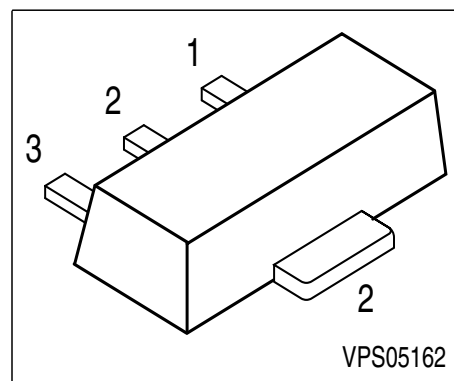


PNP Silicon Darlington Transistors

- For general AF applications
- High collector current
- High current gain
- Complementary types: BCV 29, BCV 49 (NPN)



Type	Marking	Pin Configuration				Package
BCV 28	ED	1 = B	2 = C	3 = E	4 = C	SOT-89
BCV 48	EE	1 = B	2 = C	3 = E	4 = C	SOT-89

Maximum Ratings

Parameter	Symbol	BCV 28	BCV 48	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, $T_S = 130\text{ °C}$	P_{tot}	1		W
Junction temperature	T_j	150		°C
Storage temperature	T_{sta}	-65 ... 150		

Thermal Resistance

Junction ambient ¹⁾	R_{thJA}	≤72	K/W
Junction - soldering point	R_{thJS}	≤20	

1) Package mounted on pcb 40mm x 40mm x 1.5mm / 6cm² Cu

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage $I_C = 10\text{ mA}$, $I_B = 0$	$V_{(BR)CEO}$	30	-	-	V
BCV 28		60	-	-	
BCV 48					
Collector-base breakdown voltage $I_C = 100\text{ }\mu\text{A}$, $I_B = 0$	$V_{(BR)CBO}$	40	-	-	
BCV 28		80	-	-	
BCV 48					
Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$, $I_C = 0$	$V_{(BR)EBO}$	10	-	-	
Collector cutoff current $V_{CB} = 30\text{ V}$, $I_E = 0$	I_{CBO}	-	-	100	nA
BCV 28		-	-	100	
$V_{CB} = 60\text{ V}$, $I_E = 0$					
Collector cutoff current $V_{CB} = 30\text{ V}$, $I_E = 0$, $T_A = 150\text{ }^\circ\text{C}$	I_{CBO}	-	-	10	μA
BCV 28		-	-	10	
$V_{CB} = 60\text{ V}$, $I_E = 0$, $T_A = 150\text{ }^\circ\text{C}$					
BCV 48					
Emitter cutoff current $V_{EB} = 4\text{ V}$, $I_C = 0$	I_{EBO}	-	-	100	nA
DC current gain 1) $I_C = 10\text{ }\mu\text{A}$, $V_{CE} = 1\text{ V}$	h_{FE}	4000	-	-	-
BCV 28		2000	-	-	
BCV 48					
DC current gain 1) $I_C = 10\text{ mA}$, $V_{CE} = 5\text{ V}$	h_{FE}	10000	-	-	-
BCV 28		4000	-	-	
BCV 48					
DC current gain 1) $I_C = 100\text{ mA}$, $V_{CE} = 5\text{ V}$	h_{FE}	20000	-	-	-
BCV 28		10000	-	-	
BCV 48					
DC current gain 1) $I_C = 0.5\text{ A}$, $V_{CE} = 5\text{ V}$	h_{FE}	4000	-	-	
BCV 28		2000	-	-	
BCV 48					

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

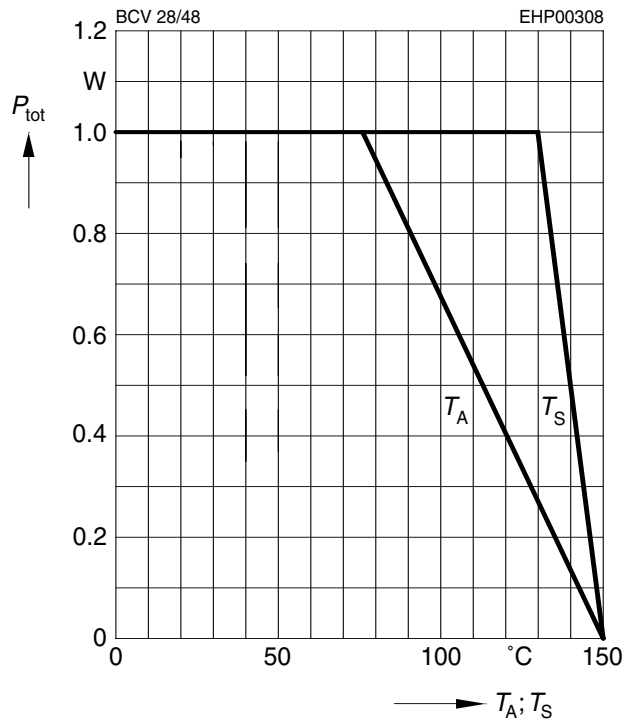
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified.

