

## 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			Package <sup>1)</sup>
			1	2	3	
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, $T_s = 71\text{ °C}$	$P_{tot}$	330	mW
Junction temperature	$T_j$	150	°C
Storage temperature range	$T_{stg}$	- 65 ... + 150	

### Thermal Resistance

Junction - ambient <sup>2)</sup>	$R_{th\ JA}$	≤ 310	K/W
Junction - soldering point	$R_{th\ JS}$	≤ 240	

<sup>1)</sup> For detailed information see chapter Package Outlines.

<sup>2)</sup> Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm<sup>2</sup> Cu.

**Electrical Characteristics**

at  $T_A = 25\text{ °C}$ , unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

**DC characteristics**

Collector-emitter breakdown voltage $I_C = 1\text{ mA}$	$V_{(BR)CE0}$	25	–	–	V
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}$	$V_{(BR)CB0}$	25	–	–	
Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EB0}$	4	–	–	
Collector-base cutoff current $V_{CB} = 20\text{ V}, I_E = 0$	$I_{CB0}$	–	–	50	nA
Emitter-base cutoff current $V_{EB} = 3\text{ V}, I_C = 0$	$I_{EB0}$	–	–	50	
DC current gain $I_C = 2\text{ mA}, V_{CE} = 1\text{ V}$ $I_C = 50\text{ mA}, V_{CE} = 1\text{ V}$	$h_{FE}$	120 60	– –	360 –	–
Collector-emitter saturation voltage <sup>1)</sup> $I_C = 50\text{ mA}, I_B = 5\text{ mA}$	$V_{CEsat}$	–	–	0.4	V
Base-emitter saturation voltage <sup>1)</sup> $I_C = 50\text{ mA}, I_B = 5\text{ mA}$	$V_{BEsat}$	–	–	0.95	

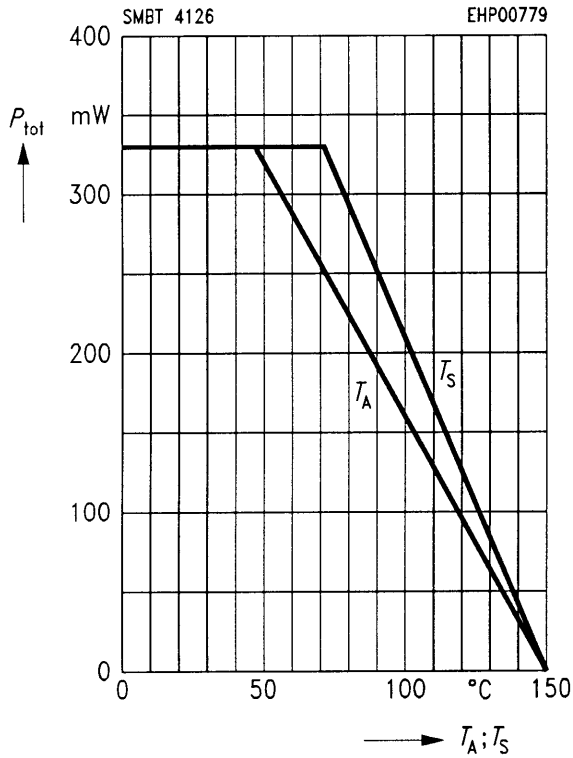
**AC characteristics**

Transition frequency $I_C = 10\text{ mA}, V_{CE} = 20\text{ V}, f = 100\text{ MHz}$	$f_T$	250	–	–	MHz
Output capacitance $V_{CB} = 5\text{ V}, f = 1\text{ MHz}$	$C_{obo}$	–	–	4.5	pF
Input capacitance $V_{EB} = 0.5\text{ V}, f = 1\text{ MHz}$	$C_{ibo}$	–	–	10	
Small-signal current gain $I_C = 1\text{ mA}, V_{CE} = 5\text{ V}, f = 1\text{ kHz}$	$h_{te}$	120	–	480	–
Noise figure $I_C = 0.1\text{ mA}, V_{CE} = 5\text{ V}, f = 10\text{ Hz to }15\text{ kHz}$ $R_S = 1\text{ k}\Omega$	$NF$	–	–	4	dB

