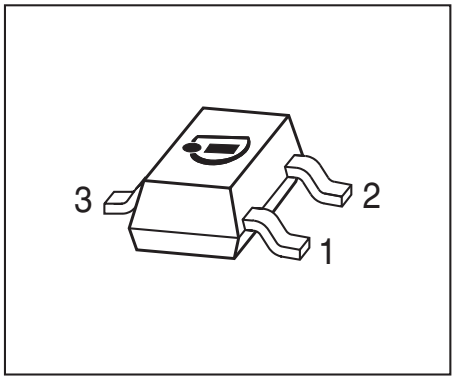
PNP Silicon AF Transistors



- For general AF applications
- High current gain
- Low collector-emitter saturation voltage
- Complementary types: BCW66... (NPN)
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101

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

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, $t_p \leq 10$ 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°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	-	-	

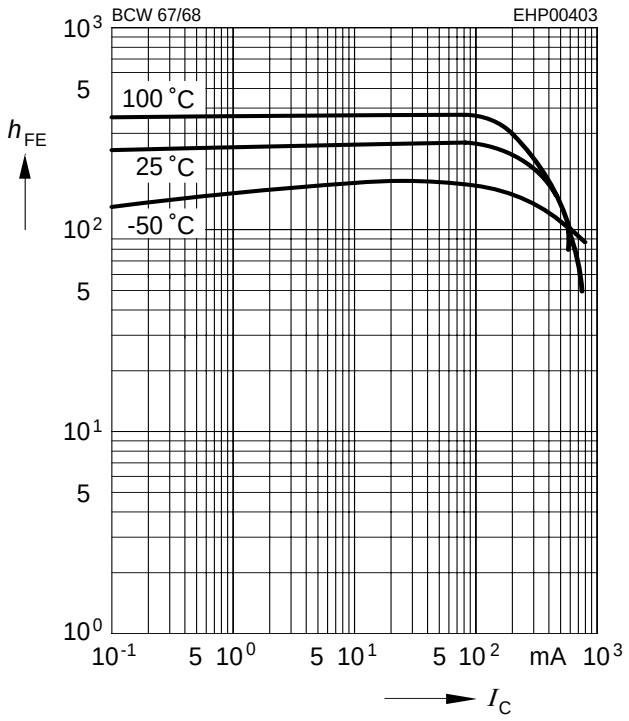
DC Electrical Characteristics

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 I_C = 50 mA, V_{CE} = 5 V, f = 20 MHz	f_T	-	200	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz	C_{cb}	-	6	-	pF
Emitter-base capacitance V_{EB} = 0.5 V, f = 1 MHz	C_{eb}	-	60	-	

