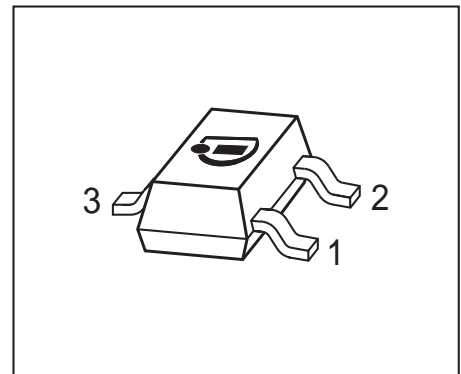# PNP Silicon AF Transistors

- For general AF applications

- High current gain

- Low collector-emitter saturation voltage

- Complementary types: BCW66... (NPN)

- Pb-free (RoHS compliant) package[1]

- Qualified according AEC Q101

AEC Qualified **RoHS**

Type	Marking	Pin Configuration			Package
BCW67A	DAs	1=B	2=E	3=C	SOT23
BCW67B	DBs	1=B	2=E	3=C	SOT23
BCW67C	DCs	1=B	2=E	3=C	SOT23
BCW68F	DFs	1=B	2=E	3=C	SOT23
BCW68G	DGs	1=B	2=E	3=C	SOT23
BCW68H	DHs	1=B	2=E	3=C	SOT23

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

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}		V
BCW67		32	
BCW68		45	
Collector-base voltage	V_{CBO}		
BCW67		45	
BCW68		60	
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[1]	R_{thJS}	≤ 215	K/W

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

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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 , BCW67		32	-	-	
I_C = 10 mA, I_B = 0 , BCW68		45	-	-	
Collector-base breakdown voltage	$V_{(BR)CBO}$				
I_C = 10 µA, I_E = 0 , BCW67		45	-	-	
I_C = 10 µA, I_E = 0 , BCW68		60	-	-	
Emitter-base breakdown voltage	$V_{(BR)EBO}$	5	-	-	
I_E = 10 µA, I_C = 0					
Collector-base cutoff current	I_{CBO}				µA
V_{CB} = 32 V, I_E = 0		-	-	0.02	
V_{CB} = 45 V, I_E = 0		-	-	0.02	
V_{CB} = 32 V, I_E = 0 , T_A = 150 °C; BCW67		-	-	20	
V_{CB} = 45 V, I_E = 0 , T_A = 150 °C; BCW68		-	-	20	
Emitter-base cutoff current	I_{EBO}	-	-	20	nA
V_{EB} = 4 V, I_C = 0					
DC current gain[1]	h_{FE}				-
I_C = 100 µA, V_{CE} = 10 V, h_{FE}-grp.A/F		35	-	-	
I_C = 100 µA, V_{CE} = 10 V, h_{FE}-grp.B/G		50	-	-	
I_C = 100 µA, V_{CE} = 10 V, h_{FE}-grp.C/H		80	-	-	
I_C = 10 mA, V_{CE} = 1 V, h_{FE}-grp.A/F		75	-	-	
I_C = 10 mA, V_{CE} = 1 V, h_{FE}-grp.B/G		120	-	-	
I_C = 10 mA, V_{CE} = 1 V, h_{FE}-grp.C/H		180	-	-	
I_C = 100 mA, V_{CE} = 1 V, h_{FE}-grp.A/F		100	160	250	
I_C = 100 mA, V_{CE} = 1 V, h_{FE}-grp.B/G		160	250	400	
I_C = 100 mA, V_{CE} = 1 V, h_{FE}-grp.C/H		250	350	630	
I_C = 500 mA, V_{CE} = 2 V, h_{FE}-grp.A/F		35	-	-	
I_C = 500 mA, V_{CE} = 2 V, h_{FE}-grp.B/G		60	-	-	
I_C = 500 mA, V_{CE} = 2 V, h_{FE}-grp.C/H		100	-	-	

