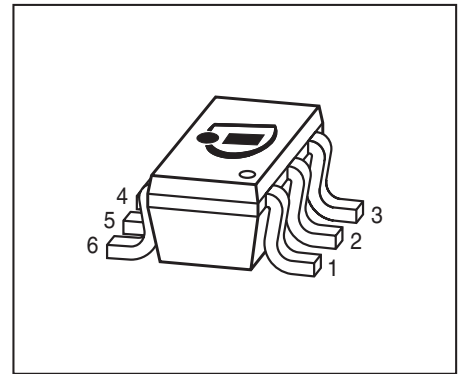


NPN Silicon AF Transistor

- For general AF applications
- High collector current
- High current gain
- Low collector-emitter saturation voltage
- Pb-free (RoHS compliant) package¹⁾
- Qualified according AEC Q101



Type	Marking	Pin Configuration						Package
BC817SU	B6s	1=E	2=C	3=C	4=C	5=C	6=B	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}	1	A
Base current	I_B	100	mA
Peak base current	I_{BM}	200	
Total power dissipation- $T_S \leq 100^\circ\text{C}$	P_{tot}	1000	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ²⁾	R_{thJS}	≤ 50	K/W

¹Pb-containing package may be available upon special request

²For calculation of R_{thJA} please refer to Application Note Thermal Resistance

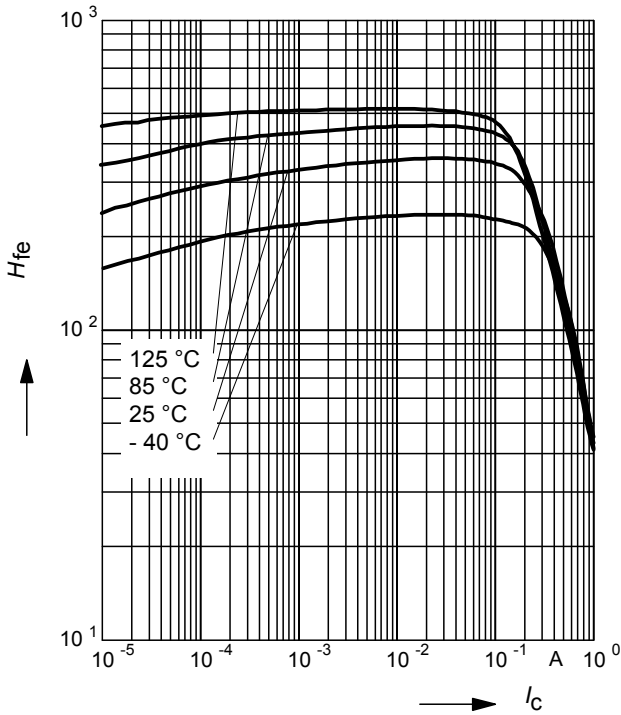
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage $I_C = 10\text{ mA}, I_B = 0$	$V_{(BR)CEO}$	45	-	-	V
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}, I_E = 0$	$V_{(BR)CBO}$	50	-	-	
Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}, I_C = 0$	$V_{(BR)EBO}$	5	-	-	
Collector-base cutoff current $V_{CB} = 25\text{ V}, I_E = 0$ $V_{CB} = 25\text{ V}, I_E = 0, T_A = 150\text{ }^\circ\text{C}$	I_{CBO}	-	-	0.1 50	μA
Emitter-base cutoff current $V_{EB} = 4\text{ V}, I_C = 0$	I_{EBO}	-	-	100	nA
DC current gain ¹⁾ $I_C = 100\text{ mA}, V_{CE} = 1\text{ V}$ $I_C = 500\text{ mA}, V_{CE} = 1\text{ V}$	h_{FE}	160 40	250 -	400 -	-
Collector-emitter saturation voltage ¹⁾ $I_C = 500\text{ mA}, I_B = 50\text{ mA}$	V_{CEsat}	-	-	0.4	V
Base emitter saturation voltage ¹⁾ $I_C = 500\text{ mA}, I_B = 50\text{ mA}$	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}	-	3	-	pF
Emitter-base capacitance $V_{EB} = 0.5\text{ V}, f = 1\text{ MHz}$	C_{eb}	-	40	-	

