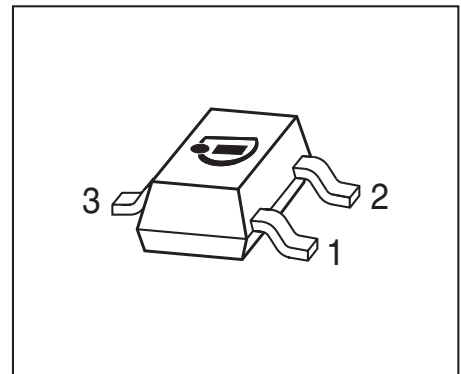


NPN Silicon AF and Switching Transistor

- For general AF applications
- High breakdown voltage
- Low collector-emitter saturation voltage
- Complementary type: BCX42 (PNP)
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101



Type	Marking	Pin Configuration			Package
BCX41	EKs	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, $t_p \leq 10$ ms	I_{CM}	1	A
Base current	I_B	100	mA
Peak base current	I_{BM}	200	
Total power dissipation $T_S \leq 79$ °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 ¹⁾	R_{thJS}	≤ 215	K/W

¹⁾For calculation of R_{thJA} please refer to Application Note AN077 (Thermal Resistance Calculation)

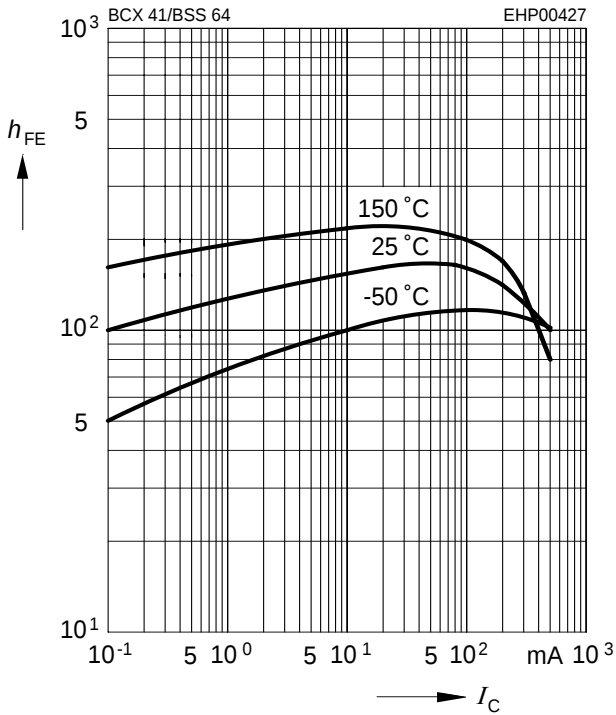
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

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

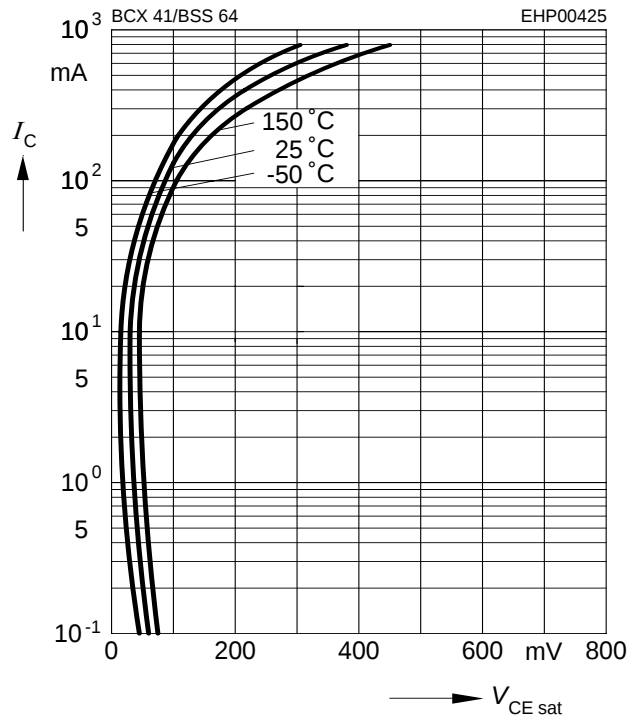
¹⁾Pulse test: $t < 300\mu\text{s}$; $D < 2\%$