DC Electrical Characteristics

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics					
Collector-emitter saturation voltage[1]	V_{CEsat}				V
I_C = 100 mA, I_B = 10 mA		-	-	0.3	
I_C = 500 mA, I_B = 50 mA		-	-	0.7	
Base emitter saturation voltage[1]	V_{BEsat}				
I_C = 100 mA, I_B = 10 mA		-	-	1.25	
I_C = 500 mA, I_B = 50 mA		-	-	2	
AC Characteristics					
Transition frequency	f_T	-	200	-	MHz
I_C = 50 mA, V_{CE} = 5 V, f = 20 MHz					
Collector-base capacitance	C_{cb}	-	6	-	pF
V_{CB} = 10 V, f = 1 MHz					
Emitter-base capacitance	C_{eb}	-	60	-	
V_{EB} = 0.5 V, f = 1 MHz					

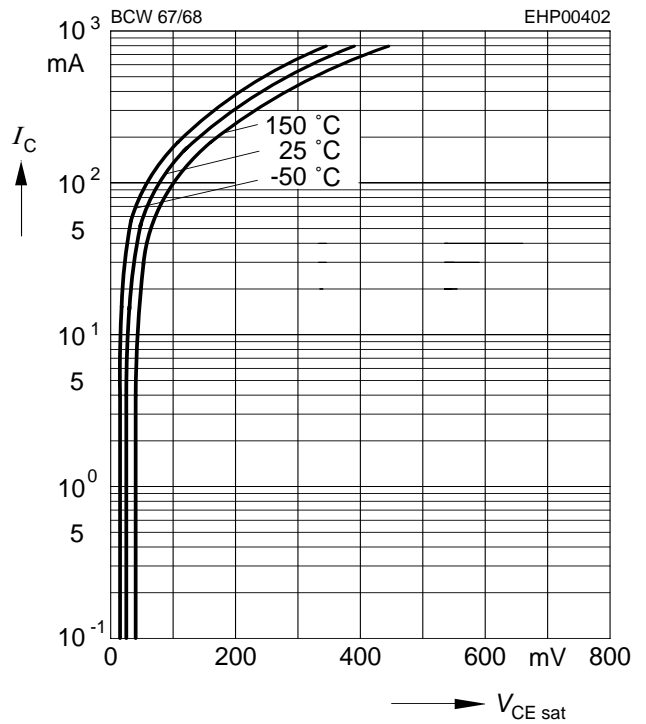[1]Pulse test: t < 300µs; D < 2%

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

$V_{CE} = 1$ V
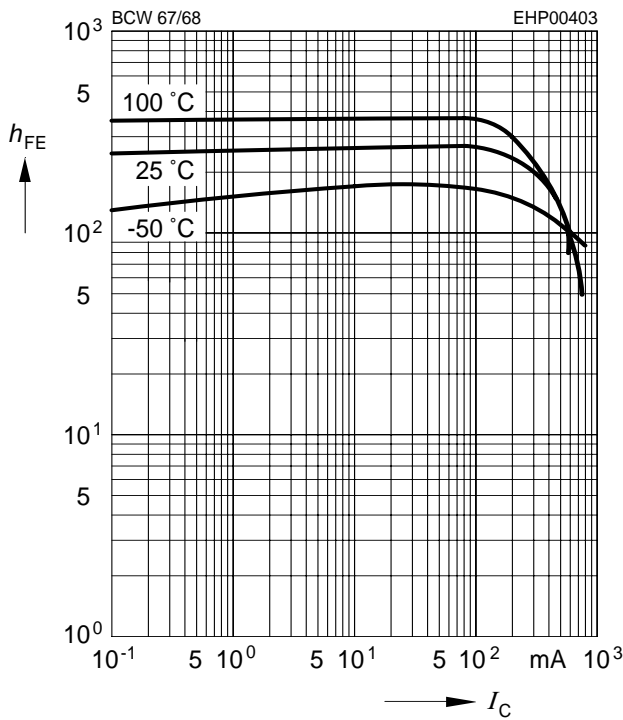
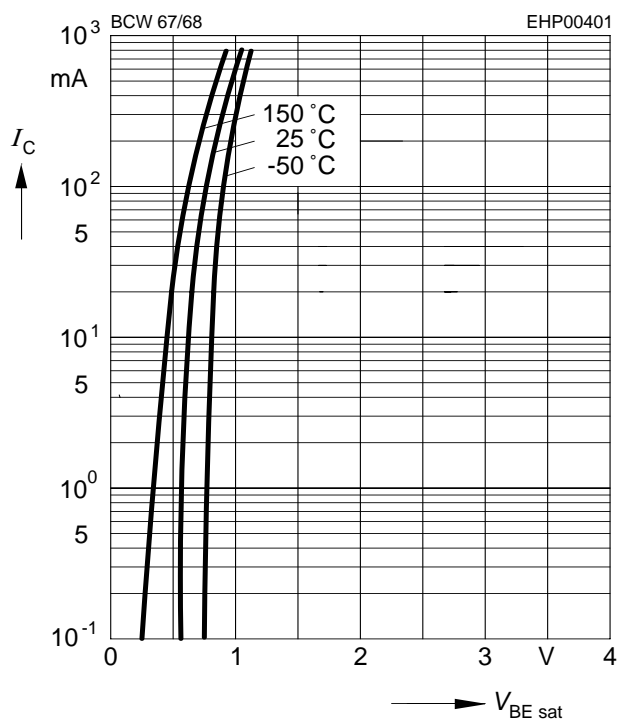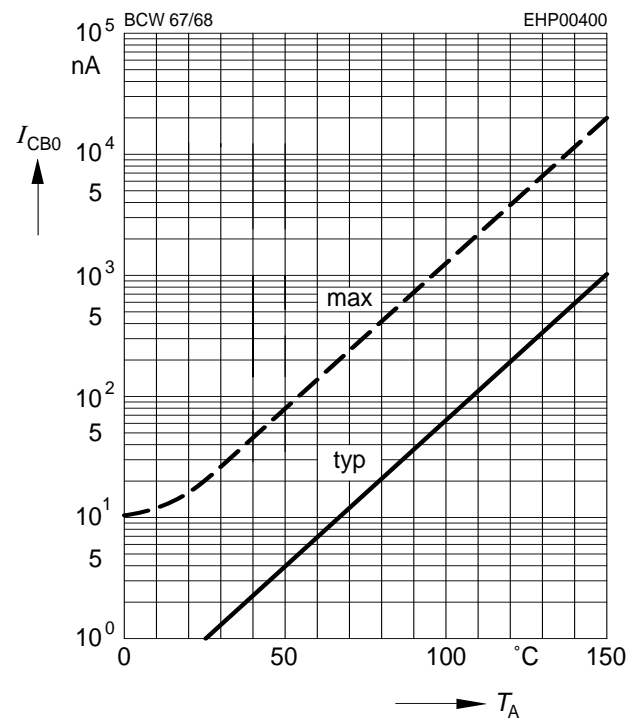**Collector-emitter saturation voltage**

