

## PNP Silicon Switching Transistor

**SXT 2907 A**

- High current gain: 0.1 mA to 500 mA
- Low collector-emitter saturation voltage



Type	Marking	Ordering Code (tape and reel)	Pin Configuration			Package <sup>1)</sup>
			1	2	3	
SXT 2907 A	2F	Q68000-A8300	B	C	E	SOT-89

### Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	$V_{CE0}$	60	V
Collector-base voltage	$V_{CB0}$	60	
Emitter-base voltage	$V_{EB0}$	5	
Collector current	$I_C$	600	mA
Total power dissipation, $T_s = 120\text{ °C}$	$P_{tot}$	1	W
Junction temperature	$T_j$	150	°C
Storage temperature range	$T_{stg}$	- 65 ... + 150	

### Thermal Resistance

Junction - ambient <sup>2)</sup>	$R_{th\ JA}$	≤ 90	K/W
Junction - soldering point	$R_{th\ JS}$	≤ 30	

<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 $I_C = 10\text{ mA}$	$V_{(BR)CE0}$	60	–	–	V
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}$	$V_{(BR)CB0}$	60	–	–	
Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EB0}$	5	–	–	
Collector-base cutoff current $V_{CB} = 60\text{ V}, I_E = 0$ $V_{CB} = 60\text{ V}, I_E = 0, T_A = 125\text{ °C}$	$I_{CB0}$	– –	– –	10 10	nA $\mu\text{A}$
Collector cutoff current $V_{CE} = 30\text{ V}, V_{BE} = 0.5\text{ V}$	$I_{CEX}$	–	–	50	nA
Emitter-base cutoff current $V_{EB} = 3\text{ V}, I_C = 0$	$I_{EB0}$	–	–	10	
Base cutoff current $V_{CE} = 30\text{ V}, V_{BE} = 3\text{ V}$	$I_{BL}$	–	–	50	
DC current gain $I_C = 100\text{ }\mu\text{A}, V_{CE} = 10\text{ V}$ $I_C = 1\text{ mA}, V_{CE} = 10\text{ V}$ $I_C = 10\text{ mA}, V_{CE} = 10\text{ V}$ $I_C = 150\text{ mA}, V_{CE} = 10\text{ V}$ $I_C = 500\text{ mA}, V_{CE} = 10\text{ V}$	$h_{FE}$	75 100 100 100 50	– – – – –	– – – 300 –	–
Collector-emitter saturation voltage <sup>1)</sup> $I_C = 150\text{ mA}, I_B = 15\text{ mA}$ $I_C = 500\text{ mA}, I_B = 50\text{ mA}$	$V_{CEsat}$	– –	– –	0.4 1.6	V
Base-emitter saturation voltage <sup>1)</sup> $I_C = 150\text{ mA}, I_B = 15\text{ mA}$ $I_C = 500\text{ mA}, I_B = 50\text{ mA}$	$V_{BEsat}$	– –	– –	1.3 2.0	

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

## Electrical Characteristics

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

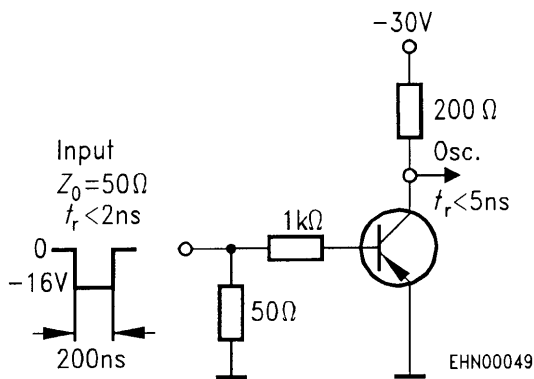
Parameter	Symbol	Values			Unit
		min.	typ.	max.	

