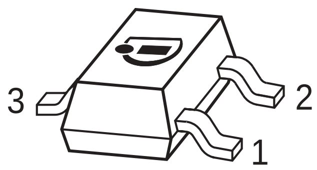
NPN Silicon AF Transistors



- For general AF applications
- High current gain
- Low collector-emitter saturation voltage
- Complementary type: BCW68 (PNP)
- Pb-free (RoHS compliant) package[1]
- Qualified according AEC Q101

Type	Marking	Pin Configuration			Package
BCW66F	EFs	1=B	2=E	3=C	SOT23
BCW66KF*	EFs	1=B	2=E	3=C	SOT23
BCW66G	EGs	1=B	2=E	3=C	SOT23
BCW66KG*	EGs	1=B	2=E	3=C	SOT23
BCW66H	EHs	1=B	2=E	3=C	SOT23
BCW66KH*	EHs	1=B	2=E	3=C	SOT23

* Shrinked chip version

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}	45	V
Collector-base voltage	V_{CBO}	75	
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, BCW66 $T_S \leq 115$ °C, BCW66K	P_{tot}	 330 500	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-65 ... 150	

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

Thermal Resistance

Parameter	**Symbol**	**Value**	**Unit**
Junction - soldering point[1]	R_{thJS}		K/W
BCW66		≤ 215	
BCW66K		≤ 70	

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	$V_{(BR)CEO}$	45	-	-	V
Collector-base breakdown voltage I_C = 10 µA, I_E = 0	$V_{(BR)CBO}$	75	-	-	
Emitter-base breakdown voltage I_E = 10 µA, I_C = 0	$V_{(BR)EBO}$	5	-	-	
Collector-base cutoff current	I_{CBO}				µA
V_{CB} = 45 V, I_E = 0		-	-	0.02	
V_{CB} = 45 V, I_E = 0 , T_A = 150 °C		-	-	20	
Emitter-base cutoff current V_{EB} = 5 V, I_C = 0	I_{EBO}	-	-	20	nA
DC current gain[2]	h_{FE}				-
I_C = 100 µA - 10 mA, V_{CE} = 1 V, hFE-grp.F		75	-	-	
I_C = 100 µA - 10 mA, V_{CE} = 1 V, hFE-grp.G		110	-	-	
I_C = 100 µA - 10 mA, V_{CE} = 1 V, hFE-grp.H		180	-	-	
I_C = 100 mA, V_{CE} = 1 V, hFE-grp.F		100	160	250	
I_C = 100 mA, V_{CE} = 1 V, hFE-grp.G		160	250	400	
I_C = 100 mA, V_{CE} = 1 V, hFE-grp.H		250	350	630	
I_C = 500 mA, V_{CE} = 1 V, hFE-grp.F, G, H		40	-	-	
Collector-emitter saturation voltage[2]	V_{CEsat}				V
I_C = 100 mA, I_B = 10 mA		-	-	0.3	
I_C = 500 mA, I_B = 50 mA		-	-	0.45	
Base emitter saturation voltage[2]	V_{BEsat}				
I_C = 100 mA, I_B = 10 mA		-	-	1.25	
I_C = 500 mA, I_B = 50 mA		-	-	1.25	

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

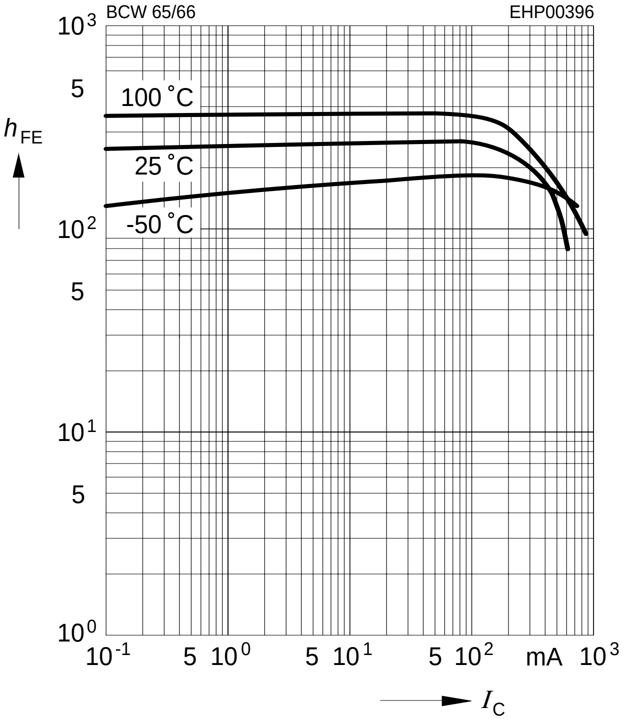
[2]Pulse test: t < 300µs; D < 2%

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Transition frequency I_C = 50 mA, V_{CE} = 5 V, f = 20 MHz	f_T	-	170	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz, BCW66 V_{CB} = 10 V, f = 1 MHz, BCW66K	C_{cb}	 - -	 6 3	 - -	pF
Emitter-base capacitance V_{EB} = 0.5 V, f = 1 MHz, BCW66 V_{EB} = 0.5 V, f = 1 MHz, BCW66K	C_{eb}	 - -	 60 40	 - -	