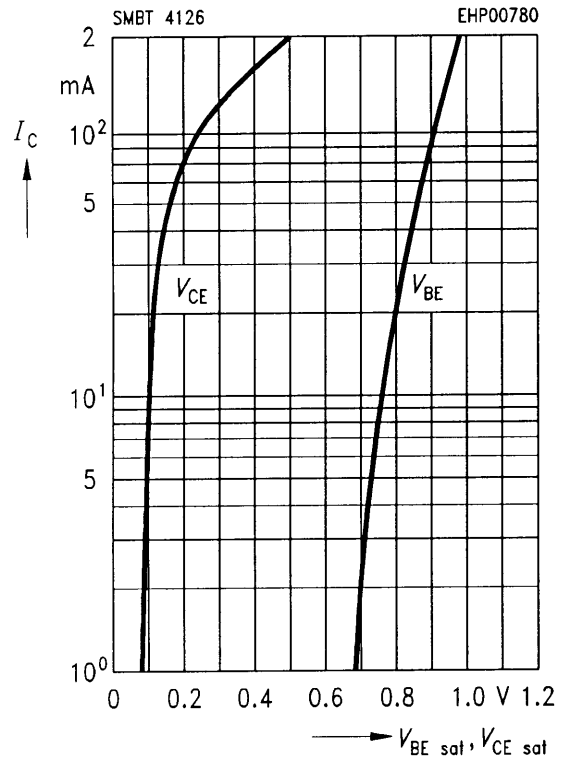
<sup>1)</sup> Pulse test conditions:  $t \leq 300\text{ }\mu\text{s}, D \leq 2\%$ .

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

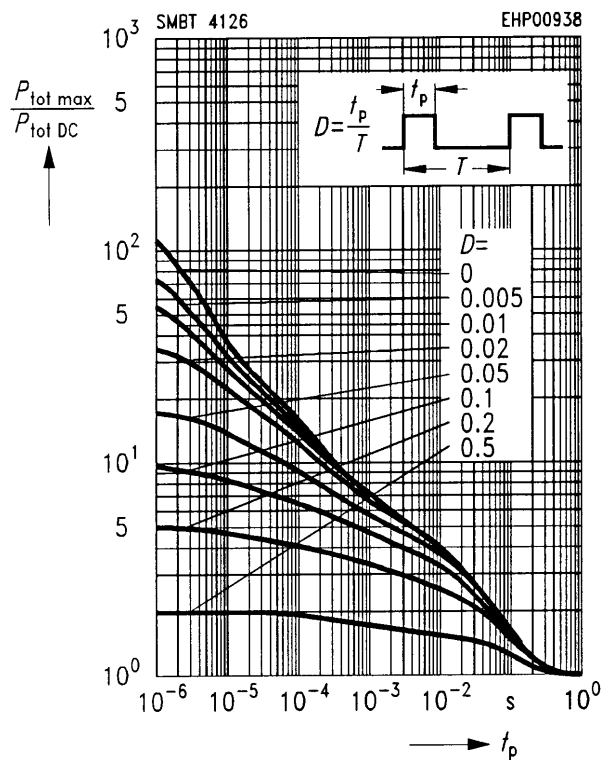
\* Package mounted on epoxy



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

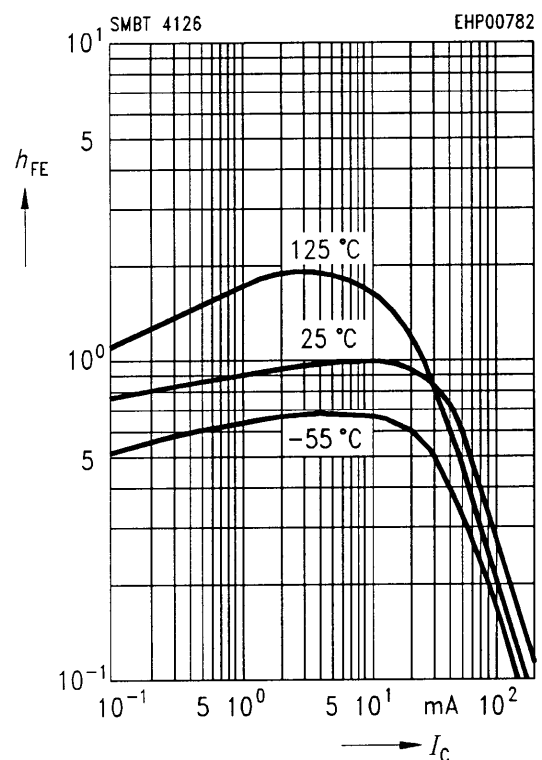


**Permissible pulse load  $P_{tot max} / P_{tot DC} = f(t_p)$**



**DC current gain  $h_{FE} = f(I_C)$**

$V_{CE} = 1 V$ , normalized



### Small-signal current gain $h_{fe} = f(I_C)$

$V_{CE} = 10 \text{ V}, f = 1 \text{ MHz}$

