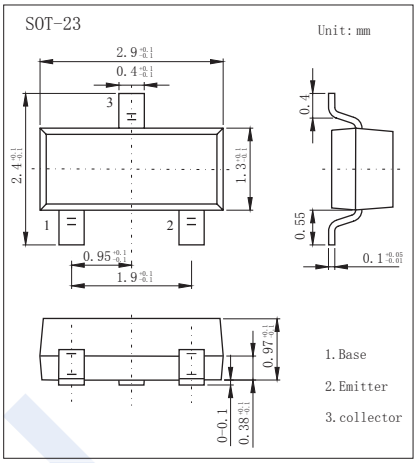
# NPN Transistors

# 2SC2295-HF




## ■ Features

- High transition frequency fT.
- Complementary to 2SA1022-HF
- Pb−Free Package May be Available. The G−Suffix Denotes a Pb−Free Lead Finish

## ■ Absolute Maximum Ratings Ta = 25℃

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector - Base Voltage | $V_{CBO}$ | 30 | V |
| Collector - Emitter Voltage | $V_{CEO}$ | 20 | |
| Emitter - Base Voltage | $V_{EBO}$ | 5 | |
| Collector Current - Continuous | $I_C$ | 30 | mA |
| Collector Power Dissipation | $P_C$ | 200 | mW |
| Junction Temperature | $T_J$ | 150 | ℃ |
| Storage Temperature Range | $T_{stg}$ | -55 to 150 | |

## ■ Electrical Characteristics Ta = 25℃

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector- base breakdown voltage | $V_{CBO}$ | $I_C$= 100 μA, $I_E$= 0 | 30 | | | V |
| Collector- emitter breakdown voltage | $V_{CEO}$ | $I_C$= 1 mA, $I_B$= 0 | 20 | | | |
| Emitter - base breakdown voltage | $V_{EBO}$ | $I_E$= 100 μ A, $I_C$= 0 | 5 | | | |
| Collector-base cut-off current | $I_{CBO}$ | $V_{CB}$= 30 V , $I_E$= 0 | | | 100 | nA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$= 5V , $I_C$=0 | | | 100 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=-10 mA, $I_B$=1mA | | | 0.2 | V |
| Base - emitter saturation voltage | $V_{BE(sat)}$ | $I_C$=-10 mA, $I_B$=1mA | | | 1.2 | |
| DC current gain | $h_{FE}$ | $V_{CE}$= -10V, $I_C$= -1mA | 70 | | 220 | |
| Noise figure | NF | $V_{CB}$ = 10V, $I_E$ = –1mA, f= 5MHz | | 2.8 | 4 | dB |
| Reverse transfer impedance | $Z_{rd}$ | $V_{CB}$ = 10V, $I_E$ = –1mA, f= 2MHz | | 22 | 50 | Ω |
| Common emitter reverse transfer capacitance | $C_{re}$ | $V_{CE}$= 10V, $I_C$= 1mA,f=10.7MHz | | | 1.5 | pF |
| Transition frequency | $f_T$ | $V_{CB}$= 10V, $I_E$= -1mA,f=200MHz | 150 | 250 | | MHz |

## ■ Classification of $h_{fe}$

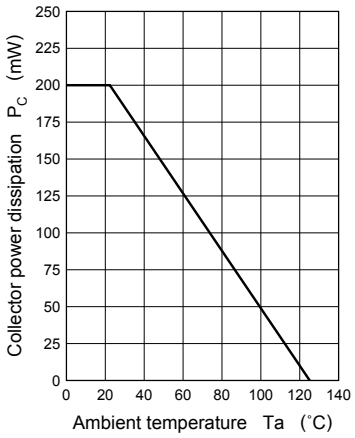
| Type | 2SC2295-B-HF | 2SC2295-C-HF |
|---|---|---|
| Range | 70-140 | 110-220 |
| Marking | VB F | VC F |

