

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
		1=B	2=E	3=C	
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, $T_S \leq 79^\circ\text{C}$	P_{tot}	330	mW
Junction temperature	T_j	150	$^\circ\text{C}$
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 $I_C = 10\text{ mA}$, $I_B = 0$, BCW67 $I_C = 10\text{ mA}$, $I_B = 0$, BCW68	$V_{(BR)CEO}$	32 45	- -	- -	V
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}$, $I_E = 0$, BCW67 $I_C = 10\text{ }\mu\text{A}$, $I_E = 0$, BCW68	$V_{(BR)CBO}$	45 60	- -	- -	
Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$, $I_C = 0$	$V_{(BR)EBO}$	5	-	-	
Collector-base cutoff current $V_{CB} = 32\text{ V}$, $I_E = 0$ $V_{CB} = 45\text{ V}$, $I_E = 0$ $V_{CB} = 32\text{ V}$, $I_E = 0$, $T_A = 150^\circ\text{C}$; BCW67 $V_{CB} = 45\text{ V}$, $I_E = 0$, $T_A = 150^\circ\text{C}$; BCW68	I_{CBO}	- - - -	- - - -	0.02 0.02 20 20	μA
Emitter-base cutoff current $V_{EB} = 4\text{ V}$, $I_C = 0$	I_{EBO}	-	-	20	nA
DC current gain ¹⁾ $I_C = 100\text{ }\mu\text{A}$, $V_{CE} = 10\text{ V}$, $h_{FE}\text{-grp.A/F}$ $I_C = 100\text{ }\mu\text{A}$, $V_{CE} = 10\text{ V}$, $h_{FE}\text{-grp.B/G}$ $I_C = 100\text{ }\mu\text{A}$, $V_{CE} = 10\text{ V}$, $h_{FE}\text{-grp.C/H}$ $I_C = 10\text{ mA}$, $V_{CE} = 1\text{ V}$, $h_{FE}\text{-grp.A/F}$ $I_C = 10\text{ mA}$, $V_{CE} = 1\text{ V}$, $h_{FE}\text{-grp.B/G}$ $I_C = 10\text{ mA}$, $V_{CE} = 1\text{ V}$, $h_{FE}\text{-grp.C/H}$ $I_C = 100\text{ mA}$, $V_{CE} = 1\text{ V}$, $h_{FE}\text{-grp.A/F}$ $I_C = 100\text{ mA}$, $V_{CE} = 1\text{ V}$, $h_{FE}\text{-grp.B/G}$ $I_C = 100\text{ mA}$, $V_{CE} = 1\text{ V}$, $h_{FE}\text{-grp.C/H}$ $I_C = 500\text{ mA}$, $V_{CE} = 2\text{ V}$, $h_{FE}\text{-grp.A/F}$ $I_C = 500\text{ mA}$, $V_{CE} = 2\text{ V}$, $h_{FE}\text{-grp.B/G}$ $I_C = 500\text{ mA}$, $V_{CE} = 2\text{ V}$, $h_{FE}\text{-grp.C/H}$	h_{FE}	35 50 80 75 120 180 100 160 250 35 60 100	- - - - - - 160 250 350 - - -	- - - - - - 250 400 630 - - -	-

DC Electrical Characteristics

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics					
Collector-emitter saturation voltage ¹⁾ $I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$ $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$	V_{CEsat}	-	-	0.3 0.7	V
Base emitter saturation voltage ¹⁾ $I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$ $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$	V_{BEsat}	-	-	1.25 2	

