

Inchange Semiconductor

Product Specification

Silicon NPN Power Transistors

2SC4153

DESCRIPTION

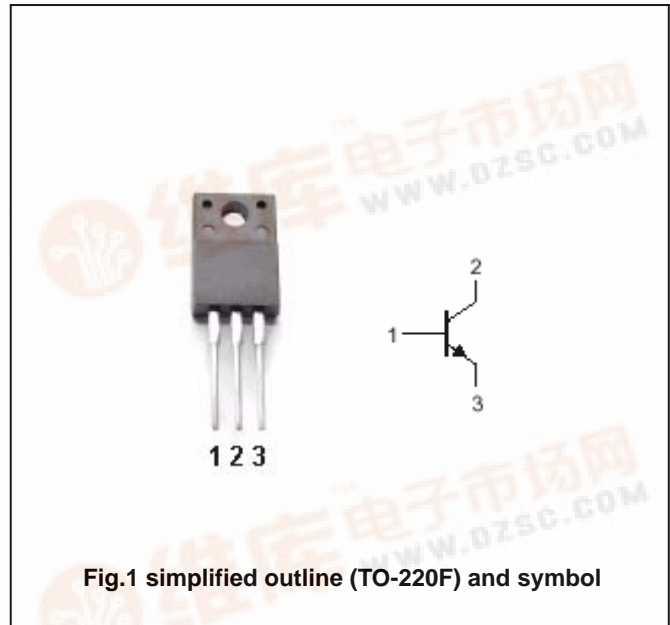
- With TO-220F package
- Switching transistor

APPLICATIONS

- For humidifier ,DC-DC converter and general purpose applications

PINNING

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



Absolute maximum ratings (Ta=25)

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|------------------|-----------------------------|--------------------|---------|------|
| V _{CBO} | Collector-base voltage | Open emitter | 200 | V |
| V _{CEO} | Collector-emitter voltage | Open base | 120 | V |
| V _{EBO} | Emitter-base voltage | Open collector | 8 | V |
| I _C | Collector current (DC) | | 7 | A |
| I _{CM} | Collector current-peak | | 14 | A |
| I _B | Base current (DC) | | 3 | A |
| P _C | Collector power 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 | 120 | | | V |
| V _{CEsat} | Collector-emitter saturation voltage | I _C =3A ; I _B =0.3A | | | 0.5 | V |
| V _{BEsat} | Base-emitter saturation voltage | I _C =3A; I _B =0.3A | | | 1.2 | V |
| I _{CBO} | Collector cut-off current | V _{CB} =200V; I _E =0 | | | 0.1 | mA |
| I _{EBO} | Emitter cut-off current | V _{EB} =8V; I _C =0 | | | 0.1 | mA |
| h _{FE-1} | DC current gain | I _C =0.6A ; V _{CE} =4V | 70 | | 250 | |
| h _{FE-2} | DC current gain | I _C =3A ; V _{CE} =4V | 70 | | 220 | |
| f _T | Transition frequency | I _E =-0.5A ; V _{CE} =12V | | 30 | | MHz |
| C _{OB} | Collector output capacitance | f=1MHz; V _{CB} =10V | | 110 | | pF |

Switching times

| | | | | | | |
|-----------------|--------------|--|--|--|-----|----|
| t _{on} | Turn-on time | I _C =3A I _{B1} =0.3A , I _{B2} =-0.6A V _{CC} =50V, R _L =16.7 | | | 0.5 | μs |
| t _s | Storage time | | | | 3.0 | μs |
| t _f | Fall time | | | | 0.5 | μs |

