

**Silicon NPN Power Transistors**

**2SD1877**

**DESCRIPTION**

- With TO-3PML package
- High speed
- High breakdown voltage
- High reliability
- Built-in damper diode

**APPLICATIONS**

- Color TV horizontal deflection output
- Color display horizontal deflection output

**PINNING**

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | Base        |
| 2   | Collector   |
| 3   | Emitter     |

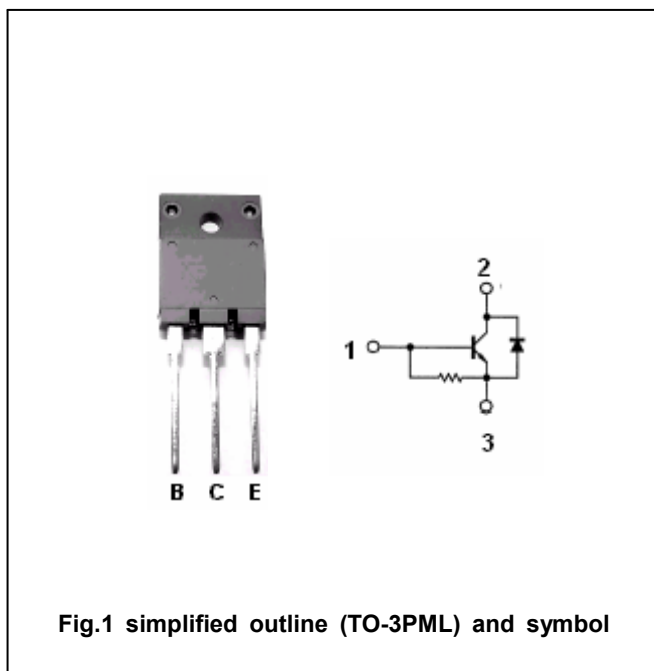


Fig.1 simplified outline (TO-3PML) and symbol

**Absolute maximum ratings(Tc=25°C)**

| SYMBOL    | PARAMETER                   | CONDITIONS     | VALUE   | UNIT |
|-----------|-----------------------------|----------------|---------|------|
| $V_{CBO}$ | Collector-base voltage      | Open emitter   | 1500    | V    |
| $V_{CEO}$ | Collector-emitter voltage   | Open base      | 800     | V    |
| $V_{EBO}$ | Emitter-base voltage        | Open collector | 6       | V    |
| $I_C$     | Collector current           |                | 4       | A    |
| $I_{CM}$  | Collector current-peak      |                | 12      | A    |
| $P_C$     | Collector power dissipation |                | 50      | W    |
| $T_j$     | Junction temperature        |                | 150     | °C   |
| $T_{stg}$ | 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>CEO(SUS)</sub> | Collector-emitter sustaining voltage | I <sub>C</sub> =100mA; I <sub>B</sub> =0  | 800 |      |     | V    |
| V <sub>CEsat</sub>    | Collector-emitter saturation voltage | I <sub>C</sub> =2.5A; I <sub>B</sub> =0.8A  |     |      | 5   | V    |
| V <sub>BEsat</sub>    | Base-emitter saturation voltage      | I <sub>C</sub> =2.5A; I <sub>B</sub> =0.8A  |     |      | 1.5 | V    |
| I <sub>CBO</sub>      | Collector cut-off current            | V <sub>CB</sub> =800V; I <sub>E</sub> =0  |     |      | 10  | μA   |
| I <sub>CES</sub>      | Collector cut-off current            | V <sub>CB</sub> =1500V; R <sub>BE</sub> =0  |     |      | 1.0 | mA   |
| I <sub>EBO</sub>      | Emitter cut-off current              | V <sub>EB</sub> =4V; I <sub>C</sub> =0  | 40  |      | 130 | mA   |
| h <sub>FE-1</sub>     | DC current gain                      | I <sub>C</sub> =0.5A; V <sub>CE</sub> =5V   | 8   |      |     |      |
| h <sub>FE-2</sub>     | DC current gain                      | I <sub>C</sub> =2.5A; V <sub>CE</sub> =5V   | 3.5 |      | 7   |      |
| V <sub>F</sub>        | Diode forward voltage                | I <sub>EC</sub> =4A   |     |      | 2.0 | V    |
| t <sub>f</sub>        | Fall time                            | I <sub>C</sub> =3A; R <sub>L</sub> =50Ω<br>I <sub>B1</sub> =0.8A; I <sub>B2</sub> =-1.6A; V <sub>CC</sub> =200V |     | 0.1  | 0.3 | μs   |

