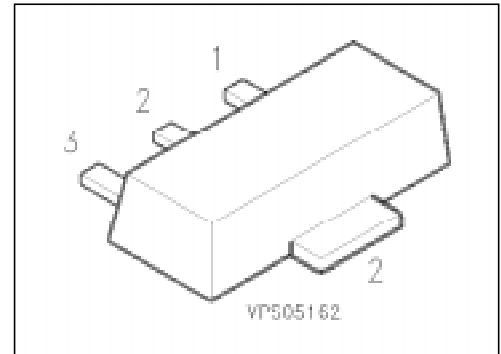


## NPN Silicon Darlington Transistors

**BCV 29**  
**BCV 49**

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



Type	Marking	Ordering Code (tape and reel)	Pin Configuration				Package <sup>1)</sup>
			1	2	3	4	
BCV 29	EF	Q62702-C1853	B	C	E	C	SOT-89
BCV 49	EG	Q62702-C1832					

### Maximum Ratings

Parameter	Symbol	Values		Unit
		BCV 29	BCV 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, $T_s = 130\text{ °C}$	$PI_{tot}$	1		W
Junction temperature	$T_j$	150		°C
Storage temperature range	$T_{stg}$	- 65 ... + 150		

### Thermal Resistance

Junction - ambient <sup>2)</sup>	$R_{th\ JA}$	≤ 75	K/W
Junction - soldering point	$R_{th\ JS}$	≤ 20	

<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

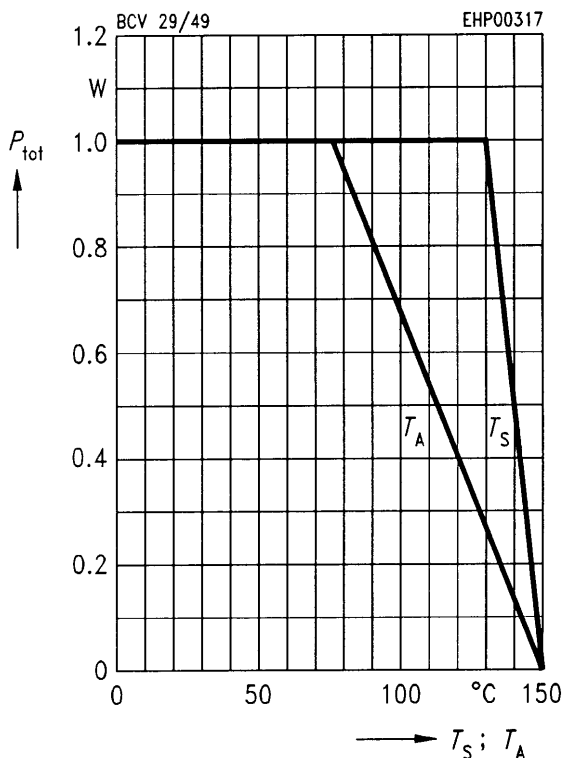
Collector-emitter breakdown voltage $I_C = 10\text{ mA}$	$V_{(BR)CE0}$				V
BCV 29	30	—	—		
BCV 49	60	—	—		
Collector-base breakdown voltage $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CB0}$				
BCV 29	40	—	—		
BCV 49	80	—	—		
Emitter-base breakdown voltage, $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EB0}$	10	—	—	
Collector cutoff current $V_{CB} = 30\text{ V}$	$I_{CB0}$				nA
BCV 29	—	—	—	100	
$V_{CB} = 60\text{ V}$					nA
BCV 49	—	—	—	100	
$V_{CB} = 30\text{ V}, T_A = 150\text{ °C}$					$\mu\text{A}$
BCV 29	—	—	—	10	
$V_{CB} = 60\text{ V}, T_A = 150\text{ °C}$					$\mu\text{A}$
BCV 49	—	—	—	10	
Emitter cutoff current, $V_{EB} = 4\text{ V}$	$I_{EB0}$	—	—	100	nA
DC current gain <sup>1)</sup> $I_C = 100\text{ }\mu\text{A}, V_{CE} = 1\text{ V}$	$h_{FE}$				—
BCV 29	4000	—	—		
BCV 49	2000	—	—		
$I_C = 10\text{ mA}, V_{CE} = 5\text{ V}$					
BCV 29	10000	—	—		
BCV 49	4000	—	—		
$I_C = 100\text{ mA}, V_{CE} = 5\text{ V}$					
BCV 29	20000	—	—		
BCV 49	10000	—	—		
$I_C = 0.5\text{ A}, V_{CE} = 5\text{ V}$					
BCV 29	4000	—	—		
BCV 49	2000	—	—		
Collector-emitter saturation voltage <sup>1)</sup> $I_C = 100\text{ mA}, I_B = 0.1\text{ mA}$	$V_{CEsat}$	—	—	1	V
Base-emitter saturation voltage <sup>1)</sup> $I_C = 100\text{ mA}; I_B = 0.1\text{ mA}$	$V_{BEsat}$	—	—	1.5	

