

**Silicon NPN Power Transistors**

**2SC4419**

**DESCRIPTION**

- With TO-3PN package
- High reliability
- High voltage ,high speed switching

**APPLICATIONS**

- Switching regulators
- Ultrasonic generators
- High frequency inverters
- General purpose power amplifiers

**PINNING**

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

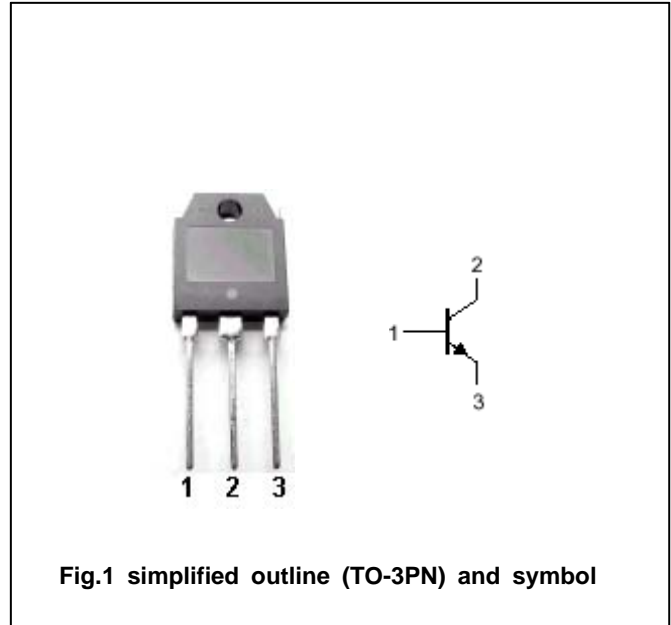


Fig.1 simplified outline (TO-3PN) and symbol

**Absolute maximum ratings(Ta=°C)**

| SYMBOL           | PARAMETER                   | CONDITIONS           | VALUE   | UNIT |
|------------------|-----------------------------|----------------------|---------|------|
| V <sub>CBO</sub> | Collector-base voltage      | Open emitter         | 900     | V    |
| V <sub>CEO</sub> | Collector-emitter voltage   | Open base            | 800     | V    |
| V <sub>EBO</sub> | Emitter-base voltage        | Open collector       | 10      | V    |
| I <sub>C</sub>   | Collector current           |                      | 6       | A    |
| I <sub>B</sub>   | Base current                |                      | 3       | A    |
| P <sub>C</sub>   | Collector power dissipation | T <sub>C</sub> =25°C | 100     | W    |
| T <sub>j</sub>   | Junction temperature        |                      | 150     | °C   |
| T <sub>stg</sub> | Storage temperature         |                      | -55~150 | °C   |

**THERMAL CHARACTERISTICS**

| SYMBOL              | PARAMETER                        | MAX  | UNIT |
|---------------------|----------------------------------|------|------|
| R <sub>th j-c</sub> | Thermal resistance junction case | 1.25 | °C/W |

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## CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

| SYMBOL               | PARAMETER                            | CONDITIONS                                | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|-------------------------------------------|-----|------|-----|------|
| V <sub>(BR)CEO</sub> | Collector-emitter breakdown voltage  | I <sub>C</sub> =10mA ; I <sub>B</sub> =0  | 800 |      |     | V    |
| V <sub>(BR)CBO</sub> | Collector-base breakdown voltage     | I <sub>C</sub> =1mA ; I <sub>E</sub> =0   | 900 |      |     | V    |
| V <sub>(BR)EBO</sub> | Emitter-base breakdown voltage       | I <sub>E</sub> =1mA ; I <sub>B</sub> =0   | 10  |      |     | V    |
| V <sub>CEsat</sub>   | Collector-emitter saturation voltage | I <sub>C</sub> =2A; I <sub>B</sub> =0.4A  |     |      | 1.0 | V    |
| V <sub>BEsat</sub>   | Base-emitter saturation voltage      | I <sub>C</sub> =2A; I <sub>B</sub> =0.4A  |     |      | 1.5 | V    |
| I <sub>CBO</sub>     | Collector cut-off current            | V <sub>CB</sub> =900V ; I <sub>E</sub> =0 |     |      | 1.0 | mA   |
| I <sub>EBO</sub>     | Emitter cut-off current              | V <sub>EB</sub> =10V; I <sub>C</sub> =0   |     |      | 1.0 | mA   |
| h <sub>FE</sub>      | DC current gain                      | I <sub>C</sub> =2A ; V <sub>CE</sub> =5V  | 10  |      |     |      |

