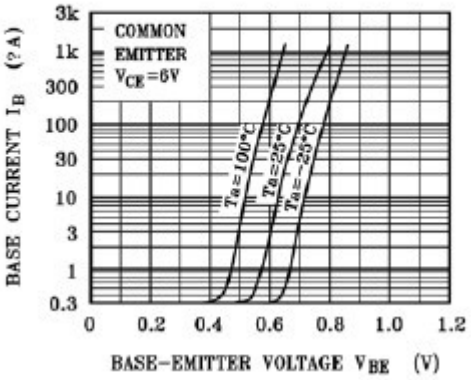

$V_{BE(sat)} - I_C$




$f_T - I_E$




$I_B - V_{BE}$




$P_C - Ta$