

## Silicon NPN Power Transistors

## 2SD2060

## DESCRIPTION

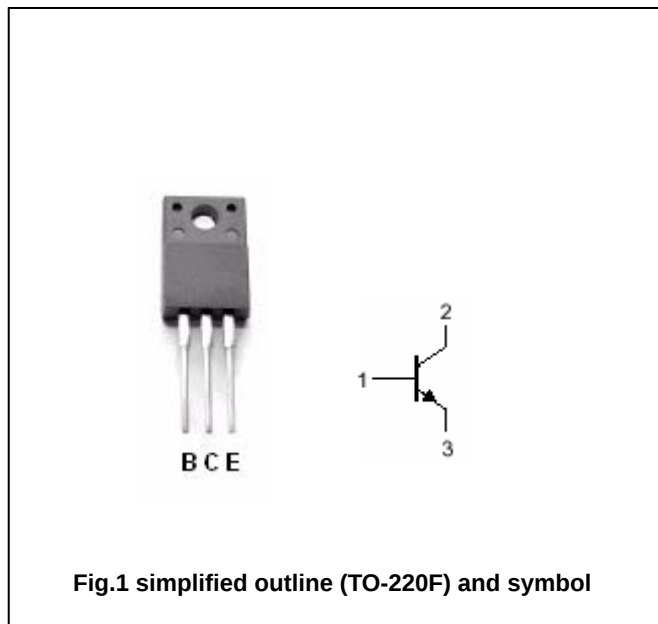
- With TO-220F package
- Complement to type 2SB1368
- Low collector saturation voltage:  
 $V_{CE(SAT)}=1.7V(\text{Max})$  at  $I_C=3A, I_B=0.3A$
- Collector power dissipation:  
 $P_C=25W(T_C=25^\circ\text{C})$

## APPLICATIONS

- With general purpose applications

## PINNING

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

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

| SYMBOL    | PARAMETER                 | CONDITIONS     | VALUE   | UNIT |
|-----------|---------------------------|----------------|---------|------|
| $V_{CBO}$ | Collector-base voltage    | Open emitter   | 80      | V    |
| $V_{CEO}$ | Collector-emitter voltage | Open base      | 80      | V    |
| $V_{EBO}$ | Emitter-base voltage      | Open collector | 5       | V    |
| $I_C$     | Collector current         |                | 4       | A    |
| $I_B$     | Base current              |                | 0.4     | A    |
| $P_C$     | Collector dissipation     | $T_a=25$       | 2.0     | W    |
|           |                           | $T_C=25$       | 25      |      |
| $T_j$     | Junction temperature      |                | 150     |      |
| $T_{stg}$ | Storage temperature       |                | -55~150 |      |

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## CHARACTERISTICS

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

| SYMBOL               | PARAMETER                            | CONDITIONS                                 | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|--------------------------------------------|-----|------|-----|------|
| V <sub>(BR)CEO</sub> | Collector-emitter breakdown voltage  | I <sub>C</sub> =50mA ; I <sub>B</sub> =0   | 80  |      |     | V    |
| V <sub>(BR)EBO</sub> | Emitter-base breakdown voltage       | I <sub>E</sub> =10mA ; I <sub>C</sub> =0   | 5   |      |     | V    |
| V <sub>CEsat</sub>   | Collector-emitter saturation voltage | I <sub>C</sub> =3A ; I <sub>B</sub> =0.3A  |     | 0.45 | 1.5 | V    |
| V <sub>BE</sub>      | Base-emitter on voltage              | I <sub>C</sub> =3A ; V <sub>CE</sub> =5V   |     | 1.0  | 1.5 | V    |
| I <sub>CBO</sub>     | Collector cut-off current            | V <sub>CB</sub> =80V ; I <sub>E</sub> =0   |     |      | 30  | μA   |
| I <sub>EBO</sub>     | Emitter cut-off current              | V <sub>EB</sub> =5V ; I <sub>C</sub> =0    |     |      | 100 | μA   |
| h <sub>FE-1</sub>    | DC current gain                      | I <sub>C</sub> =0.5A ; V <sub>CE</sub> =5V | 40  |      | 240 |      |
| h <sub>FE-2</sub>    | DC current gain                      | I <sub>C</sub> =3A ; V <sub>CE</sub> =5V   | 15  | 50   |     |      |
| f <sub>T</sub>       | Transition frequency                 | I <sub>C</sub> =0.5A ; V <sub>CE</sub> =5V |     | 8.0  |     | MHz  |
| C <sub>OB</sub>      | Collector output capacitance         | f=1MHz ; V <sub>CB</sub> =10V              |     | 90   |     | pF   |