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PACKAGE OUTLINE

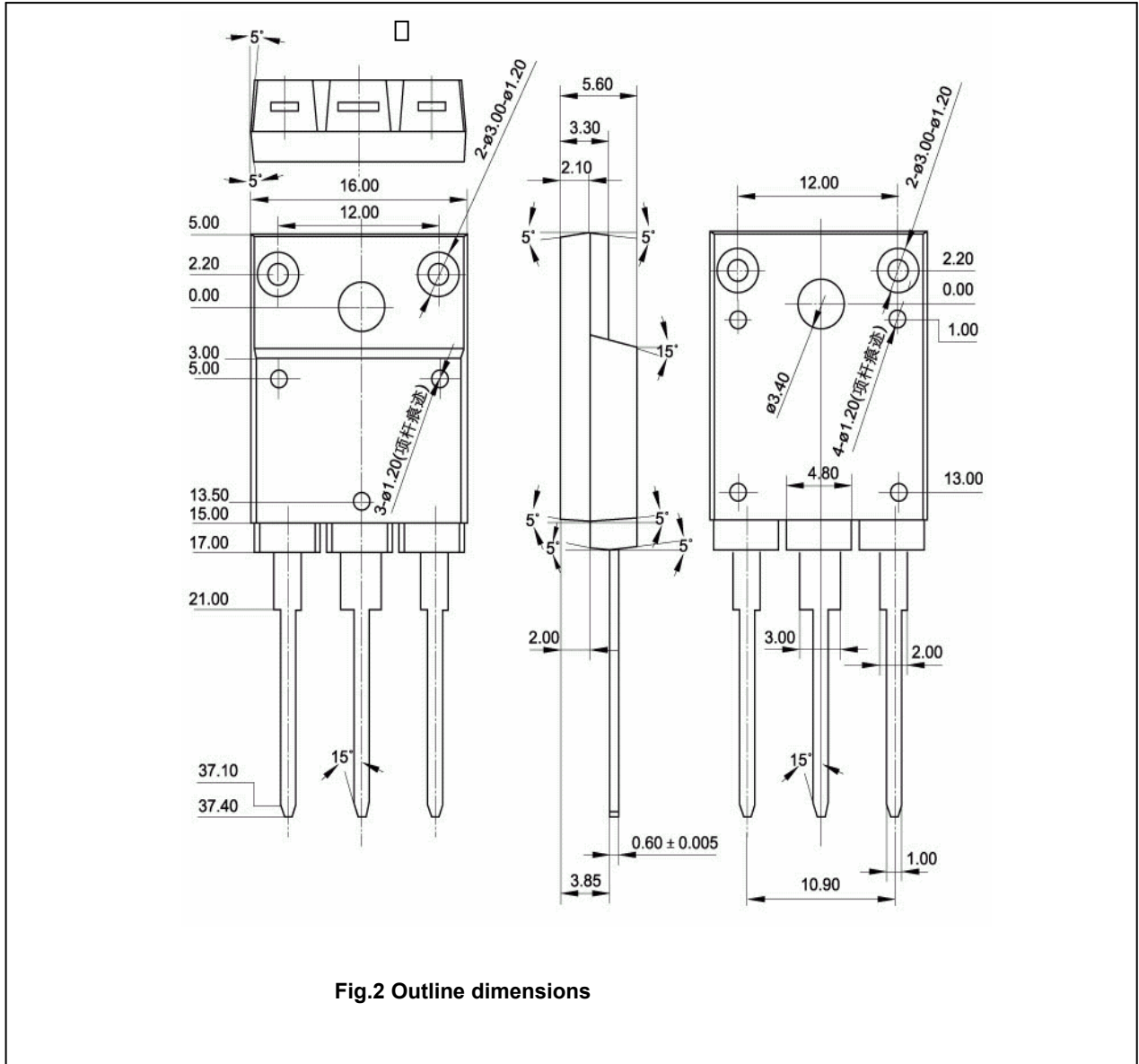


Fig.2 Outline dimensions

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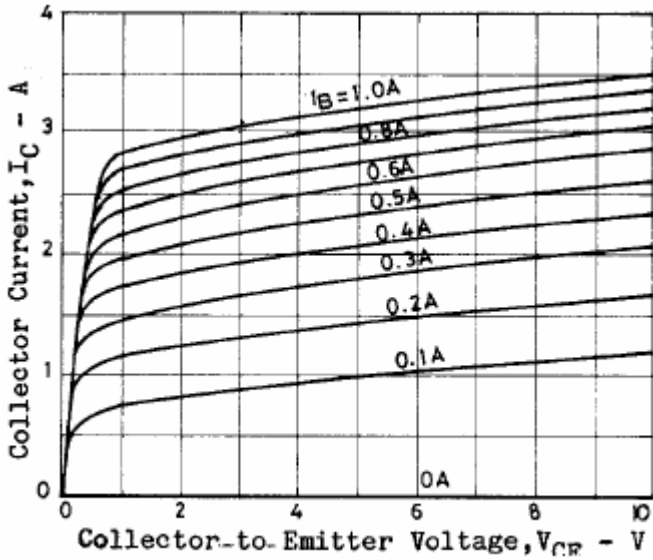


