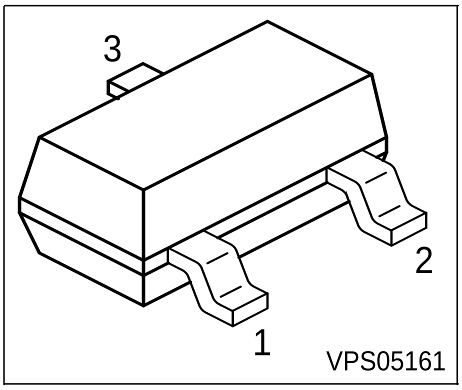
PNP Silicon Darlington Transistors

- For general AF applications
- High collector current
- High current gain
- Complementary types: BCV27, BCV47 (NPN)



Type	Marking	Pin Configuration			Package
BCV26	FDs	1 = B	2 = E	3 = C	SOT23
BCV46	FEs	1 = B	2 = E	3 = C	SOT23

Maximum Ratings

Parameter	Symbol	BCV26	BCV46	Unit
Collector-emitter voltage	V_{CEO}	30	60	V
Collector-base voltage	V_{CBO}	40	80	
Emitter-base voltage	V_{EBO}	10	10	
DC 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 = 74 °C	P_{tot}	360		mW
Junction temperature	T_j	150		°C
Storage temperature	T_{stg}	-65 ... 150		

Thermal Resistance

Junction - soldering point[1)]	R_{thJS}	≤210	K/W

[1] For calculation of R_{thJA} please refer to Application Note Thermal Resistance

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

Parameter		Symbol	Values			Unit
			min.	typ.	max.	
DC Characteristics						
Collector-emitter breakdown voltage		$V_{(BR)CEO}$				V
I_C = 10 mA, I_B = 0	BCV26		30	-	-	
	BCV46		60	-	-	
Collector-base breakdown voltage		$V_{(BR)CBO}$				
I_C = 100 µA, I_B = 0	BCV26		40	-	-	
	BCV46		80	-	-	
Emitter-base breakdown voltage		$V_{(BR)EBO}$	10	-	-	
I_E = 10 µA, I_C = 0						
Collector cutoff current		I_{CBO}				nA
V_{CB} = 30 V, I_E = 0	BCV26		-	-	100	
V_{CB} = 60 V, I_E = 0	BCV46		-	-	100	
Collector cutoff current		I_{CBO}				µA
V_{CB} = 30 V, I_E = 0 , T_A = 150 °C	BCV26		-	-	10	
V_{CB} = 60 V, I_E = 0 , T_A = 150 °C	BCV46		-	-	10	
Emitter cutoff current		I_{EBO}	-	-	100	nA
V_{EB} = 4 V, I_C = 0						
DC current gain 1)		h_{FE}				-
I_C = 100 µA, V_{CE} = 1 V	BCV26		4000	-	-	
	BCV46		2000	-	-	
DC current gain 1)		h_{FE}				
I_C = 10 mA, V_{CE} = 5 V	BCV26		10000	-	-	
	BCV46		4000	-	-	
DC current gain 1)		h_{FE}				
I_C = 100 mA, V_{CE} = 5 V	BCV26		20000	-	-	
	BCV46		10000	-	-	
DC current gain 1)		h_{FE}				
I_C = 0.5 A, V_{CE} = 5 V	BCV26		4000	-	-	
	BCV46		2000	-	-	

