

**Silicon PNP Power Transistors**

**2SA1186**

**DESCRIPTION**

- With TO-3PN package
- High current capability
- Complement to type 2SC2837

**APPLICATIONS**

- Audio and general purpose applications

**PINNING**

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

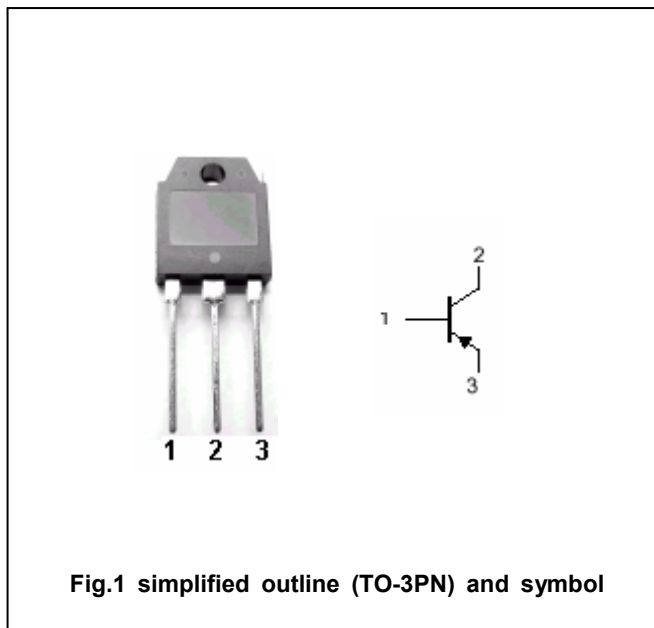


Fig.1 simplified outline (TO-3PN) and symbol

**Absolute maximum ratings(Ta=□)**

| SYMBOL           | PARAMETER                   | CONDITIONS          | VALUE   | UNIT |
|------------------|-----------------------------|---------------------|---------|------|
| V <sub>CBO</sub> | Collector-base voltage      | Open emitter        | -150    | V    |
| V <sub>CEO</sub> | Collector-emitter voltage   | Open base           | -150    | V    |
| V <sub>EBO</sub> | Emitter-base voltage        | Open collector      | -5      | V    |
| I <sub>C</sub>   | Collector current           |                     | -10     | A    |
| I <sub>B</sub>   | Base current                |                     | -2      | A    |
| P <sub>C</sub>   | Collector power dissipation | T <sub>C</sub> =25□ | 100     | W    |
| T <sub>j</sub>   | Junction temperature        |                     | 150     | □    |
| T <sub>stg</sub> | Storage temperature         |                     | -55~150 | □    |

## Silicon PNP Power Transistors

## 2SA1186

## 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> =-25mA ; I <sub>B</sub> =0         | -150 |      |      | V    |
| V <sub>CEsat</sub>   | Collector-emitter saturation voltage | I <sub>C</sub> =-5A; I <sub>B</sub> =-0.5A        |      |      | -2.0 | V    |
| I <sub>CBO</sub>     | Collector cut-off current            | V <sub>CB</sub> =-150V; I <sub>E</sub> =0         |      |      | -0.1 | mA   |
| I <sub>EBO</sub>     | Emitter cut-off current              | V <sub>EB</sub> =-5V; I <sub>C</sub> =0           |      |      | -0.1 | mA   |
| h <sub>FE</sub>      | DC current gain                      | I <sub>C</sub> =-3A ; V <sub>CE</sub> =-4V        | 50   |      |      |      |
| C <sub>ob</sub>      | Output capacitance                   | I <sub>E</sub> =0 ; V <sub>CB</sub> =-80V; f=1MHz |      | 110  |      | pF   |
| f <sub>T</sub>       | Transition frequency                 | I <sub>E</sub> =1A ; V <sub>CE</sub> =-12V        |      | 60   |      | MHz  |

## Switching times

|                 |              |   |  |      |  |    |
|-----------------|--------------|---|--|------|--|----|
| t <sub>on</sub> | Turn-on time | I <sub>C</sub> =-5A; R <sub>L</sub> =12Ω<br>I <sub>B1</sub> =-I <sub>B2</sub> =-0.5A<br>V <sub>CC</sub> =-60V |  | 0.25 |  | μs |
| t <sub>s</sub>  | Storage time |   |  | 0.80 |  | μs |
| t <sub>f</sub>  | Fall time    |   |  | 0.20 |  | μs |

