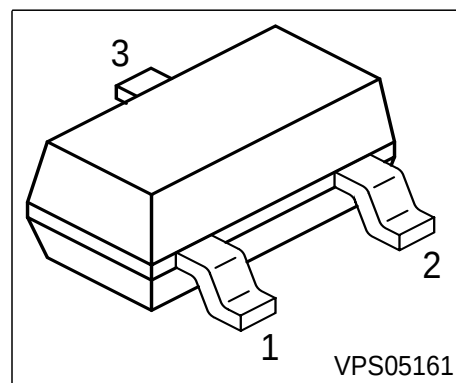


NPN Silicon AF Transistors

- For general AF applications
- High collector current
- High current gain
- Low collector-emitter saturation voltage
- Complementary types: BC807, BC808 (PNP)



Type	Marking	Pin Configuration			Package
BC817-16	6As	1 = B	2 = E	3 = C	SOT23
BC817-25	6Bs	1 = B	2 = E	3 = C	SOT23
BC817-40	6Cs	1 = B	2 = E	3 = C	SOT23
BC818-16	6Es	1 = B	2 = E	3 = C	SOT23
BC818-25	6Fs	1 = B	2 = E	3 = C	SOT23
BC818-40	6Gs	1 = B	2 = E	3 = C	SOT23

Maximum Ratings

Parameter	Symbol	BC817	BC818	Unit
Collector-emitter voltage	V_{CEO}	45	25	V
Collector-base voltage	V_{CBO}	50	30	
Emitter-base voltage	V_{EBO}	5	5	
DC collector current	I_C	500		mA
Peak collector current	I_{CM}	1		A
Base current	I_B	100		mA
Peak base current	I_{BM}	200		
Total power dissipation, $T_S = 79\text{ °C}$	P_{tot}	330		mW
Junction temperature	T_j	150		°C
Storage temperature	T_{sta}	-65 ... 150		

Thermal Resistance

Junction - soldering point ¹⁾	R_{thJS}	≤215	K/W
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¹⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

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

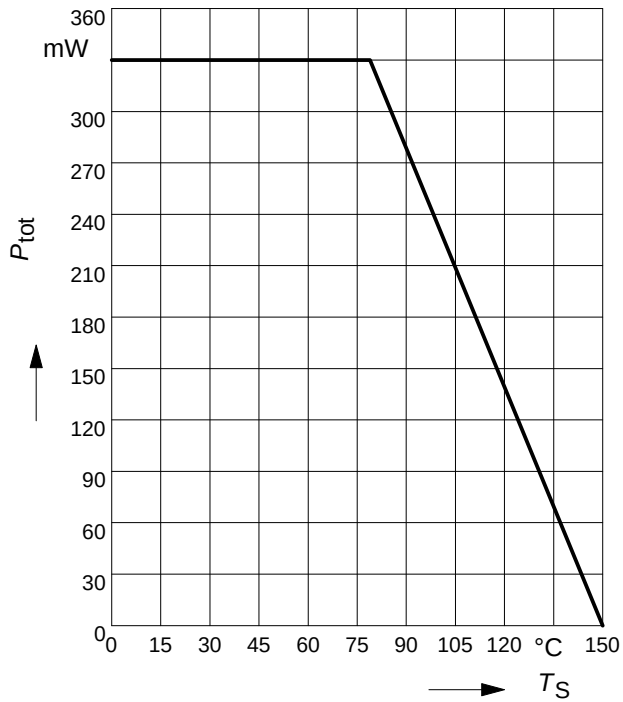
Parameter	Symbol	Values			Unit	
		min.	typ.	max.		
DC Characteristics						
Collector-emitter breakdown voltage $I_C = 10\text{ mA}$, $I_B = 0$ BC817 BC818	$V_{(BR)CEO}$	45 25	- -	- -	V	
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}$, $I_E = 0$ BC817 BC818	$V_{(BR)CBO}$	50 30	- -	- -		
Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$, $I_C = 0$	$V_{(BR)EBO}$	5	-	-		
Collector cutoff current $V_{CB} = 25\text{ V}$, $I_E = 0$	I_{CBO}	-	-	100		nA
Collector cutoff current $V_{CB} = 25\text{ V}$, $I_E = 0$, $T_A = 150\text{ }^\circ\text{C}$	I_{CBO}	-	-	50	μA	
Emitter cutoff current $V_{EB} = 4\text{ V}$, $I_C = 0$	I_{EBO}	-	-	100	nA	
DC current gain 1) $I_C = 100\text{ mA}$, $V_{CE} = 1\text{ V}$ $h_{FE}\text{-grp.16}$ $h_{FE}\text{-grp.25}$ $h_{FE}\text{-grp.40}$	h_{FE}	100 160 250	160 250 350	250 400 630	-	
DC current gain 1) $I_C = 300\text{ mA}$, $V_{CE} = 1\text{ V}$ $h_{FE}\text{-grp.16}$ $h_{FE}\text{-grp.25}$ $h_{FE}\text{-grp.40}$	h_{FE}	60 100 170	- - -	- - -		
Collector-emitter saturation voltage1) $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$	V_{CEsat}	-	-	0.7		V
Base-emitter saturation voltage 1) $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$	V_{BEsat}	-	-	1.2		

