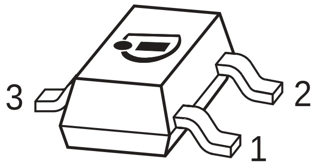
PNP Silicon AF and Switching Transistor



- For general AF applications
- High breakdown voltage
- Low collector-emitter saturation voltage
- Complementary type: BCX41 (NPN)
- Pb-free (RoHS compliant) package[1]
- Qualified according AEC Q101

Type	Marking	Pin Configuration			Package
BCX42	DKs	1 = B	2 = E	3 = C	SOT23

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}	125	V
Collector-base voltage	V_{CBO}	125	
Emitter-base voltage	V_{EBO}	5	
Collector current	I_C	800	mA
Peak collector current	I_{CM}	1	A
Base current	I_B	100	mA
Peak base current	I_{BM}	200	
Total power dissipation $T_S \leq 79$ °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[2]	R_{thJS}	≤ 215	K/W

[1] Pb-containing package may be available upon special request

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

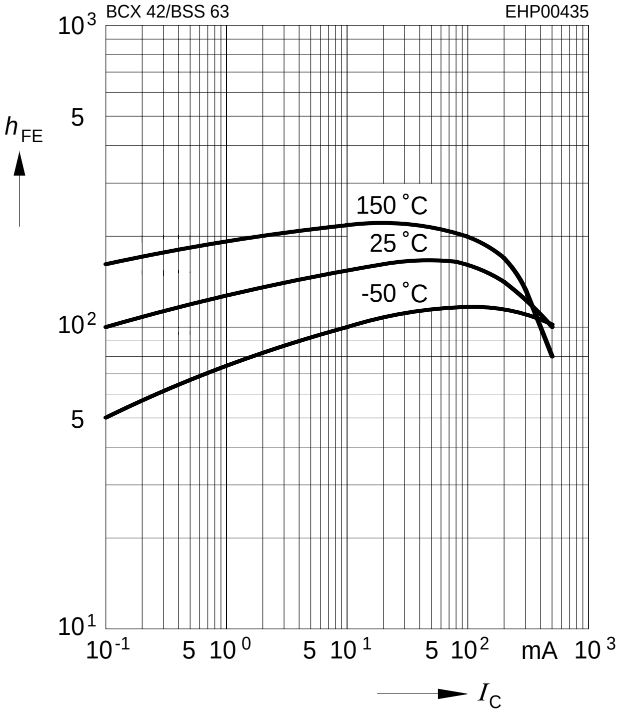
Electrical Characteristics at T_A = 25°C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage I_C = 10 mA, I_B = 0	$V_{(BR)CEO}$	125	-	-	V
Collector-base breakdown voltage I_C = 100 µA, I_E = 0	$V_{(BR)CBO}$	125	-	-	
Emitter-base breakdown voltage I_E = 10 µA, I_C = 0	$V_{(BR)EBO}$	5	-	-	
Collector-base cutoff current	I_{CBO}				µA
V_{CB} = 100 V, I_E = 0		-	-	0.1	
V_{CB} = 100 V, I_E = 0 , T_A = 150 °C		-	-	20	
Collector-emitter cutoff current	I_{CEO}				
V_{CE} = 100 V, T_A = 85 °C		-	-	10	
V_{CE} = 100 V, T_A = 125 °C		-	-	75	
Emitter-base cutoff current V_{EB} = 4 V, I_C = 0	I_{EBO}	-	-	100	nA
DC current gain1)	h_{FE}				-
I_C = 100 µA, V_{CE} = 1 V		25	-	-	
I_C = 100 mA, V_{CE} = 1 V		63	-	-	
I_C = 200 mA, V_{CE} = 1 V		40	-	-	
Collector-emitter saturation voltage1) I_C = 300 mA, I_B = 30 mA	V_{CEsat}	-	-	0.9	V
Base emitter saturation voltage1) I_C = 300 mA, I_B = 30 mA	V_{BEsat}	-	-	1.4	
AC Characteristics					
Transition frequency I_C = 20 mA, V_{CE} = 5 V, f = 20 MHz	f_T	-	150	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz	C_{cb}	-	12	-	pF

