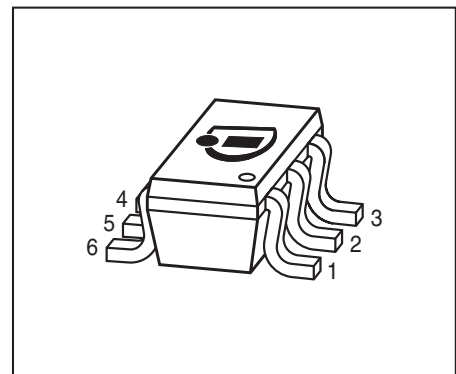
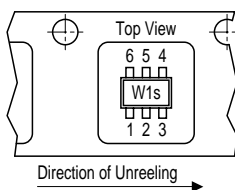


### NPN Silicon AF Transistor Array

- For AF stages and driver applications
- High current gain
- Low collector-emitter saturation voltage
- Two (galvanic) internal isolated NPN/PNP transistors in one package
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101

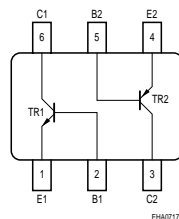


### Tape loading orientation



Marking on SC74 package (for example W1s) corresponds to pin 1 of device

Position in tape: pin 1 opposite of feed hole side



Type	Marking	Pin Configuration						Package
BC817UPN	1Bs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SC74

### Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	$V_{CEO}$	45	V
Collector-base voltage	$V_{CBO}$	50	
Emitter-base voltage	$V_{EBO}$	5	
Collector current	$I_C$	500	mA
Peak collector current, $t_p \leq 10$ ms	$I_{CM}$	1000	
Base current	$I_B$	100	
Peak base current	$I_{BM}$	200	
Total power dissipation- $T_S \leq 115$ °C	$P_{tot}$	330	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-65 ... 150	

**Thermal Resistance**

Parameter	Symbol	Value	Unit
Junction - soldering point <sup>1)</sup>	$R_{thJS}$	$\leq 105$	K/W

**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 $I_C = 10 \text{ mA}, I_B = 0$	$V_{(BR)CEO}$	45	-	-	V
Collector-base breakdown voltage $I_C = 10 \mu\text{A}, I_E = 0$	$V_{(BR)CBO}$	50	-	-	
Emitter-base breakdown voltage $I_E = 10 \mu\text{A}, I_C = 0$	$V_{(BR)EBO}$	5	-	-	
Collector-base cutoff current $V_{CB} = 25 \text{ V}, I_E = 0$ $V_{CB} = 25 \text{ V}, I_E = 0, T_A = 150^\circ\text{C}$	$I_{CBO}$	-	-	0.1 50	$\mu\text{A}$
Emitter-base cutoff current $V_{EB} = 4 \text{ V}, I_C = 0$	$I_{EBO}$	-	-	100	nA
DC current gain <sup>2)</sup> $I_C = 100 \text{ mA}, V_{CE} = 1 \text{ V}$ $I_C = 300 \text{ mA}, V_{CE} = 1 \text{ V}$	$h_{FE}$	160 100	250 -	400 -	-
Collector-emitter saturation voltage <sup>2)</sup> $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$	$V_{CEsat}$	-	-	0.7	V
Base emitter saturation voltage <sup>2)</sup> $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$	$V_{BEsat}$	-	-	1.2	