### AC characteristics

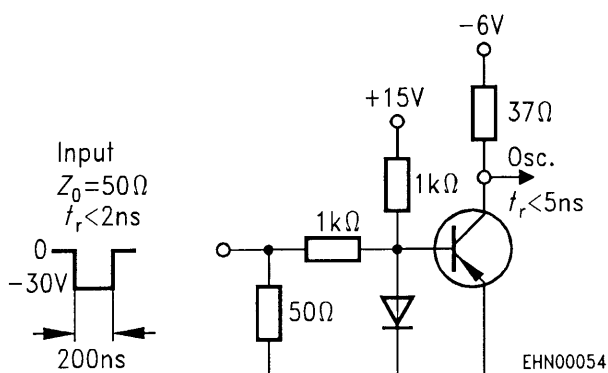
Transition frequency $I_C = 50\text{ mA}$ , $V_{CE} = 20\text{ V}$ , $f = 100\text{ MHz}$	$f_T$	200	–	–	MHz
Output capacitance $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{obo}$	–	–	8	pF
Input capacitance $V_{EB} = 2\text{ V}$ , $f = 1\text{ MHz}$	$C_{ibo}$	–	–	30	
Switching times $V_{CC} = 30\text{ V}$ , $V_{BE} = 0.5\text{ V}$ , $I_C = 150\text{ mA}$ , $I_{B1} = 15\text{ mA}$	$t_d$	–	–	10	ns
	$t_r$	–	–	40	ns
$V_{CC} = 6\text{ V}$ , $I_C = 150\text{ mA}$ , $I_{B1} = I_{B2} = 15\text{ mA}$	$t_s$	–	–	80	ns
	$t_f$	–	–	30	ns

### Test circuits

#### Delay and rise time

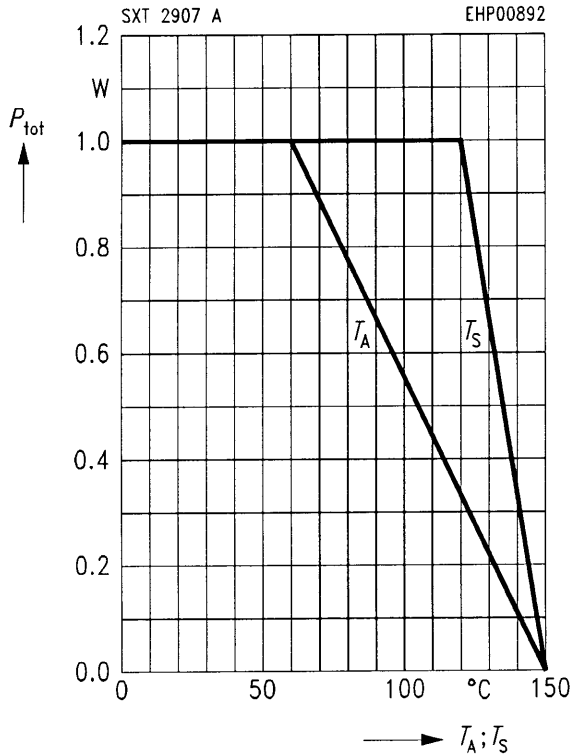


#### Storage and fall time



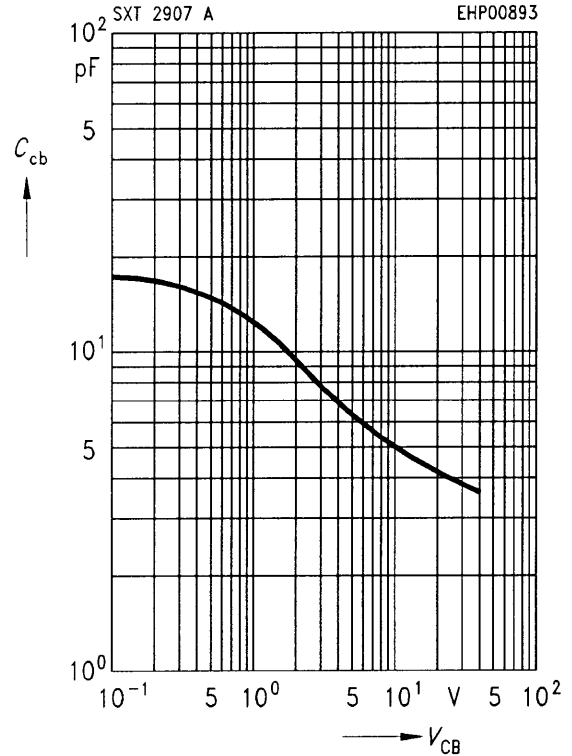
**Total power dissipation  $P_{tot} = f(T_A^*; T_S)$**