[1] Pulse test: t < 300µs; D < 2%

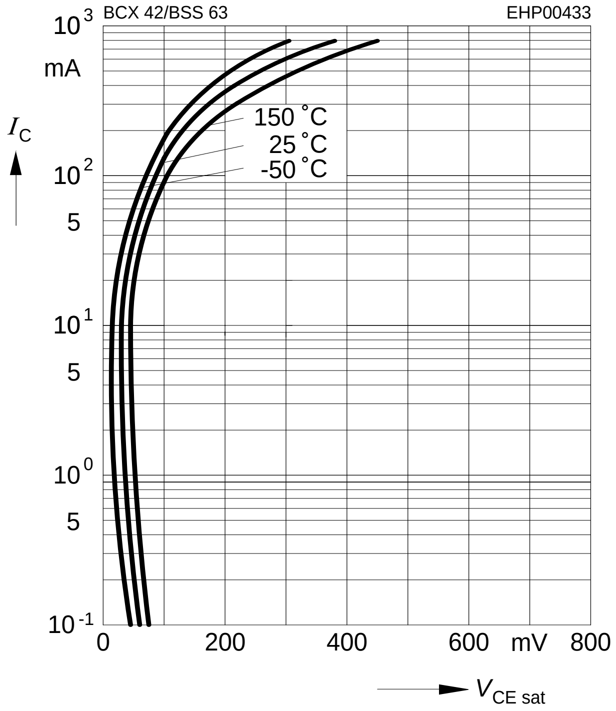
DC current gain $h_{FE} = f(I_C)$

V_{CE} = 1 V



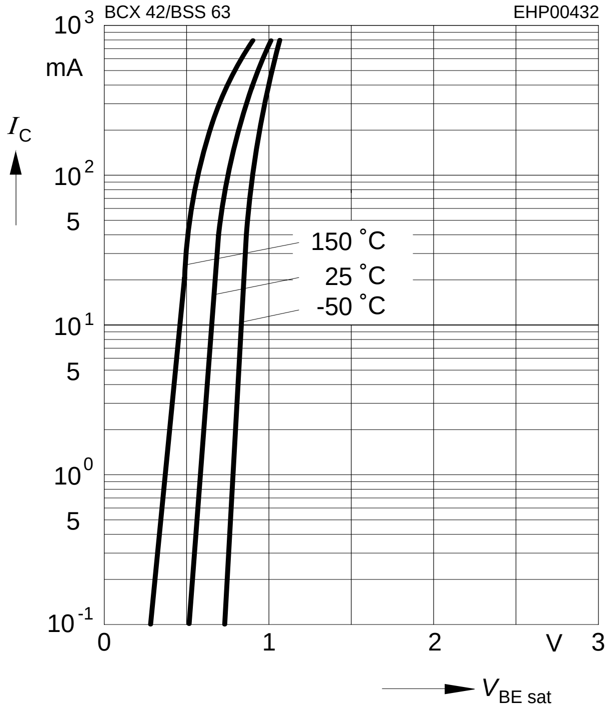
Collector-emitter saturation voltage

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



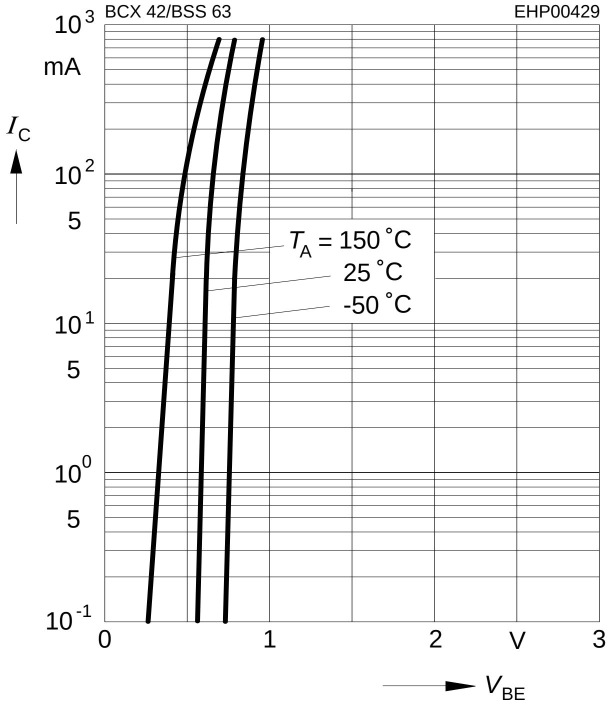