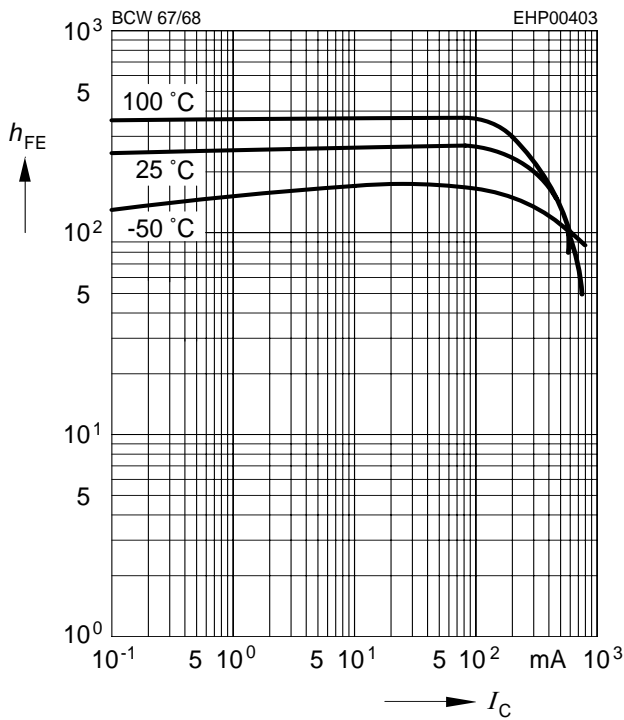
AC Characteristics

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

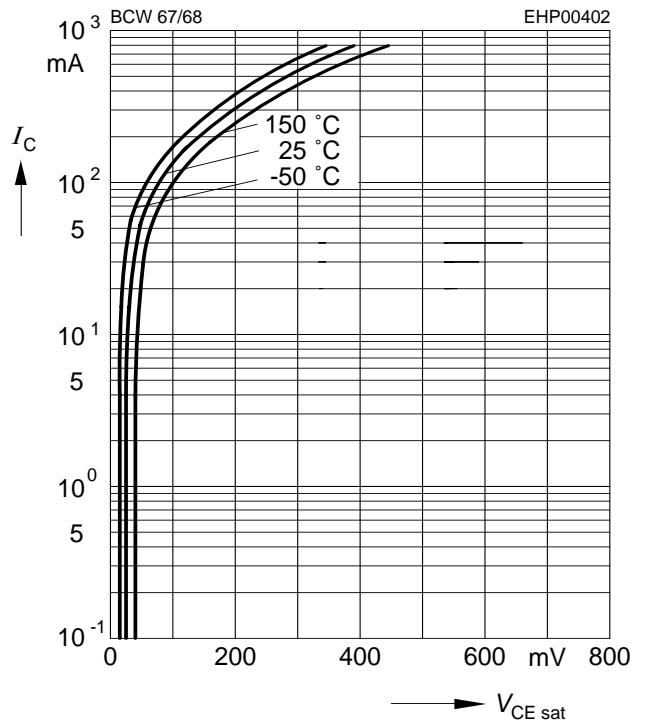
¹⁾Pulse test: $t < 300 \mu\text{s}$; $D < 2\%$