# NPN Transistors

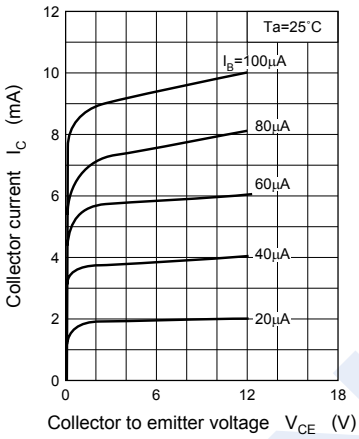
# 2SC2295-HF

■ Typical Characterisitics

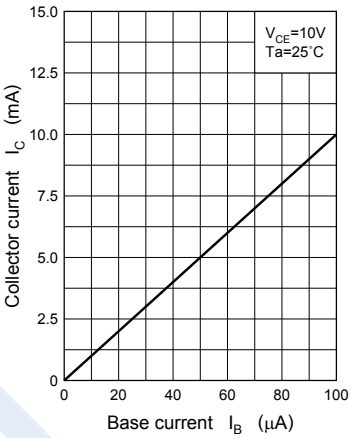
$P_C$ — Ta



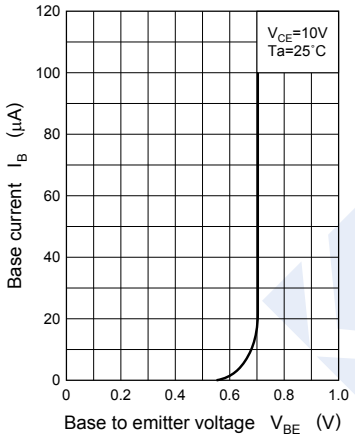

$I_C$ — $V_{CE}$



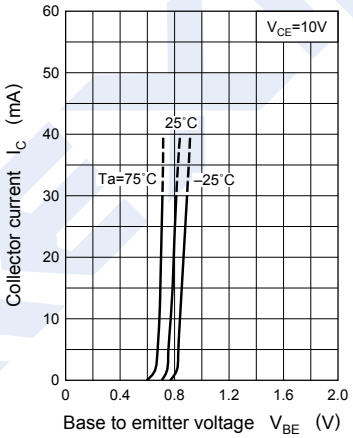

$I_C$ — $I_B$



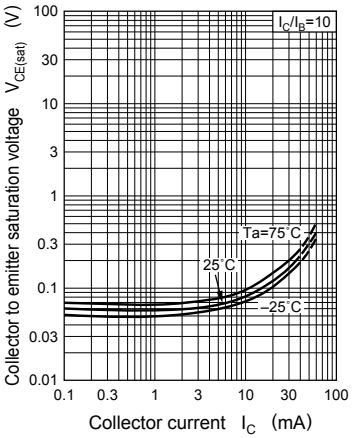

$I_B$ — $V_{BE}$



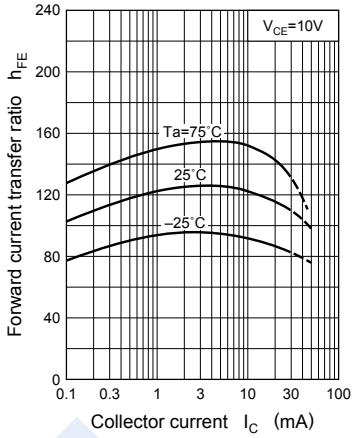

$I_C$ — $V_{BE}$



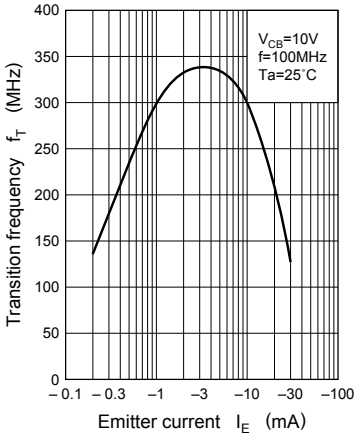

$V_{CE(sat)}$ — $I_C$



