

Silicon NPN Power Transistors

2SC3336

**DESCRIPTION**

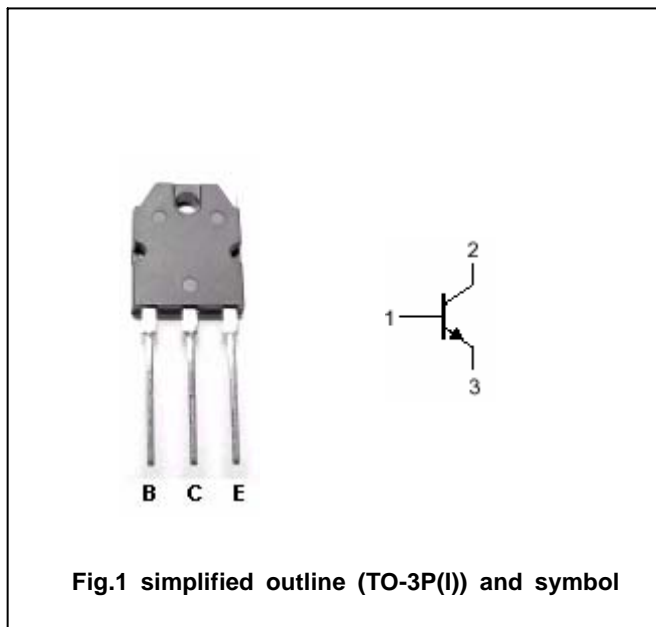
- With TO-3P(I) package
- High voltage,high speed

**APPLICATIONS**

- For high voltage ; high speed and high power switching 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 <sub>CBO</sub> | Collector-base voltage    | Open emitter       | 500     | V    |
| V <sub>CEO</sub> | Collector-emitter voltage | Open base          | 400     | V    |
| V <sub>EBO</sub> | Emitter-base voltage      | Open collector     | 10      | V    |
| I <sub>C</sub>   | Collector current         |                    | 15      | A    |
| I <sub>CM</sub>  | Collector current-peak    |                    | 25      | A    |
| I <sub>B</sub>   | Base current              |                    | 7.5     | A    |
| P <sub>T</sub>   | Total power dissipation   | T <sub>C</sub> =25 | 100     | W    |
| T <sub>j</sub>   | Junction temperature      |                    | 150     |      |
| T <sub>stg</sub> | 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>CEO(SUS)</sub> | Collector-emitter sustaining voltage | I <sub>C</sub> =0.2A, R <sub>BE</sub> = ; L=100mH | 400 |      |     | V    |
| V <sub>(BR)EBO</sub>  | Emitter-base breakdown voltage       | I <sub>E</sub> =10mA; I <sub>C</sub> =0           | 10  |      |     | V    |
| V <sub>CEsat</sub>    | Collector-emitter saturation voltage | I <sub>C</sub> =7.5A; I <sub>B</sub> =1.5A        |     |      | 1.0 | V    |
| V <sub>BE sat</sub>   | Base-emitter saturation voltage      | I <sub>C</sub> =7.5A; I <sub>B</sub> =1.5A        |     |      | 1.5 | V    |
| I <sub>CBO</sub>      | Collector cut-off current            | V <sub>CB</sub> =400V; I <sub>E</sub> =0          |     |      | 50  | μ A  |
| I <sub>CEO</sub>      | Collector cut-off current            | V <sub>CE</sub> =350V; R <sub>BE</sub> =          |     |      | 50  | μ A  |
| h <sub>FE-1</sub>     | DC current gain                      | I <sub>C</sub> =7.5A ; V <sub>CE</sub> =5V        | 12  |      |     |      |
| h <sub>FE-2</sub>     | DC current gain                      | I <sub>C</sub> =15A ; V <sub>CE</sub> =5V         | 5   |      |     |      |

## Switching times

|                  |              |  |  |  |     |     |
|------------------|--------------|--|--|--|-----|-----|
| t <sub>on</sub>  | Turn-on time | I <sub>C</sub> =15A ; V <sub>CC</sub> =150V<br>I <sub>B</sub> =-I <sub>B</sub> =3.0A |  |  | 0.5 | μ s |
| t <sub>stg</sub> | Storage time |  |  |  | 1.5 | μ s |
| t <sub>f</sub>   | Fall time    |  |  |  | 0.5 | μ s |