Base-emitter saturation voltage

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



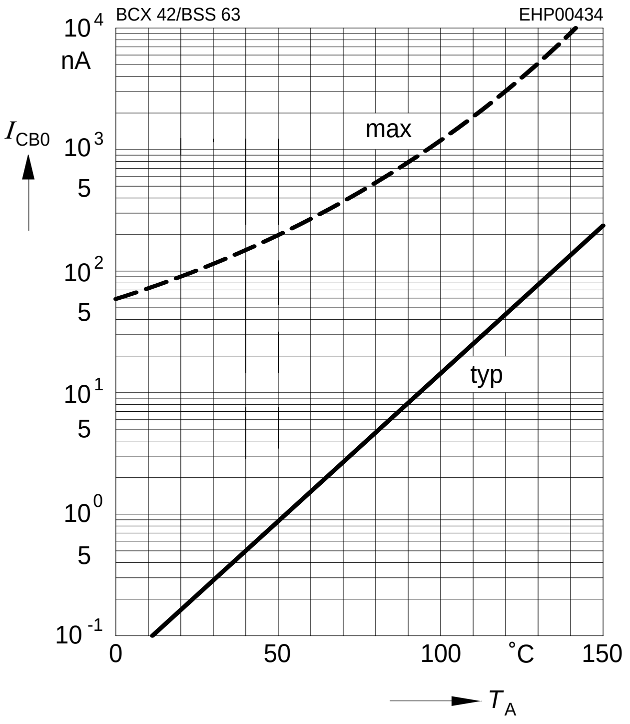
Collector current $I_C = f(V_{BE})$

V_{CE} = 1V



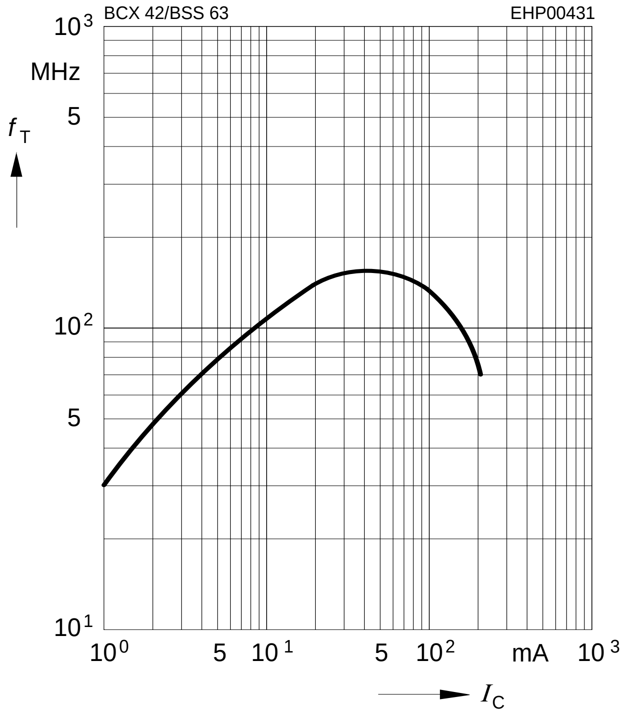
Collector cutoff current $I_{CBO} = f(T_A)$