### AC characteristics

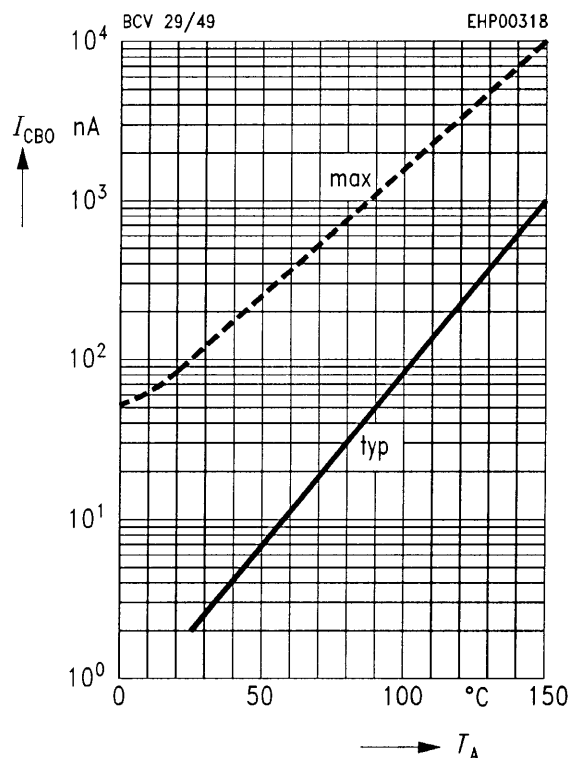
Transition frequency $I_C = 50\text{ mA}, V_{CE} = 5\text{ V}, f = 20\text{ MHz}$	$f$	—	150	—	MHz
Output capacitance $V_{CB} = 10\text{ V}, f = 1\text{ MHz}$	$C_{obo}$	—	3.5	—	pF

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

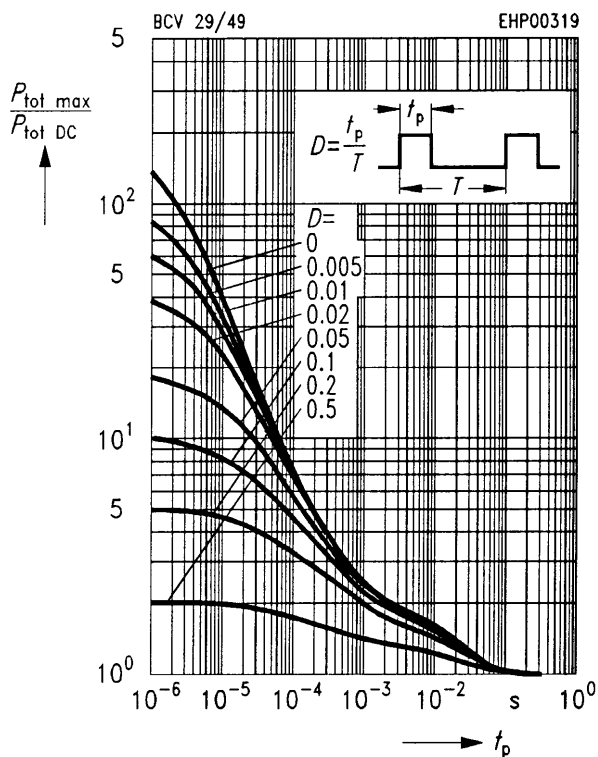
**Total power dissipation**  $P_{tot} = f(T_A^*; T_S)$   
\* Package mounted on epoxy



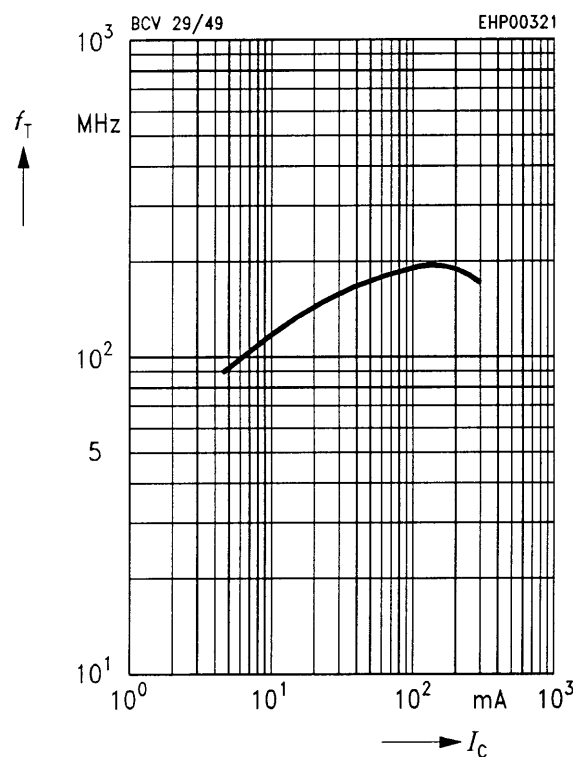
**Collector cutoff current**  $I_{CB0} = f(T_A)$