¹⁾Pulse test: $t < 300\mu\text{s}; D < 2\%$

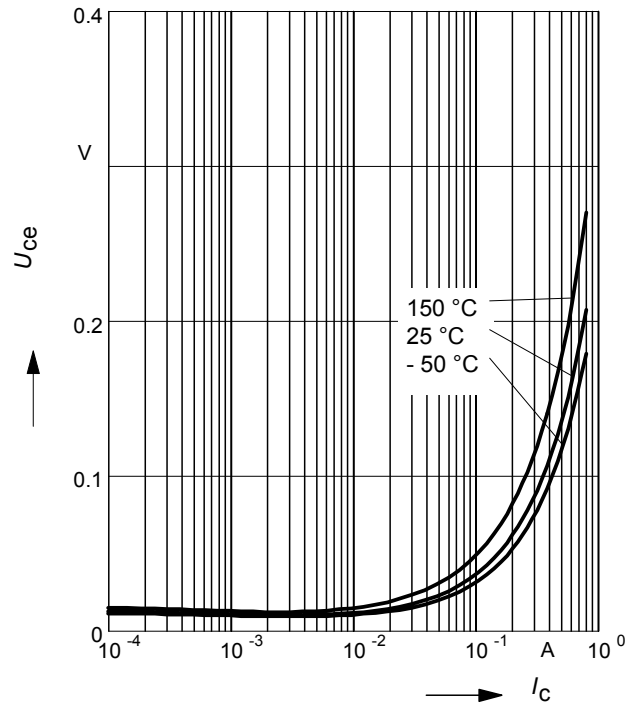
DC current gain $h_{FE} = f(I_C)$

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



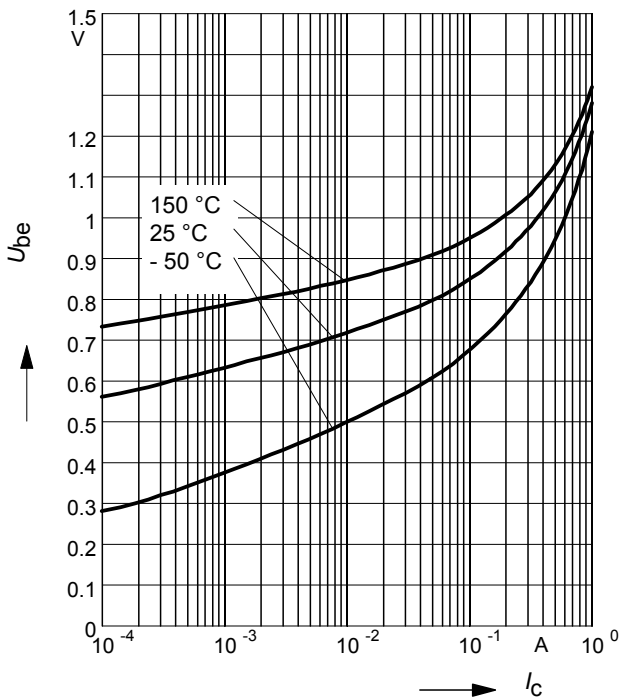
Collector-emitter saturation voltage

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



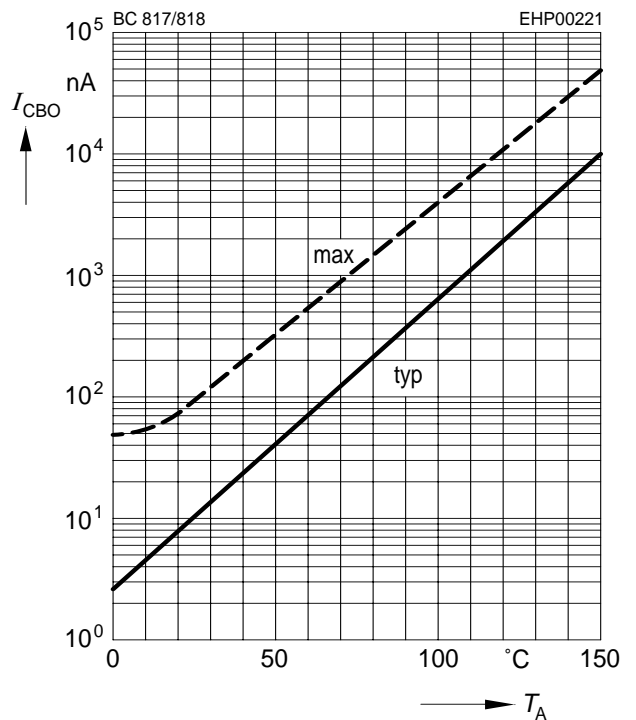
Base-emitter saturation voltage

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



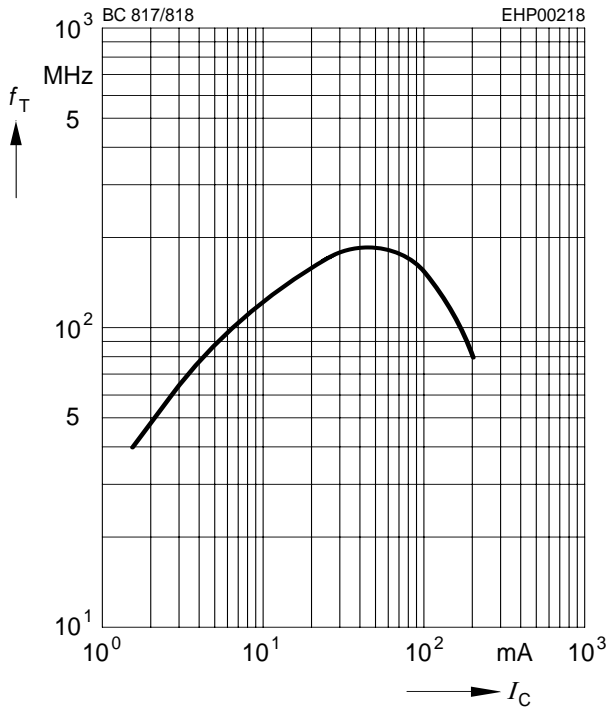
Collector cutoff current $I_{CBO} = f(T_A)$