V_{CBO} = 100 V

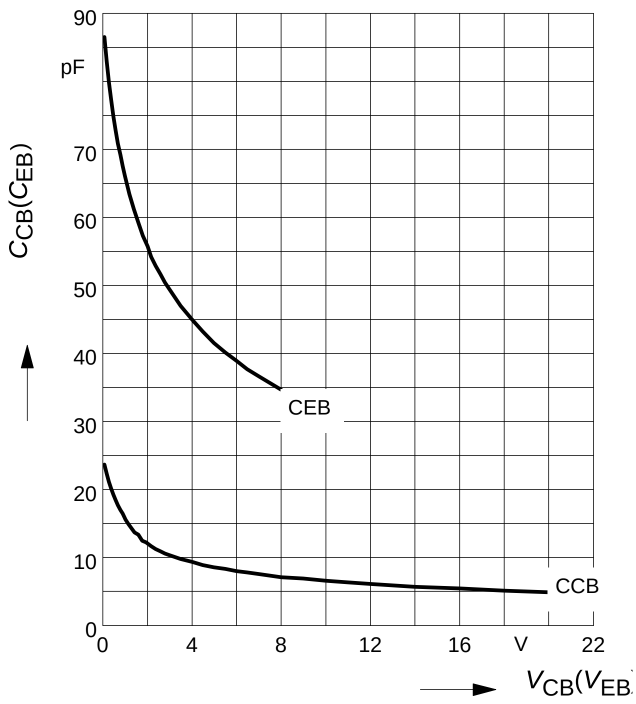


Transition frequency $f_T = f(I_C)$

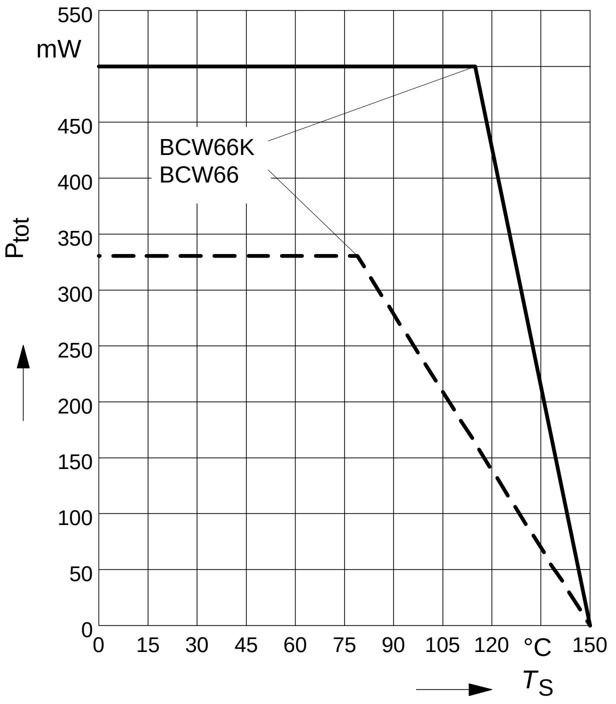
V_{CE} = parameter in V, f = 2 GHz



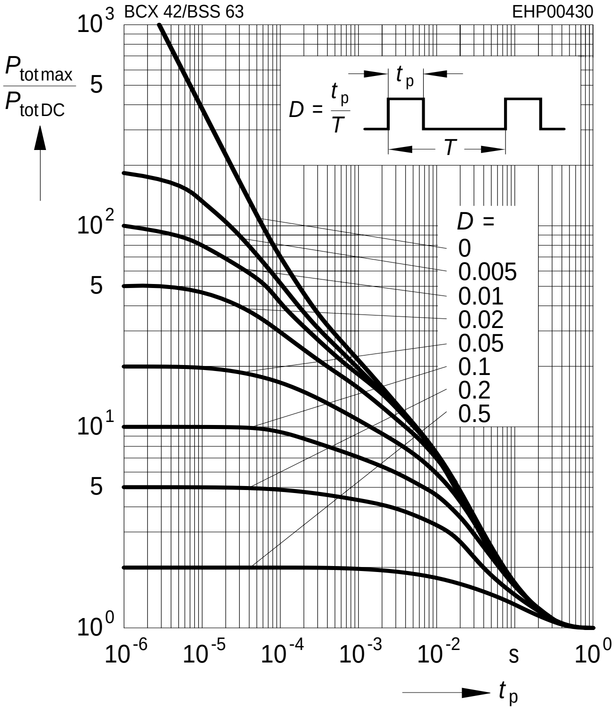
Collector-base capacitance $C_{cb} = f(V_{CB})$
Emitter-base capacitance $C_{eb} = f(V_{EB})$



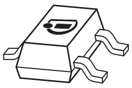
Total power dissipation $P_{tot} = f(T_S)$

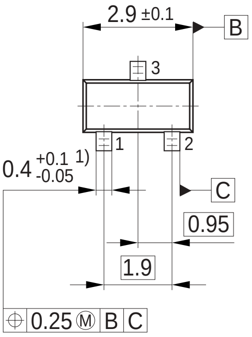


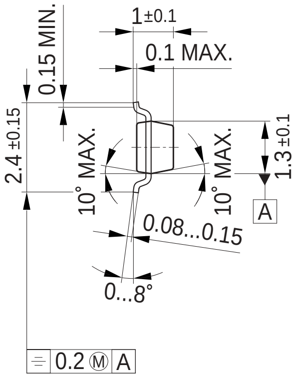
Total power dissipation $P_{tot} = f(T_S)$



Package Outline

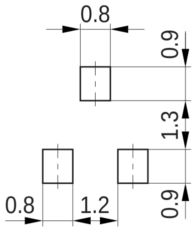




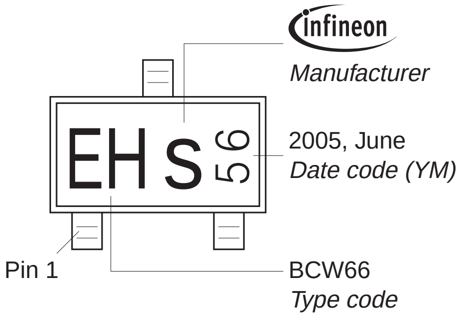


1) Lead width can be 0.6 max. in dambar area

Foot Print

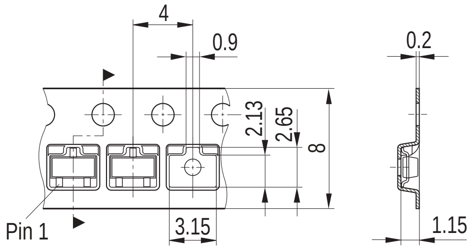


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



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