[1]Pulse test: t < 300µs; D < 2%

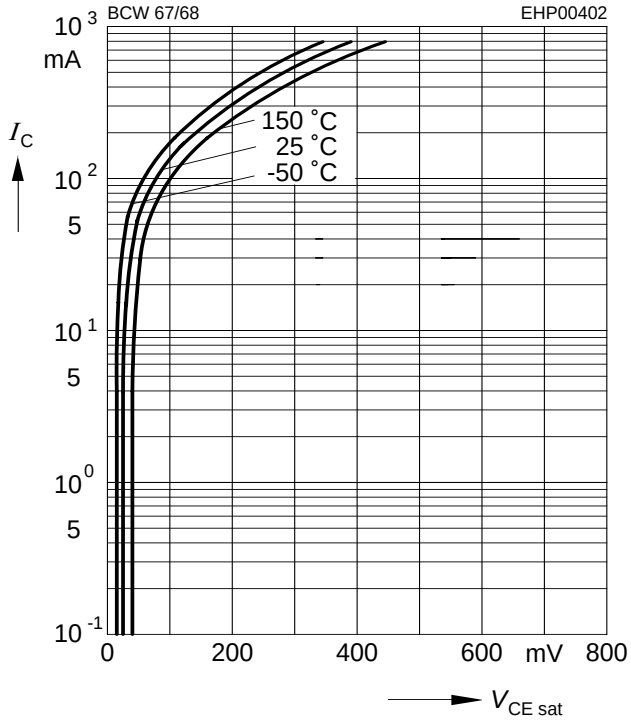
DC current gain $h_{FE} = f(I_C)$

V_{CE} = 1 V



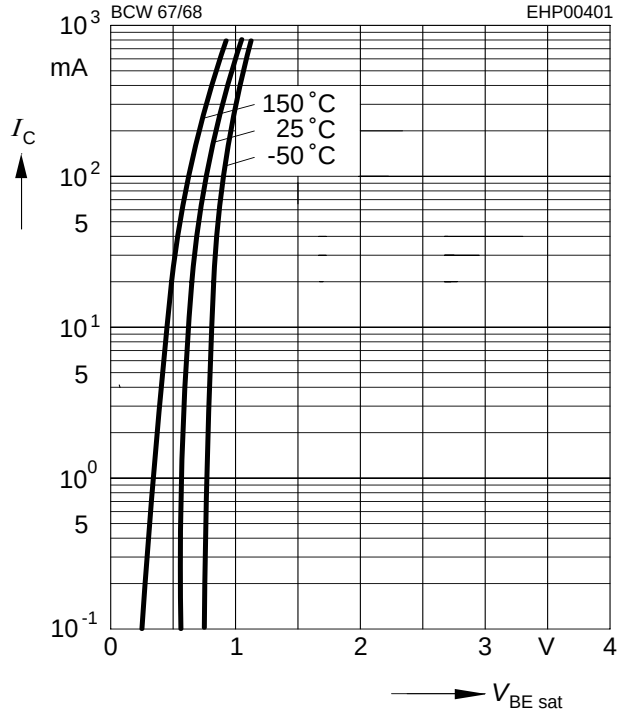
Collector-emitter saturation voltage

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



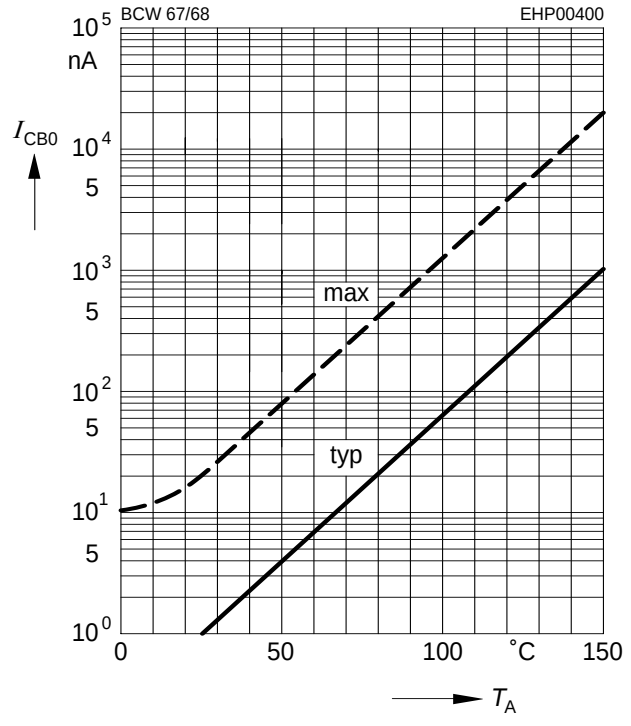
Base-emitter saturation voltage

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



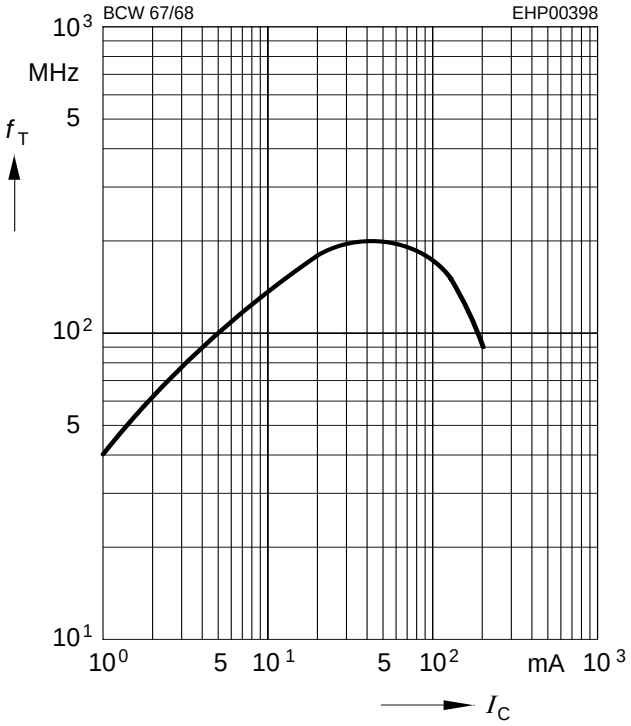
Collector cutoff current $I_{CBO} = f(T_A)$