◆ h<sub>FE</sub> Classifications

| O      | P      | Y      |
|--------|--------|--------|
| 50-100 | 70-140 | 90-180 |

Silicon PNP Power Transistors

2SA1186

PACKAGE OUTLINE

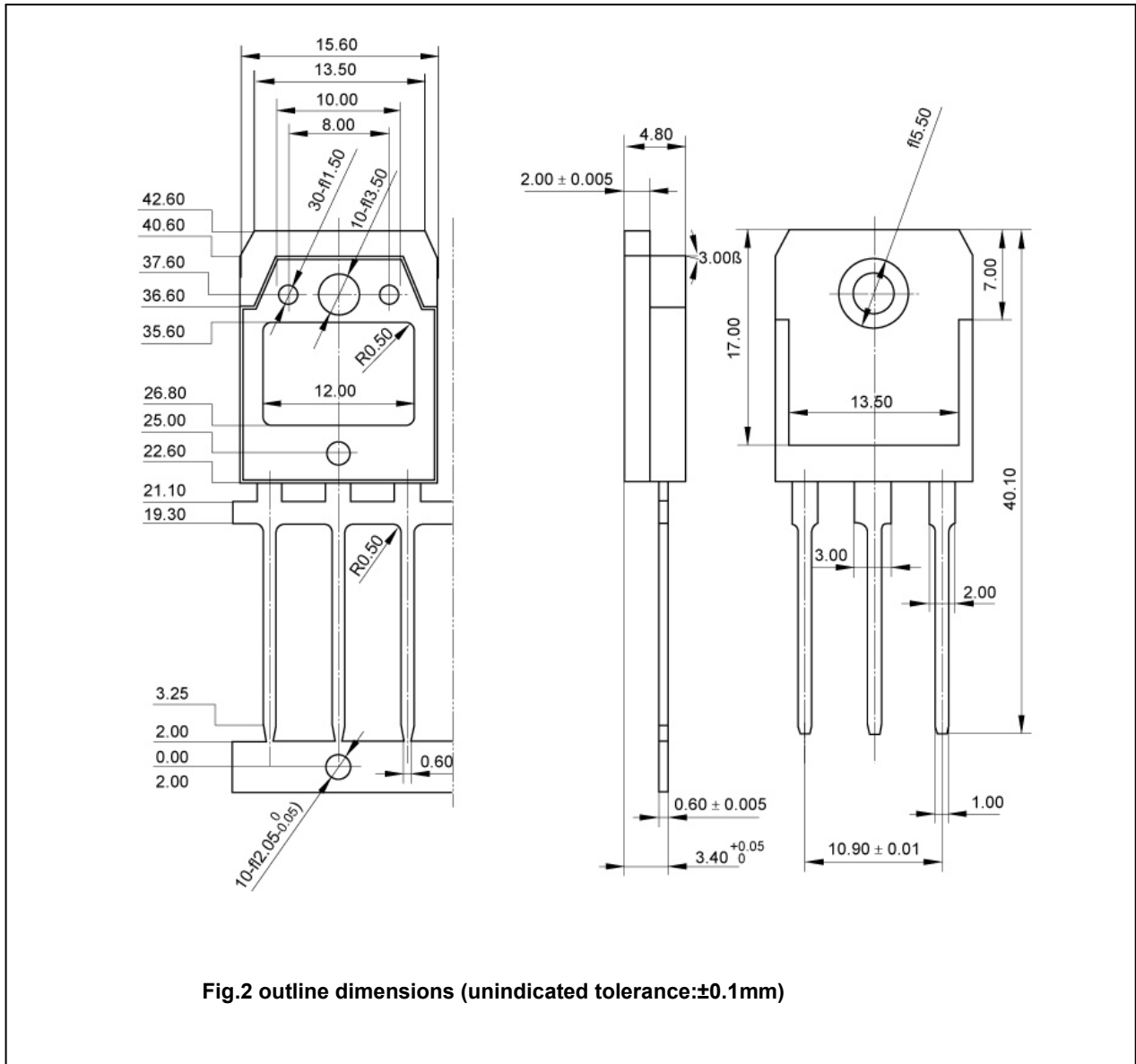


Fig.2 outline dimensions (unindicated tolerance:  $\pm 0.1$ mm)