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

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

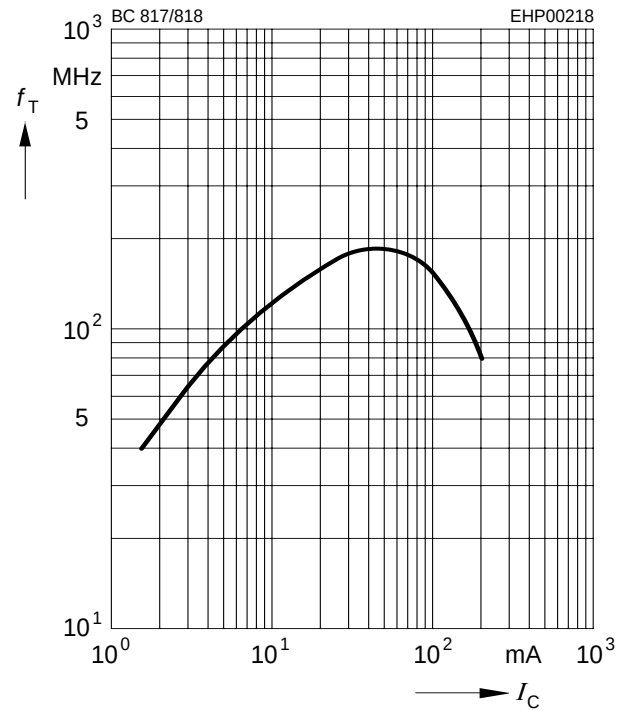
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Transition frequency $I_C = 50\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 100\text{ MHz}$	f_T	-	170	-	MHz
Collector-base capacitance $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{cb}	-	6	-	pF
Emitter-base capacitance $V_{EB} = 0.5\text{ V}$, $f = 1\text{ MHz}$	C_{eb}	-	60	-	

