

Silicon NPN Power Transistors

2SC4111

DESCRIPTION

- With TO-3PL package
- High voltage ,high speed
- Wide area of safe operation

APPLICATIONS

- For horizontal deflection output application

PINNING

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

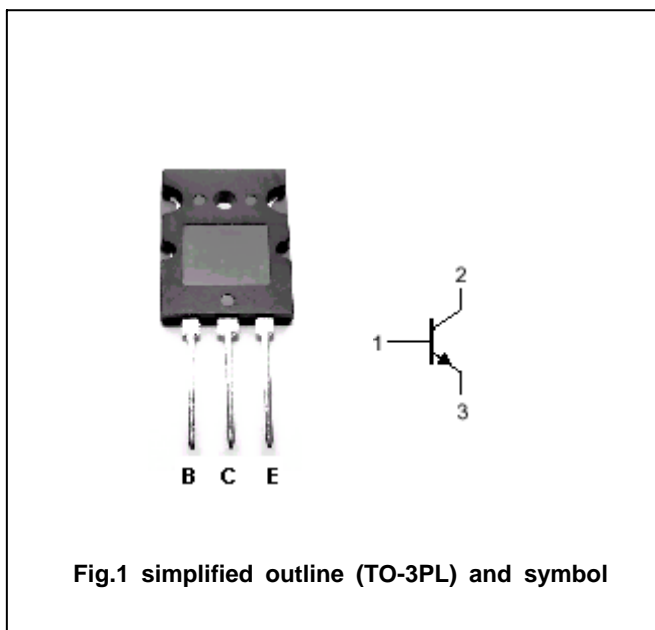


Fig.1 simplified outline (TO-3PL) and symbol

Absolute maximum ratings(Ta=25°C)

| SYMBOL           | PARAMETER                   | CONDITIONS           | VALUE   | UNIT |
|------------------|-----------------------------|----------------------|---------|------|
| V <sub>CBO</sub> | Collector-base voltage      | Open emitter         | 1500    | V    |
| V <sub>CEO</sub> | Collector-emitter voltage   | Open base            | 700     | V    |
| V <sub>EBO</sub> | Emitter-base voltage        | Open collector       | 7       | V    |
| I <sub>C</sub>   | Collector current           |                      | 10      | A    |
| I <sub>CM</sub>  | Collector current-peak      |                      | 22      | A    |
| I <sub>B</sub>   | Base current                |                      | 3.5     | A    |
| P <sub>C</sub>   | Collector power dissipation | T <sub>a</sub> =25°C | 3.5     | W    |
|                  |                             | T <sub>C</sub> =25°C | 150     |      |
| T <sub>j</sub>   | Junction temperature        |                      | 150     | °C   |
| T <sub>stg</sub> | Storage temperature         |                      | -55~150 | °C   |

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## CHARACTERISTICS

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

| SYMBOL               | PARAMETER                            | CONDITIONS  | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|---|-----|------|-----|------|
| V <sub>(BR)EBO</sub> | Eemitter-base breakdown voltage      | I <sub>E</sub> =1mA ; I <sub>C</sub> =0             | 7   |      |     | V    |
| V <sub>CEsat</sub>   | Collector-emitter saturation voltage | I <sub>C</sub> =7A ; I <sub>B</sub> =2.5A           |     |      | 5.0 | V    |
| V <sub>BEsat</sub>   | Base-emitter saturation voltage      | I <sub>C</sub> =7A ; I <sub>B</sub> =2.5A           |     |      | 1.5 | V    |
| I <sub>CBO</sub>     | Collector cut-off current            | V <sub>CB</sub> =750V; I <sub>E</sub> =0            |     |      | 10  | μ A  |
|                      |                                      | V <sub>CB</sub> =1500V; I <sub>E</sub> =0           |     |      | 1   | mA   |
| h <sub>FE-1</sub>    | DC current gain                      | I <sub>C</sub> =1A ; V <sub>CE</sub> =5V            | 5   |      |     |      |
| h <sub>FE-2</sub>    | DC current gain                      | I <sub>C</sub> =7A ; V <sub>CE</sub> =5V            | 3   |      | 8   |      |
| f <sub>T</sub>       | Transition frequency                 | I <sub>C</sub> =1A ; V <sub>CE</sub> =10V; f=0.5MHz |     | 2    |     | MHz  |

