

Silicon NPN Power Transistors

2SC3345

**DESCRIPTION**

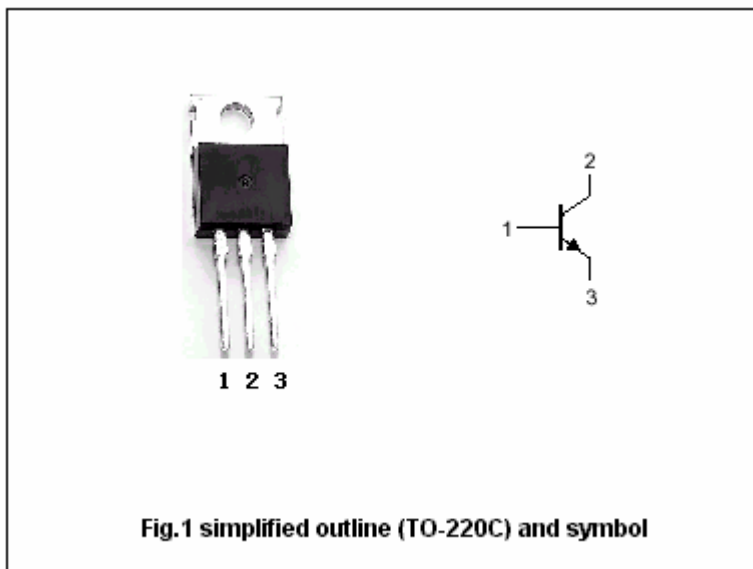
- With TO-220 package
- Complement to type 2SA1328
- Low collector saturation voltage
- High speed switching time

**APPLICATIONS**

- High current 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       | 60      | V    |
| V <sub>CEO</sub> | Collector-emitter voltage   | Open base          | 50      | V    |
| V <sub>EBO</sub> | Emitter-base voltage        | Open collector     | 6       | V    |
| I <sub>C</sub>   | Collector current           |                    | 12      | A    |
| I <sub>B</sub>   | Base current                |                    | 2       | A    |
| P <sub>C</sub>   | Collector power dissipation | T <sub>C</sub> =25 | 40      | 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>(BR)CEO</sub> | Collector-emitter breakdown voltage  | I <sub>C</sub> =50mA, I <sub>B</sub> =0         | 50  |      |     | V    |
| V <sub>CEsat</sub>   | Collector-emitter saturation voltage | I <sub>C</sub> =6A; I <sub>B</sub> =0.3A        |     |      | 0.4 | V    |
| V <sub>BEsat</sub>   | Base-emitter saturation voltage      | I <sub>C</sub> =6A; I <sub>B</sub> =0.3A        |     |      | 1.2 | V    |
| I <sub>CBO</sub>     | Collector cut-off current            | V <sub>CB</sub> =60V; I <sub>E</sub> =0         |     |      | 10  | μA   |
| I <sub>EBO</sub>     | Emitter cut-off current              | V <sub>EB</sub> =6V; I <sub>C</sub> =0          |     |      | 10  | μA   |
| h <sub>FE-1</sub>    | DC current gain                      | I <sub>C</sub> =1A; V <sub>CE</sub> =1V         | 70  |      | 240 |      |
| h <sub>FE-2</sub>    | DC current gain                      | I <sub>C</sub> =6A; V <sub>CE</sub> =1V         | 40  |      |     |      |
| C <sub>ob</sub>      | Output capacitance                   | I <sub>E</sub> =0; V <sub>CB</sub> =10V; f=1MHz |     | 180  |     | pF   |
| f <sub>T</sub>       | Transition frequency                 | I <sub>C</sub> =1A; V <sub>CE</sub> =5V         |     | 90   |     | MHz  |

## Switching times

|                 |              |  |  |     |  |    |
|-----------------|--------------|--|--|-----|--|----|
| t <sub>on</sub> | Turn-on time | I <sub>C</sub> =6.0A I <sub>B1</sub> =- I <sub>B2</sub> =0.3A<br>R <sub>L</sub> =5 Ω; V <sub>CC</sub> =30V |  | 0.2 |  | μs |
| t <sub>s</sub>  | Storage time |  |  | 1.0 |  | μs |
| t <sub>f</sub>  | Fall time    |  |  | 0.2 |  | μs |

