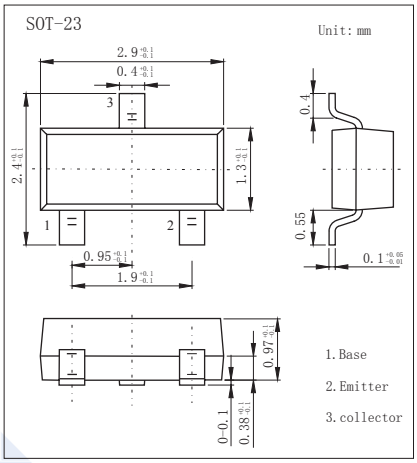
# NPN Transistors

# 2SC2859




## ■ Features

- Excellent $h_{FE}$ Linearity:
  hFE(2)=25(min) ($V_{CE}$=6V,$I_C$=400mA)
- Complementary to 2SA1182

## ■ Absolute Maximum Ratings Ta = 25℃

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector - Base Voltage | $V_{CBO}$ | 35 | V |
| Collector - Emitter Voltage | $V_{CEO}$ | 30 | |
| Emitter - Base Voltage | $V_{EBO}$ | 5 | |
| Collector Current - Continuous | $I_C$ | 500 | mA |
| Base Current | $I_B$ | 50 | |
| Collector Power Dissipation | $P_C$ | 150 | mW |
| Junction Temperature | $T_J$ | 125 | ℃ |
| Storage Temperature Range | $T_{stg}$ | -55 to 125 | |

## ■ 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 | 35 | | | V |
| Collector- emitter breakdown voltage | $V_{CEO}$ | $I_C$= 1 mA, $I_B$= 0 | 30 | | | |
| Emitter - base breakdown voltage | $V_{EBO}$ | $I_E$= 100 μA, $I_C$= 0 | 5 | | | |
| Collector-base cut-off current | $I_{CBO}$ | $V_{CB}$= 35V , $I_E$= 0 | | | 0.1 | uA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$= 5V , $I_C$=0 | | | 0.1 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=100 mA, $I_B$=10mA | | 0.1 | 0.25 | V |
| Base - emitter saturation voltage | $V_{BE(sat)}$ | $I_C$=100 mA, $I_B$=10mA | | | 1.2 | |
| Base - emitter voltage | $V_{BE}$ | $V_{CE}$= 1V, $I_C$= 100mA | | 0.8 | 1 | |
| DC current gain | $h_{FE(1)}$ | $V_{CE}$= 1V, $I_C$= 100mA | 70 | | 400 | |
| | $h_{FE(2)}$ | $V_{CE}$= 6V, $I_C$= 400mA O | 25 | | | |
| | | Y | 40 | | | |
| | | G | 70 | | | |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$= 6V, $I_E$= 0,f=1MHz | | 7 | | pF |
| Transition frequency | $f_T$ | $V_{CE}$= 6V, $I_C$= 20mA | | 300 | | MHz |

## ■ Classification of $h_{fe(1)}$

| Type | 2SC2859-O | 2SC2859-Y | 2SC2859-G |
|---|---|---|---|
| Range | 70-140 | 120-240 | 200-400 |
| Marking | WO | WY | WG |

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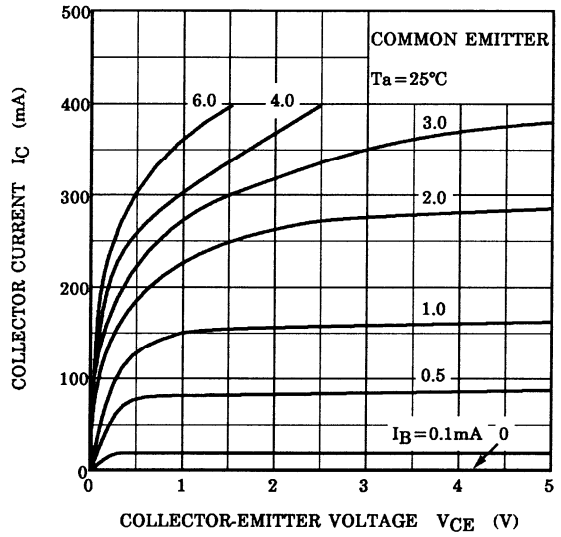
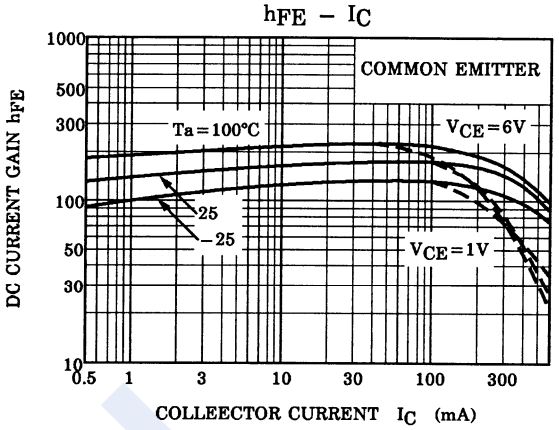
## 2SC2859

■ Typical Characterisitics

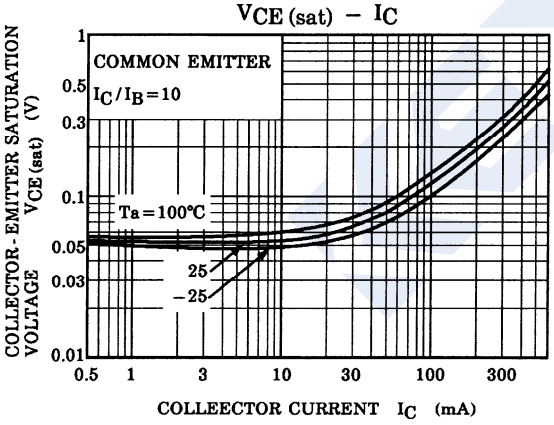
$I_C$ – $V_{CE}$



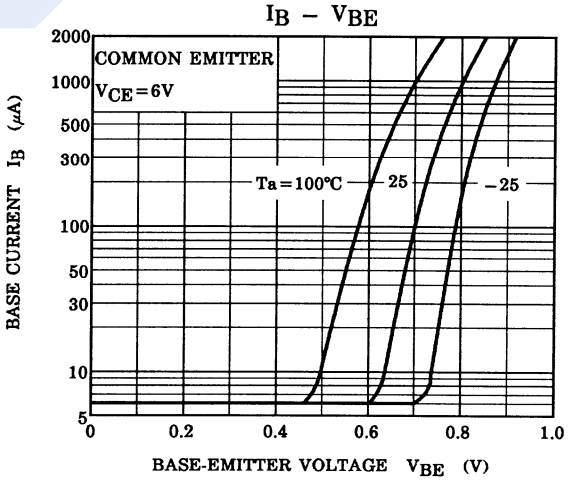

$h_{FE}$ – $I_C$




$V_{CE\,(sat)}$ – $I_C$




$I_B$ – $V_{BE}$




$P_C$ – Ta