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

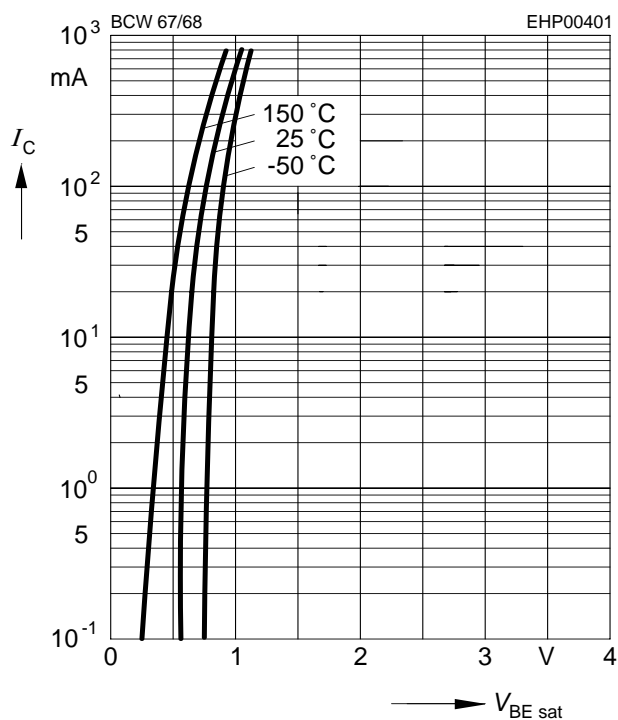
$V_{CE} = 1 \text{ V}$


Collector-emitter saturation voltage

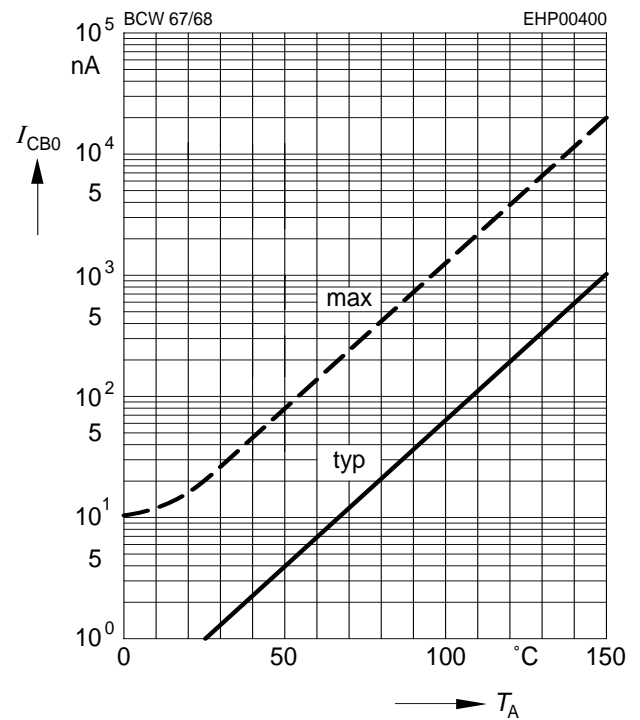
$I_C = f(V_{CEsat}), h_{FE} = 10$

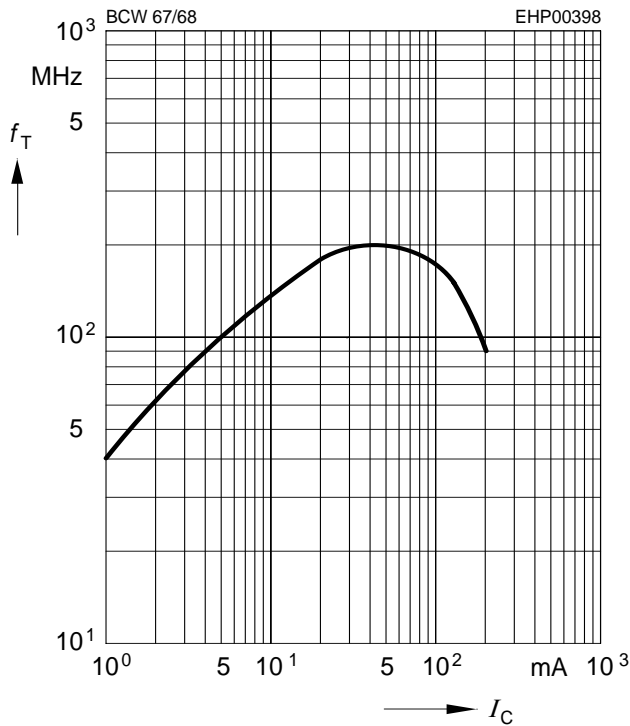
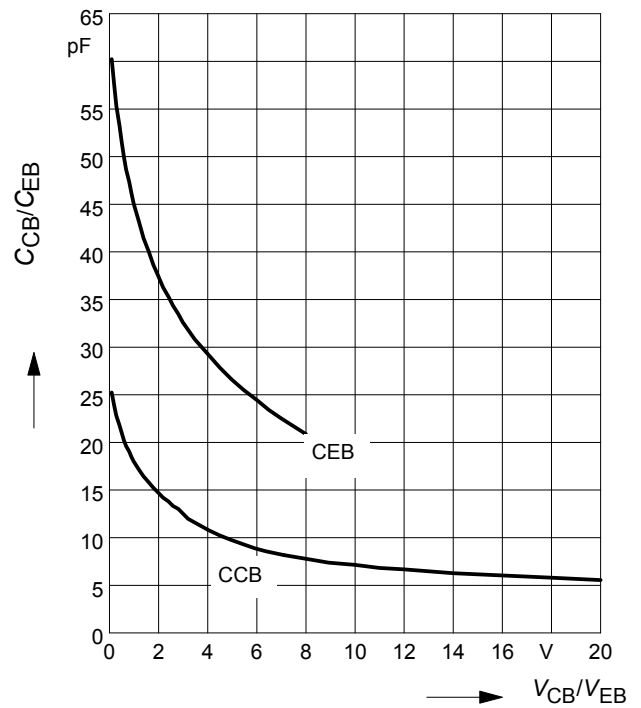