\* Package mounted on epoxy



**Collector-base capacitance  $C_{cb} = f(V_{CB})$**

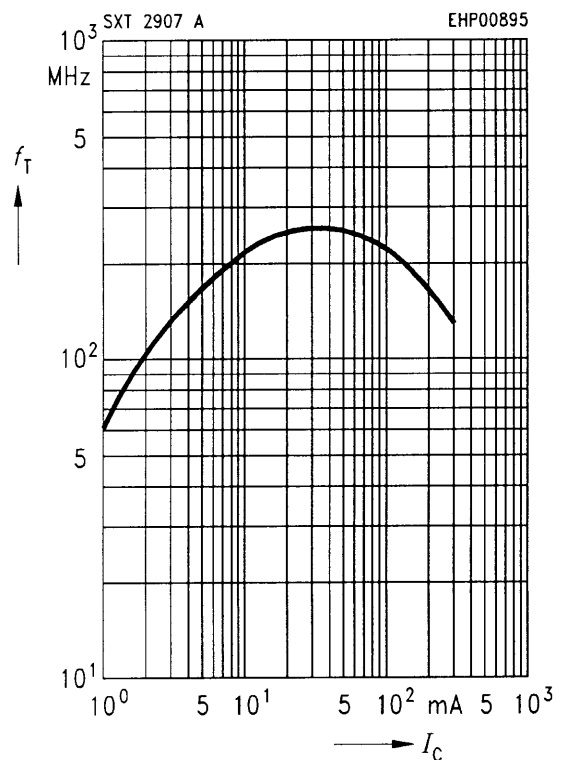
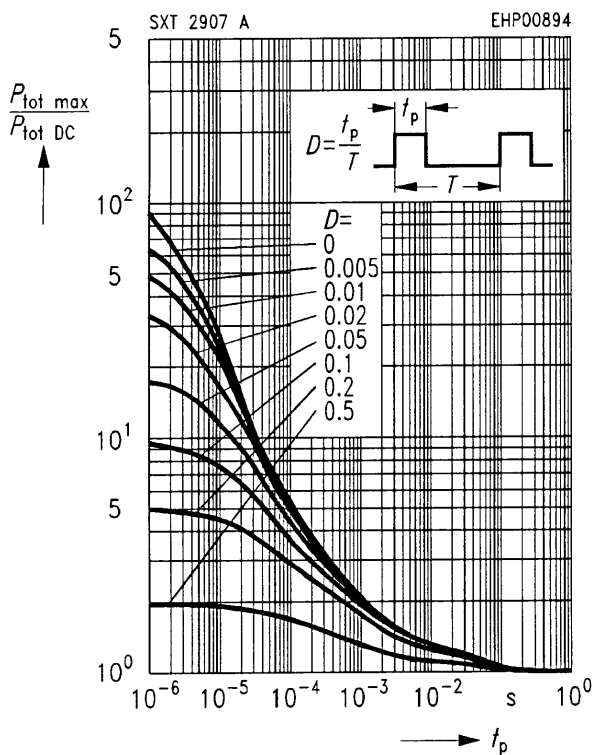
$f = 1 \text{ MHz}$



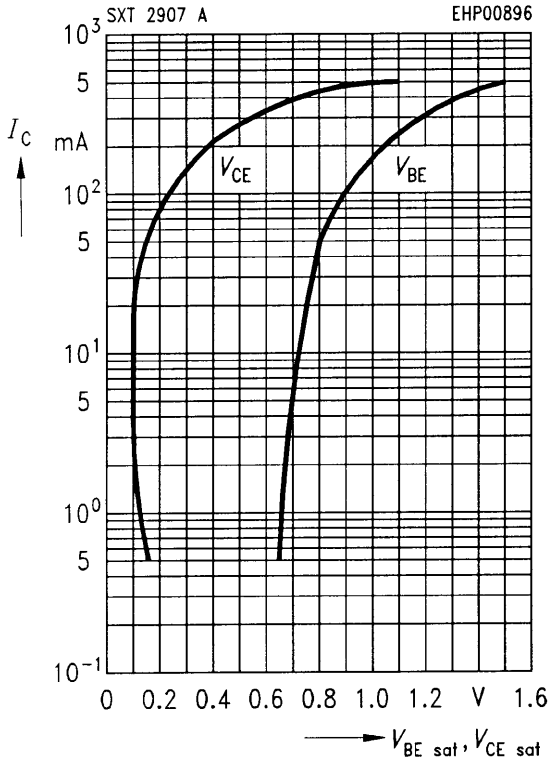
**Permissible pulse load  $P_{tot \text{ max}} / P_{tot \text{ DC}} = f(t_p)$**