◆ h<sub>FE-1</sub> Classifications

| O      | Y       |
|--------|---------|
| 70-140 | 120-240 |

PACKAGE OUTLINE



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

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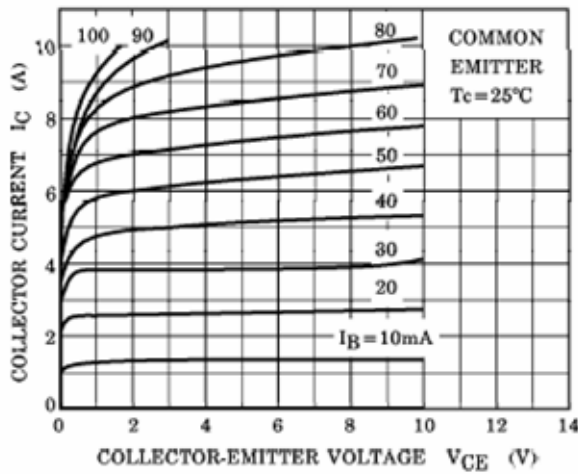


Fig.3 Static Characteristic

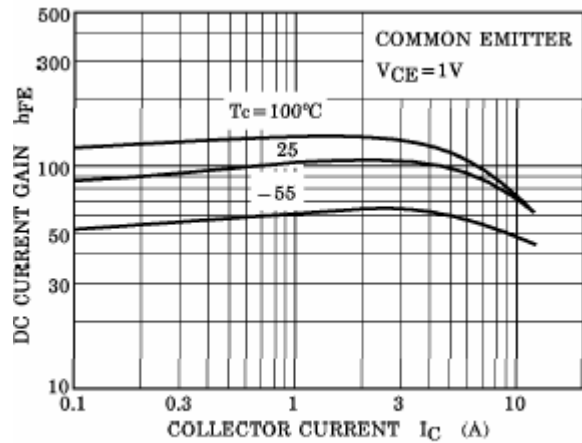


Fig.4 DC current Gain

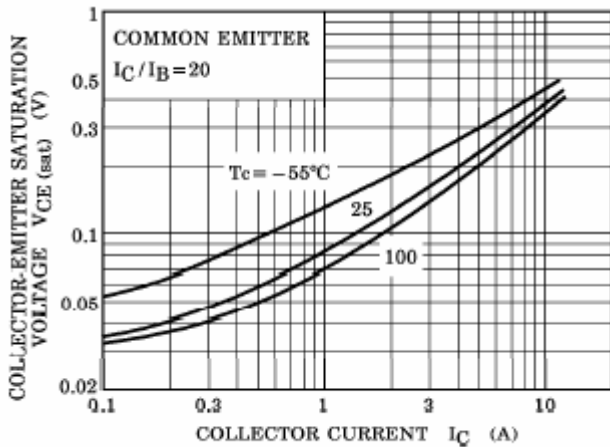


Fig.5 Collector-Emitter Saturation Voltage

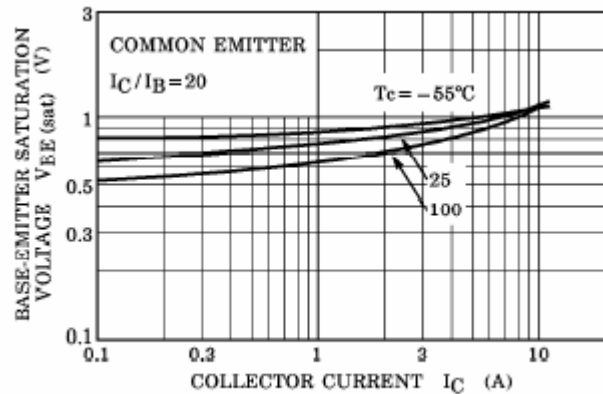


Fig.6 Base-Emitter Saturation Voltage

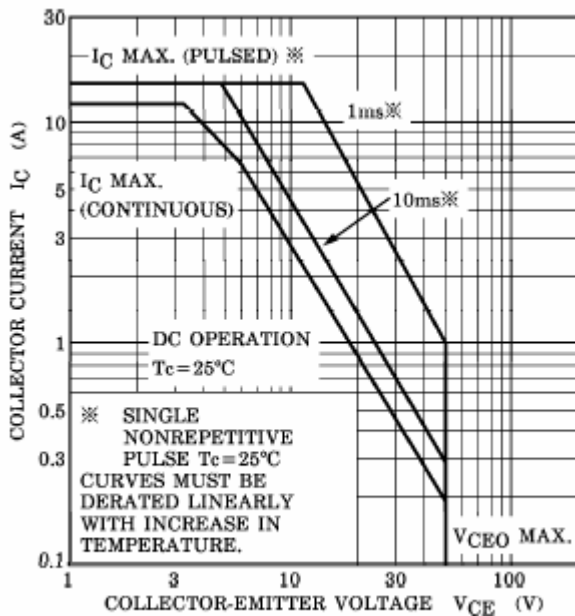


Fig.7 Safe Operating Area