Base-emitter saturation voltage

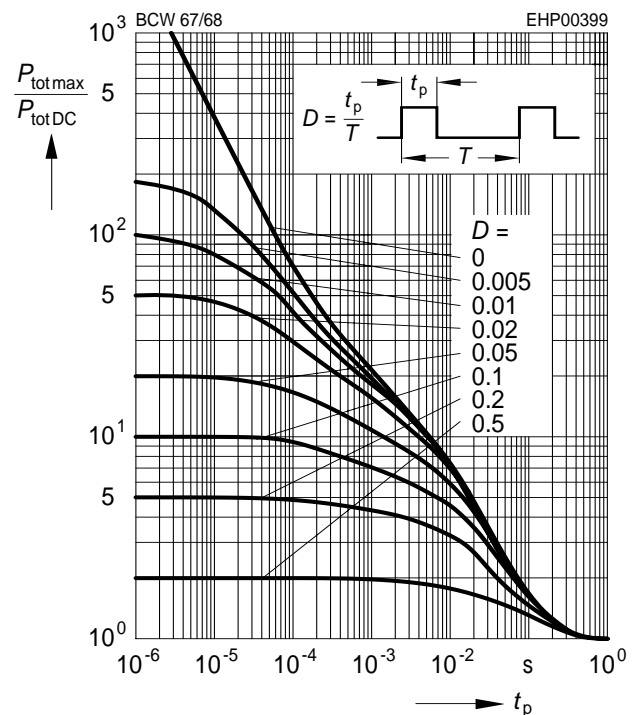
$I_C = f(V_{BEsat}), h_{FE} = 10$


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

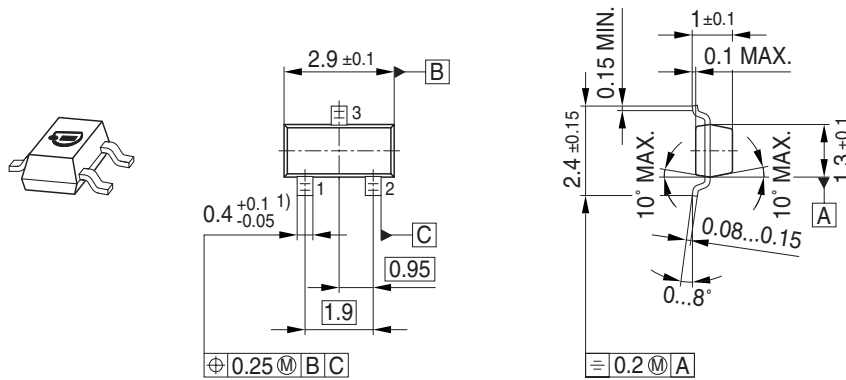
$V_{CBO} = 25 \text{ V}$



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 $P_{tot} = f(T_S)$

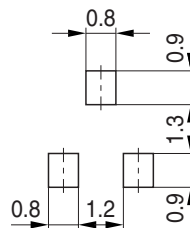
Permissible Pulse Load
 $P_{totmax}/P_{totDC} = f(t_p)$


Package Outline

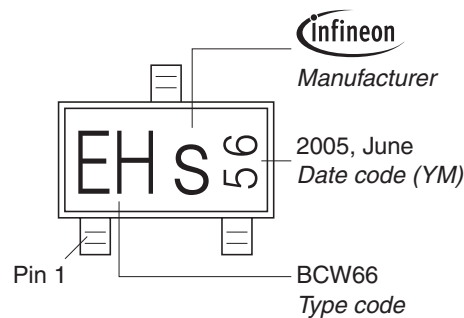


1) Lead width can be 0.6 max. in dambar area

Foot Print

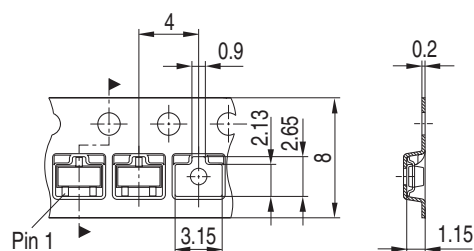


Marking Layout (Example)



Standard Packing

Reel \varnothing 180 mm = 3.000 Pieces/Reel
 Reel \varnothing 330 mm = 10.000 Pieces/Reel



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