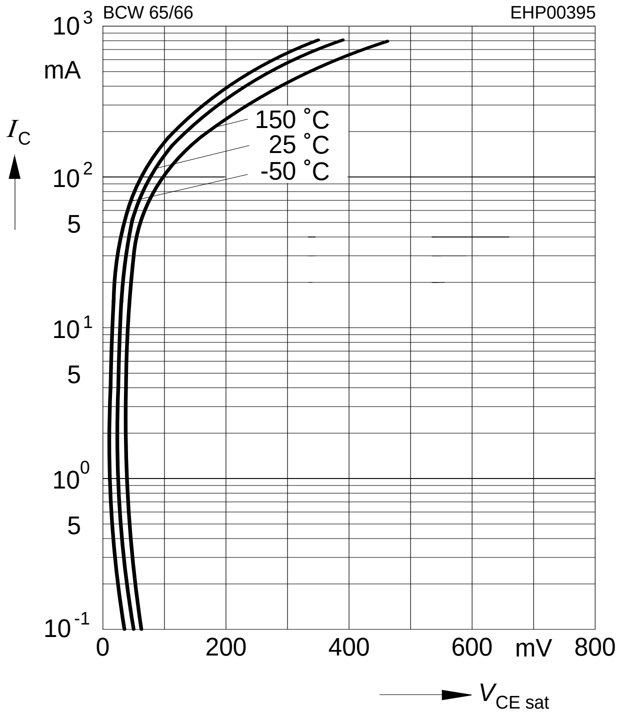
DC current gain $h_{FE} = f(I_C)$

$V_{CE} = 1$ V



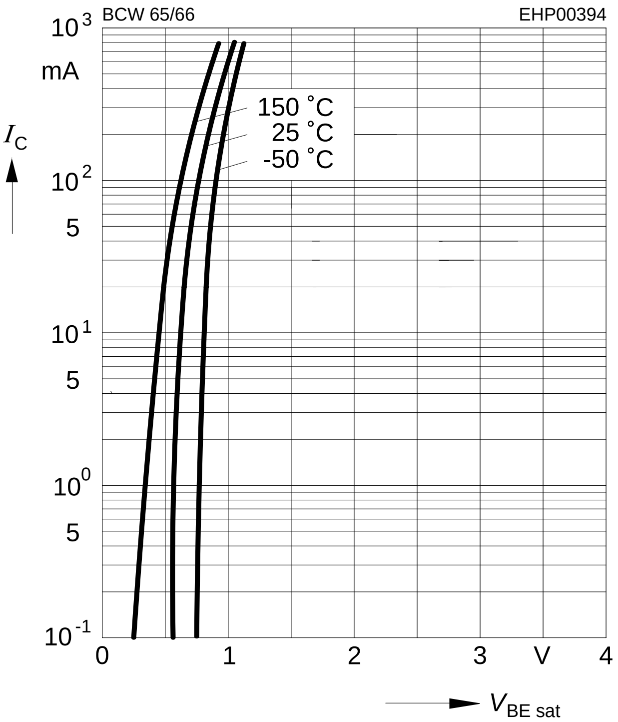
Collector-emitter saturation voltage

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



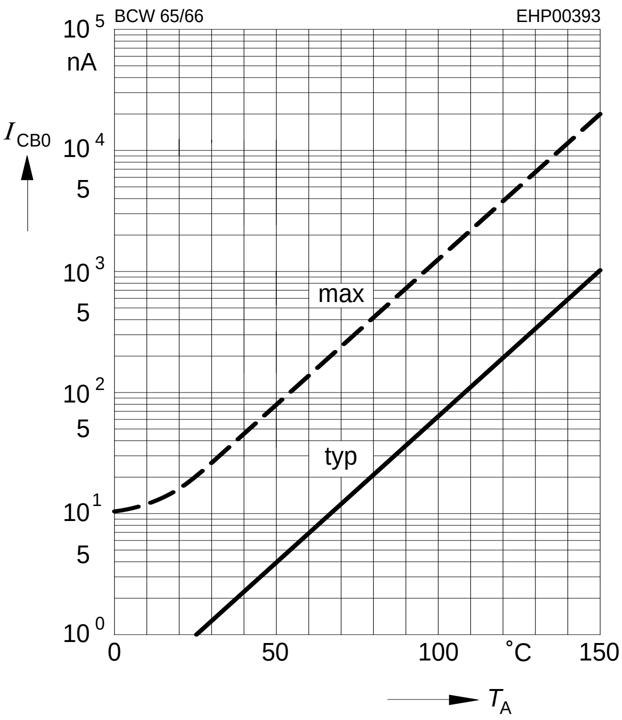
Base-emitter saturation voltage

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



