

**Silicon PNP Power Transistors**

**2SB940,2SB940A**

**DESCRIPTION**

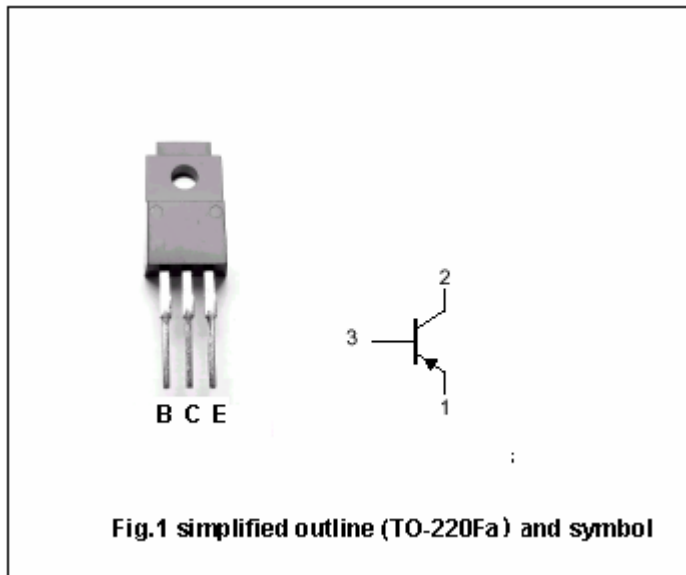
- With TO-220Fa package
- Complement to type 2SD1264/1264A
- High collector to emitter voltage  $V_{CEO}$
- Large collector power dissipation  $P_C$

**APPLICATIONS**

- For power amplification
- For TV vertical deflection output

**PINNING**

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



**Absolute maximum ratings(Ta=25 )**

| SYMBOL    | PARAMETER                   | CONDITIONS     | VALUE   | UNIT |
|-----------|-----------------------------|----------------|---------|------|
| $V_{CBO}$ | Collector-base voltage      | 2SB940         | -200    | V    |
|           |                             | 2SB940A        | -200    |      |
| $V_{CEO}$ | Collector-emitter voltage   | 2SB940         | -150    | V    |
|           |                             | 2SB940A        | -180    |      |
| $V_{EBO}$ | Emitter-base voltage        | Open collector | -6      | V    |
| $I_C$     | Collector current           |                | -2      | A    |
| $I_{CM}$  | Collector current-peak      |                | -3      | A    |
| $P_C$     | Collector power dissipation | $T_a=25$       | 2       | W    |
|           |                             | $T_C=25$       | 30      |      |
| $T_j$     | Junction temperature        |                | 150     |      |
| $T_{stg}$ | Storage temperature         |                | -55~150 |      |

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**CHARACTERISTICS**

Tj=25 unless otherwise specified

| SYMBOL               | PARAMETER                            | CONDITIONS   | MIN                                     | TYP. | MAX  | UNIT |
|----------------------|--------------------------------------|--|---|------|------|------|
| V <sub>(BR)CEO</sub> | Collector-emitter breakdown voltage  | 2SB940   | I <sub>C</sub> =-5mA, I <sub>B</sub> =0 |      |      | V    |
|                      |                                      | 2SB940A  |   |      |      |      |
| V <sub>(BR)CBO</sub> | Collector-base breakdown voltage     | I <sub>C</sub> =-50 μ A, I <sub>E</sub> =0           | -200                                    |      |      | V    |
| V <sub>(BR)EBO</sub> | Emitter-base breakdown voltage       | I <sub>C</sub> =-500 μ A, I <sub>C</sub> =0          | -6                                      |      |      | V    |
| V <sub>CEsat</sub>   | Collector-emitter saturation voltage | I <sub>C</sub> =-0.5A, I <sub>B</sub> =-50mA         |   |      | -1.0 | V    |
| V <sub>BE</sub>      | Base-emitter voltage                 | I <sub>C</sub> =-0.4A ; V <sub>CE</sub> =-10V        |   |      | -1.0 | V    |
| I <sub>EBO</sub>     | Emitter cut-off current              | V <sub>EB</sub> =-4V; I <sub>C</sub> =0              |   |      | -50  | μ A  |
| I <sub>CBO</sub>     | Collector cut-off current            | V <sub>CB</sub> =-200V; I <sub>E</sub> =0            |   |      | -50  | μ A  |
| h <sub>FE-1</sub>    | DC current gain                      | I <sub>C</sub> =-0.15A ; V <sub>CE</sub> =-10V       | 60                                      |      | 240  |      |
| h <sub>FE-2</sub>    | DC current gain                      | I <sub>C</sub> =-0.4A ; V <sub>CE</sub> =-10V        | 50                                      |      |      |      |
| f <sub>T</sub>       | Transition frequency                 | I <sub>C</sub> =-0.5A; V <sub>CE</sub> =-10V,f=10MHz |   | 30   |      | MHz  |

