

Silicon NPN Power Transistors

2SD2059

DESCRIPTION

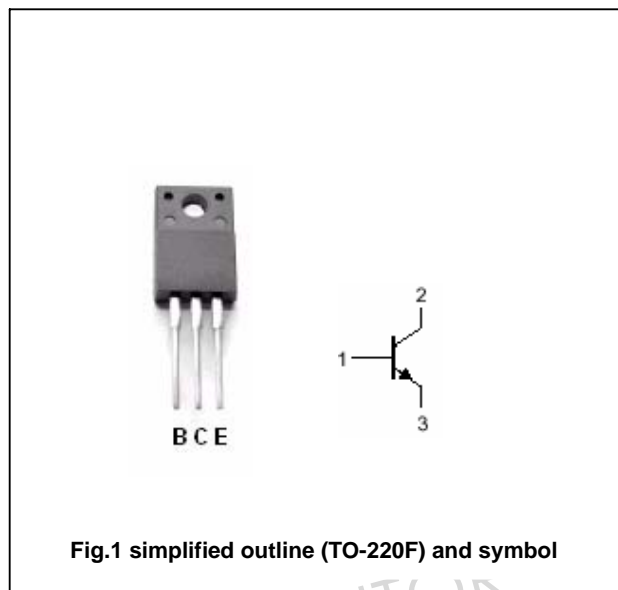
- With TO-220F package
- Complement to type 2SB1367
- Low collector saturation voltage:
 $V_{CE(SAT)}=2.0V(\text{Max})$ at $I_C=4A, I_B=0.4A$
- Collector power dissipation:
 $P_C=30W(T_C=25^\circ\text{C})$

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 | 100 | V |
| V_{CEO} | Collector-emitter voltage | Open base | 100 | V |
| V_{EBO} | Emitter-base voltage | Open collector | 5 | V |
| I_C | Collector current | | 5 | A |
| I_B | Base current | | 0.5 | A |
| P_C | Collector dissipation | $T_C=25$ | 30 | W |
| T_j | Junction temperature | | 150 | |
| T_{stg} | Storage temperature | | -55~150 | |

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CHARACTERISTICS

T_j=25 unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNIT |
|----------------------|--------------------------------------|---|-----|-----|-----|------|
| V _{(BR)CEO} | Collector-emitter breakdown voltage | I _C =50mA ; I _B =0 | 100 | | | V |
| V _{CEsat} | Collector-emitter saturation voltage | I _C =4A ; I _B =0.4A | | | 2.0 | V |
| V _{BE} | Base-emitter on voltage | I _C =1A ; V _{CE} =5V | | | 1.5 | V |
| I _{CBO} | Collector cut-off current | V _{CB} =100V ; I _E =0 | | | 0.1 | mA |
| I _{EBO} | Emitter cut-off current | V _{EB} =5V ; I _C =0 | | | 1.0 | mA |
| h _{FE-1} | DC current gain | I _C =1A ; V _{CE} =5V | 40 | | 240 | |
| h _{FE-2} | DC current gain | I _C =4A ; V _{CE} =5V | 20 | | | |
| f _T | Transition frequency | I _C =1A ; V _{CE} =5V | | 12 | | MHz |
| C _{OB} | Collector output capacitance | f=1MHz ; V _{CB} =10V | | 100 | | pF |