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PACKAGE OUTLINE

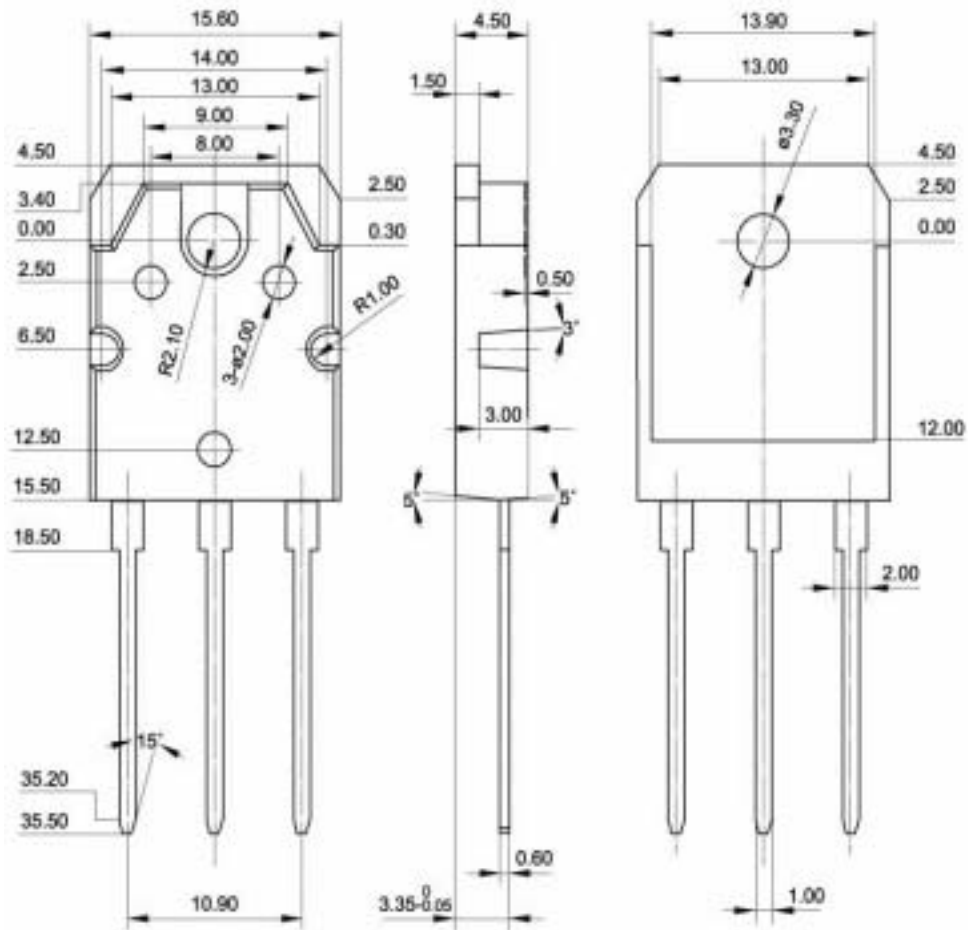


Fig.2 Outline dimensions(unindicated tolerance: ± 0.10 mm)

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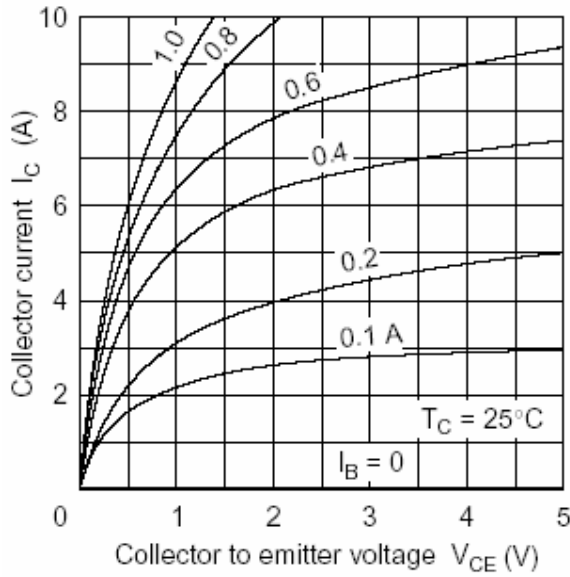