1) Pulse test: $t \leq 300\mu s$, D = 2%

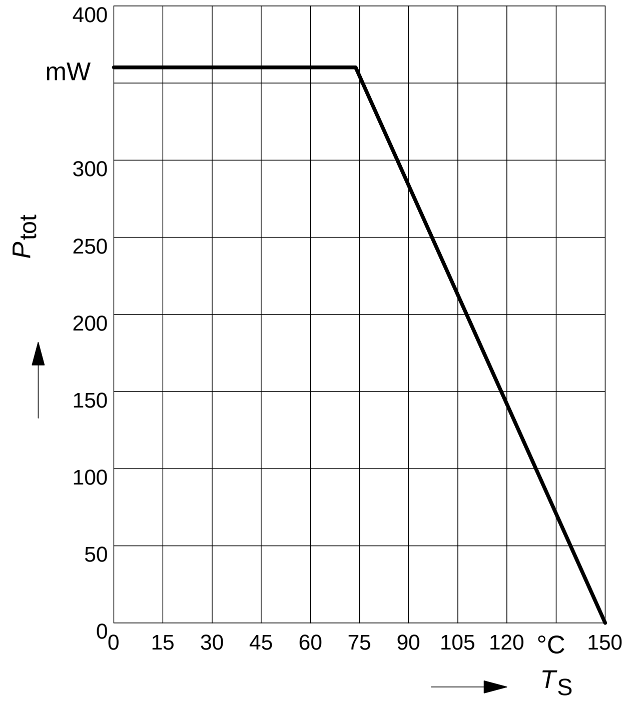
Electrical Characteristics at T_A = 25°C, unless otherwise specified.

Parameter	**Symbol**	**Values**			**Unit**
		min.	**typ.**	**max.**	
DC Characteristics					
Collector-emitter saturation voltage1) I_C = 100 mA, I_B = 0.1 mA	V_{CEsat}	-	-	1	V
Base-emitter saturation voltage 1) I_C = 100 mA, I_B = 0.1 mA	V_{BEsat}	-	-	1.5	
AC Characteristics					
Transition frequency I_C = 50 mA, V_{CE} = 5 V, f = 100 MHz	f_T	-	200	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz	C_{cb}	-	4.5	-	pF

