

Silicon NPN Power Transistors

2SD2058

DESCRIPTION

- With TO-220F package
- Complement to type 2SB1366
- Low collector saturation voltage:
 $V_{CE(SAT)}=1.0V(\text{Max})$ at $I_C=2A, I_B=0.2A$
- 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 |

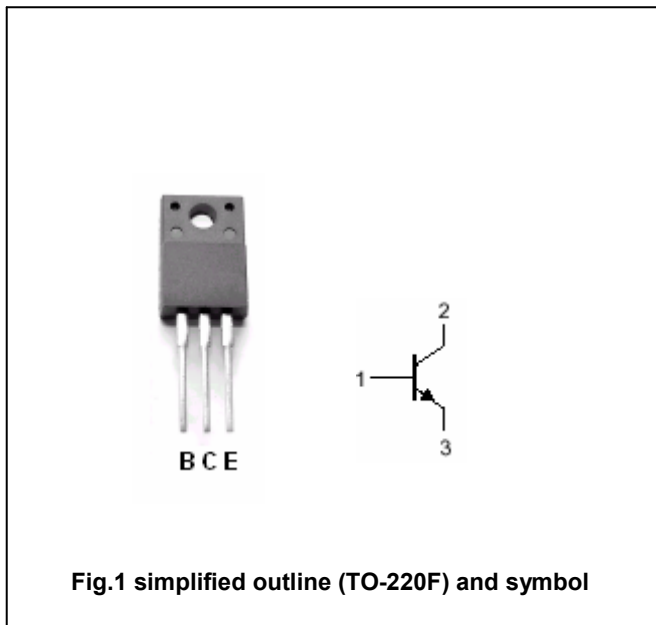


Fig.1 simplified outline (TO-220F) and symbol

Absolute maximum ratings (Ta=25°C)

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|-----------|---------------------------|------------------------|---------|------|
| V_{CBO} | Collector-base voltage | Open emitter | 60 | V |
| V_{CEO} | Collector-emitter voltage | Open base | 60 | V |
| V_{EBO} | Emitter-base voltage | Open collector | 7 | V |
| I_C | Collector current | | 3 | A |
| I_B | Base current | | 0.5 | A |
| P_C | Collector dissipation | $T_a=25^\circ\text{C}$ | 1.5 | W |
| | | $T_C=25^\circ\text{C}$ | 25 | |
| T_j | Junction temperature | | 150 | °C |
| T_{stg} | Storage temperature | | -55~150 | °C |

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CHARACTERISTICS

T_j=25°C unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|--|-----|------|-----|------|
| V _{(BR)CEO} | Collector-emitter breakdown voltage | I _C =50mA ; I _B =0 | 60 | | | V |
| V _{CEsat} | Collector-emitter saturation voltage | I _C =2A ; I _B =0.2A | | | 1.5 | V |
| V _{BE} | Base-emitter on voltage | I _C =0.5A; V _{CE} =5V | | 3.0 | | V |
| I _{CBO} | Collector cut-off current | V _{CB} =60V; I _E =0 | | | 10 | μA |
| I _{EBO} | Emitter cut-off current | V _{EB} =7V; I _C =0 | | | 1.0 | mA |
| h _{FE} | DC current gain | I _C =0.5A ; V _{CE} =5V | 60 | | | |
| f _T | Transition frequency | I _C =0.5A ; V _{CE} =5V | | 3.0 | | MHz |
| C _{OB} | Collector output capacitance | f=1MHz; V _{CB} =10V | | 35 | | pF |

Switching times

| | | | | | | |
|-----------------|--------------|---|--|------|--|----|
| t _{on} | Turn-on time | I _C =2.0A; I _{B1} =-I _{B2} =0.2A V _{CC} =30V , R _L =15Ω | | 0.65 | | μs |
| t _s | Storage time | | | 1.30 | | μs |
| t _f | Fall time | | | 0.65 | | μs |