**AC Characteristics**

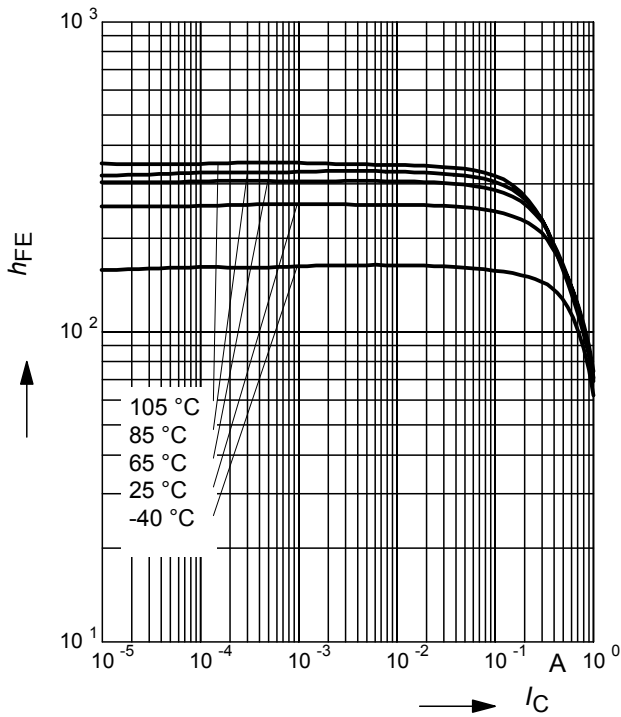
Transition frequency $I_C = 50 \text{ mA}, V_{CE} = 5 \text{ V}, f = 100 \text{ MHz}$	$f_T$	-	170	-	MHz
Collector-base capacitance $f = 1 \text{ MHz}, V_{BE} = 10 \text{ V}$	$C_{cb}$	-	6	-	pF
Emitter-base capacitance $V_{EB} = 0.5 \text{ V}, f = 1 \text{ MHz}$	$C_{eb}$	-	60	-	

<sup>1)</sup>For calculation of  $R_{thJA}$  please refer to Application Note AN077 (Thermal Resistance Calculation)

<sup>2)</sup>Pulse test:  $t < 300\mu\text{s}; D < 2\%$

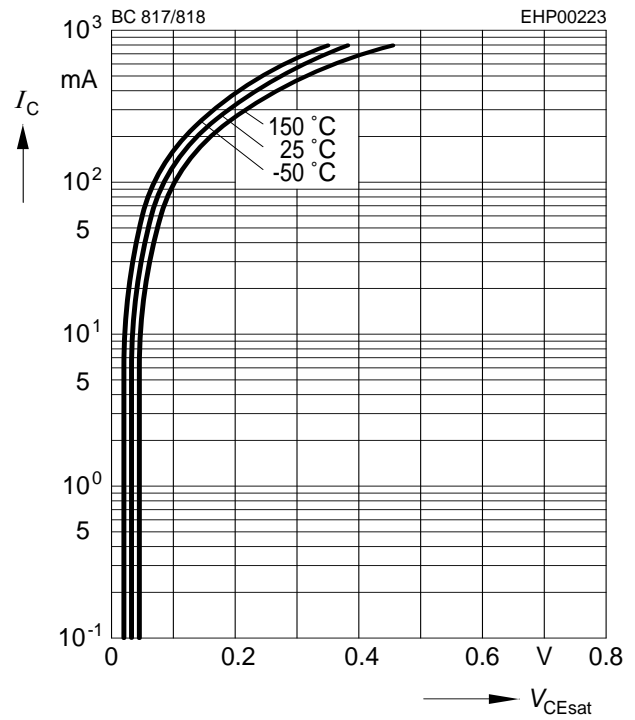
**DC current gain  $h_{FE} = f(I_C)$**

$V_{CE} = 1\text{ V}$



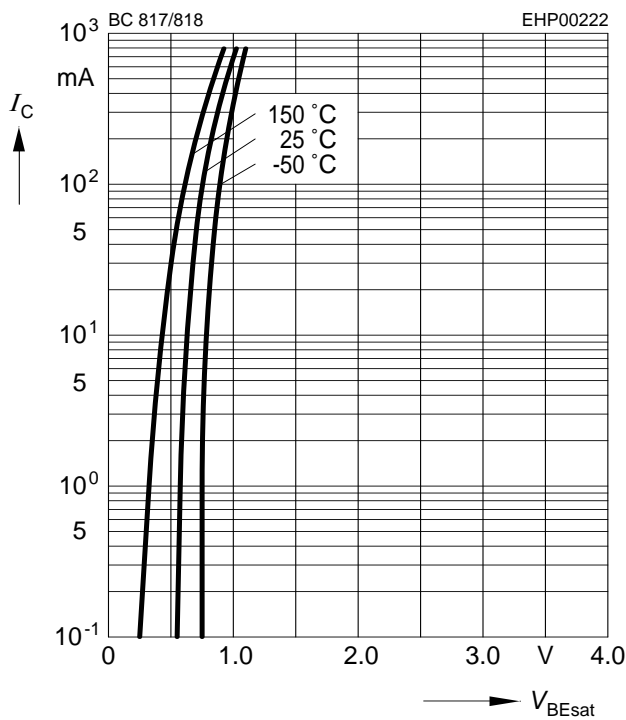
**Collector-emitter saturation voltage**