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

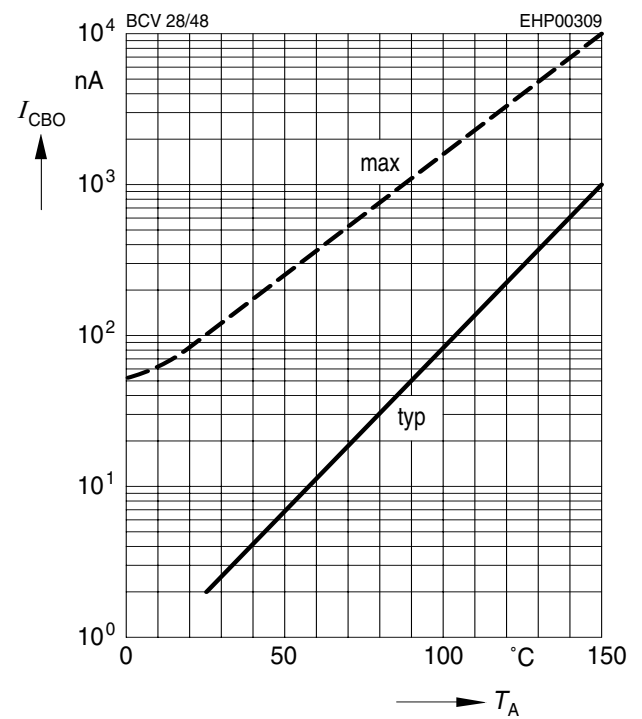
1) Pulse test: $t \leq 300\mu\text{s}$, $D = 2\%$