◆ **h<sub>FE-1</sub> Classifications**

| Q      | P       |
|--------|---------|
| 60-140 | 100-240 |

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PACKAGE OUTLINE

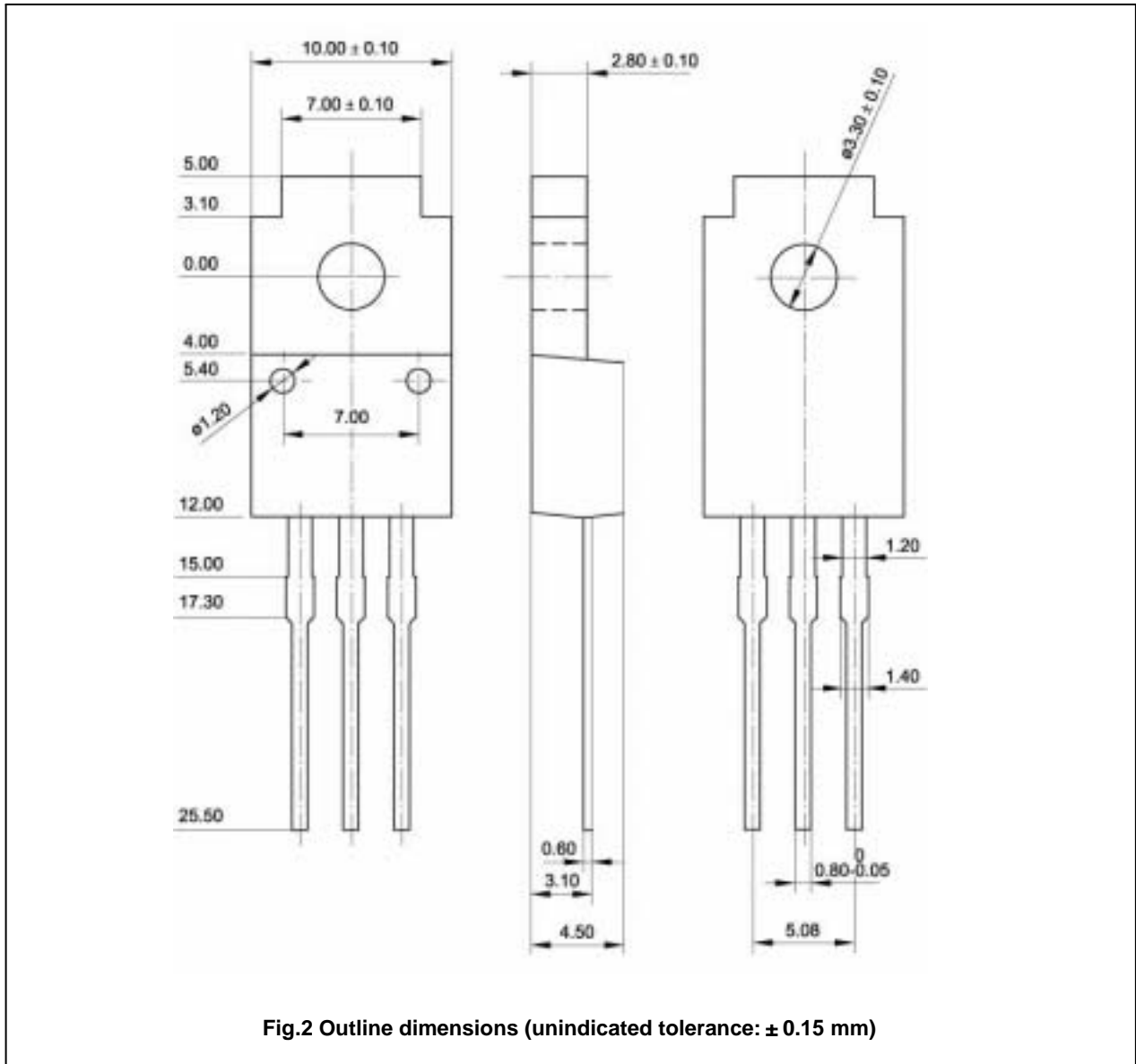


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.15$  mm)

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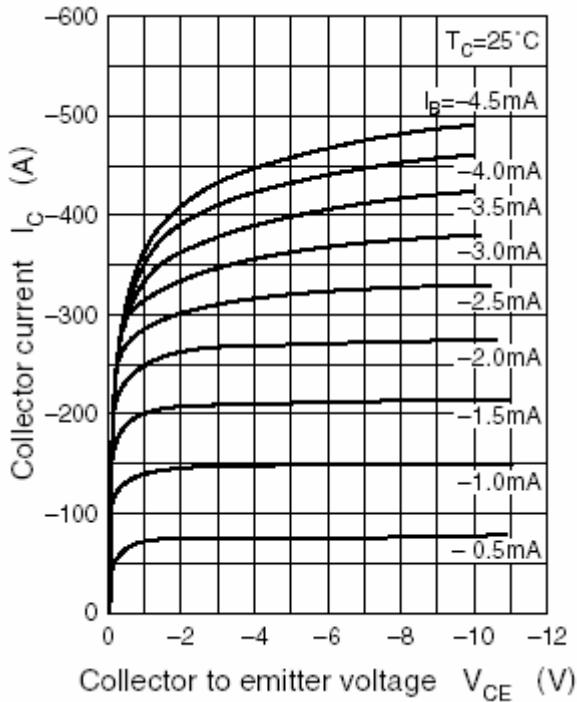