◆ h_{FE-1} Classifications

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

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PACKAGE OUTLINE

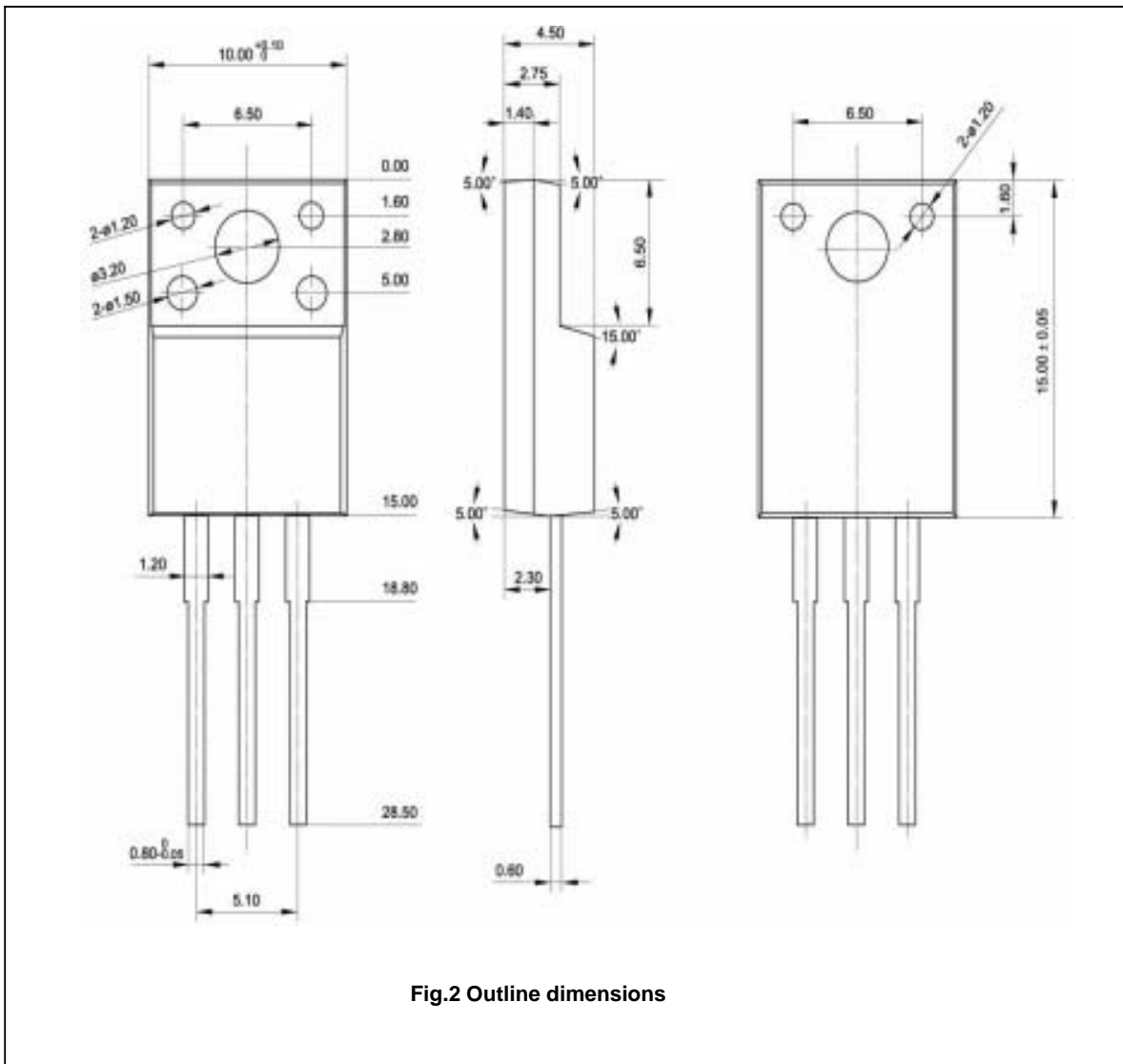


Fig.2 Outline dimensions

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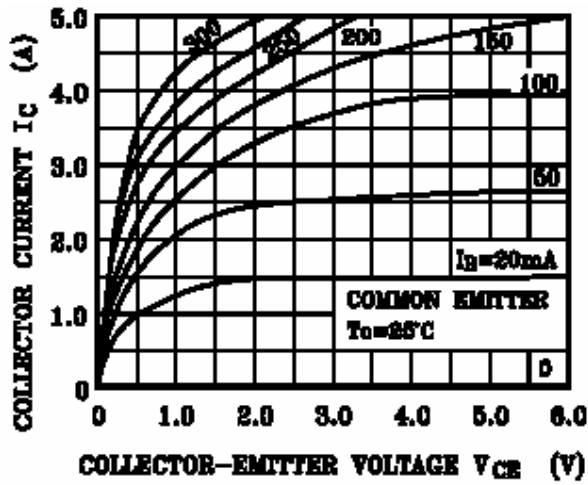