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

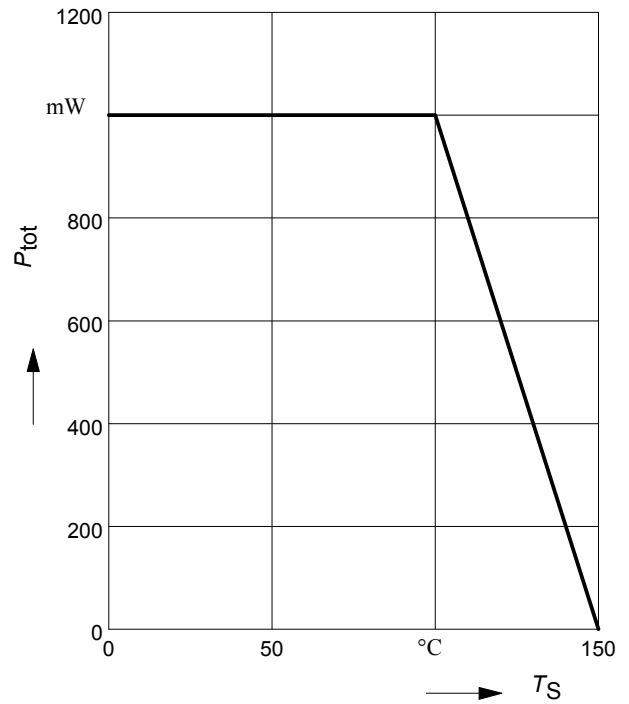


Transition frequency $f_T = f(I_C)$

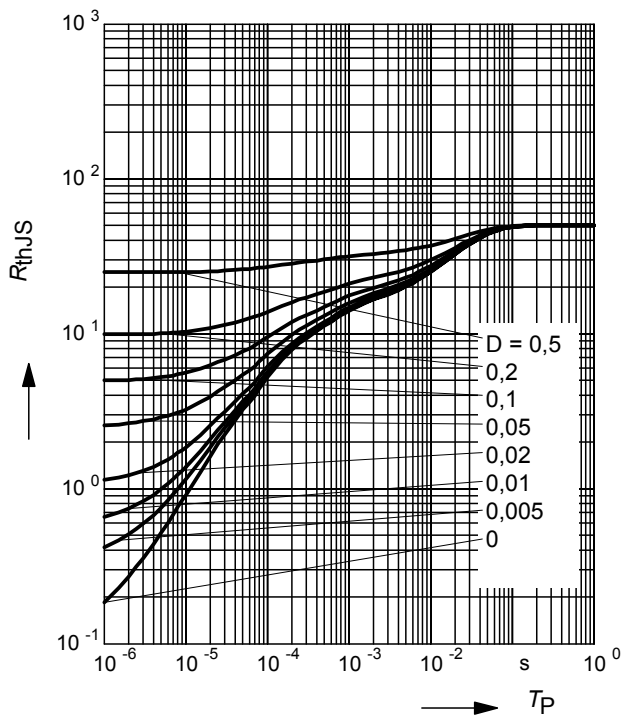
V_{CE} = parameter in V, $f = 2$ GHz



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

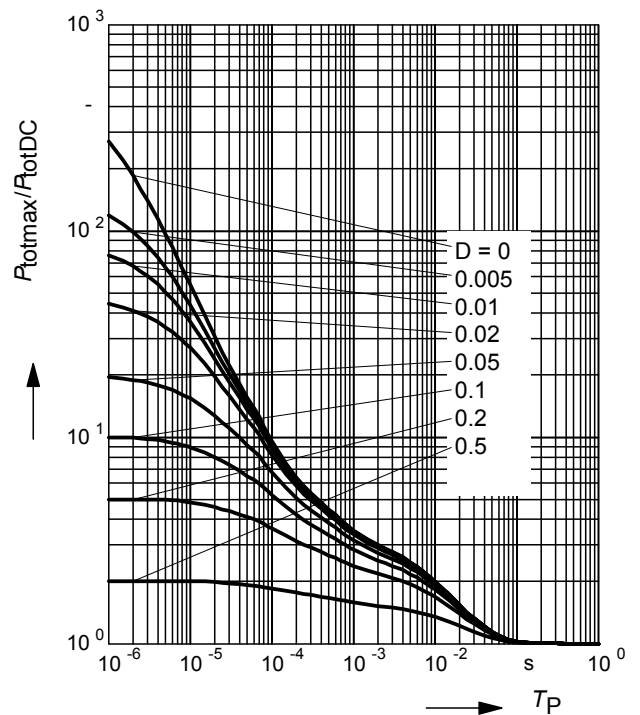


Permissible Pulse Load $R_{thJS} = f(t_p)$

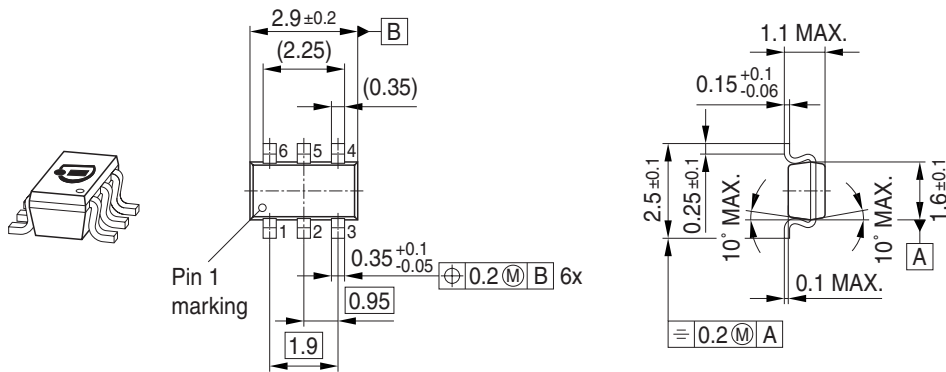


Permissible Pulse Load

