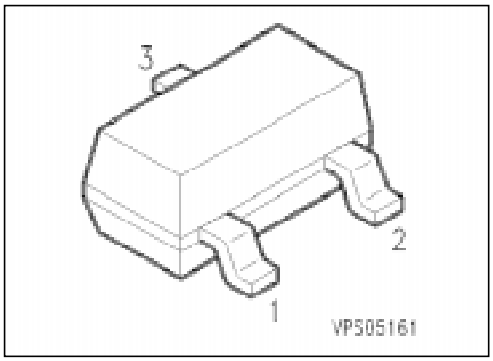
SIEMENS

## PNP Silicon Switching Transistor — SMBT 4126

- High current gain: 0.1 mA to 100 mA
- Low collector-emitter saturation voltage




| Type | Marking | Ordering Code (tape and reel) | Pin Configuration 1 | 2 | 3 | Package[1] |
|---|---|---|---|---|---|---|
| SMBT 4126 | sC3 | Q68000-A8549 | B | E | C | SOT-23 |

### Maximum Ratings

| Parameter | Symbol | Values | Unit |
|---|---|---|---|
| Collector-emitter voltage | $V_{CE0}$ | 25 | V |
| Collector-base voltage | $V_{CB0}$ | 25 | |
| Emitter-base voltage | $V_{EB0}$ | 4 | |
| Collector current | $I_C$ | 200 | mA |
| Total power dissipation, $T_S$ = 71 °C | $P_{tot}$ | 330 | mW |
| Junction temperature | $T_j$ | 150 | °C |
| Storage temperature range | $T_{stg}$ | – 65 … + 150 | |

### Thermal Resistance

| | | | |
|---|---|---|---|
| Junction - ambient[2] | $R_{th\ JA}$ | ≤ 310 | K/W |
| Junction - soldering point | $R_{th\ JS}$ | ≤ 240 | |

1) For detailed information see chapter Package Outlines.

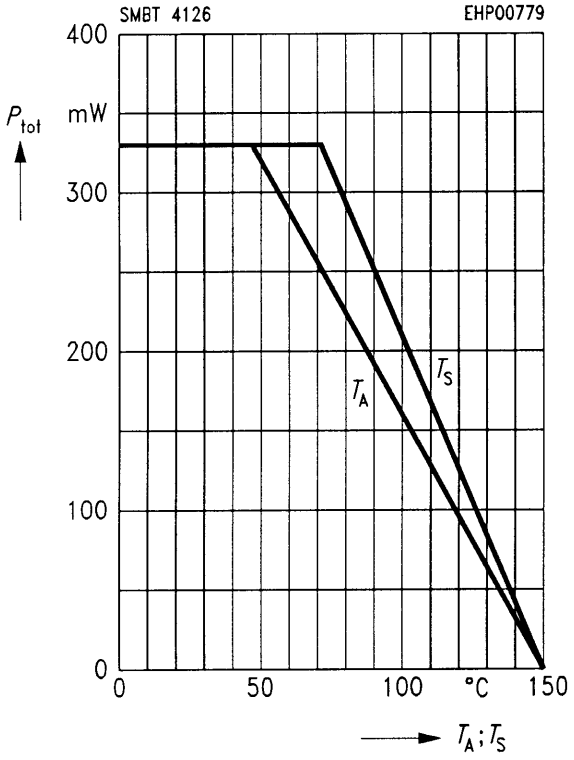
2) Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm² Cu.

**Electrical Characteristics**
at $T_A$ = 25 °C, unless otherwise specified.

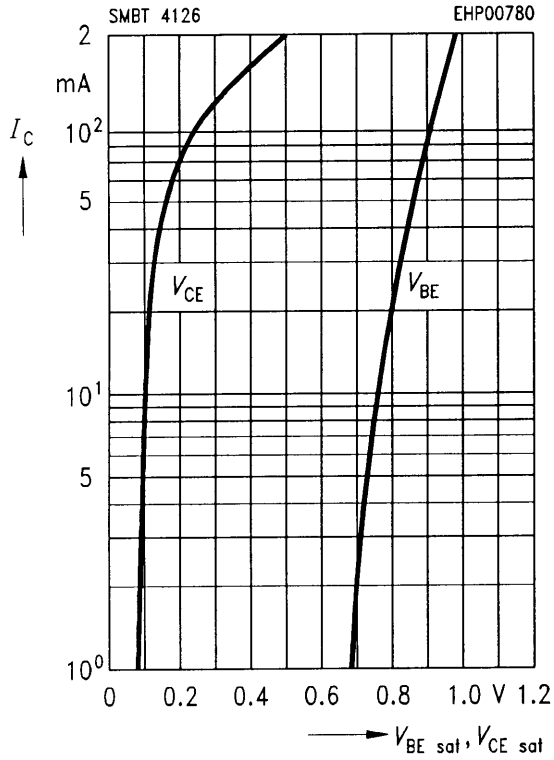
| Parameter | Symbol | Values | | | Unit |
|---|---|---|---|---|---|
| | | min. | typ. | max. | |
| **DC characteristics** | | | | | |
| Collector-emitter breakdown voltage<br>$I_C$ = 1 mA | $V_{(BR)CE0}$ | 25 | – | – | V |
| Collector-base breakdown voltage<br>$I_C$ = 10 µA | $V_{(BR)CB0}$ | 25 | – | – | |
| Emitter-base breakdown voltage<br>$I_E$ = 10 µA | $V_{(BR)EB0}$ | 4 | – | – | |
| Collector-base cutoff current<br>$V_{CB}$ = 20 V, $I_E$ = 0 | $I_{CB0}$ | – | – | 50 | nA |
| Emitter-base cutoff current<br>$V_{EB}$ = 3 V, $I_C$ = 0 | $I_{EB0}$ | – | – | 50 | |
| DC current gain<br>$I_C$ = 2 mA, $V_{CE}$ = 1 V<br>$I_C$ = 50 mA, $V_{CE}$ = 1 V | $h_{FE}$ | <br>120<br>60 | <br>–<br>– | <br>360<br>– | – |
| Collector-emitter saturation voltage[1)]<br>$I_C$ = 50 mA, $I_B$ = 5 mA | $V_{CEsat}$ | – | – | 0.4 | V |
| Base-emitter saturation voltage[1)]<br>$I_C$ = 50 mA, $I_B$ = 5 mA | $V_{BEsat}$ | – | – | 0.95 | |
| **AC characteristics** | | | | | |
| Transition frequency<br>$I_C$ = 10 mA, $V_{CE}$ = 20 V, $f$ = 100 MHz | $f_T$ | 250 | – | – | MHz |
| Output capacitance<br>$V_{CB}$ = 5 V, $f$ = 1 MHz | $C_{obo}$ | – | – | 4.5 | pF |
| Input capacitance<br>$V_{EB}$ = 0.5 V, $f$ = 1 MHz | $C_{ibo}$ | – | – | 10 | |
| Small-signal current gain<br>$I_C$ = 1 mA, $V_{CE}$ = 5 V, $f$ = 1 kHz | $h_{fe}$ | 120 | – | 480 | – |
| Noise figure<br>$I_C$ = 0.1 mA, $V_{CE}$ = 5 V, $f$ = 10 Hz to 15 kHz<br>$R_S$ = 1 kΩ | $NF$ | – | – | 4 | dB |