Fig.3 Static Characteristic

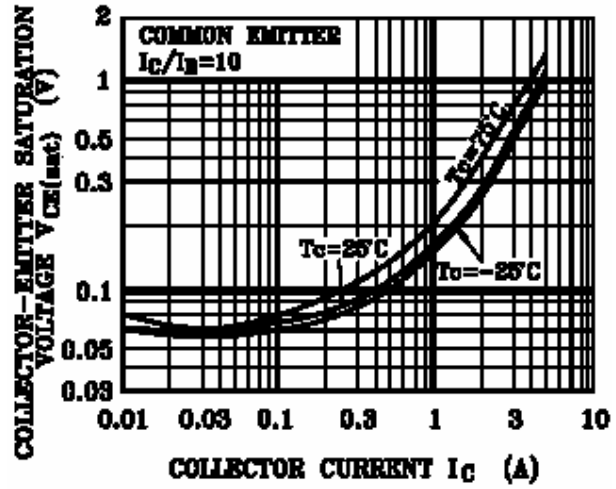


Fig.4 Collector-Emitter Saturation Voltage

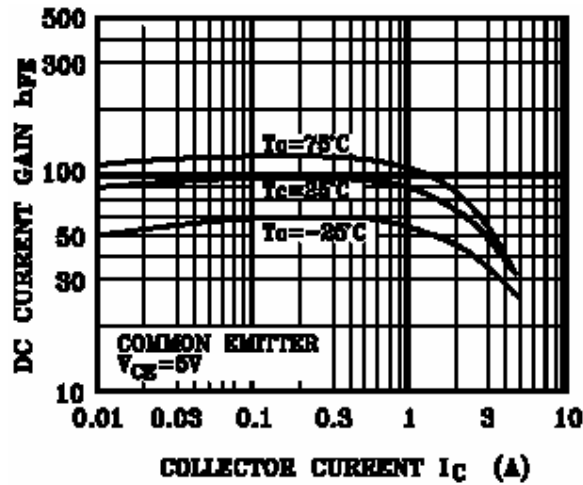


Fig.5 DC current Gain

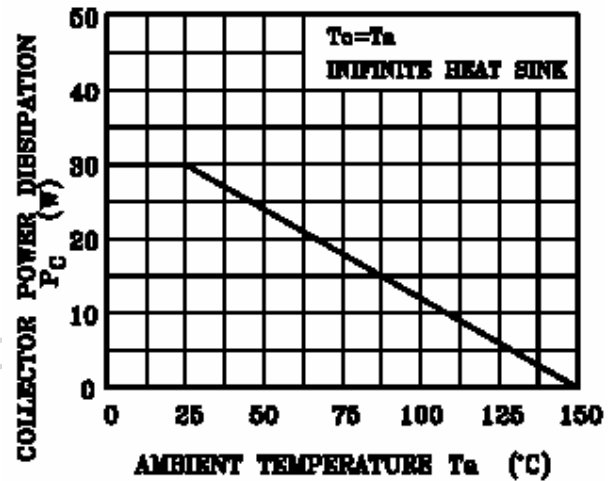


Fig.6 Power Derating

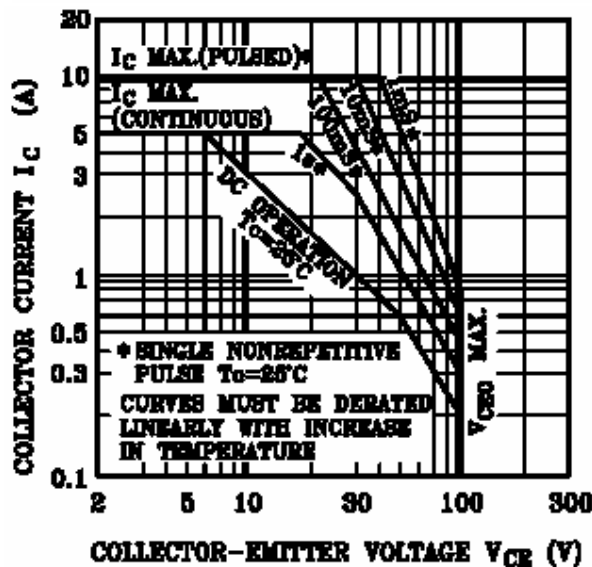


Fig.7 Safe Operating Area