**Transition frequency  $f_T = f(I_C)$**

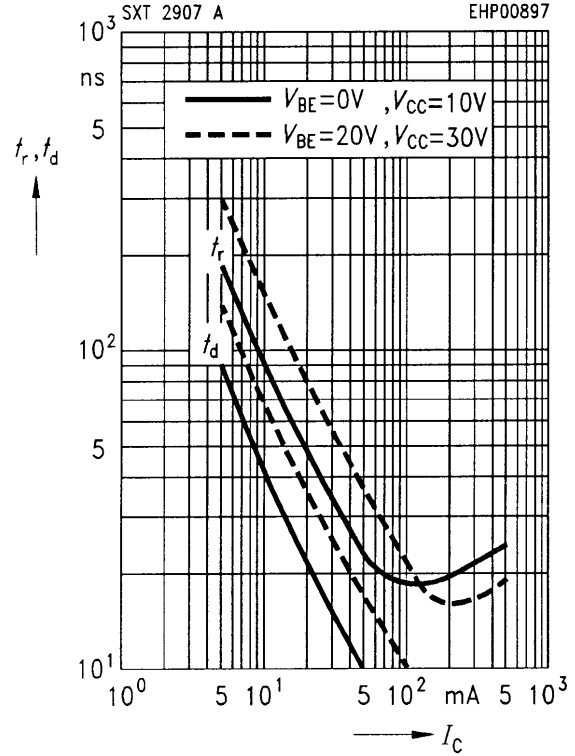
$V_{CE} = 20 \text{ V}$



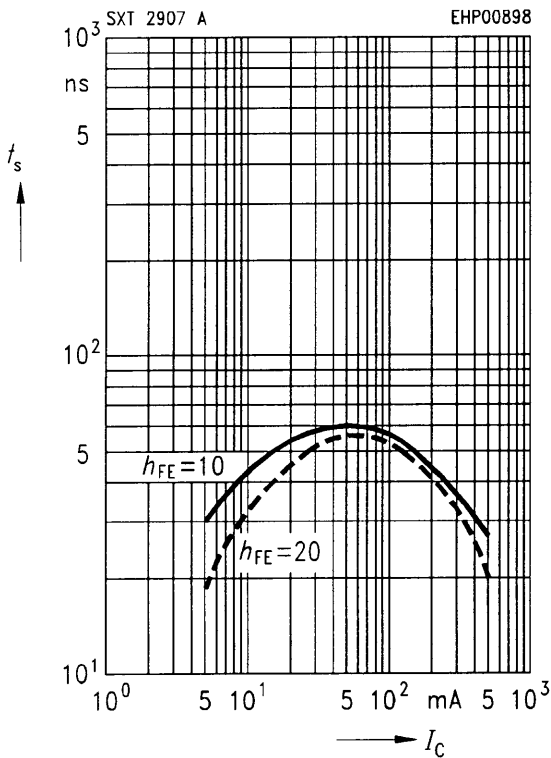
**Saturation voltage**  $I_C = f(V_{BE\ sat}, V_{CE\ sat})$   
 $h_{FE} = 10$



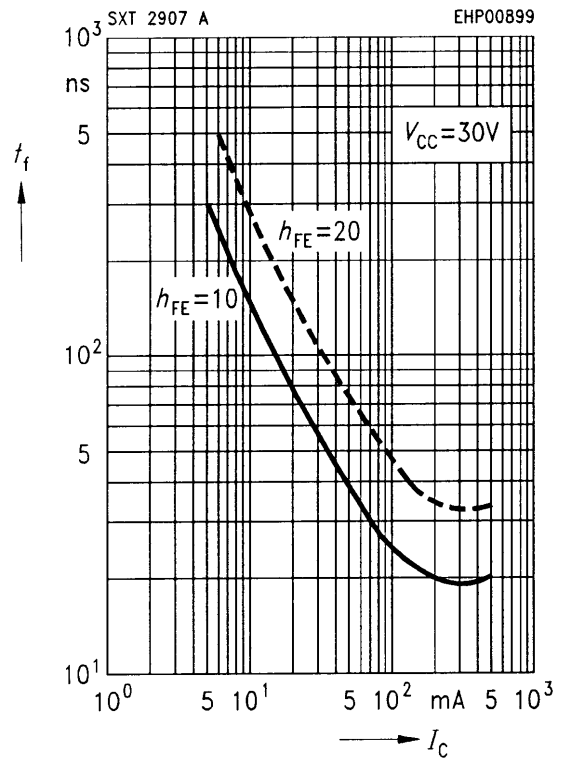
**Delay time**  $t_d = f(I_C)$   
**Rise time**  $t_r = f(I_C)$   
 $h_{FE} = 10$



**Storage time**  $t_s = f(I_C)$



**Fall time**  $t_f = f(I_C)$



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