V_{CBO} = 25 V



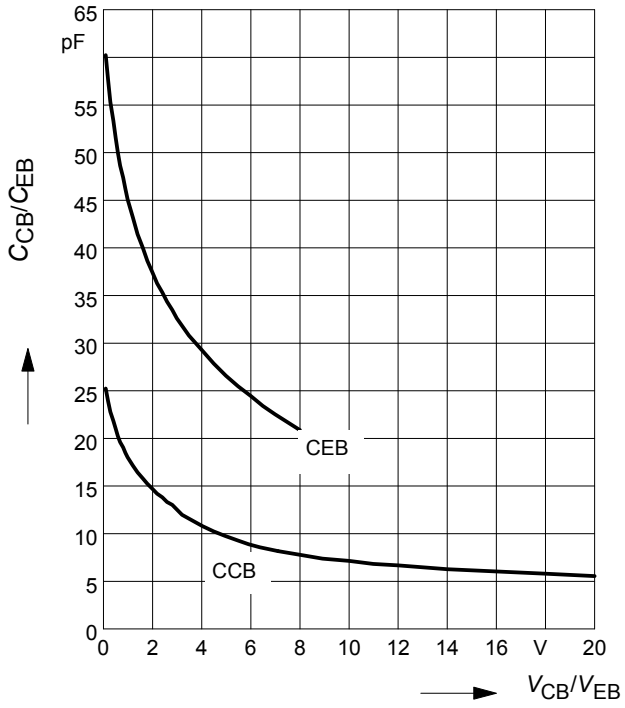
Transition frequency $f_T = f(I_C)$

V_{CE} = 5 V



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

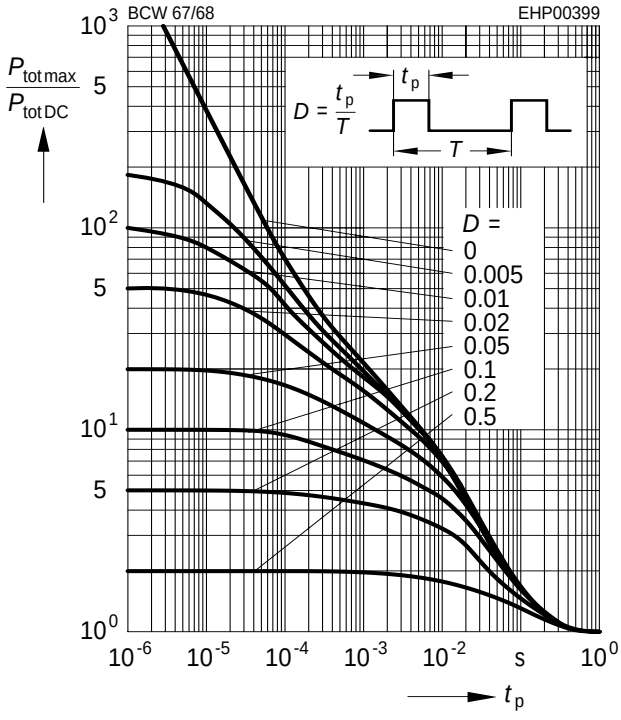
Emitter-base capacitance $C_{eb} = f(V_{EB})$



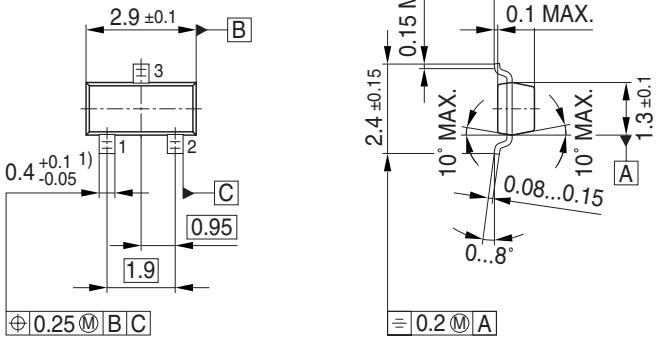
Total power dissipation $P_{tot} = f(T_S)$

Permissible Pulse Load

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

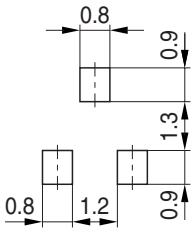


Package Outline

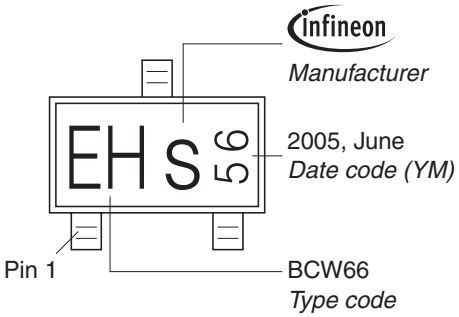


1) Lead width can be 0.6 max. in dambar area

Foot Print

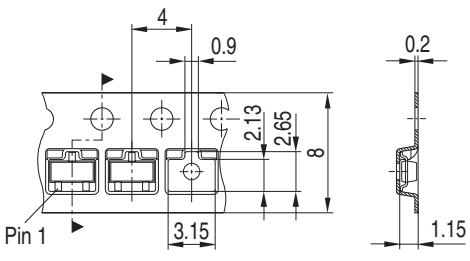


Marking Layout (Example)



Standard Packing

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



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