◆ h_{FE} Classifications

| O | Y | G |
|--------|---------|---------|
| 60-120 | 100-200 | 150-300 |

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PACKAGE OUTLINE

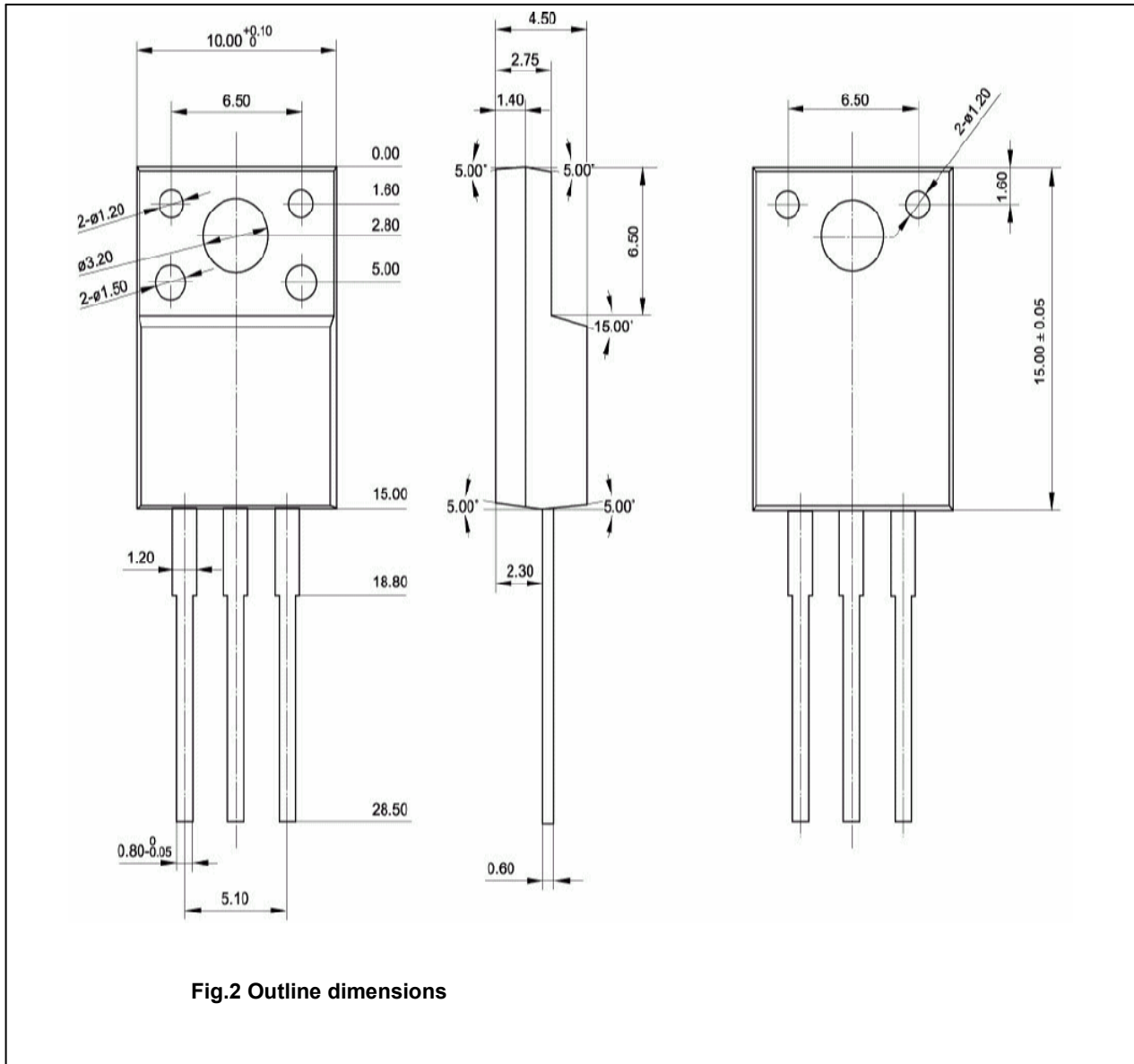


Fig.2 Outline dimensions

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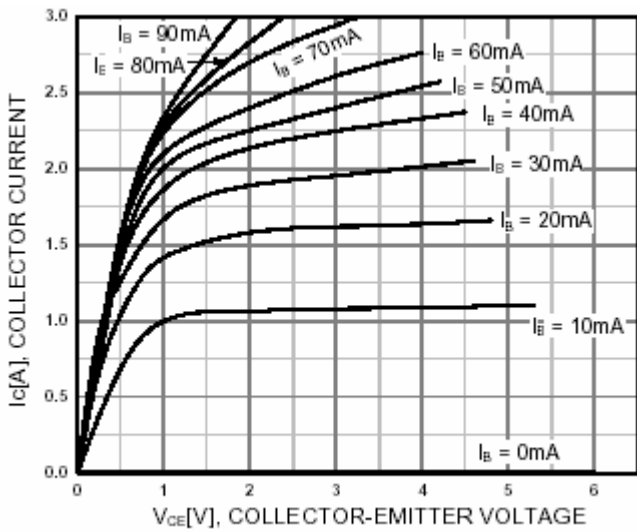