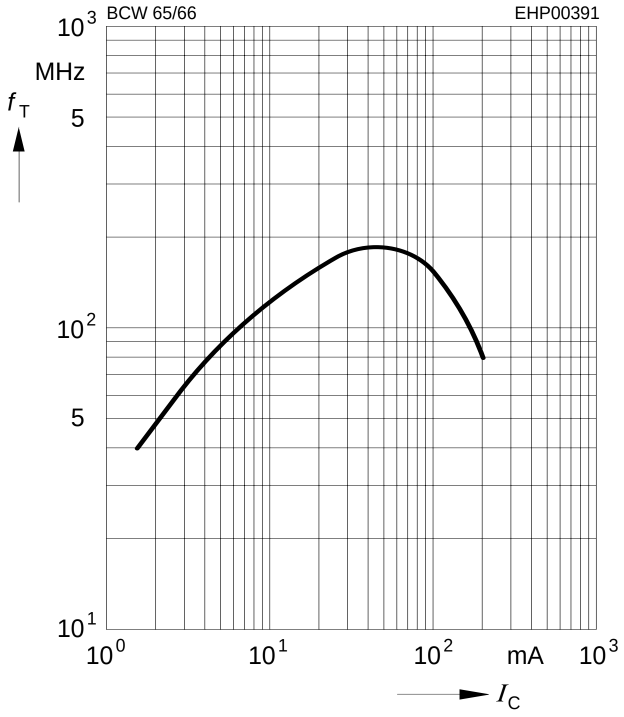
Collector cutoff current $I_{CBO} = f(T_A)$

$V_{CB} = V_{CEmax}$



Transition frequency $f_T = f(I_C)$

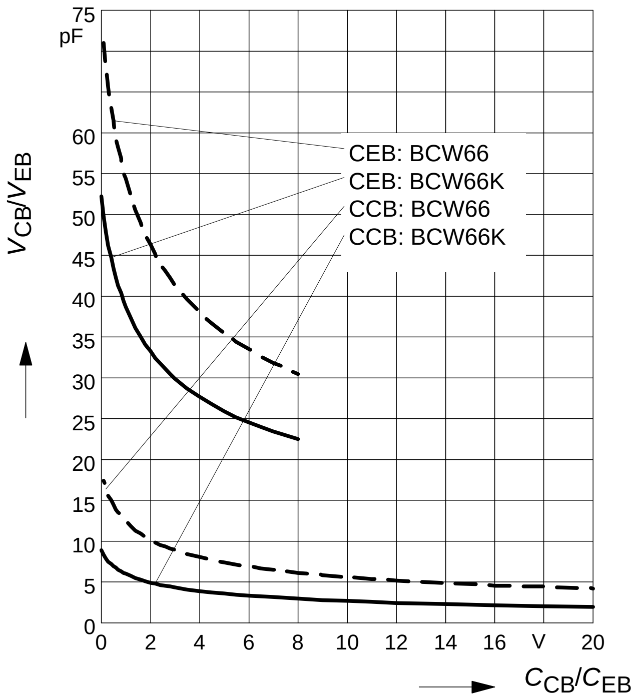
V_{CE} = 5 V



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

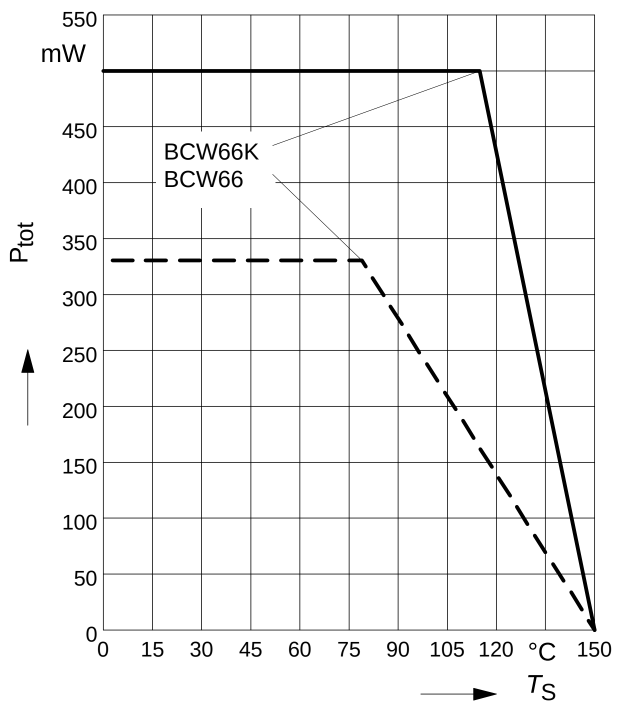
Emitter-base capacitance $C_{eb} = f(V_{EB})$

