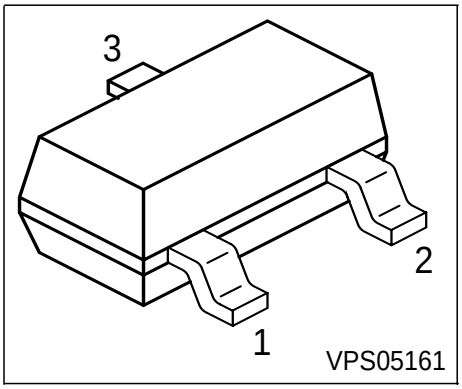
NPN Silicon AF Transistors

- 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 °C	P_{tot}	330		mW
Junction temperature	T_j	150		°C
Storage temperature	T_{stg}	-65 ... 150		

Thermal Resistance

Junction - soldering point[1)]	R_{thJS}	≤215	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.

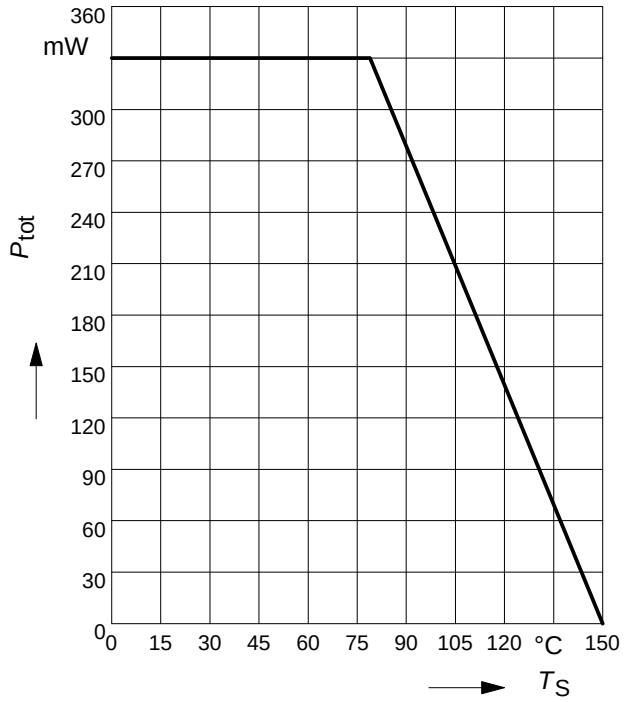
Parameter		Symbol	Values			Unit
			min.	typ.	max.	
DC Characteristics						
Collector-emitter breakdown voltage		$V_{(BR)CEO}$				V
I_C = 10 mA, I_B = 0	BC817		45	-	-	
	BC818		25	-	-	
Collector-base breakdown voltage		$V_{(BR)CBO}$				
I_C = 10 µA, I_E = 0	BC817		50	-	-	
	BC818		30	-	-	
Emitter-base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

1) Pulse test: t ≤ 300µs, D = 2%

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

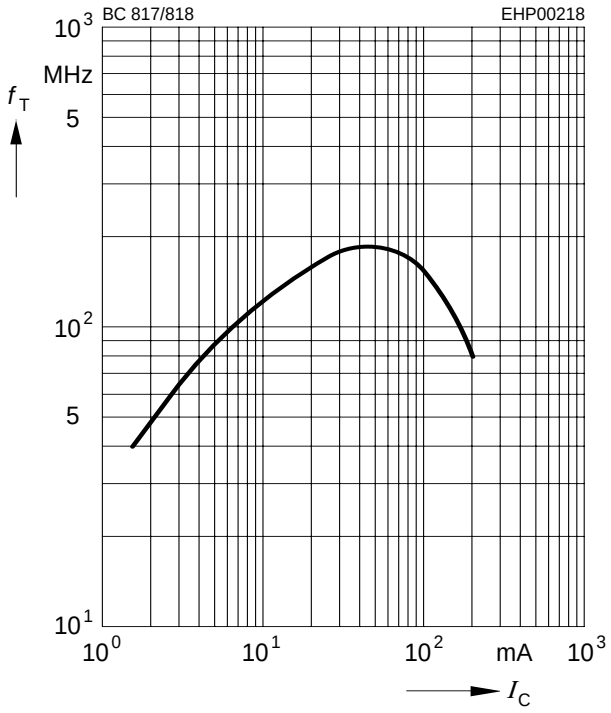
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Transition frequency I_C = 50 mA, V_{CE} = 5 V, f = 100 MHz	f_T	-	170	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz	C_{cb}	-	6	-	pF
Emitter-base capacitance V_{EB} = 0.5 V, f = 1 MHz	C_{eb}	-	60	-	