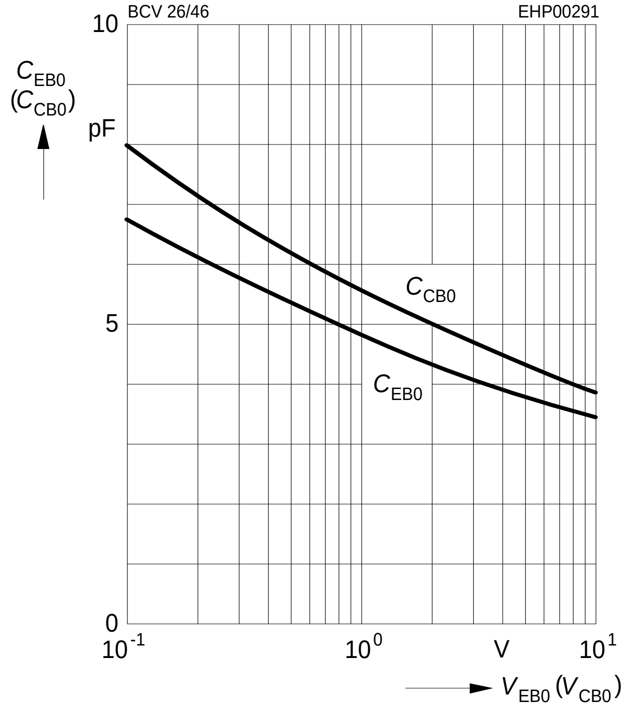
---

1) Pulse test: t ≤ 300µs, D = 2%

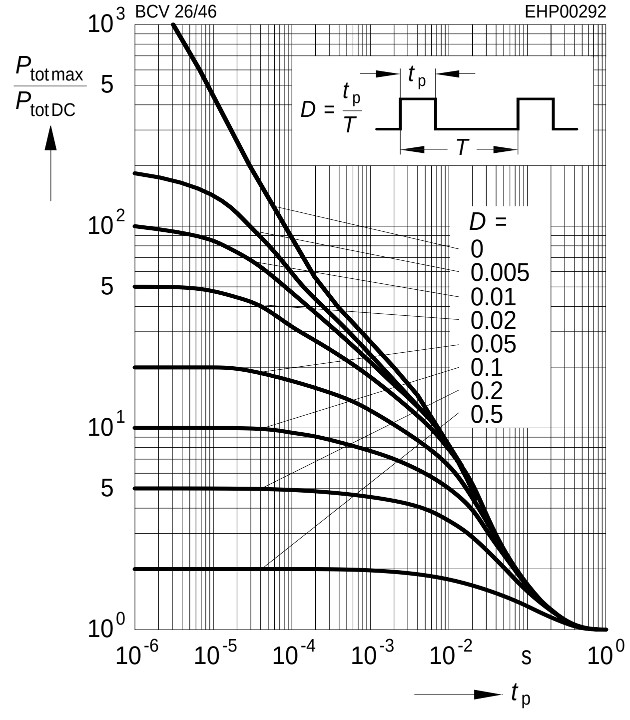
Total power dissipation $P_{tot} = f(T_S)$



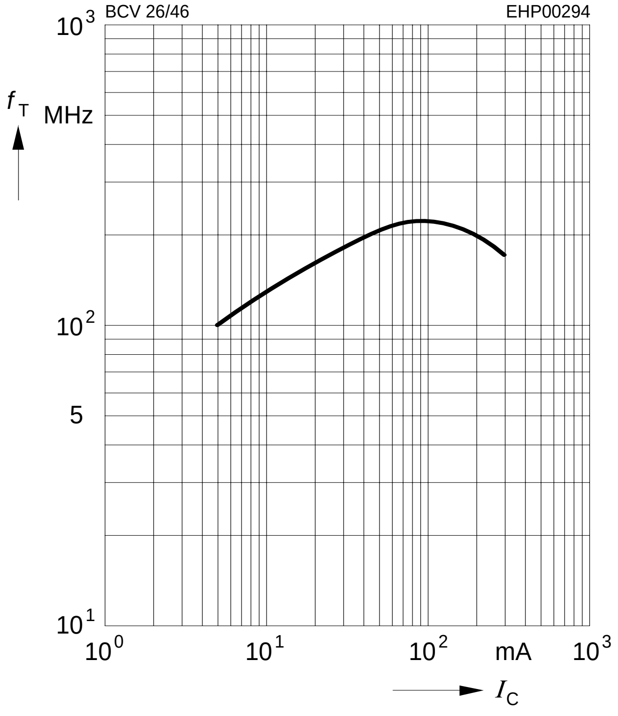
Collector-base capacitance $C_{CB} = f\ (V_{CBO}$
Emitter-base capacitance $C_{EB} = f\ (V_{EBO})$