## Switching times

|                |              |  |  |  |     |     |
|----------------|--------------|--|--|--|-----|-----|
| t <sub>s</sub> | Storage time | I <sub>C</sub> =6A ; I <sub>B1</sub> =-I <sub>B2</sub> =1.7A<br>L <sub>Leak</sub> =5 μ H |  |  | 12  | μ s |
| t <sub>f</sub> | Fall time    |  |  |  | 0.6 | μ s |

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PACKAGE OUTLINE

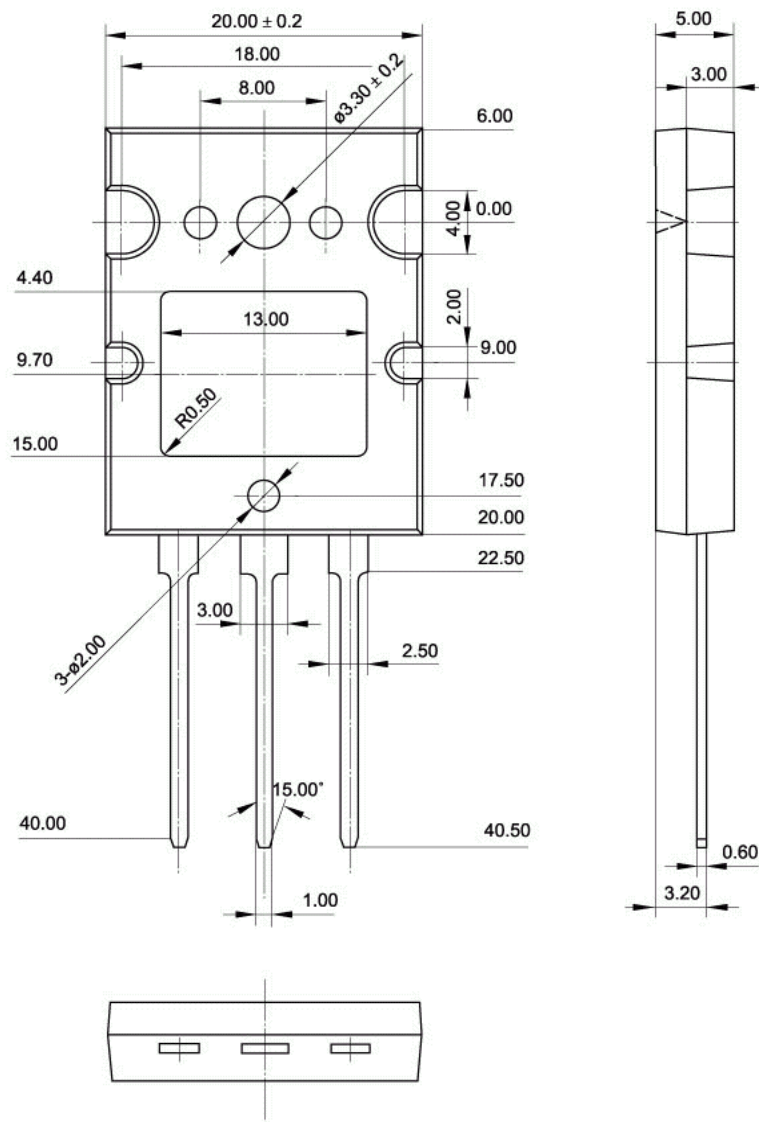


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.50$  mm)

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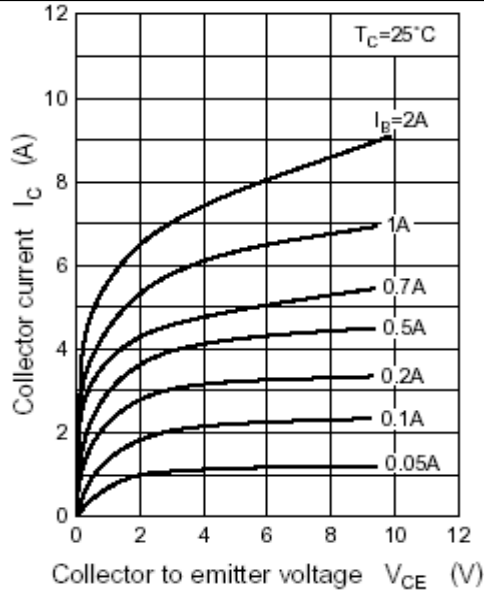