Silicon PNP Power Transistors

2SA1186

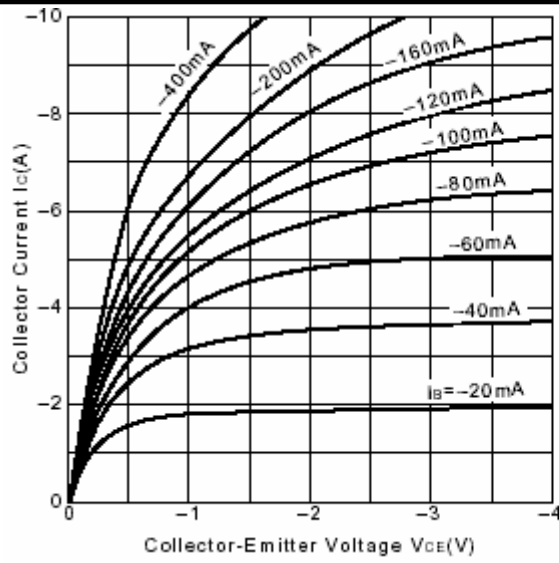


Fig.3 Static Characteristic

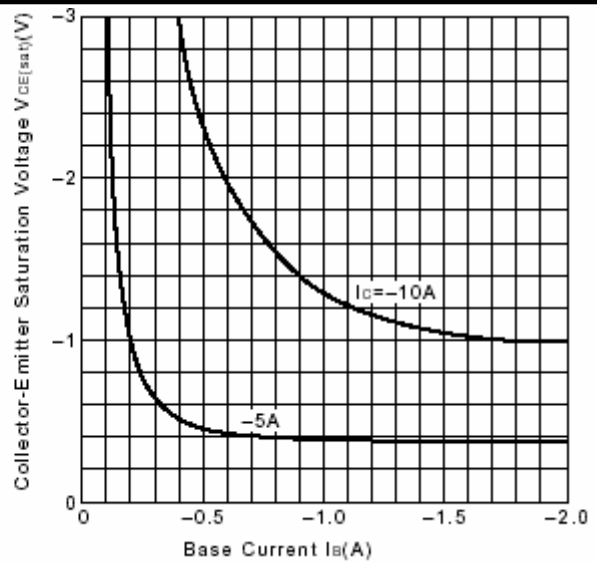


Fig.4  $V_{CE(sat)}-I_B$  Characteristics

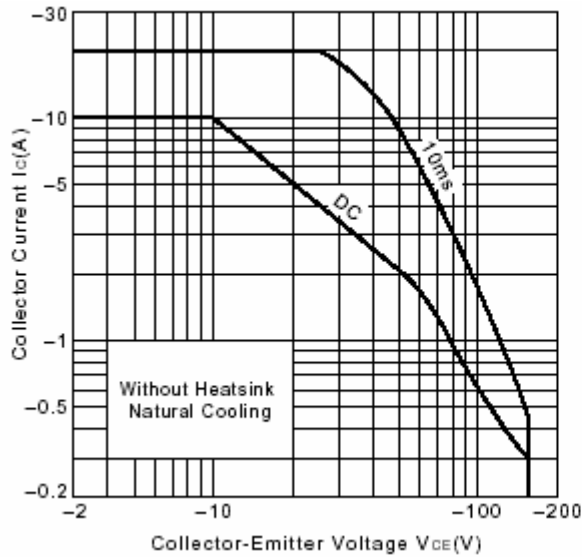


Fig.5 Safe Operating Area

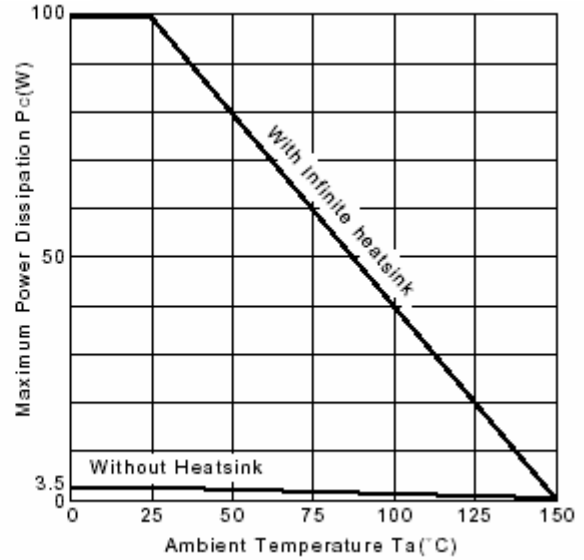


Fig.6  $P_c-T_a$  Derating

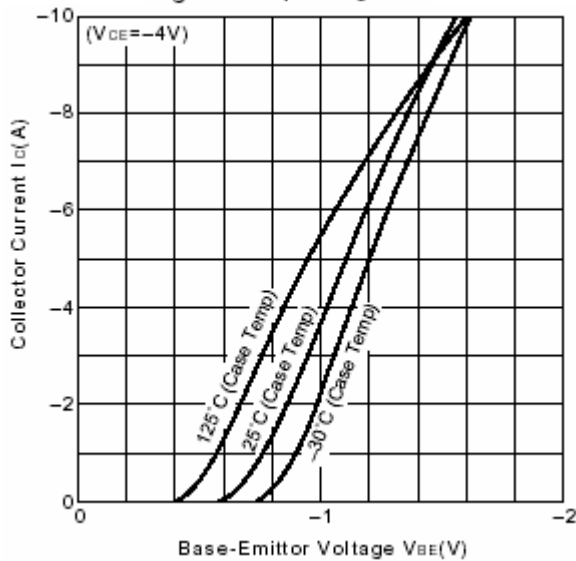


Fig.7  $I_C-V_{BE}$

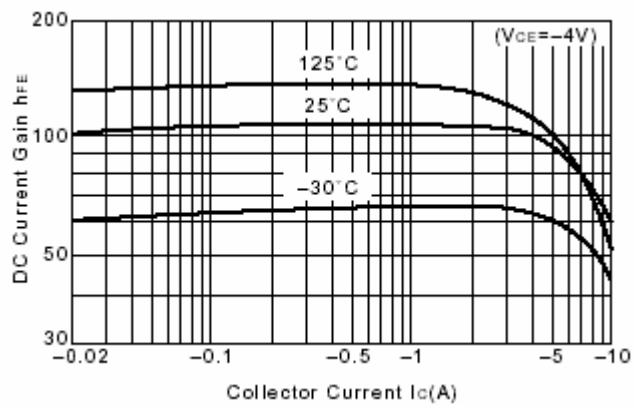


Fig.8 DC current Gain