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



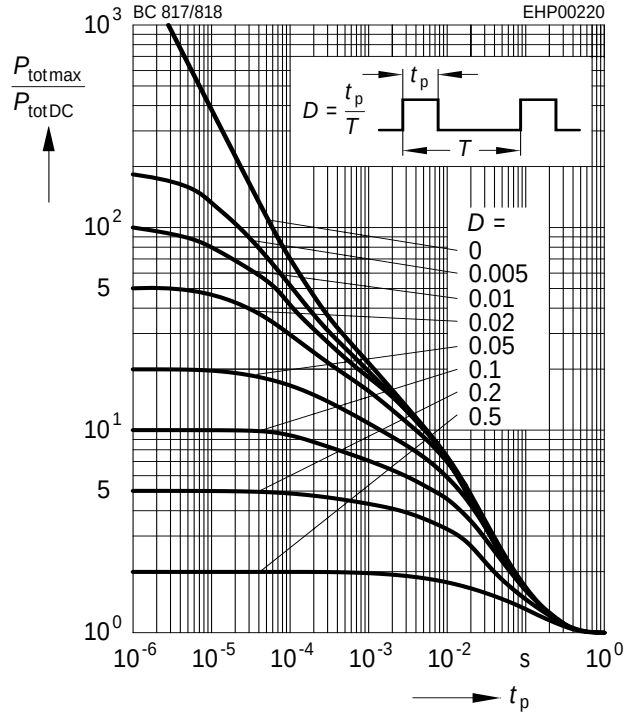
Transition frequency $f_T = f(I_C)$

V_{CE} = 5V



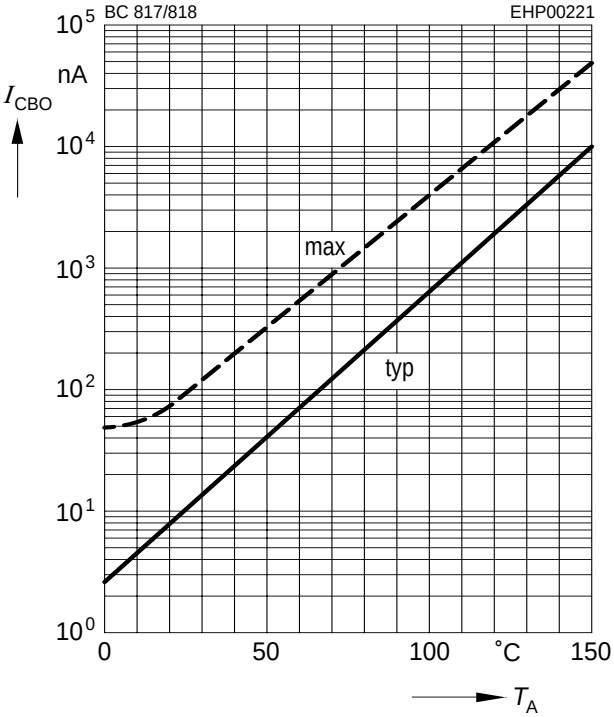
Permissible pulse load

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



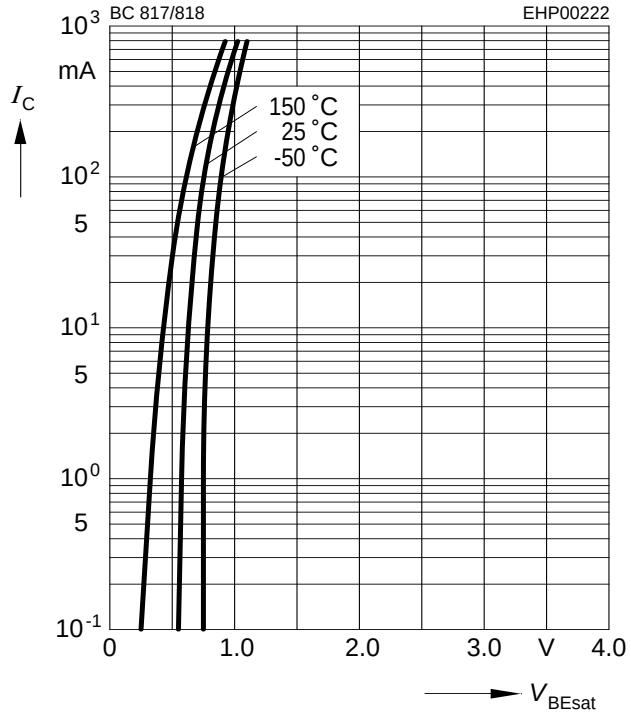
Collector cutoff current $I_{CBO} = f(T_A)$

V_{CBO} = 25V



