

Silicon PNP Power Transistors

2SB1155

DESCRIPTION

- With TO-3PFa package
- Complement to type 2SD1706
- Low collector saturation voltage
- Satisfactory linearity of  $h_{FE}$

APPLICATIONS

- For power switching applications

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | Base        |
| 2   | Collector   |
| 3   | Emitter     |

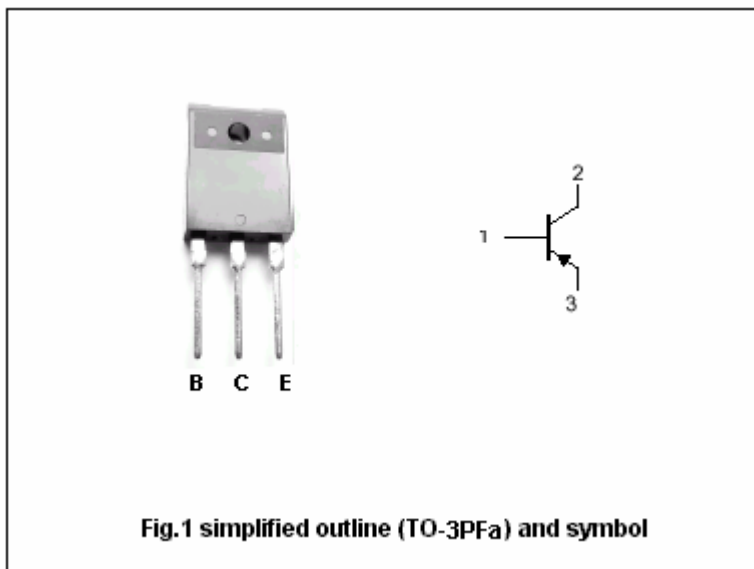


Fig.1 simplified outline (TO-3PFa) and symbol

Absolute maximum ratings( $T_a=25^\circ\text{C}$ )

| SYMBOL    | PARAMETER                   | CONDITIONS             | VALUE   | UNIT             |
|-----------|-----------------------------|------------------------|---------|------------------|
| $V_{CBO}$ | Collector-base voltage      | Open emitter           | -130    | V                |
| $V_{CEO}$ | Collector-emitter voltage   | Open base              | -80     | V                |
| $V_{EBO}$ | Emitter-base voltage        | Open collector         | -7      | V                |
| $I_C$     | Collector current           |                        | -15     | A                |
| $I_{CM}$  | Collector current-peak      |                        | -25     | A                |
| $P_C$     | Collector power dissipation | $T_C=25^\circ\text{C}$ | 80      | W                |
|           |                             | $T_a=25^\circ\text{C}$ | 3       |                  |
| $T_j$     | Junction temperature        |                        | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage temperature         |                        | -55~150 | $^\circ\text{C}$ |

## Silicon PNP Power Transistors

## 2SB1155

## CHARACTERISTICS

T<sub>j</sub>=25 °C unless otherwise specified

| SYMBOL               | PARAMETER                            | CONDITIONS  | MIN | TYP. | MAX  | UNIT |
|----------------------|--------------------------------------|---|-----|------|------|------|
| V <sub>(BR)CEO</sub> | Collector-emitter breakdown voltage  | I <sub>C</sub> =-10mA ; I <sub>B</sub> =0               | -80 |      |      | V    |
| V <sub>CEsat-1</sub> | Collector-emitter saturation voltage | I <sub>C</sub> =-7A ; I <sub>B</sub> =-0.35A            |     |      | -0.5 | V    |
| V <sub>CEsat-2</sub> | Collector-emitter saturation voltage | I <sub>C</sub> =-15A ; I <sub>B</sub> =-1.5A            |     |      | -1.5 | V    |
| V <sub>BEsat-1</sub> | Base-emitter saturation voltage      | I <sub>C</sub> =-7A ; I <sub>B</sub> =-0.35A            |     |      | -1.5 | V    |
| V <sub>BEsat-2</sub> | Base-emitter saturation voltage      | I <sub>C</sub> =-15A ; I <sub>B</sub> =-1.5A            |     |      | -2.5 | V    |
| I <sub>CBO</sub>     | Collector cut-off current            | V <sub>CB</sub> =-100V ; I <sub>E</sub> =0              |     |      | -10  | μA   |
| I <sub>EBO</sub>     | Emitter cut-off current              | V <sub>EB</sub> =-5V ; I <sub>C</sub> =0                |     |      | -50  | μA   |
| h <sub>FE-1</sub>    | DC current gain                      | I <sub>C</sub> =-0.1A ; V <sub>CE</sub> =-2V            | 45  |      |      |      |
| h <sub>FE-2</sub>    | DC current gain                      | I <sub>C</sub> =-3A ; V <sub>CE</sub> =-2V              | 90  |      | 260  |      |
| h <sub>FE-3</sub>    | DC current gain                      | I <sub>C</sub> =-8A ; V <sub>CE</sub> =-2V              | 30  |      |      |      |
| f <sub>T</sub>       | Transition frequency                 | I <sub>C</sub> =-0.5A ; V <sub>CE</sub> =-10V ; f=10MHz |     | 25   |      | MHz  |

## Switching times

|                  |              |   |  |     |  |    |
|------------------|--------------|---|--|-----|--|----|
| t <sub>on</sub>  | Turn-on time | I <sub>C</sub> =-7A ; I <sub>B1</sub> =-I <sub>B2</sub> =-0.7A<br>V <sub>CC</sub> =-50V |  | 0.5 |  | μs |
| t <sub>stg</sub> | Storage time |   |  | 1.3 |  | μs |
| t <sub>r</sub>   | Fall time    |   |  | 0.2 |  | μs |

