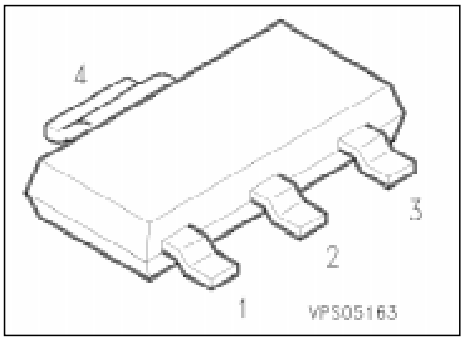
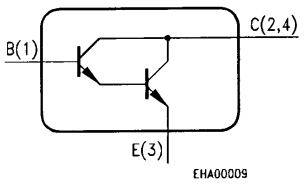
SIEMENS

NPN Silicon Darlington Transistors

BCP 29
BCP 49

- For general AF applications
- High collector current
- High current gain
- Complementary types: BCP 28/48 (PNP)



Type	Marking	Ordering Code (tape and reel)	Pin Configuration	Package[1]
BCP 29 BCP 49	BCP 29 BCP 49	Q62702-C2136 Q62702-C2137		SOT-223

Maximum Ratings

Parameter	Symbol	Values		Unit
		BCP 29	BCP 49	
Collector-emitter voltage	V_{CE0}	30	60	V
Collector-base voltage	V_{CB0}	40	80	
Emitter-base voltage	V_{EB0}	10	10	
Collector current	I_C	500		mA
Peak collector current	I_{CM}	800		
Base current	I_B	100		
Peak base current	I_{BM}	200		
Total power dissipation, $T_S = 124$ °C[2]	P_{tot}	1.5		W
Junction temperature	T_j	150		°C
Storage temperature range	T_{stg}	– 65 … + 150		

Thermal Resistance

Junction - ambient[2]	$R_{th\ JA}$	≤ 75	K/W
Junction - soldering point	$R_{th\ JS}$	≤ 17	

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 I_C = 1 mA, I_B = 0		$V_{(BR)CE0}$				V
	BCP 29		30	–	–	
	BCP 49		60	–	–	
Collector-base breakdown voltage I_C = 100 µA, I_B = 0		$V_{(BR)CB0}$				
	BCP 29		40	–	–	
	BCP 49		80	–	–	
Emitter-base breakdown voltage I_E = 10 µA, I_C = 0		$V_{(BR)EB0}$	10	–	–	
Collector-base cutoff current		I_{CB0}				
V_{CB} = 30 V, I_E = 0	BCP 29		–	–	100	nA
V_{CB} = 60 V, I_E = 0	BCP 49		–	–	100	nA
V_{CB} = 30 V, I_E = 0, T_A = 150 °C	BCP 29		–	–	10	µA
V_{CB} = 60 V, I_E = 0, T_A = 150 °C	BCP 49		–	–	10	µA
Emitter-base cutoff current V_{EB} = 4 V, I_C = 0		I_{EB0}	–	–	100	nA
DC current gain[1)]		h_{FE}				–
I_C = 100 µA, V_{CE} = 1 V	BCP 29		4000	–	–	
	BCP 49		2000	–	–	
I_C = 10 mA, V_{CE} = 5 V	BCP 29		10000	–	–	
	BCP 49		4000	–	–	
I_C = 100 mA, V_{CE} = 5 V	BCP 29		20000	–	–	
	BCP 49		10000	–	–	
I_C = 500 mA, V_{CE} = 5 V	BCP 29		4000	–	–	
	BCP 49		2000	–	–	
Collector-emitter saturation voltage I_C = 100 mA, I_B = 0.1 mA		V_{CEsat}	–	–	1.0	V
Base-emitter saturation voltage I_C = 100 mA, I_B = 0.1 mA		V_{BEsat}	–	–	1.5	

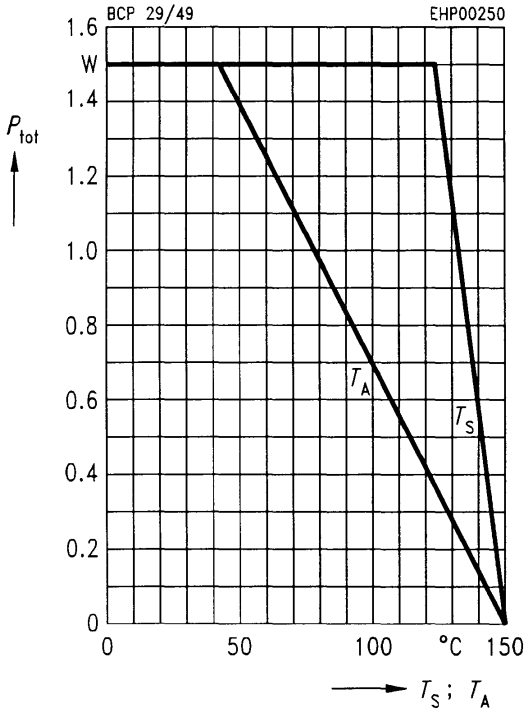
1) Pulse test conditions: $t \leq 300$ µs, D = 2 %.