◆ h<sub>FE-1</sub> Classifications

| R     | O      | Y       |
|-------|--------|---------|
| 40-80 | 70-140 | 120-240 |

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PACKAGE OUTLINE

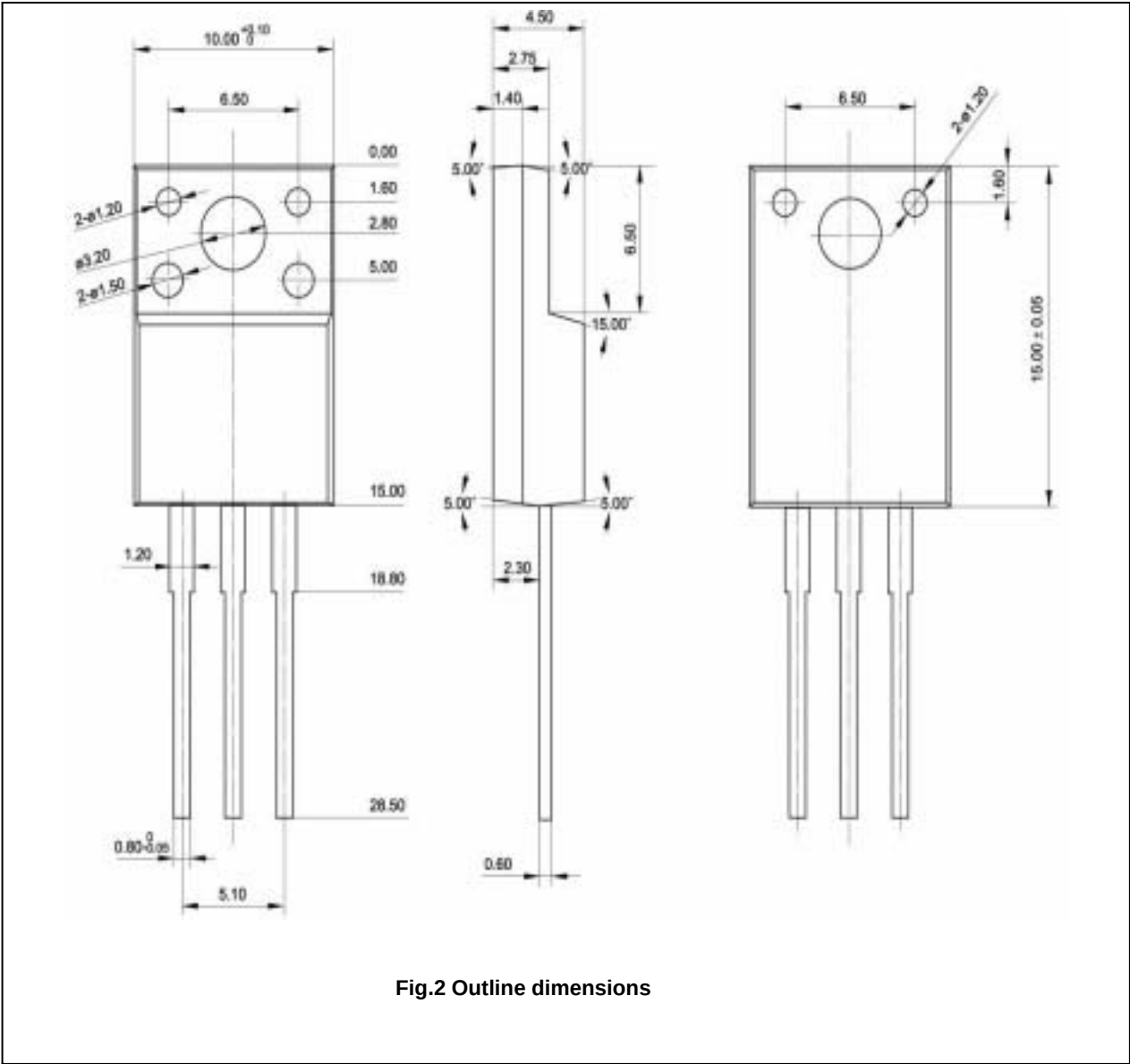


Fig.2 Outline dimensions

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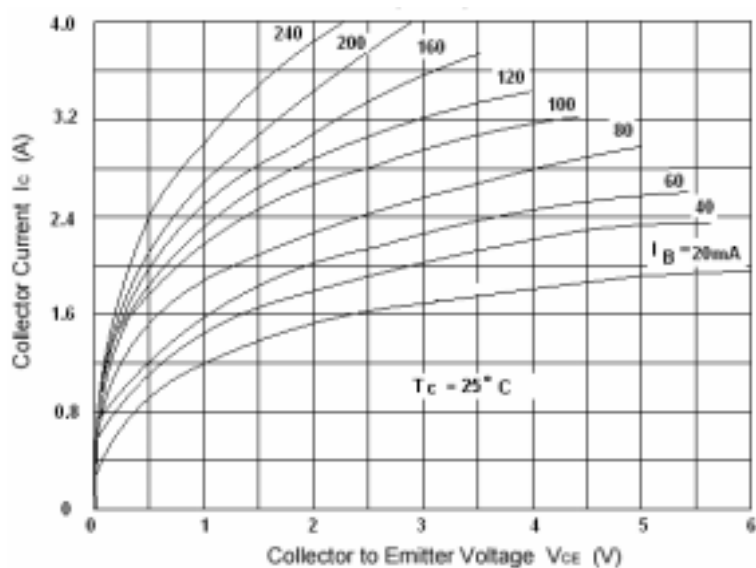