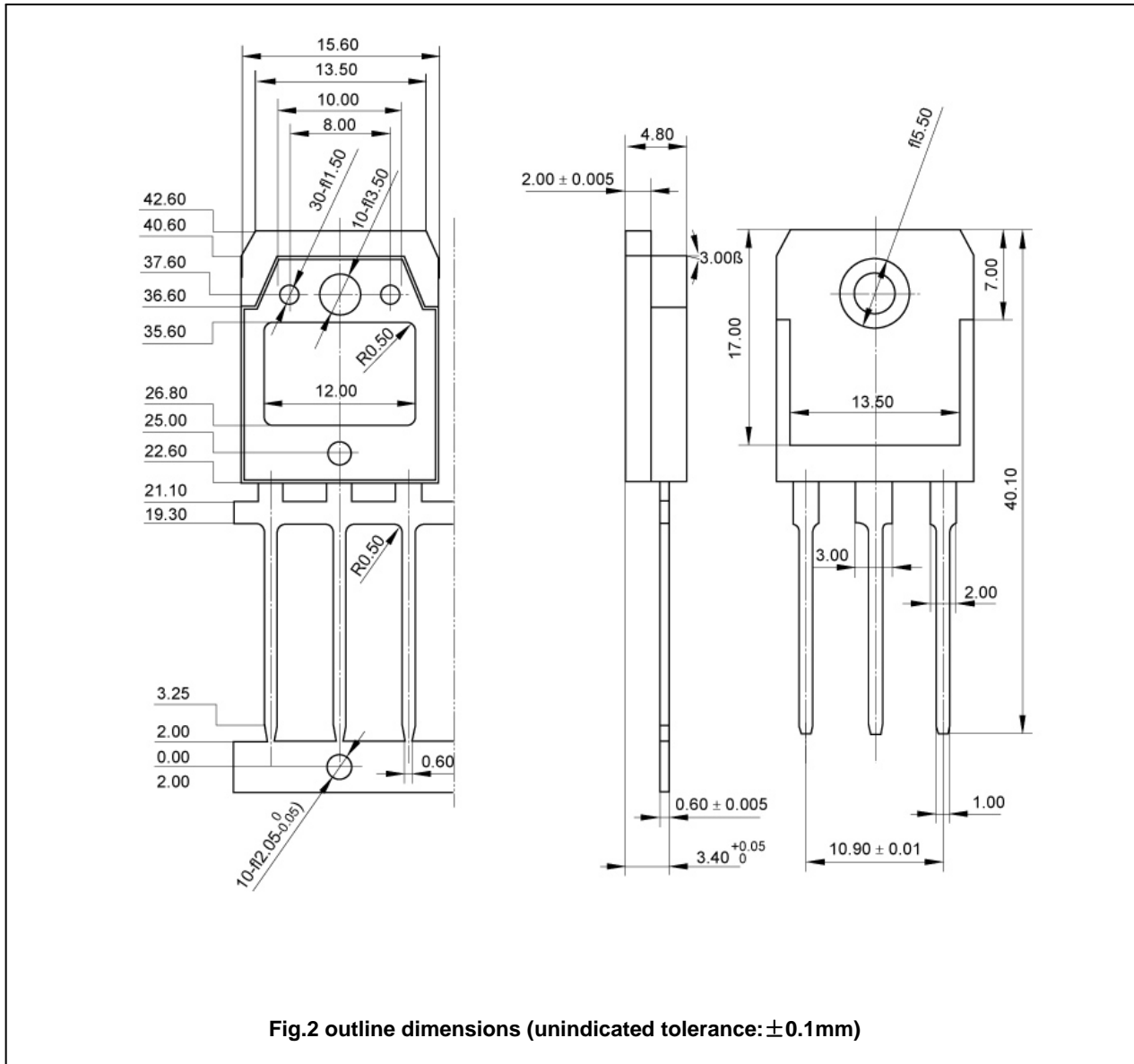
## Switching times

|                  |              |                                                                                                                                  |  |  |     |     |
|------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------|--|--|-----|-----|
| t <sub>on</sub>  | Turn-on time | I <sub>C</sub> =3A; I <sub>B1</sub> =0.6A;<br>I <sub>B2</sub> =-1.2A; R <sub>L</sub> =100 Ω<br>P <sub>W</sub> =20 μ s, Duty ≤ 2% |  |  | 1.0 | μ s |
| t <sub>stg</sub> | Storage time |                                                                                                                                  |  |  | 4.0 | μ s |
| t <sub>f</sub>   | Fall time    |                                                                                                                                  |  |  | 0.8 | μ s |