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

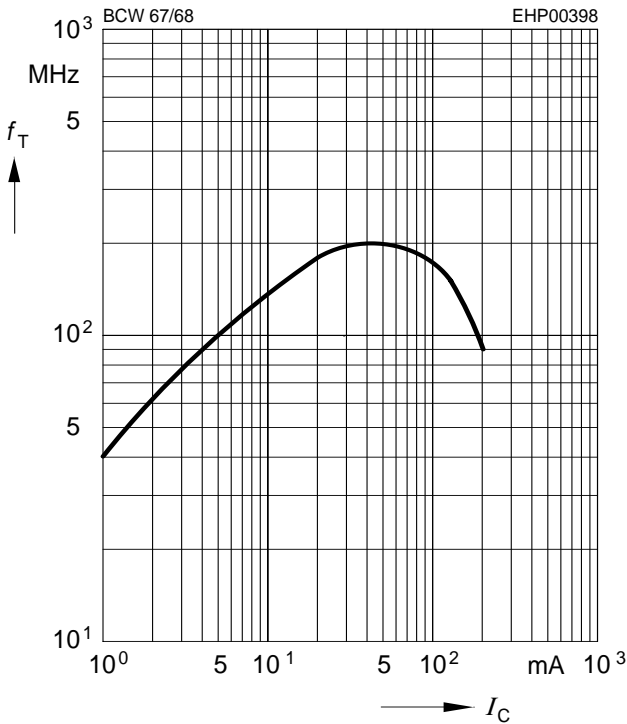**Base-emitter saturation voltage**

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

Collector cutoff current $I_{CBO} = f(T_A)$
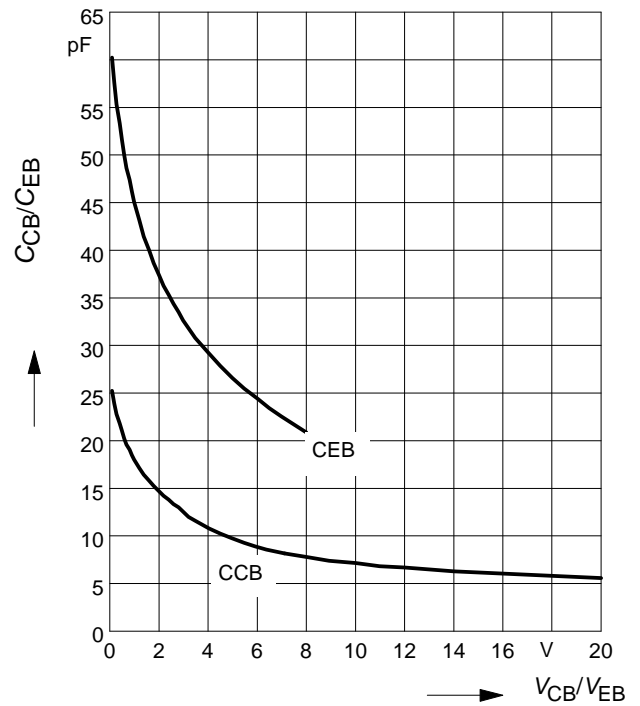
$V_{CBO} = 25$ V

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Transition frequency $f_T = f(I_C)$

$V_{CE} = 5$ V

BCW 67/68   EHP00398

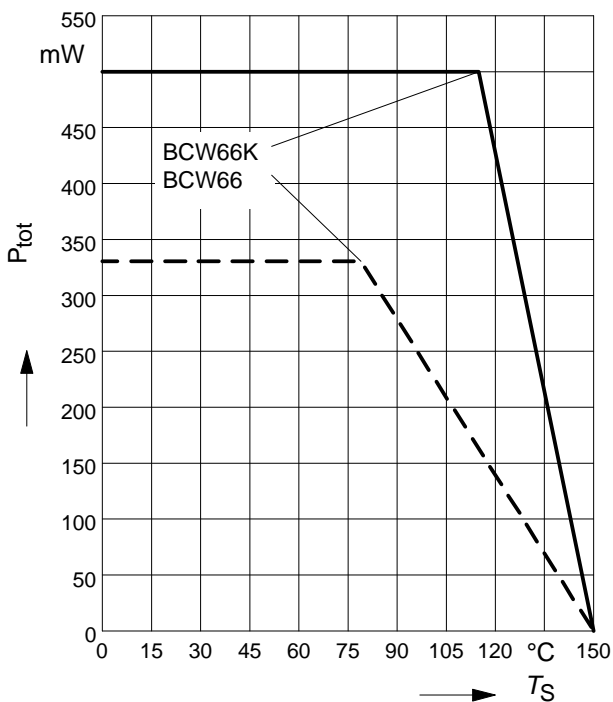**Collector-base capacitance** $C_{cb} = f(V_{CB})$