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



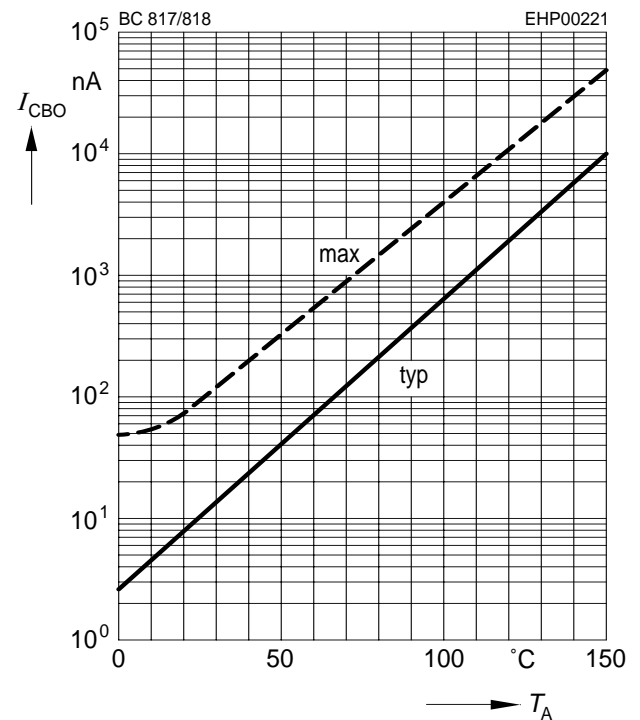
**Base-emitter saturation voltage**

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



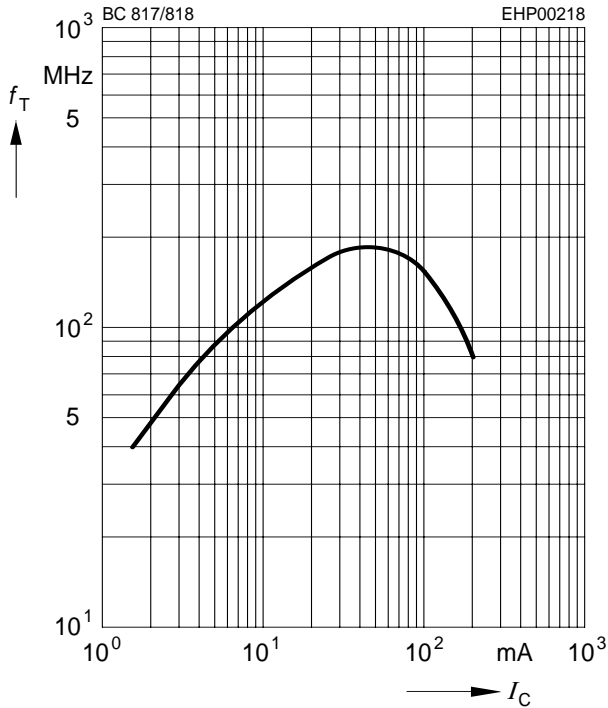
**Collector cutoff current  $I_{CBO} = f(T_A)$**