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PACKAGE OUTLINE



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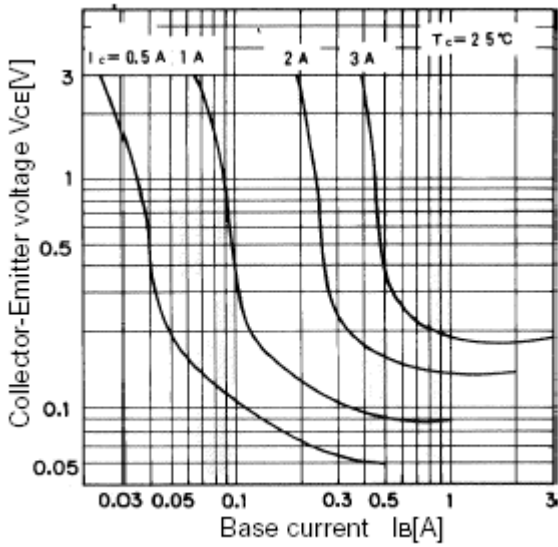


Fig.3 Static Characteristic

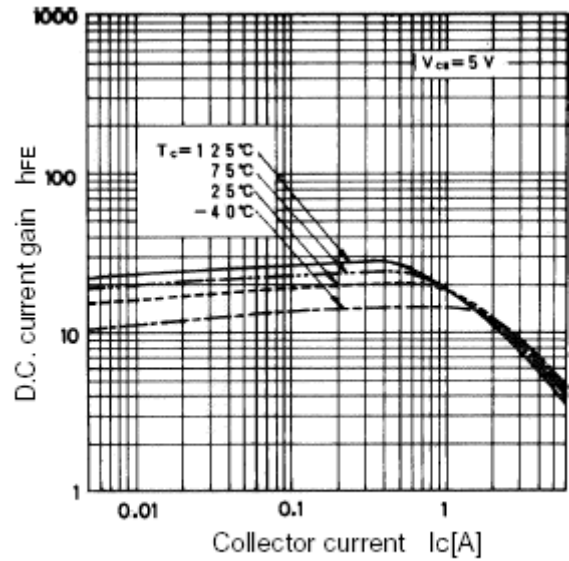


Fig.4 DC current Gain

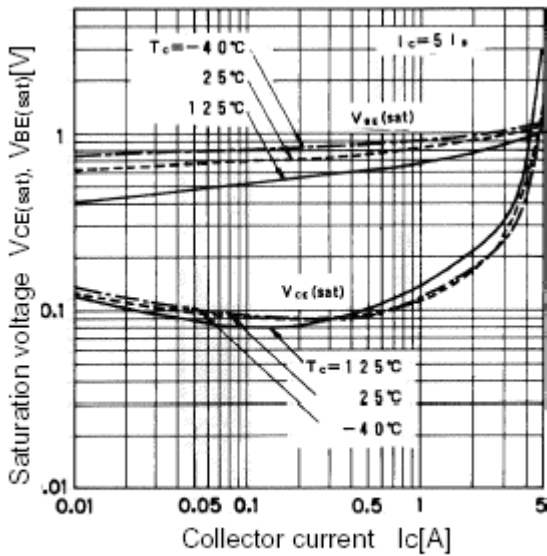


Fig.5 Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

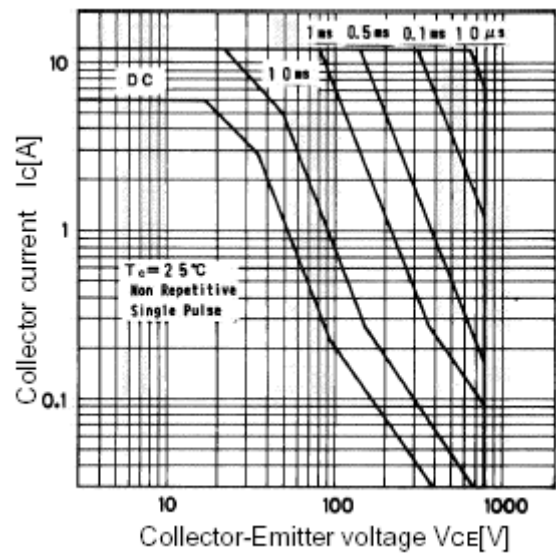


Fig.6 Safe Operating Area