◆ h<sub>FE-2</sub> classifications

| Q      | P       |
|--------|---------|
| 90-180 | 130-260 |

Silicon PNP Power Transistors

2SB1155

PACKAGE OUTLINE



Fig.2 Outline dimensions (unindicated tolerance:±0.30mm)

Silicon PNP Power Transistors

2SB1155

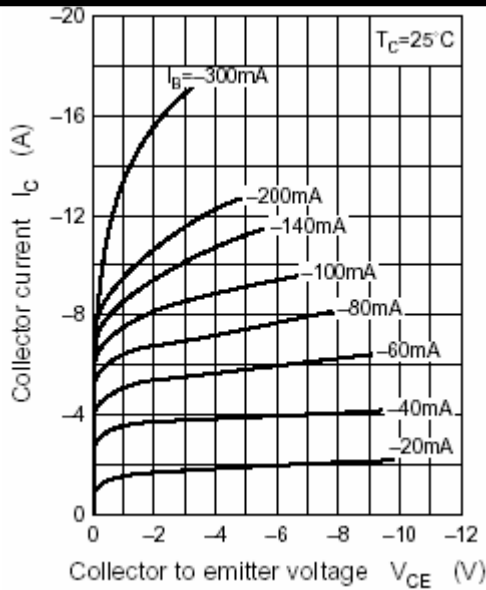


Fig.3 Static Characteristic

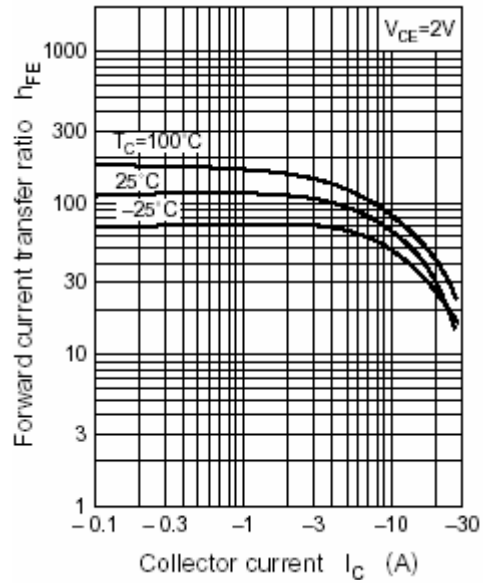


Fig.4 DC current Gain

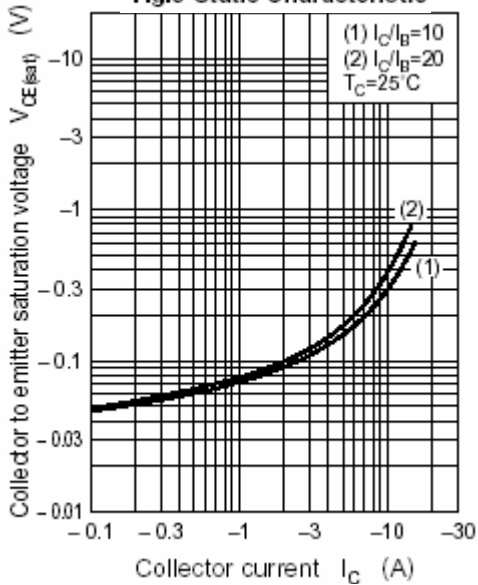


Fig.5 Collector-Emitter Saturation Voltage

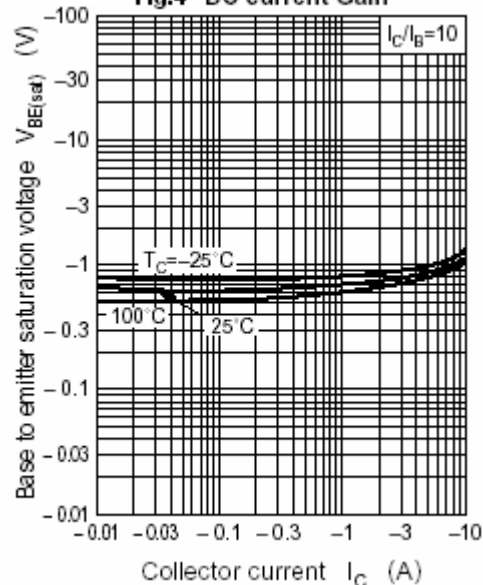


Fig.6 Base-Emitter Saturation Voltage

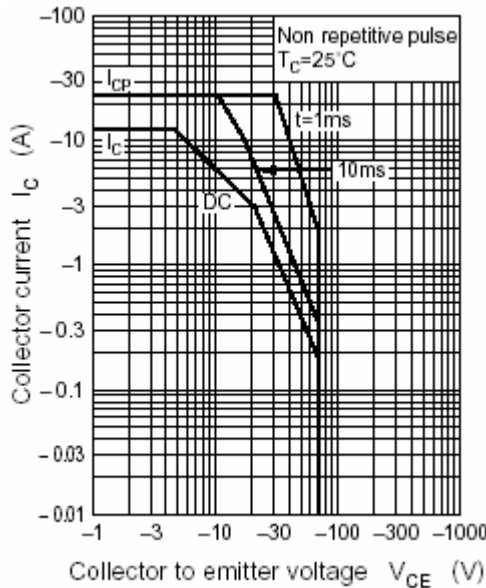


Fig.7 Safe Operating Area