$V_{CBO} = 25\text{ V}$



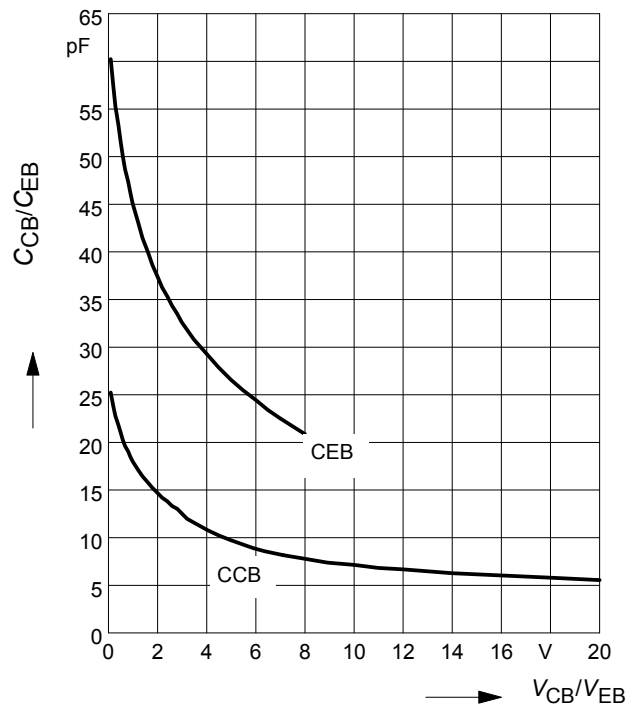
Transition frequency  $f_T = f(I_C)$

$V_{CE}$  = parameter in V,  $f = 2$  GHz



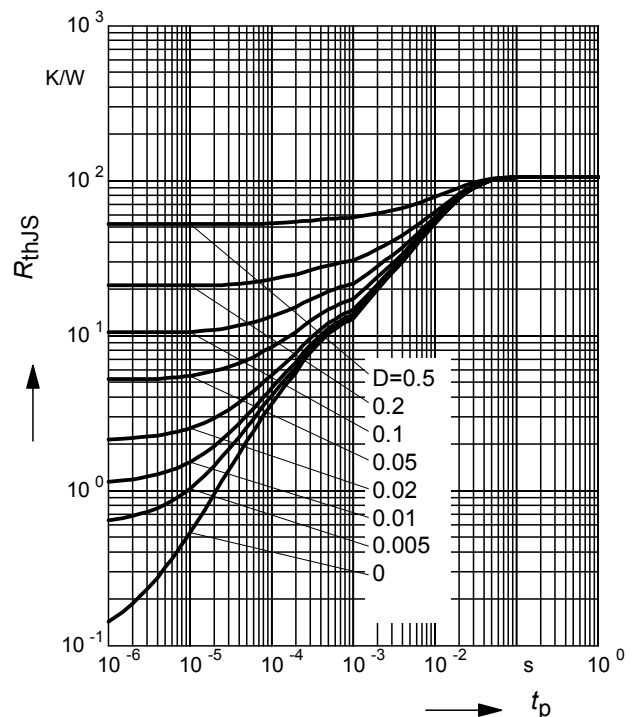
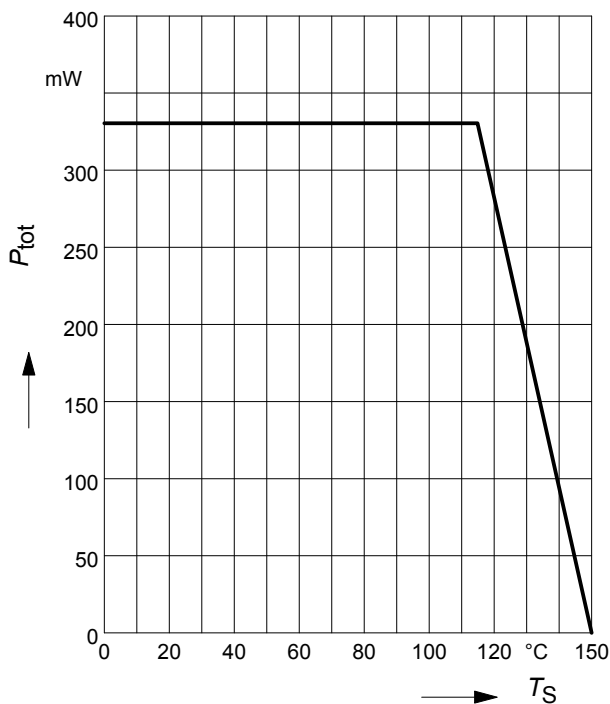
Collector-base capacitance  $C_{cb} = f(V_{CB})$