Electrical Characteristics

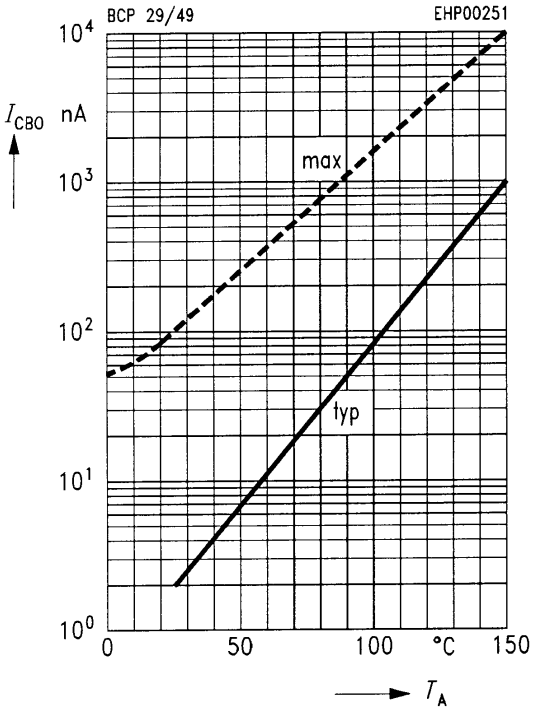
at T_A = 25 °C, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC characteristics					
Transition frequency I_C = 50 mA, V_{CE} = 5 V, f = 100 MHz	f_T	–	200	–	MHz
Output capacitance V_{CB} = 10 V, f = 1 MHz	C_{obo}	–	6.5	–	pF

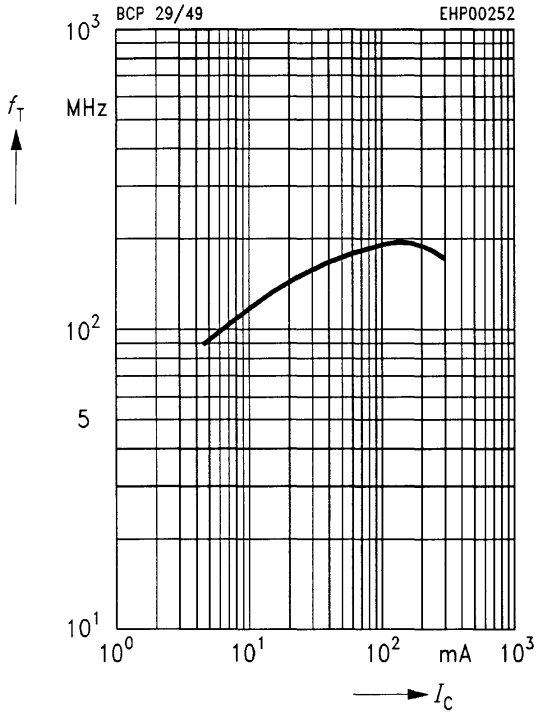
Total power dissipation $P_{tot} = f(T_A^*; T_S)$
* Package mounted on epoxy



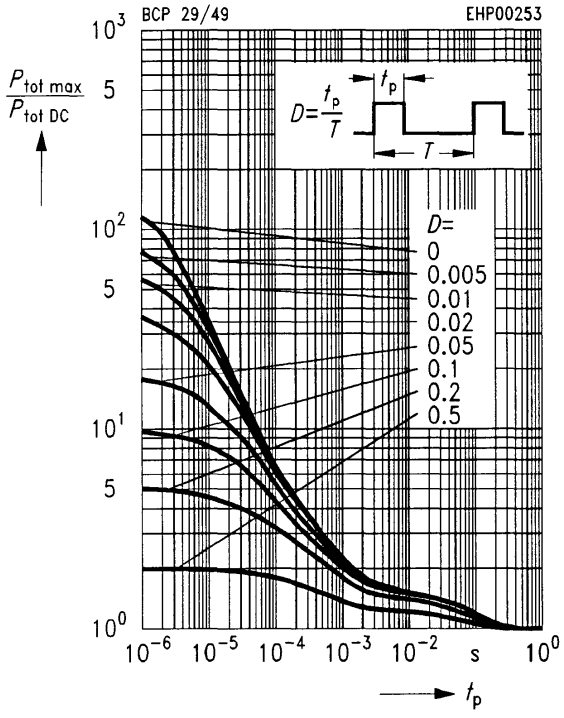
Collector cutoff current $I_{CB0} = f(T_A)$
$V_{CB} = V_{CE\ max}$