BCW66: - - - , BCW66K: ——



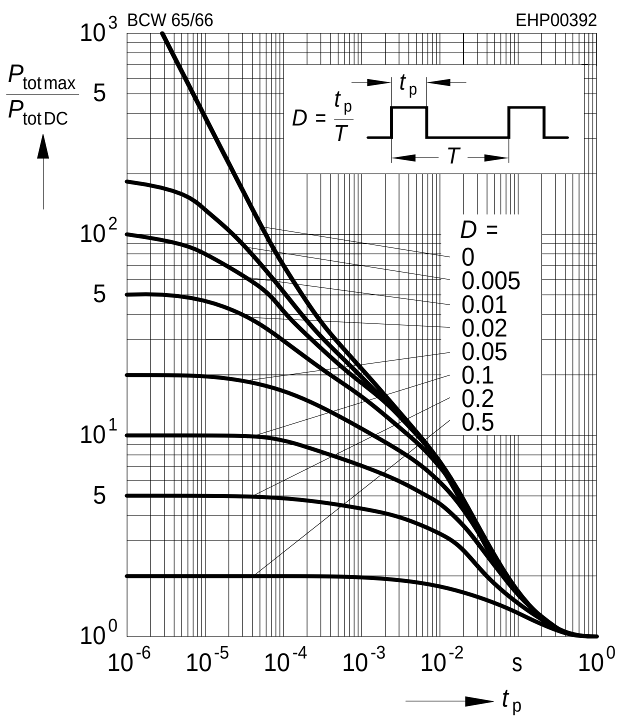
Total power dissipation $P_{tot} = f(T_S)$

BCW66: - - - , BCW66K: ——

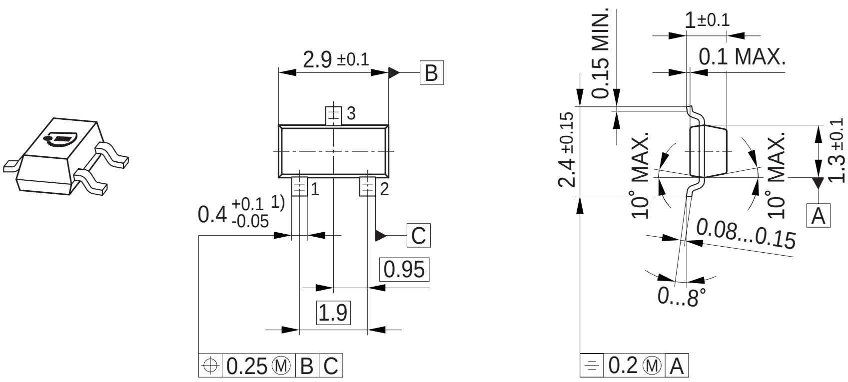


Permissible Pulse Load

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

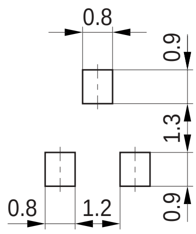


Package Outline

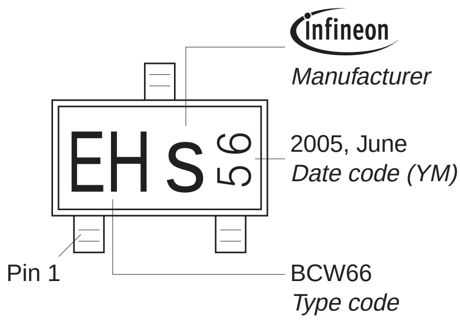


1) Lead width can be 0.6 max. in dambar area

Foot Print

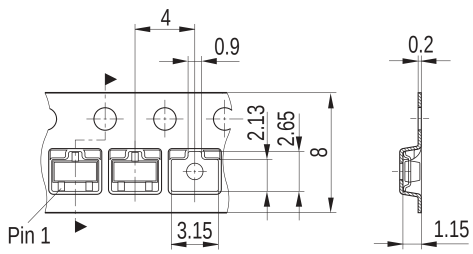


Marking Layout (Example)



Standard Packing

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



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