Fig.3 Static Characteristic

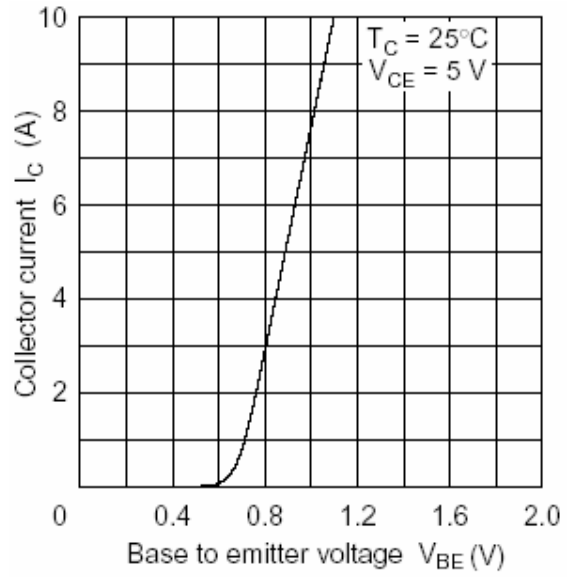


Fig.4  $I_C - V_{BE}$

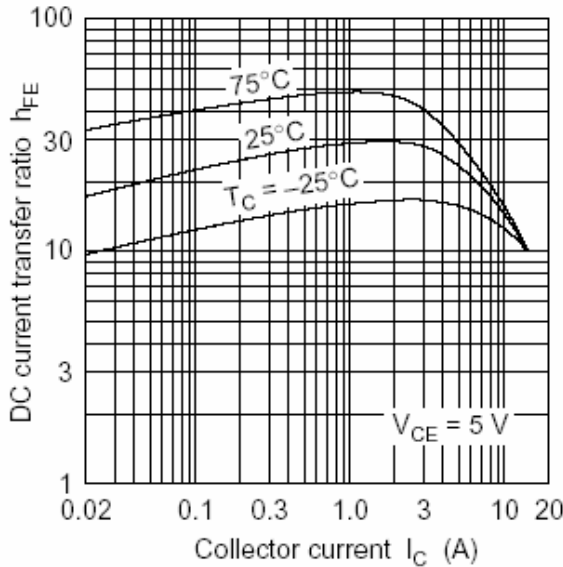


Fig.5 DC current Gain

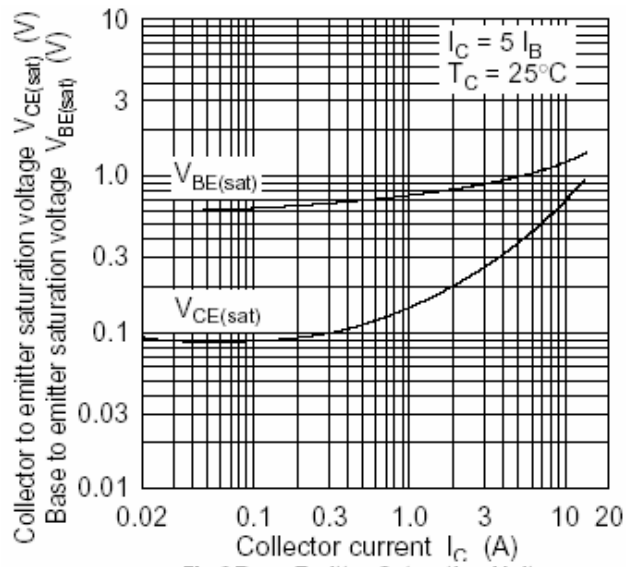


Fig.6 Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

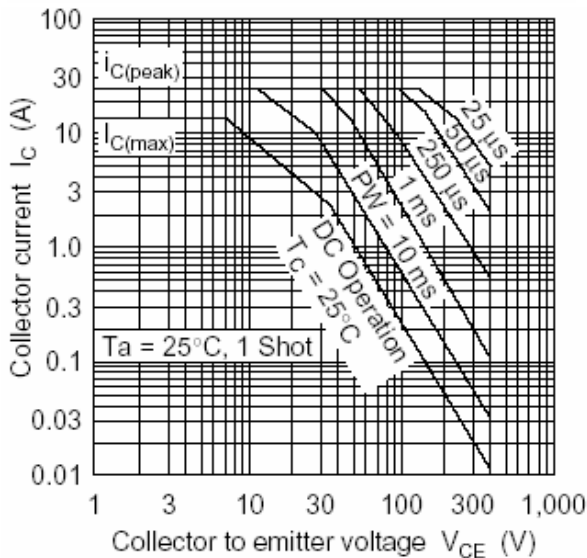


Fig.7 Safe Operating Area