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PACKAGE OUTLINE

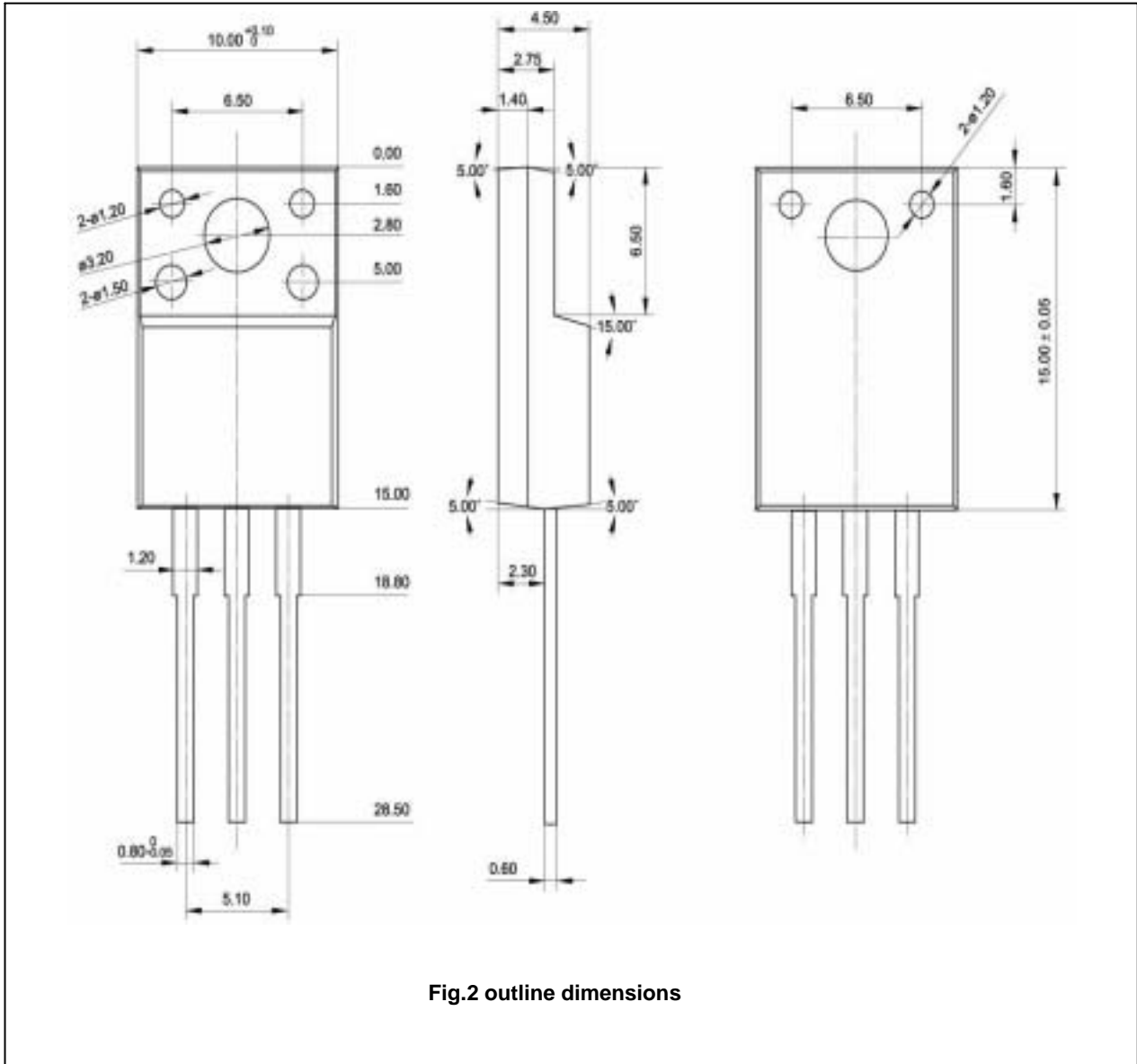


Fig.2 outline dimensions

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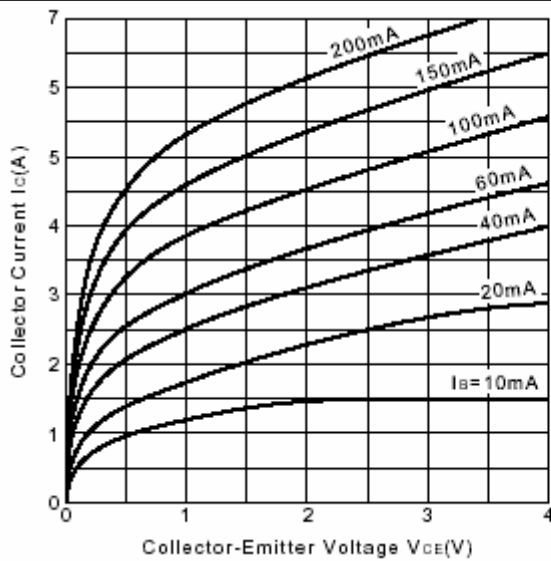