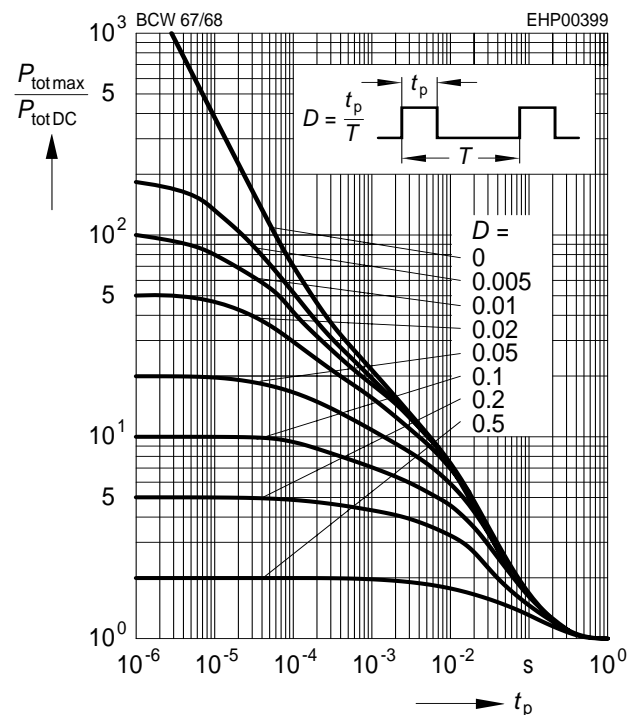**Emitter-base capacitance** $C_{eb} = f(V_{EB})$
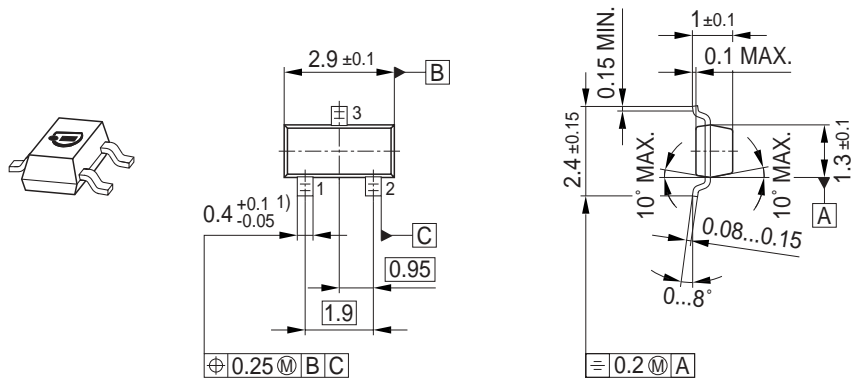
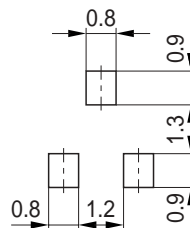**Total power dissipation** $P_{tot} = f(T_S)$

Permissible Pulse Load

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

BCW 67/68   EHP00399

$D = \dfrac{t_p}{T}$

$D =$
0
0.005
0.01
0.02
0.05
0.1
0.2
0.5

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Package Outline

2.9 ±0.1 [B]

3

1

2

0.4 +0.1 -0.05 1)

[C]

0.95

1.9

⊕ 0.25 Ⓜ B C

1 ±0.1

0.1 MAX.

0.15 MIN.

2.4 ±0.15

10° MAX.

10° MAX.

0.08...0.15

0...8°

1.3 ±0.1

[A]

≡ 0.2 Ⓜ A

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

Foot Print

0.8

0.9

1.3

0.8 1.2

0.9

Marking Layout (Example)

ⓘnfineon

Manufacturer

EHS 56

2005, June
Date code (YM)

Pin 1

BCW66
Type code
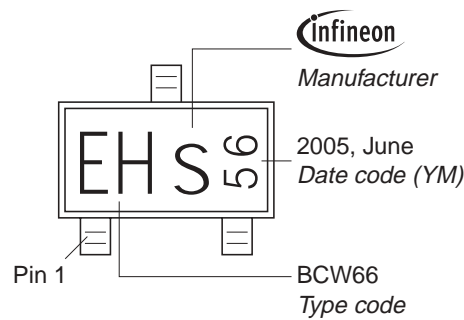
Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel
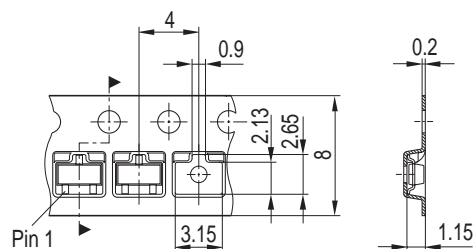
4

0.9

0.2

2.13

2.65

8

Pin 1

3.15

1.15

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Attention please!

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