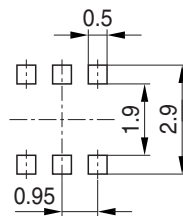
$P_{totmax}/P_{totDC} = f(t_p)$



Package Outline

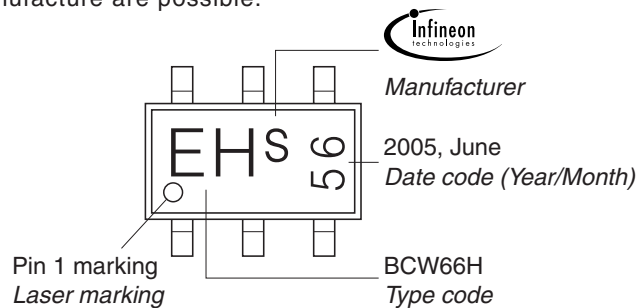


Foot Print



Marking Layout (Example)

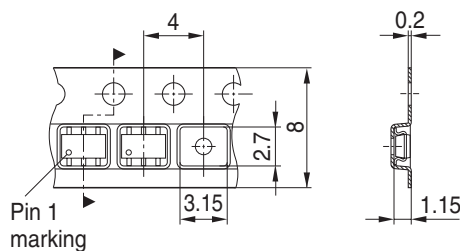
Small variations in positioning of Date code, Type code and Manufacture are possible.



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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