Fig.3 Static Characteristic

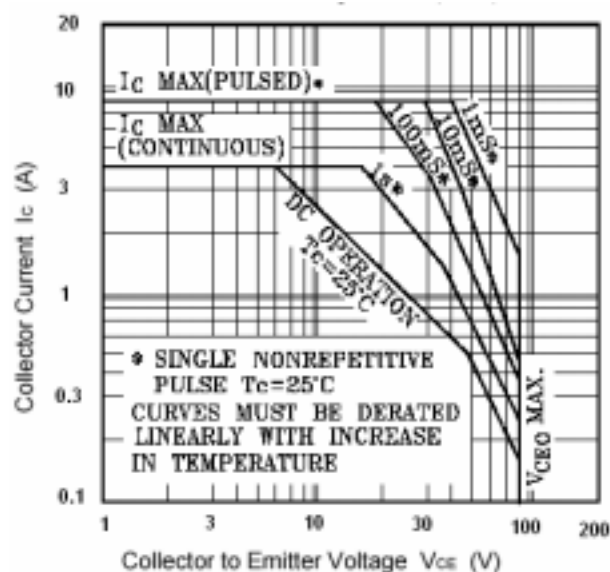


Fig.4 Safe Operating Area

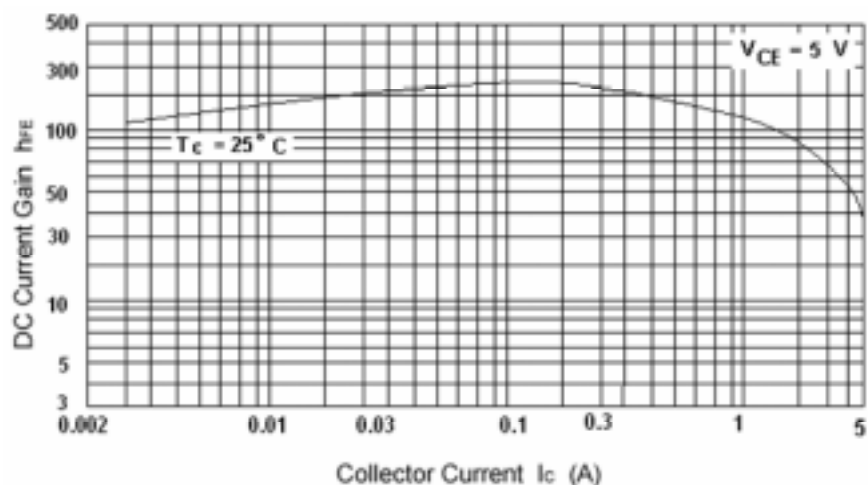


Fig.5 DC current Gain

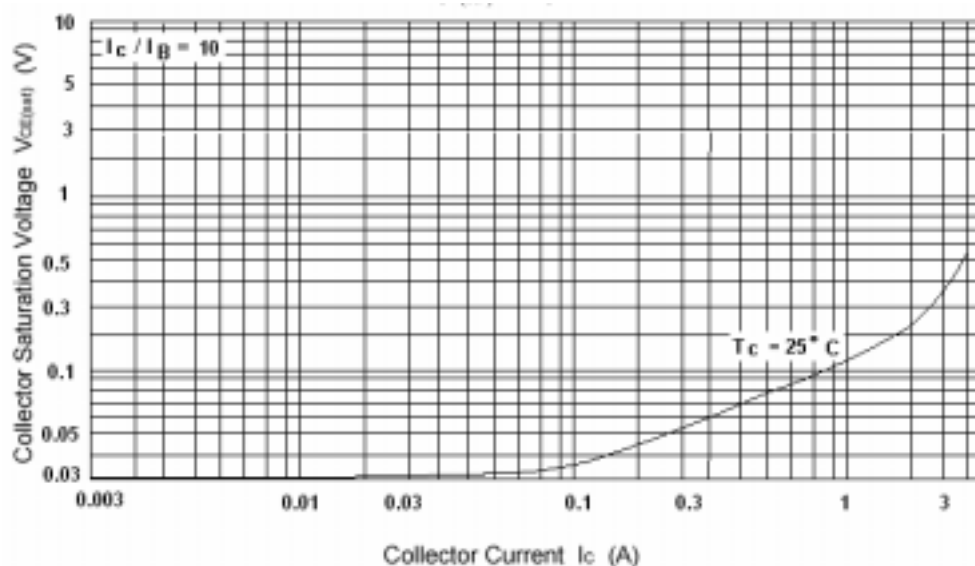


Fig.6 Base-Emitter Saturation Voltage