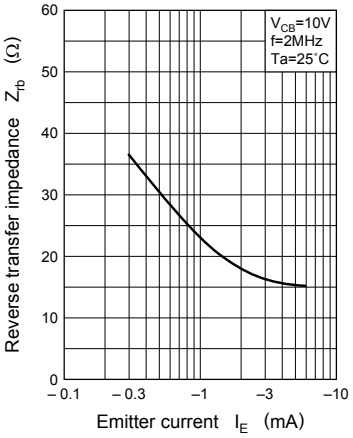

$h_{FE}$ — $I_C$




$f_T$ — $I_E$




$Z_{rb}$ — $I_E$

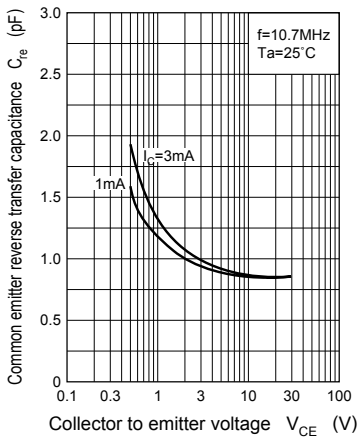


# NPN Transistors

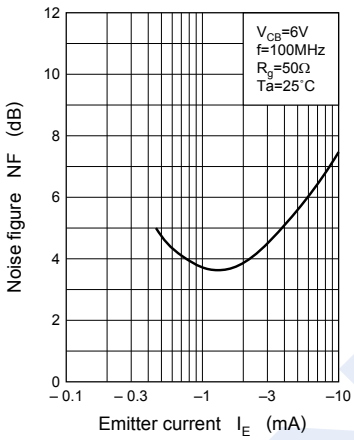
# 2SC2295-HF

■ Typical Characterisitics

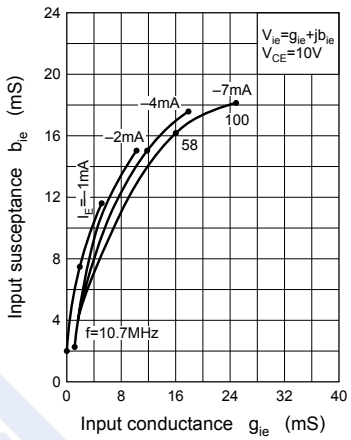
$C_{re}$ — $V_{CE}$



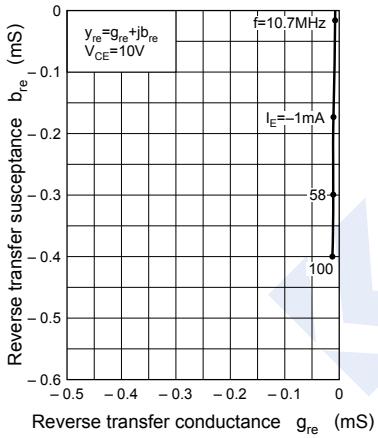

NF — $I_E$



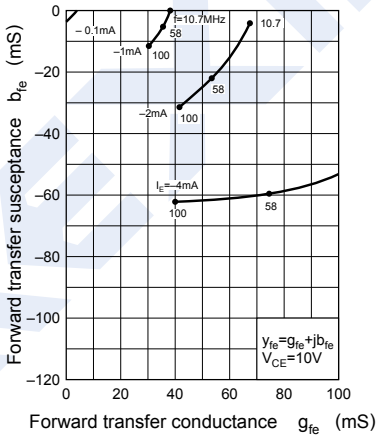

$b_{ie}$ — $g_{ie}$




$b_{re}$ — $g_{re}$




$b_{fe}$ — $g_{fe}$




$b_{oe}$ — $g_{oe}$