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



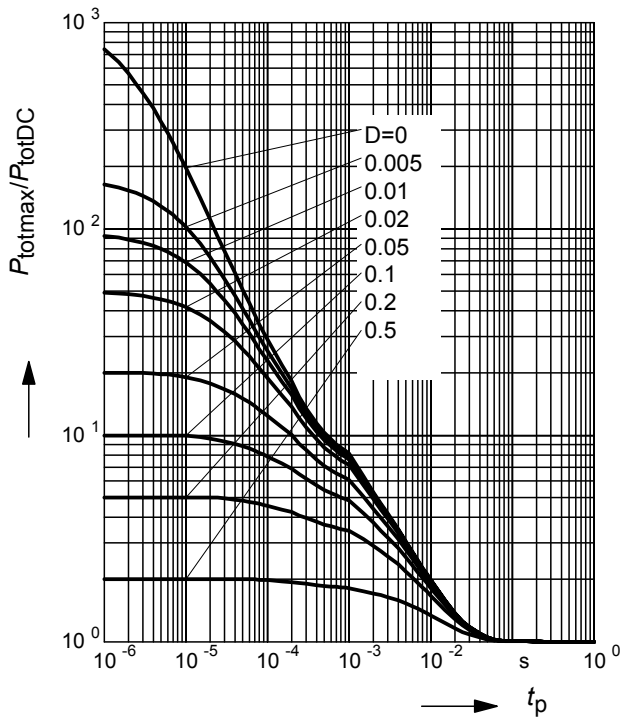
Total power dissipation  $P_{tot} = f(T_S)$

Permissible Pulse Load  $R_{thJS} = f(t_p)$

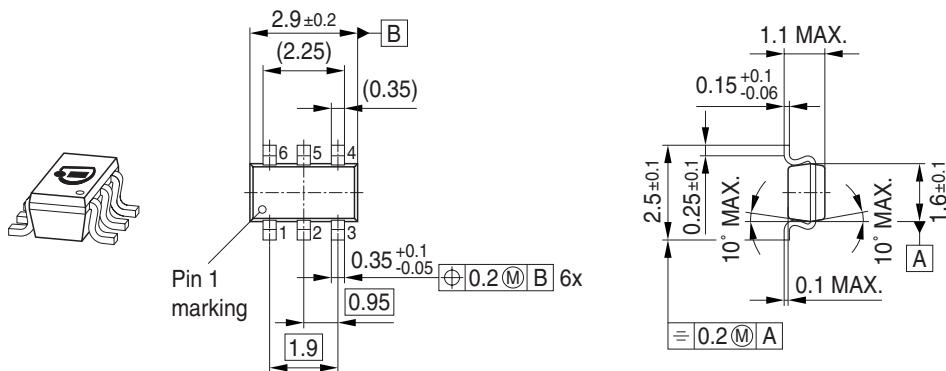


**Permissible Pulse Load**

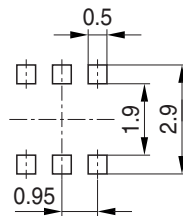
$$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$$



Package Outline

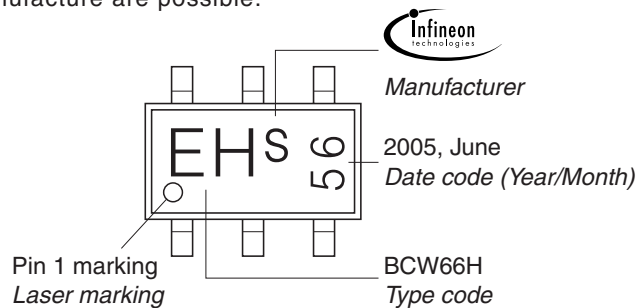


Foot Print



Marking Layout (Example)

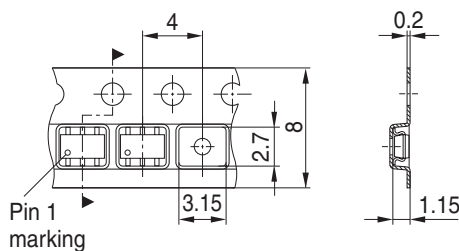
Small variations in positioning of Date code, Type code and Manufacture are possible.



Standard Packing

Reel  $\varnothing$ 180 mm = 3.000 Pieces/Reel  
 Reel  $\varnothing$ 330 mm = 10.000 Pieces/Reel

For symmetric types no defined Pin 1 orientation in reel.



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