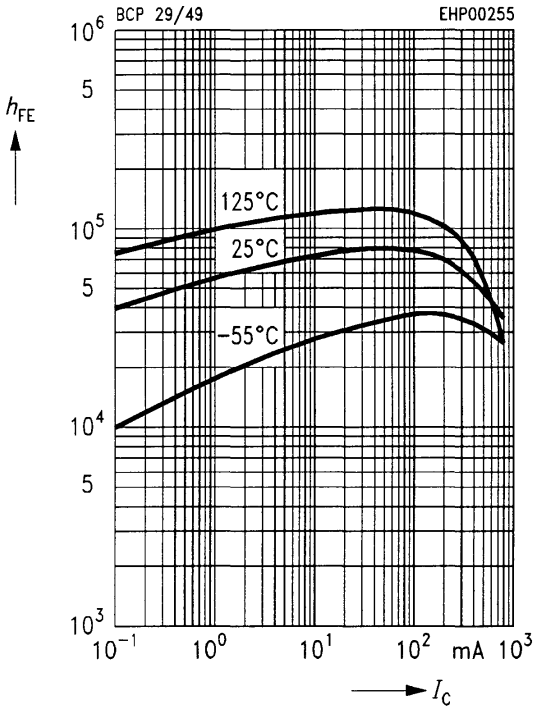
Transition frequency $f_T = f(I_C)$
$V_{CE} = 5$ V



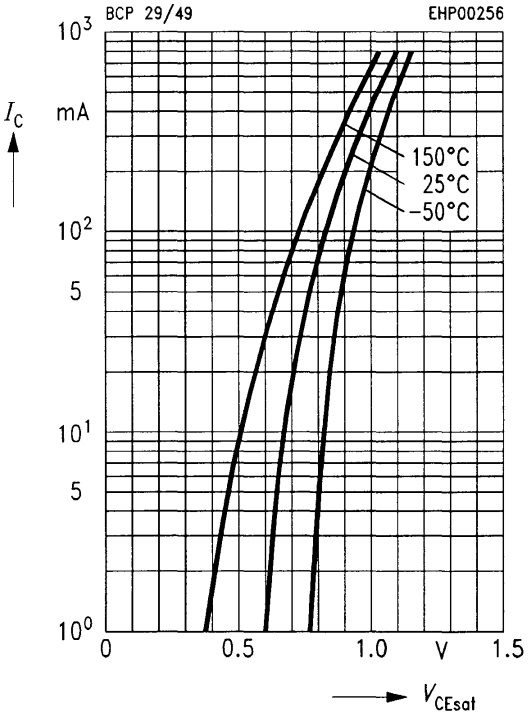
Permissible pulse load $P_{tot\ max}/P_{tot\ DC} = f(t_p)$



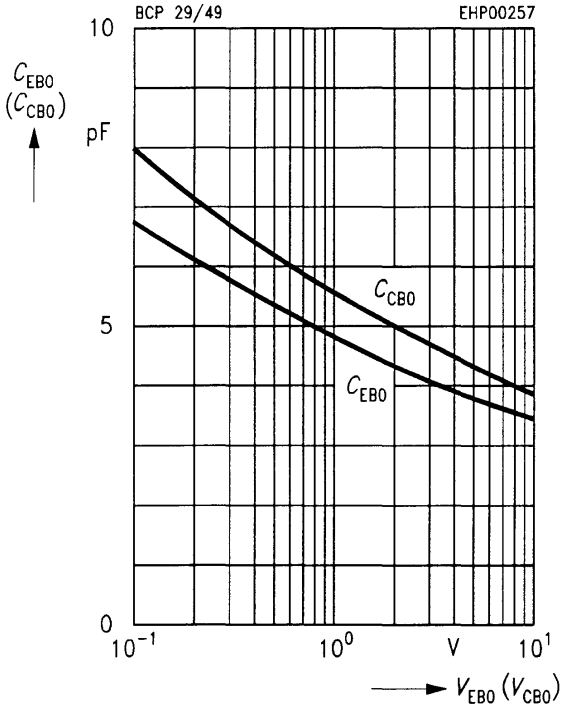
DC current gain $h_{FE} = f(I_C)$
V_{CE} = 10 V



Collector-emitter saturation voltage
$I_C = f(V_{CEsat})$
h_{FE} = 1000



Collector-base capacitance $C_{CB0} = f(V_{CB0})$
Emitter-base capacitance $C_{EB0} = f(V_{EB0})$



Base-emitter saturation voltage
$I_C = f(V_{BEsat})$
h_{FE} = 1000