Fig.3 Static Characteristic

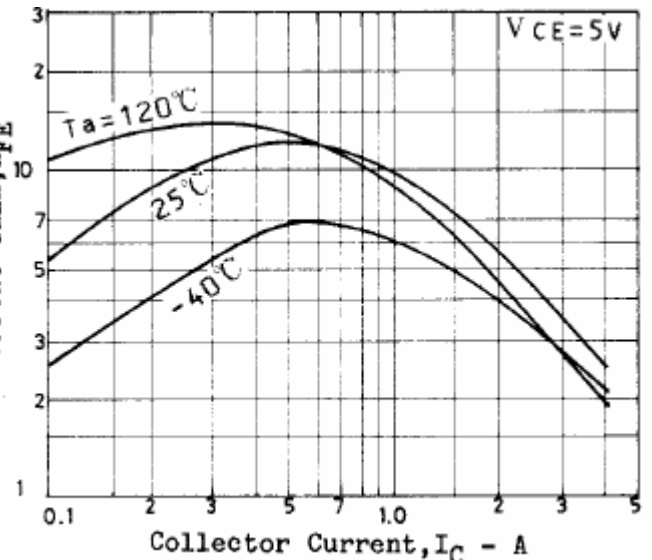


Fig.4 DC current Gain

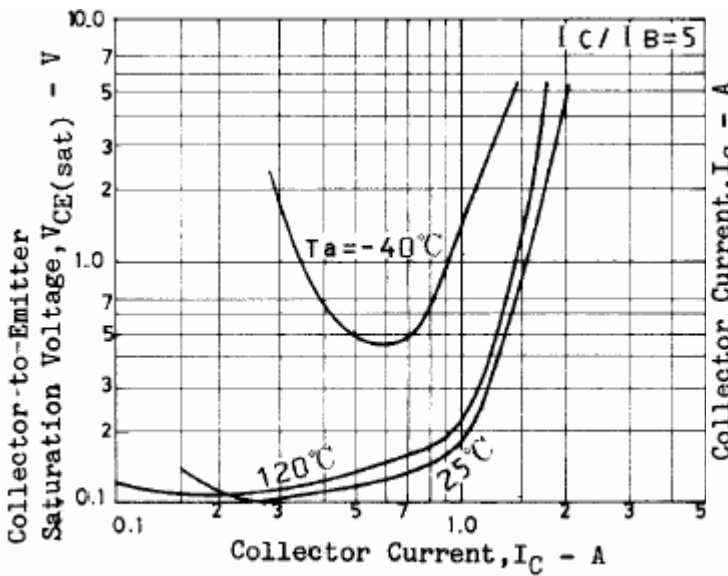


Fig.5 Collector-Emitter Saturation Voltage

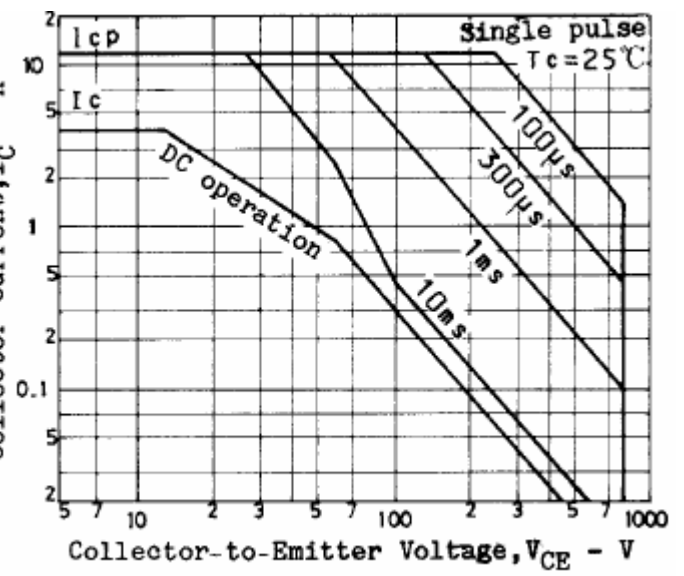


Fig.6 Safe Operating Area