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

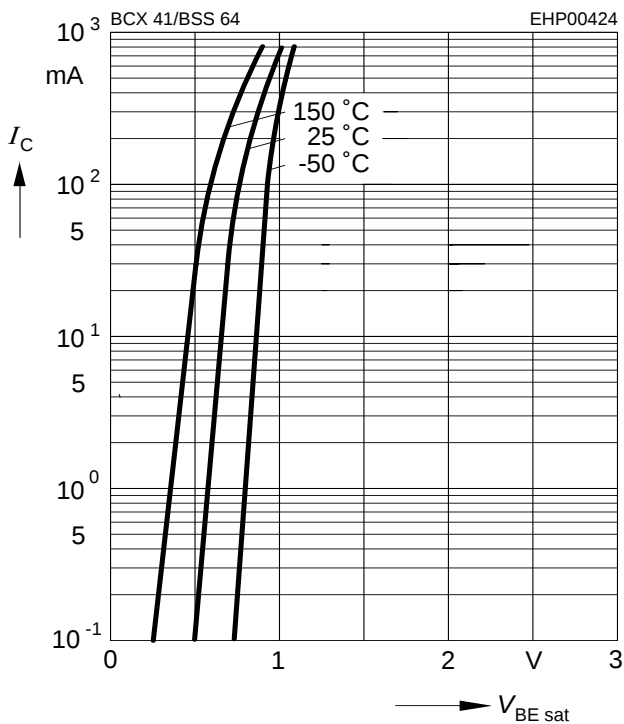
$$V_{CE} = 1 \text{ V}$$


Collector-emitter saturation voltage

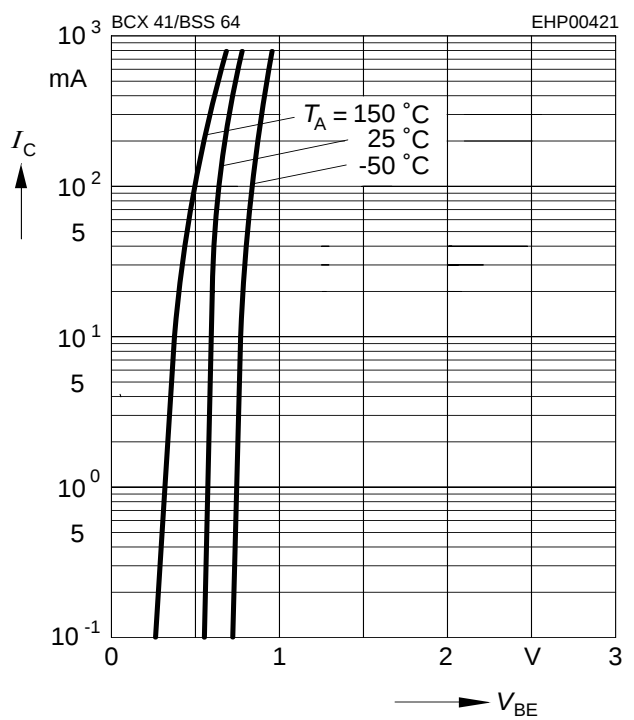
$$I_C = f(V_{CEsat}), h_{FE} = 10$$


Base-emitter saturation voltage

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

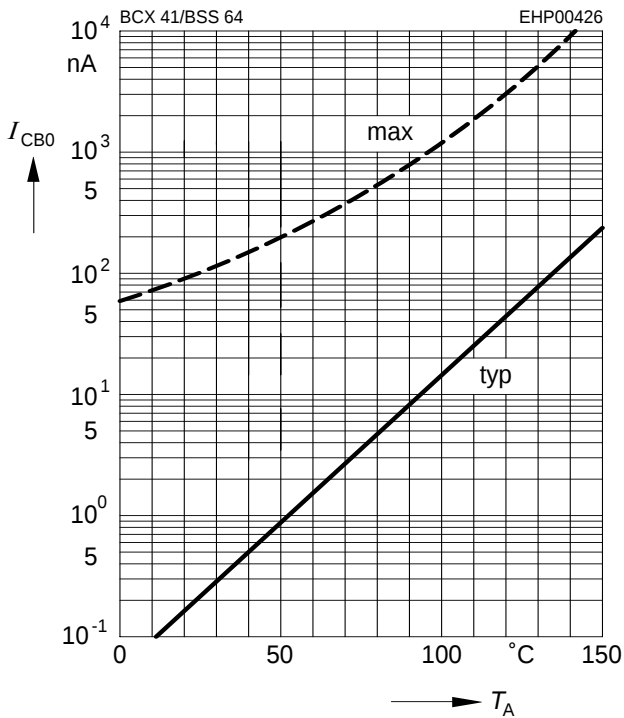

Collector current $I_C = f(V_{BE})$

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



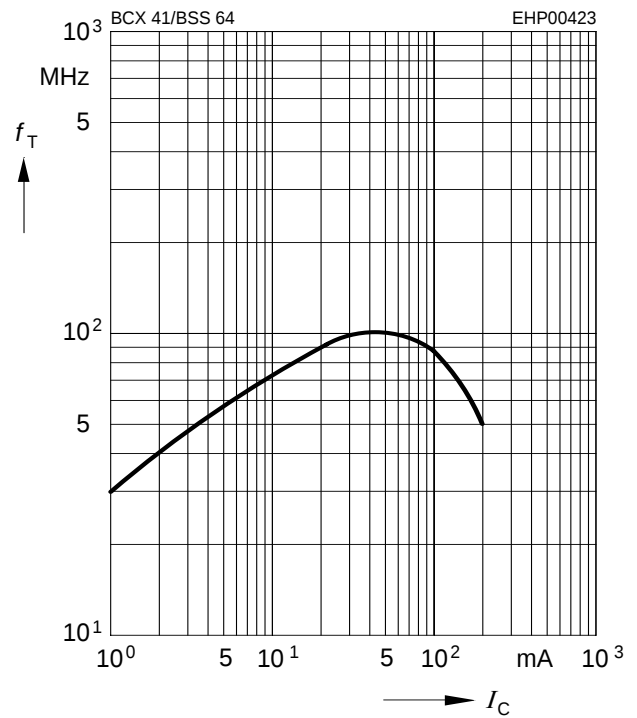
Collector cutoff current $I_{CBO} = f(T_A)$