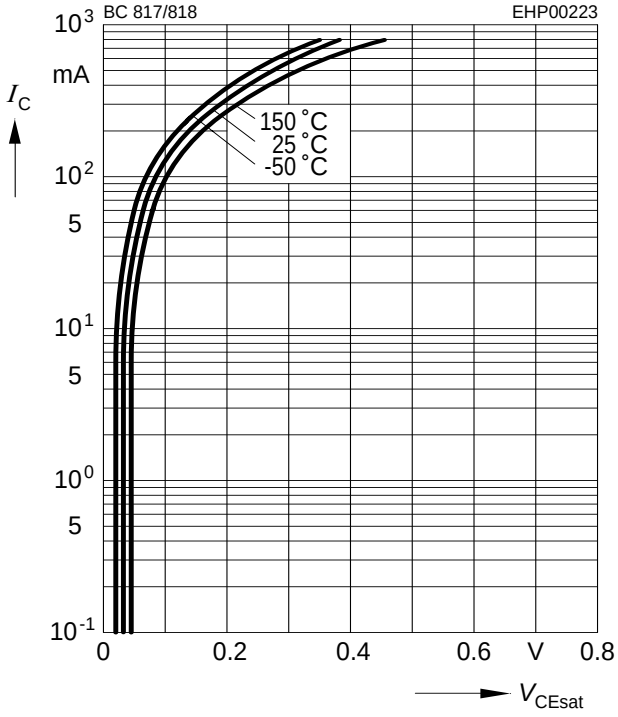
Base-emitter saturation voltage

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



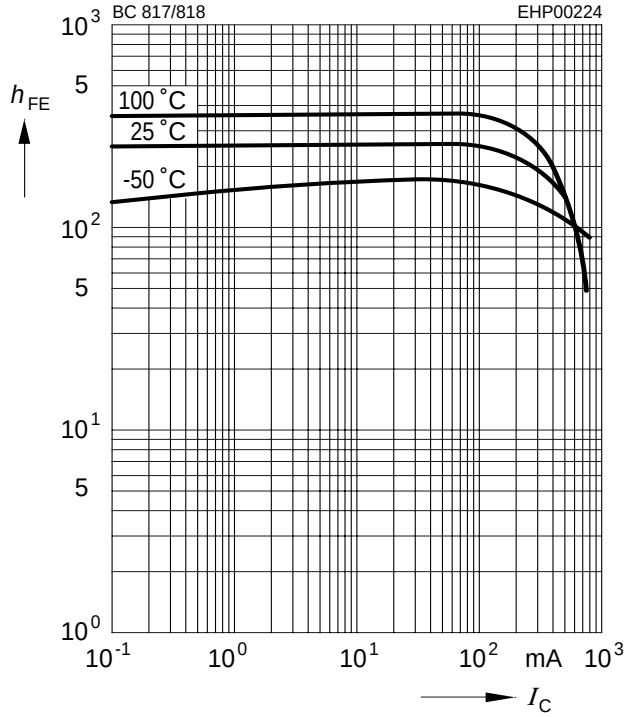
Collector-emitter saturation voltage

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



DC current gain h_{FE} = f(IC)

V_{CE} = 1V



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