Permissible pulse load
$P_{totmax}\ /\ P_{totDC} = f\ (t_p)$

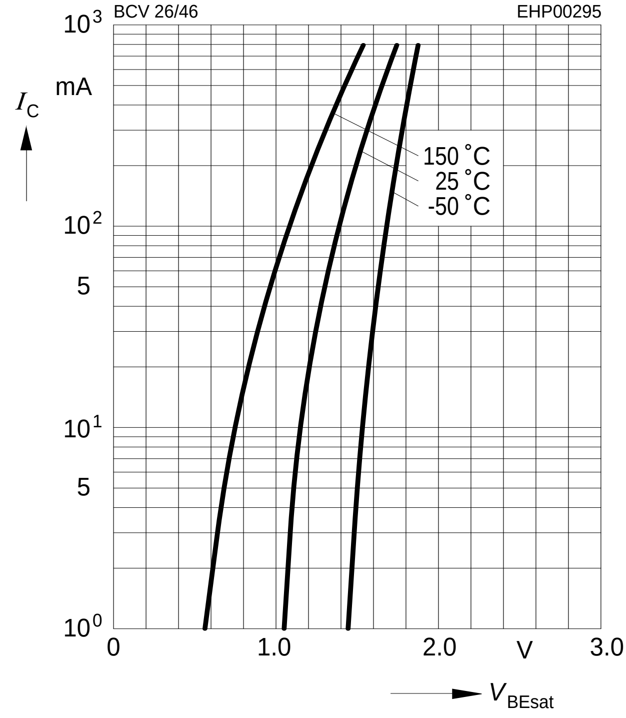


Transition frequency $f_T = f\ (I_C)$
$V_{CE} = 5V$



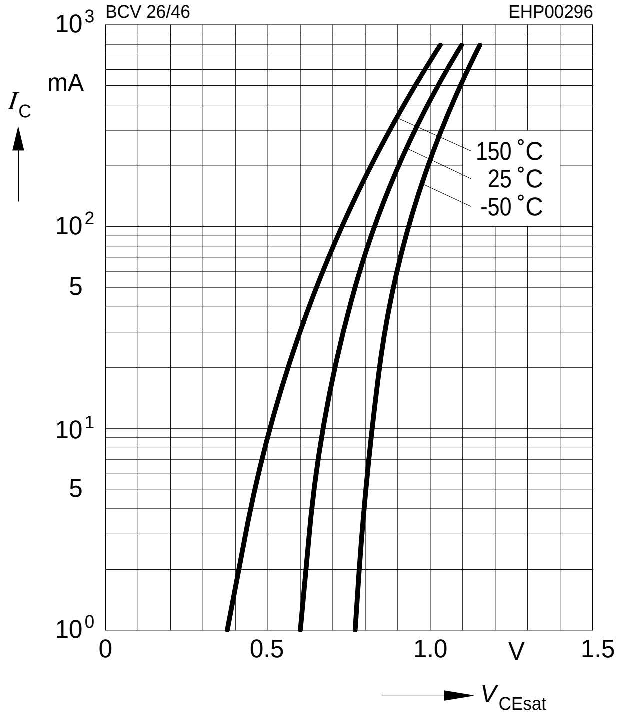
Base-emitter saturation voltage

$I_C = f\,(V_{BEsat})$, $h_{FE} = 1000$



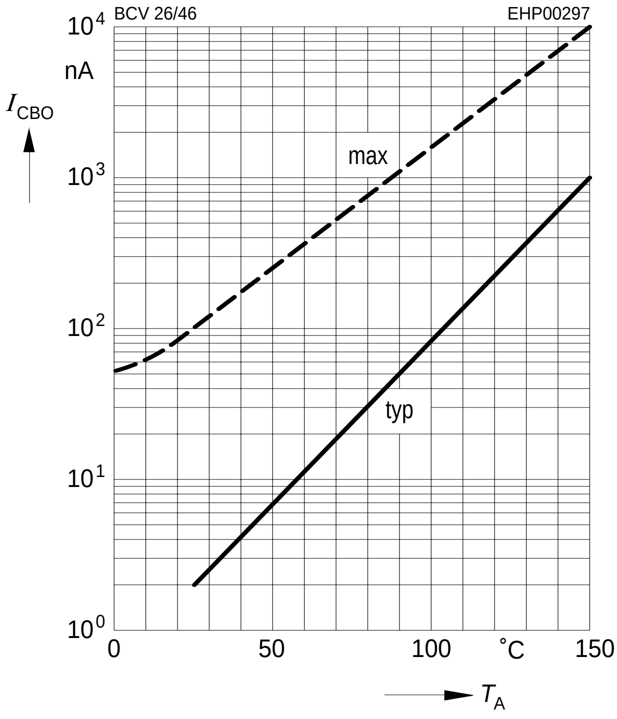
Collector-emitter saturation voltage

$I_C = f\,(V_{CEsat})$, $h_{FE} = 1000$



Collector cutoff current $I_{CBO} = f\,(T_A)$

$V_{CB} = V_{CEmax}$



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

V_{CE} = 5V