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



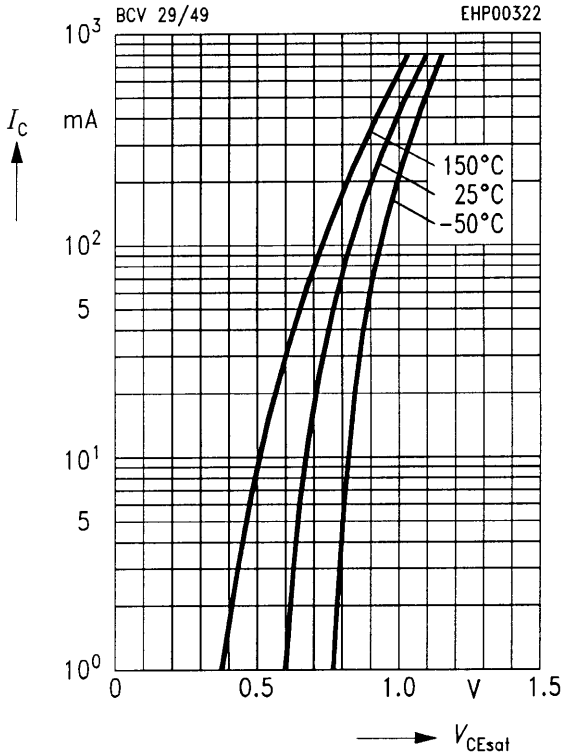
**Transition frequency**  $f_T = f(I_C)$   
 $V_{CE} = 5\ V$



**Collector-emitter saturation voltage**

$I_C = f(V_{CEsat})$

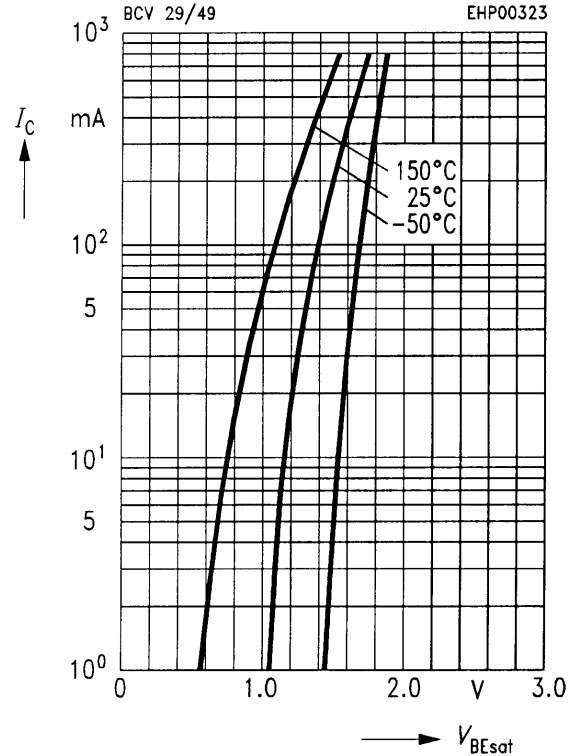
$h_{FE} = 1000$



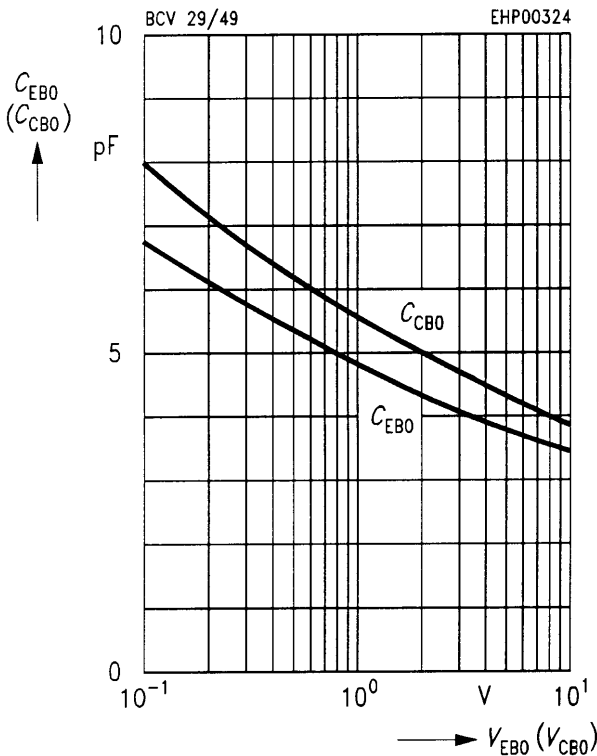
**Base-emitter saturation voltage**

$I_C = f(V_{BEsat})$

$h_{FE} = 1000$



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



**DC current gain  $h_{FE} = f(I_C)$**   
 $V_{CE} = 5 V$

