# Silicon NPN Power Transistors 2SD1680

## DESCRIPTION

- With TO-3PFa package
- High speed switching
- High $V_{CBO}$
- Large collector power dissipation

## APPLICATIONS

- For horizontal deflection output applications

**PINNING**

| PIN | DESCRIPTION |
|---|---|
| 1 | Base |
| 2 | Collector;connected to mounting base |
| 3 | Emitter |

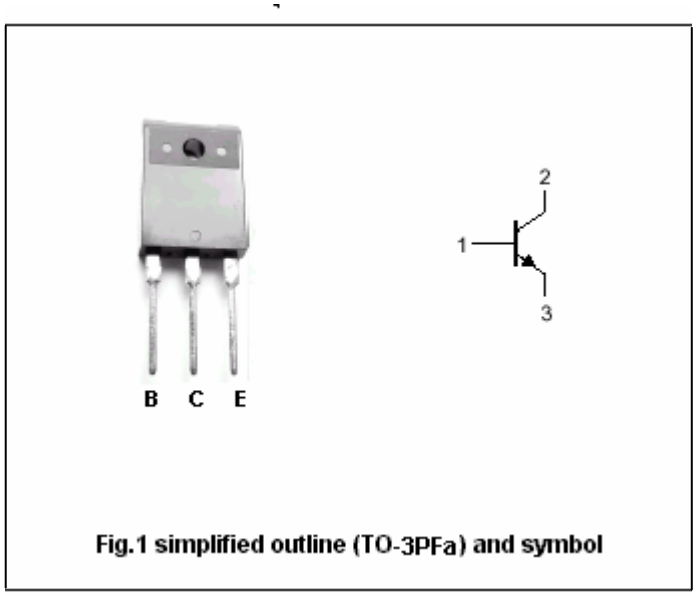


Fig.1 simplified outline (TO-3PFa) and symbol



**Absolute maximum ratings (Ta=25℃)**

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---|---|---|---|---|
| $V_{CBO}$ | Collector-base voltage | Open emitter | 330 | V |
| $V_{CEO}$ | Collector-emitter voltage | Open base | 200 | V |
| $V_{EBO}$ | Emitter-base voltage | Open collector | 6 | V |
| $I_C$ | Collector current (DC) | | 7 | A |
| $I_{CM}$ | Collector current (Pulse) | | 10 | A |
| $P_C$ | Collector power dissipation | $T_a$=25℃ | 3 | W |
| | | $T_C$=25℃ | 70 | |
| $T_j$ | 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 |
|---|---|---|---|---|---|---|
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage | $I_C$=30mA ;$I_B$=0 | 200 | | | V |
| $V_{(BR)CBO}$ | Collector-base breakdown voltage | $I_C$=1mA; $I_E$=0 | 330 | | | V |
| $V_{CEsat}$ | Collector-emitter saturation voltage | $I_C$=5A; $I_B$=0.5A | | | 1.0 | V |
| $V_{BEsat}$ | Base-emitter saturation voltage | $I_C$=5A; $I_B$=0.5A | | | 1.2 | V |
| $I_{CES}$ | Collector cut-off current | $V_{CE}$=330V; $V_{BE}$=0<br>Ta=100℃ | | | 1<br>15 | mA |
| $I_{EBO}$ | Emitter cut-off current | $V_{EB}$=6V; $I_C$=0 | | | 1 | mA |
| $h_{FE}$ | DC current gain | $I_C$=5A ; $V_{CE}$=4V | 15 | | | |
| $t_f$ | Fall time | $I_C$=5A<br>$I_{B1}$=0.8A,$V_{EB}$=-5V,$R_B$=0.5Ω | | | 0.75 | μs |

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**PACKAGE OUTLINE**

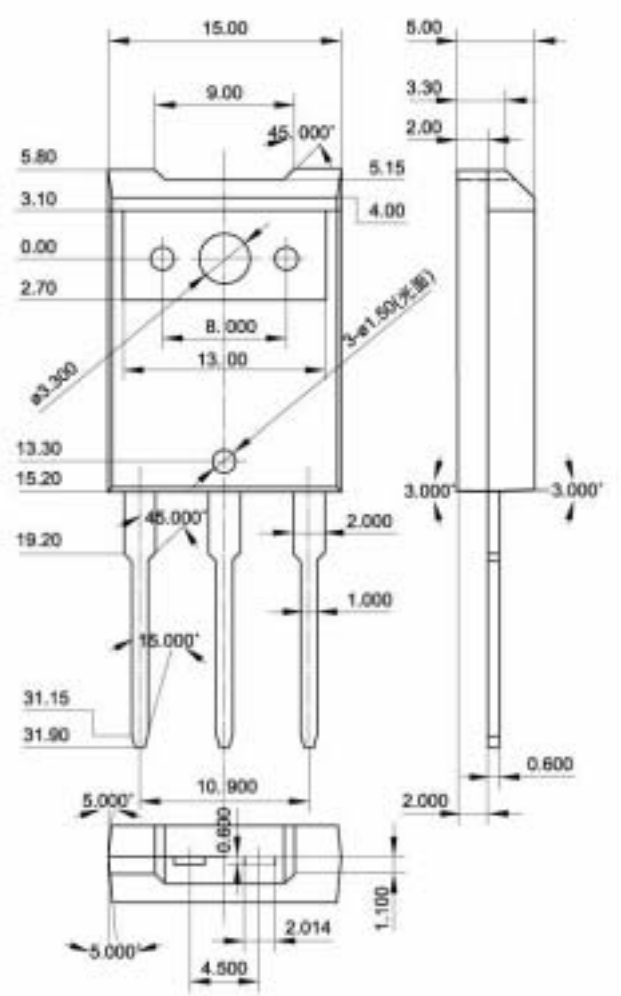


**Fig.2 outline dimensions (unindicated tolerance:±0.10 mm)**