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

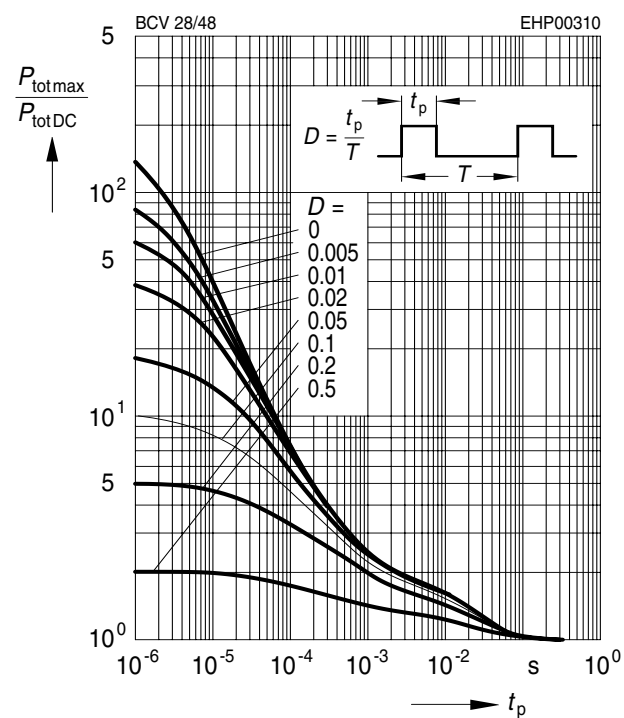
* Package mounted on epoxy


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

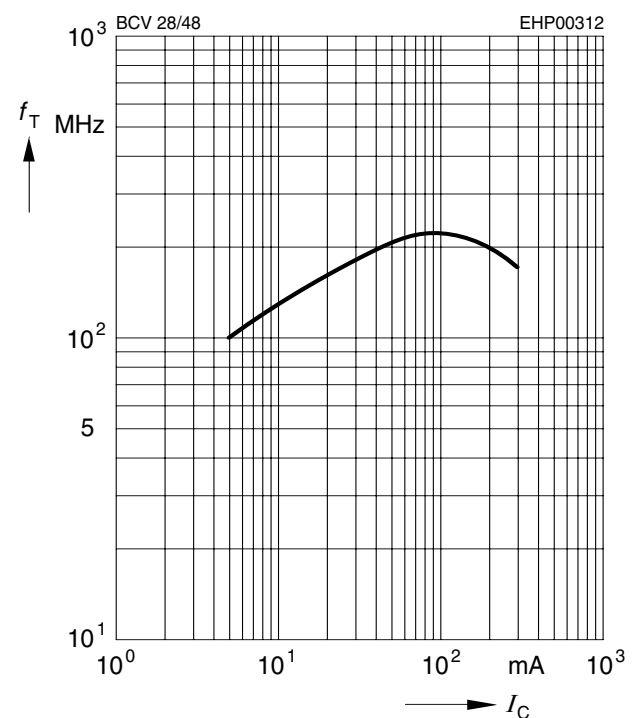
$V_{\text{CB}} = V_{\text{CEmax}}$


Permissible pulse load

$P_{\text{totmax}} / P_{\text{totDC}} = f(t_p)$

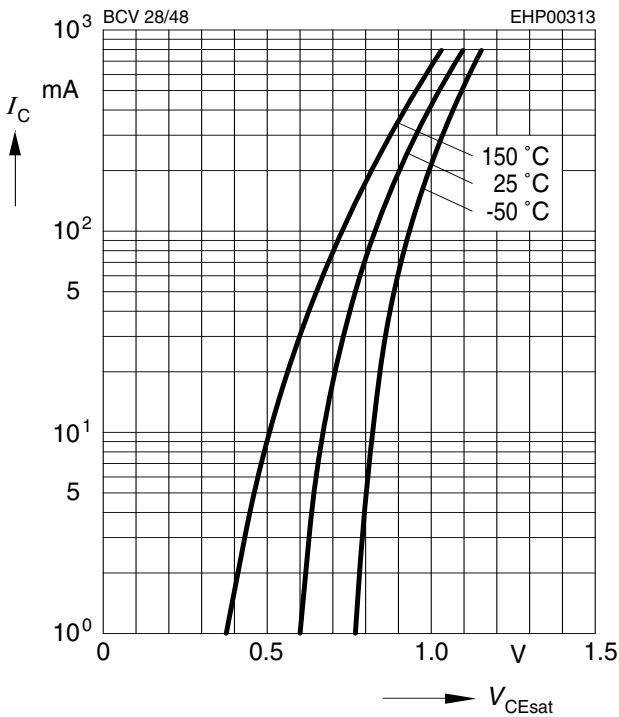

Transition frequency $f_T = f(I_C)$

$V_{\text{CE}} = 5\text{V}$



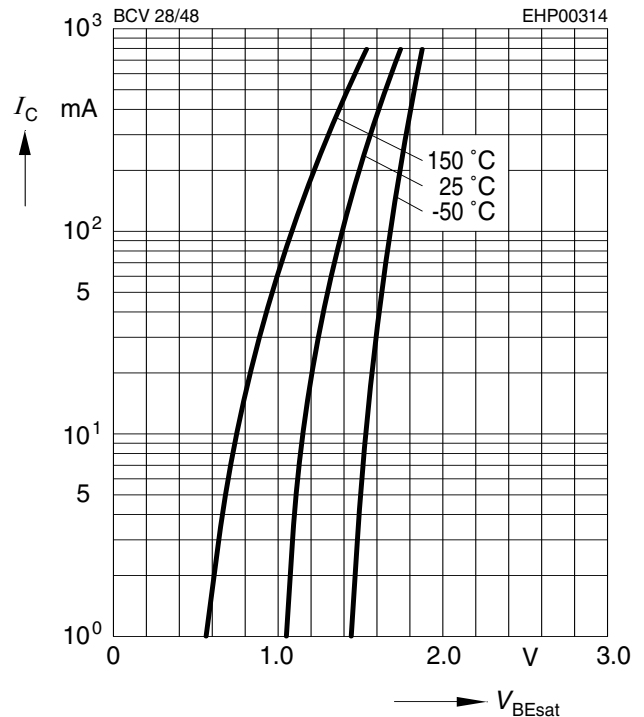
Collector-emitter saturation voltage

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



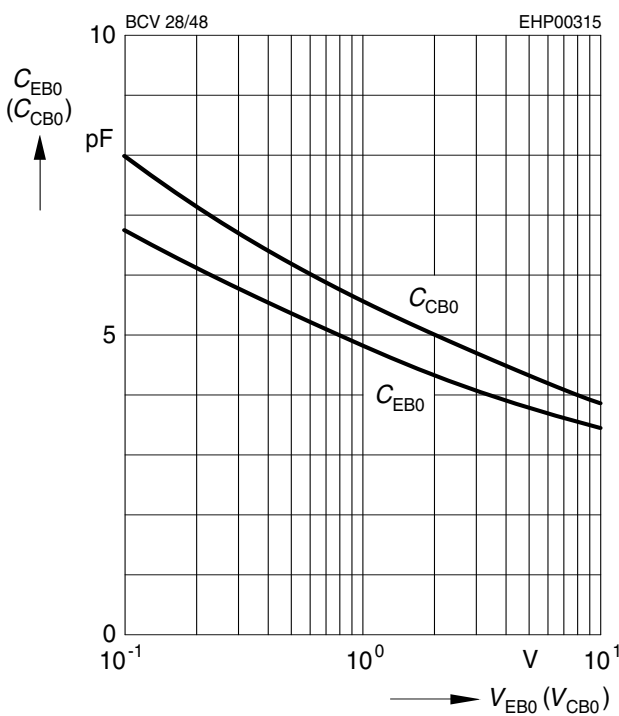
Base-emitter saturation voltage

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



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

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



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

$$V_{CE} = 5V$$