Fig.3 Static Characteristic

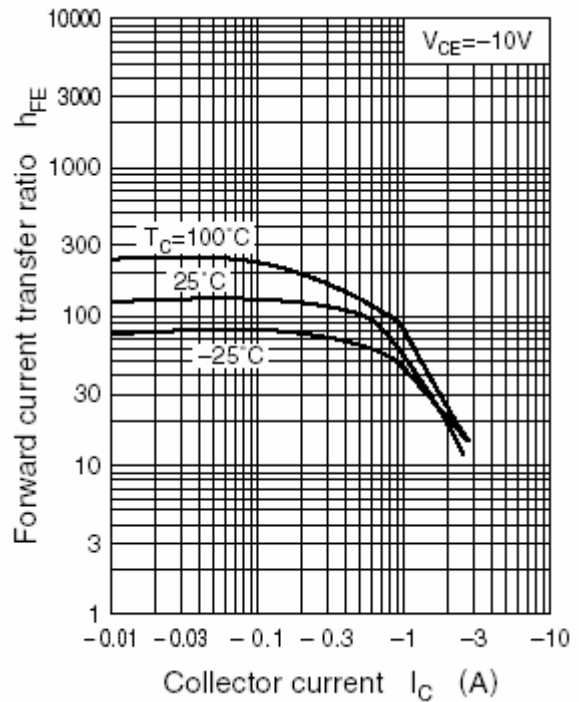


Fig.4 DC current Gain

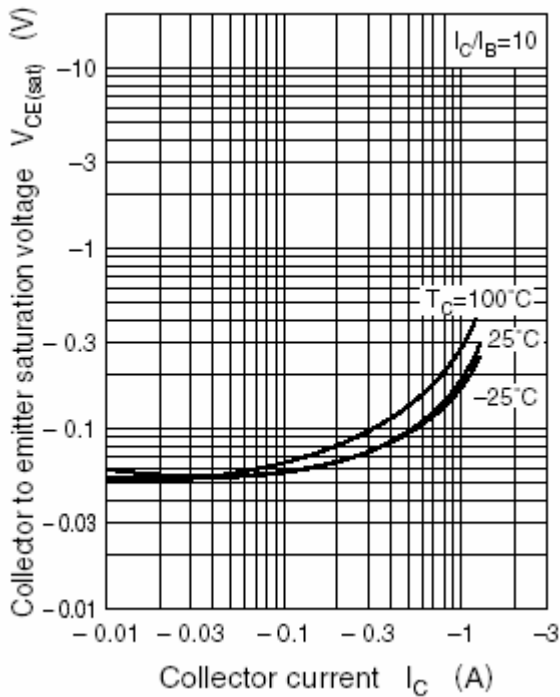


Fig.5 Collector-Emitter Saturation Voltage

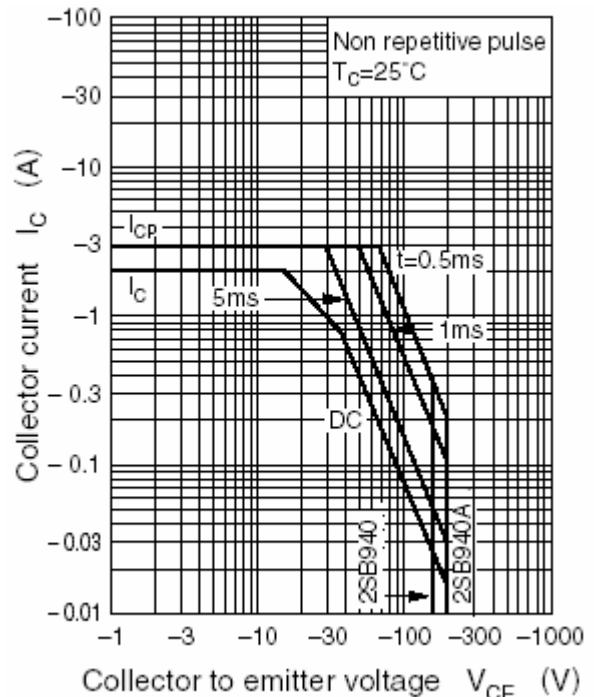


Fig.6 Safe Operating Area