Fig.3 Static Characteristic

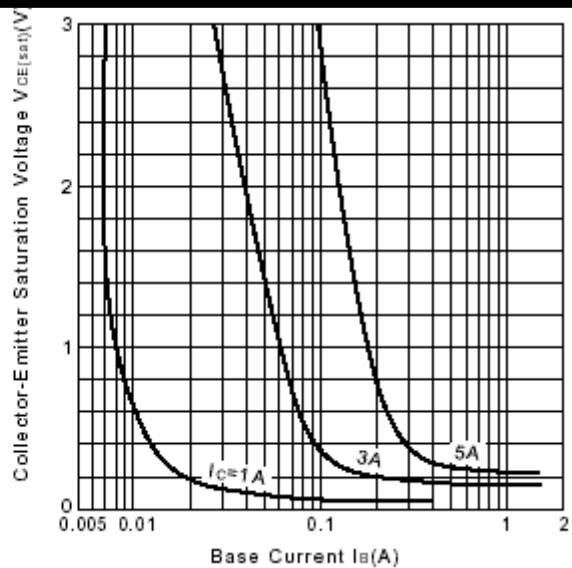


Fig.4 $V_{CE(sat)}-I_b$

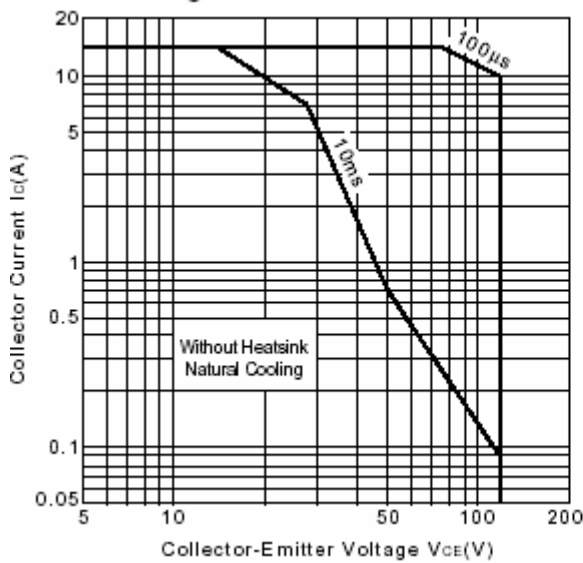


Fig.5 Safe Operating Area

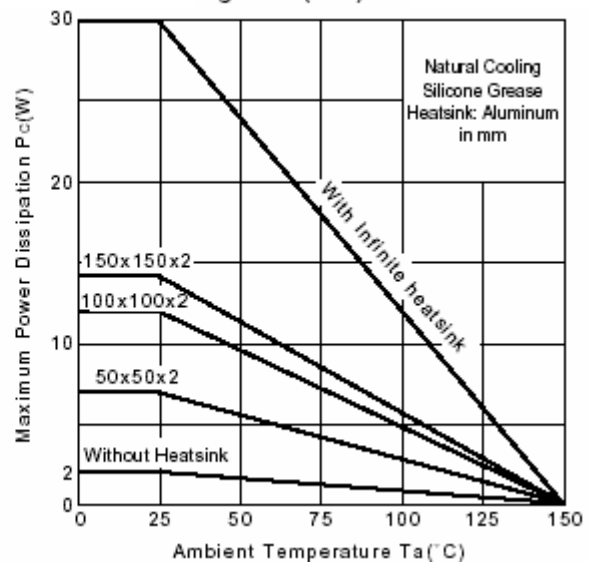


Fig.6 Power Derating

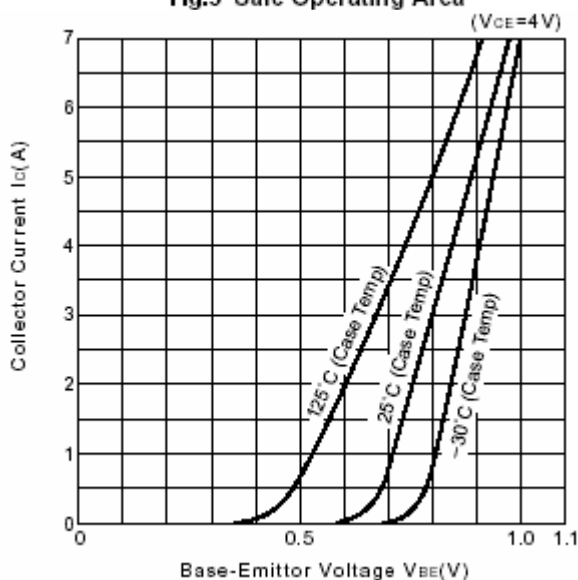


Fig.7 I_c-V_{BE}

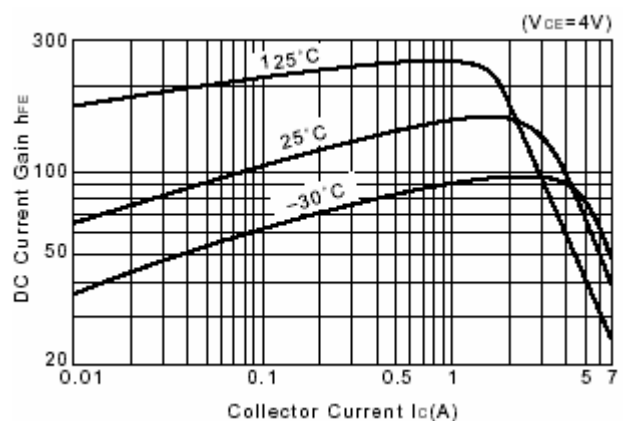


Fig.8 DC current Gain