Fig.3 Static Characteristic

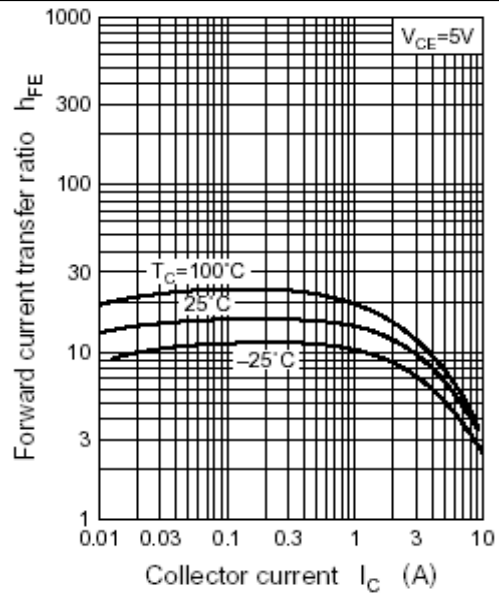


Fig.4 DC current Gain

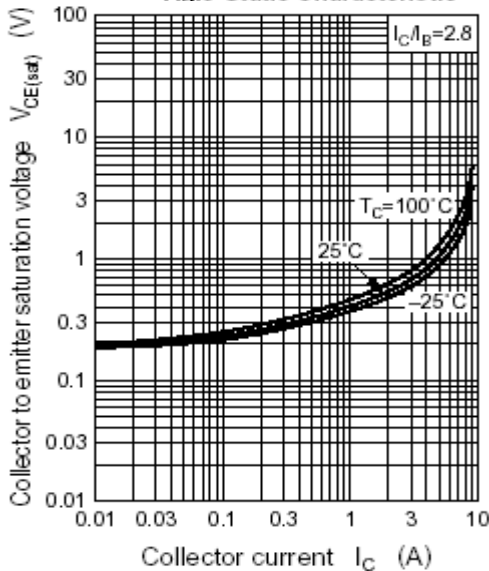


Fig.5 Collector-Emitter Saturation Voltage

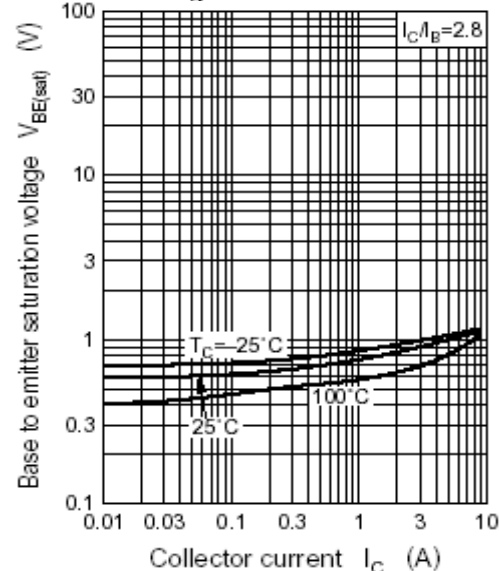


Fig.6 Base-Emitter Saturation Voltage

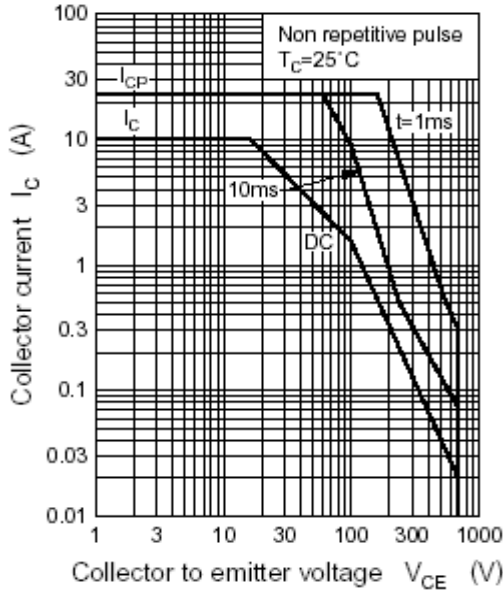


Fig.7 Safe Operating Area