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



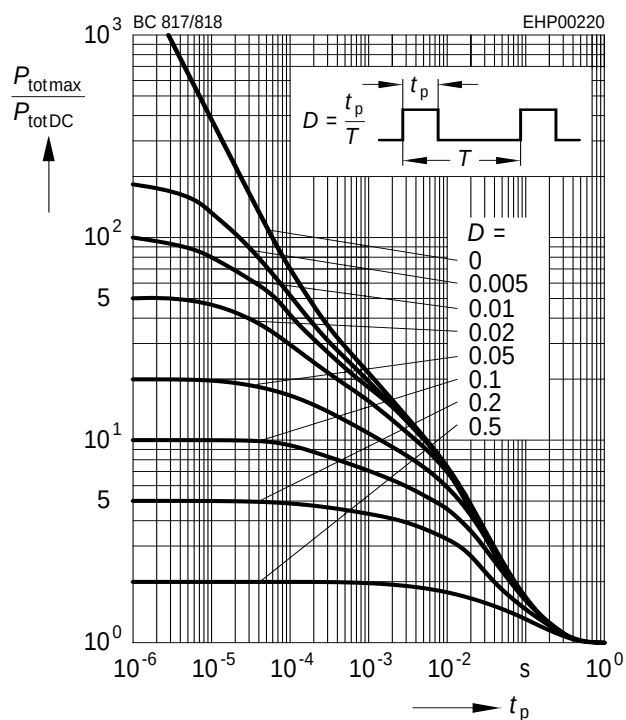
Transition frequency $f_T = f(I_C)$

$V_{CE} = 5V$



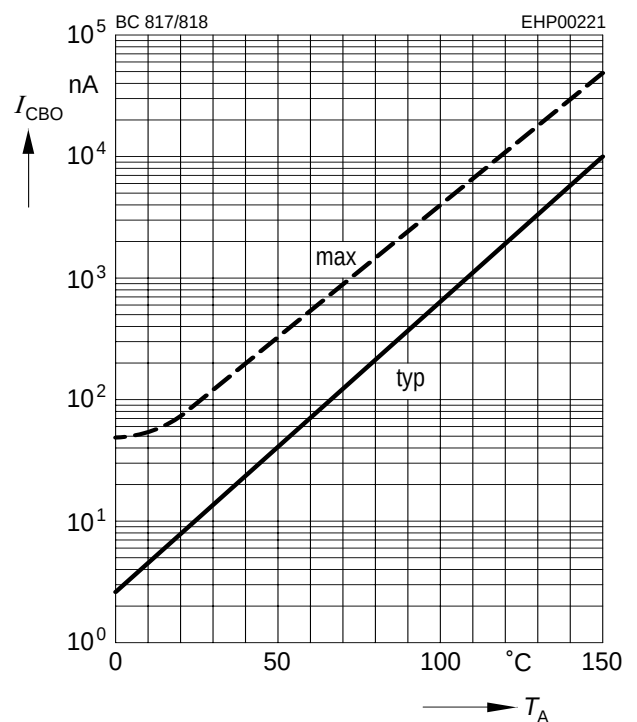
Permissible pulse load

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



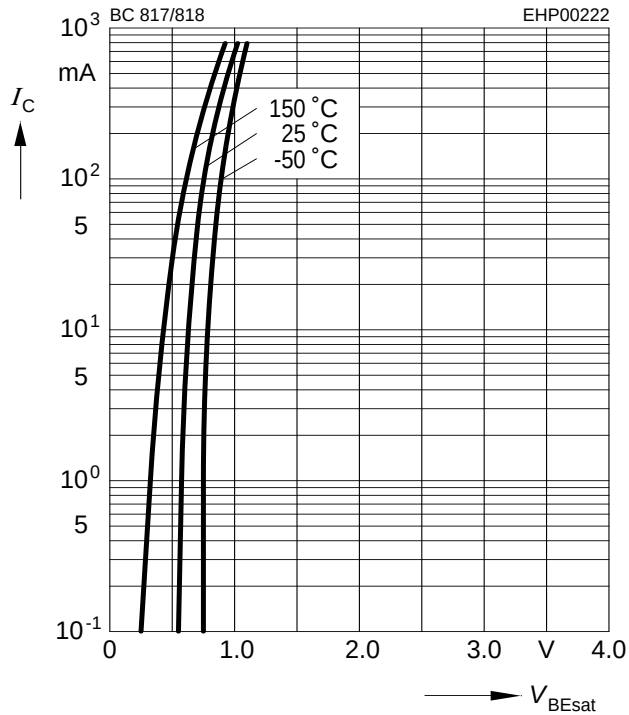
Collector cutoff current $I_{CBO} = f(T_A)$

$V_{CBO} = 25V$



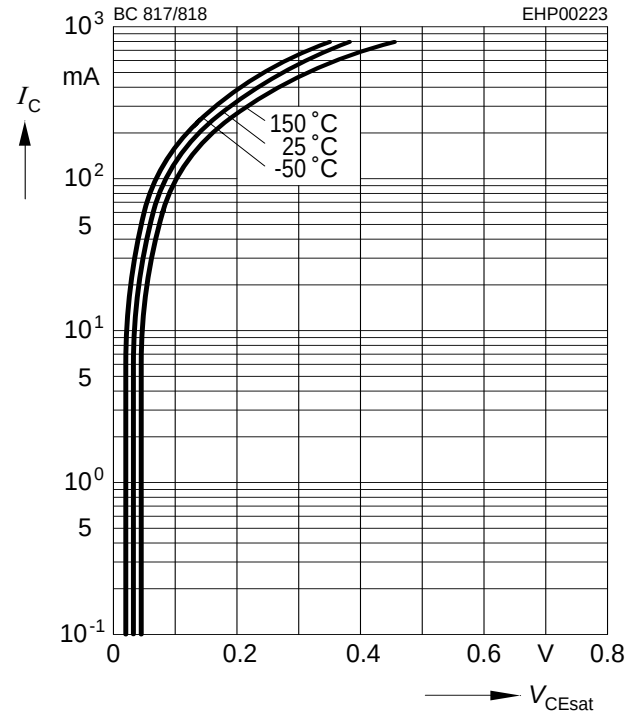
Base-emitter saturation voltage

$$I_C = f(V_{BEsat}), h_{FE} = 10$$



Collector-emitter saturation voltage

$$I_C = f(V_{CEsat}), h_{FE} = 10$$



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

$$V_{CE} = 1V$$