$V_{CBO} = 80 \text{ V}$



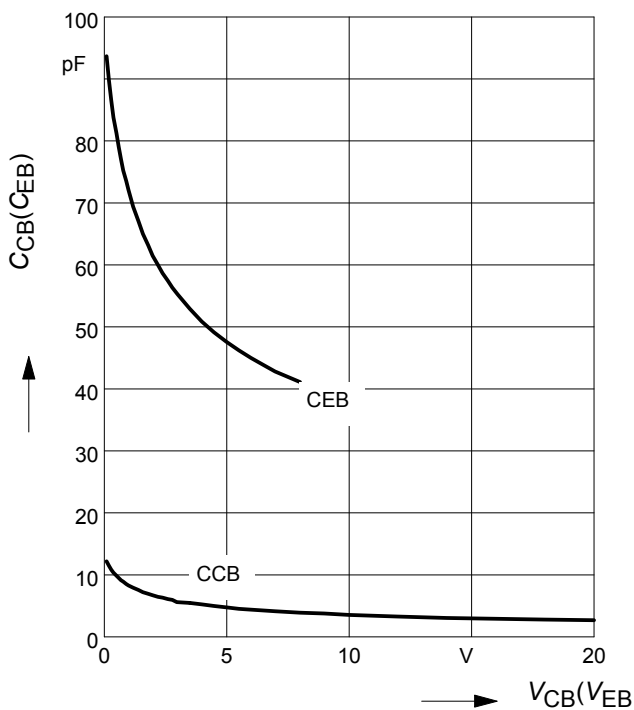
Transition frequency $f_T = f(I_C)$

$V_{CE} = 5 \text{ V}$

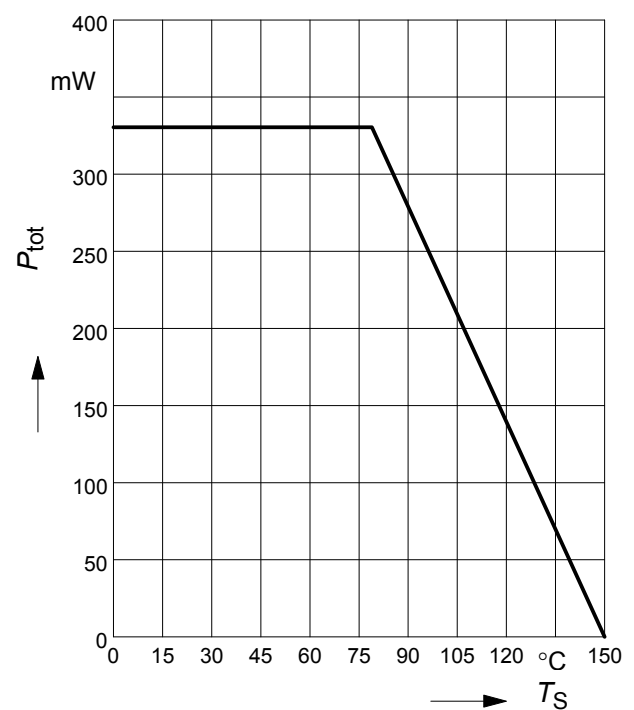


Collector-base capacitance $C_{cb} = f(V_{CB})$

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

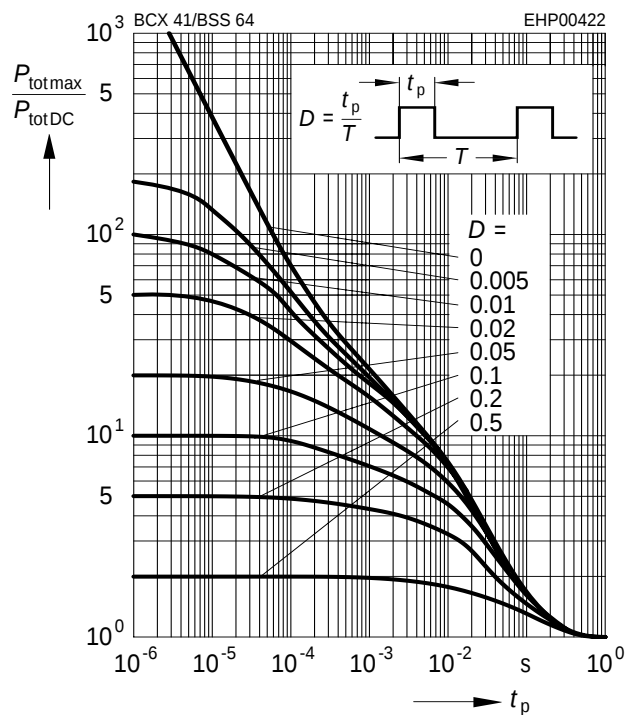


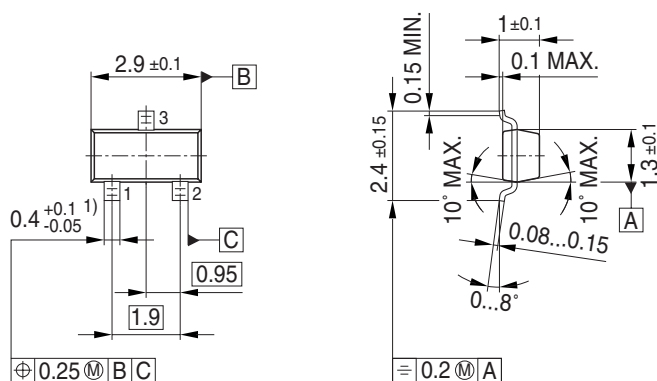
Total power dissipation $P_{tot} = f(T_S)$



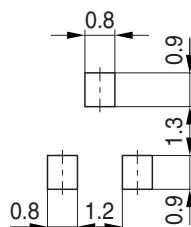
Permissible Pulse Load

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





Foot Print



The diagram shows a top-down view of a BCW66 LED package. It is a rectangular component with four pins. The top pin is labeled 'Pin 1'. The package has a central rectangular area containing the text 'EHS' and '2005, June'. To the right of this area is the Infineon logo. Below the package, the text 'BCW66' and 'Type code' are shown. Lines connect the labels to the corresponding parts of the package: 'Manufacturer' points to the Infineon logo, 'Date code (YM)' points to '2005, June', and 'Type code' points to 'BCW66'.

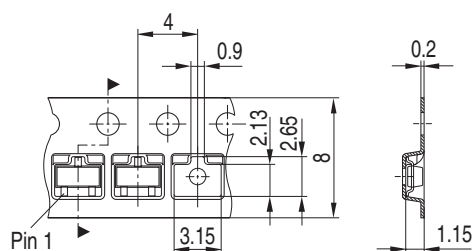
Pin 1

Manufacturer

2005, June
Date code (YM)

BCW66
Type code

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



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