Fig.3 Static Characteristic

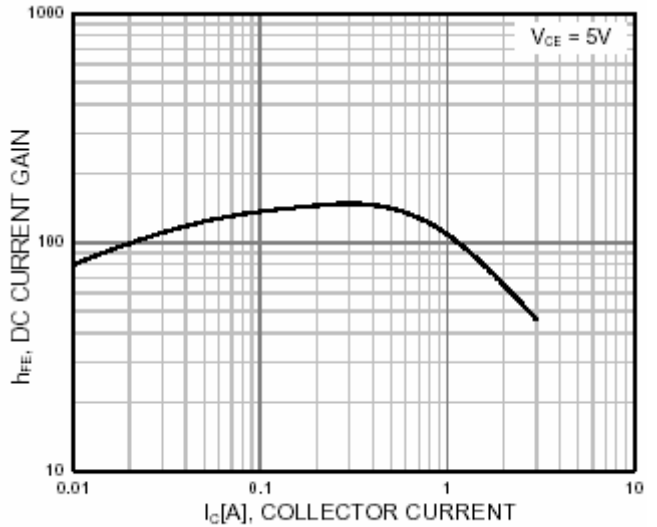


Fig.4 DC current Gain

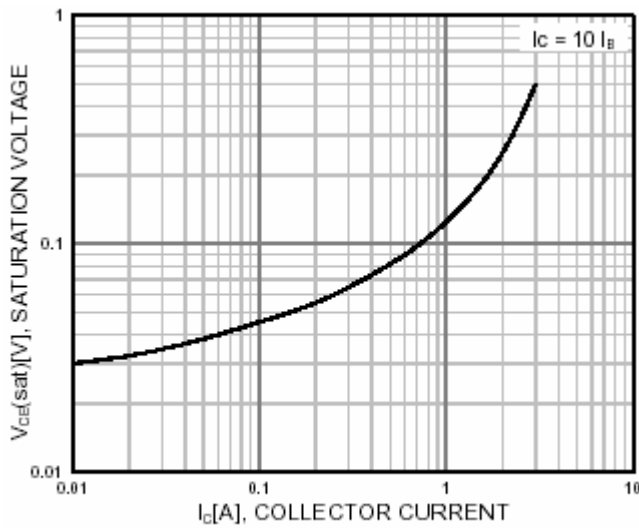


Fig.5 DC current Gain

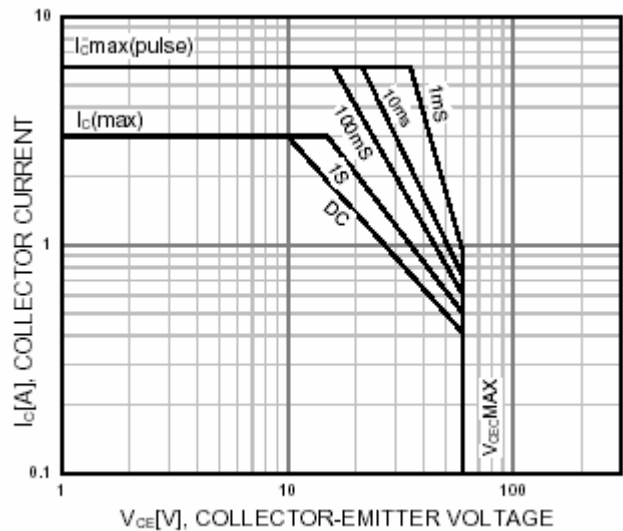


Fig.6 Safe Operating Area

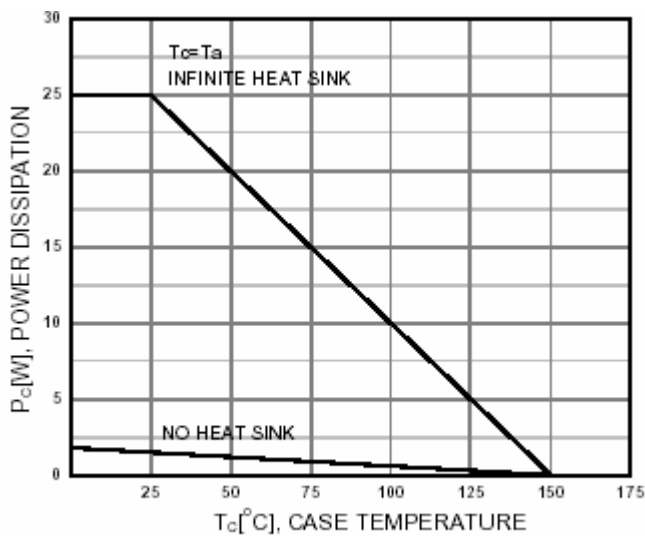


Fig.7 Power Derating