1) Pulse test conditions: $t \leq 300$ µs, $D \leq 2$ %.

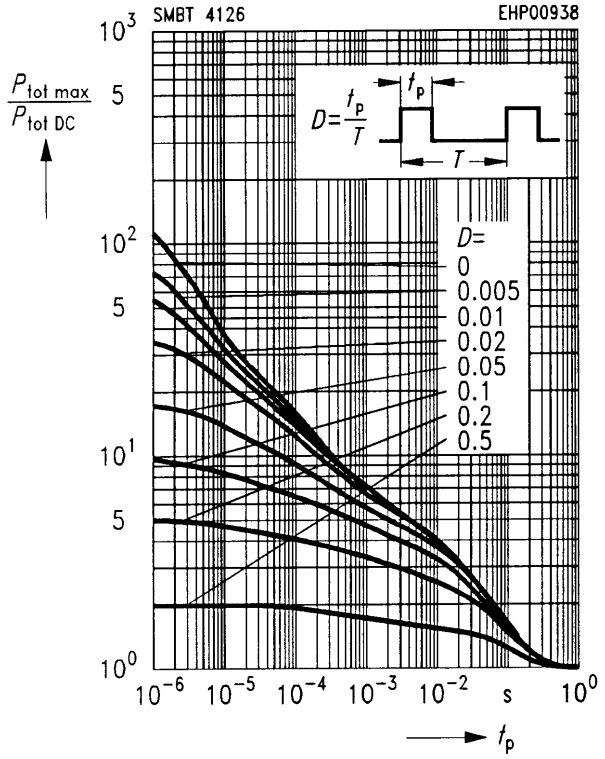
**Total power dissipation** $P_{tot} = f(T_A^*; T_S)$
* Package mounted on epoxy



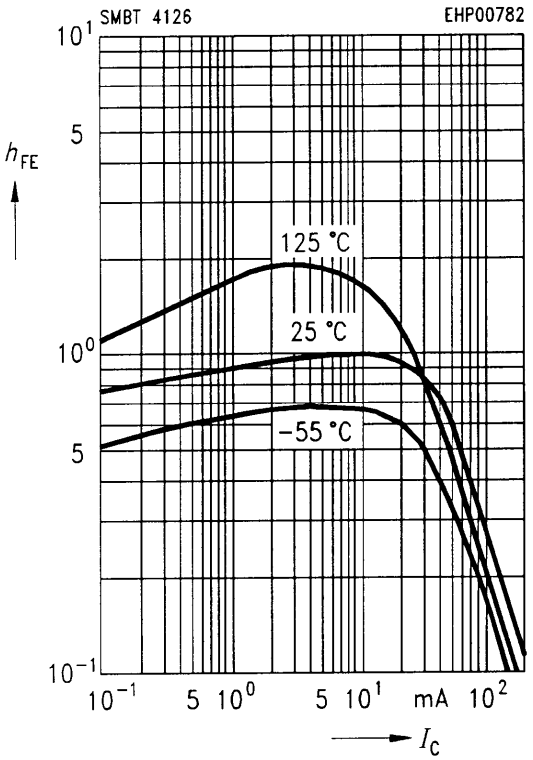

**Saturation voltage** $I_C = f(V_{BE\,sat}, V_{CE\,sat})$




**Permissible pulse load** $P_{tot\,max} / P_{tot\,DC} = f(t_p)$




**DC current gain** $h_{FE} = f(I_C)$
$V_{CE}$ = 1 V, normalized



**Small-signal current gain** $h_{fe} = f(I_C)$
$V_{CE}$ = 10 V, $f$ = 1 MHz