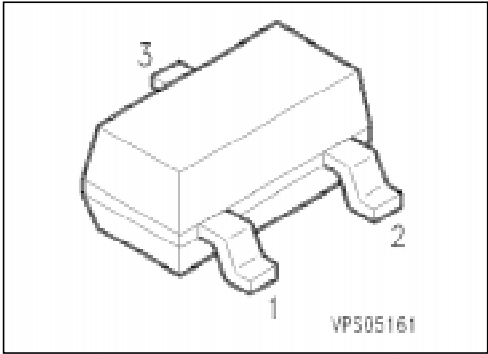


NPN Silicon AF Transistors

BCW 65
BCW 66

- For general AF applications
- High current gain
- Low collector-emitter saturation voltage
- Complementary types: BCW 67, BCW 68 (PNP)



Type	Marking	Ordering Code (tape and reel)	Pin Configuration			Package ¹⁾
			1	2	3	
BCW 65 A	EAs	Q62702-C1516	B	E	C	SOT-23
BCW 65 B	EBs	Q62702-C1612				
BCW 65 C	ECs	Q62702-C1479				
BCW 66 F	EFs	Q62702-C1892				
BCW 66 G	EGs	Q62702-C1526				
BCW 66 H	EHs	Q62702-C1632				

¹⁾ For detailed information see chapter Package Outlines.

Maximum Ratings

Parameter	Symbol	Values		Unit
		BCW 65	BCW 66	
Collector-emitter voltage	V_{CE0}	32	45	V
Collector-base voltage	V_{CB0}	60	75	
Emitter-base voltage	V_{EB0}	5	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, $T_S = 79\text{ °C}$	P_{tot}	330		mW
Junction temperature	T_j	150		°C
Storage temperature range	T_{stg}	− 65 ... + 150		

Thermal Resistance

Junction - ambient ¹⁾	$R_{th JA}$	≤ 285	K/W
Junction - soldering point	$R_{th JS}$	≤ 215	

¹⁾ Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm² Cu.

Electrical Characteristics

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC characteristics

Collector-emitter breakdown voltage $I_C = 10\text{ mA}$	$V_{(BR)CE0}$				V
BCW 65		32	—	—	
BCW 66		45	—	—	
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}$	$V_{(BR)CB0}$				
BCW 65		60	—	—	
BCW 66		75	—	—	
Emitter-base breakdown voltage, $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EB0}$	5	—	—	
Collector cutoff current $V_{CB} = 32\text{ V}$	I_{CB0}	—	—	20	nA
$V_{CB} = 45\text{ V}$		—	—	20	nA
$V_{CB} = 32\text{ V}, T_A = 150\text{ }^{\circ}\text{C}$		—	—	20	μA
$V_{CB} = 45\text{ V}, T_A = 150\text{ }^{\circ}\text{C}$		—	—	20	μA
Emitter-base cutoff current, $V_{EB} = 4\text{ V}$	I_{EB0}	—	—	20	nA
DC current gain ¹⁾ $I_C = 100\text{ }\mu\text{A}, V_{CE} = 10\text{ V}$	h_{FE}				—
BCW 65 A, BCW 66 F		35	—	—	
BCW 65 B, BCW 66 G		50	—	—	
BCW 65 C, BCW 66 H		80	—	—	
$I_C = 10\text{ mA}, V_{CE} = 1\text{ V}$					
BCW 65 A, BCW 66 F		75	—	—	
BCW 65 B, BCW 66 G		110	—	—	
BCW 65 C, BCW 66 H		180	—	—	
$I_C = 100\text{ mA}, V_{CE} = 1\text{ V}$					
BCW 65 A, BCW 66 F		100	160	250	
BCW 65 B, BCW 66 G		160	250	400	
BCW 65 C, BCW 66 H		250	350	630	
$I_C = 500\text{ mA}, V_{CE} = 2\text{ V}$					
BCW 65 A, BCW 66 F		35	—	—	
BCW 65 B, BCW 66 G		60	—	—	
BCW 65 C, BCW 66 H		100	—	—	

¹⁾ Pulse test: $t \leq 300\text{ }\mu\text{s}$, $D = 2\text{ }\%$.

Electrical Characteristics

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC 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	

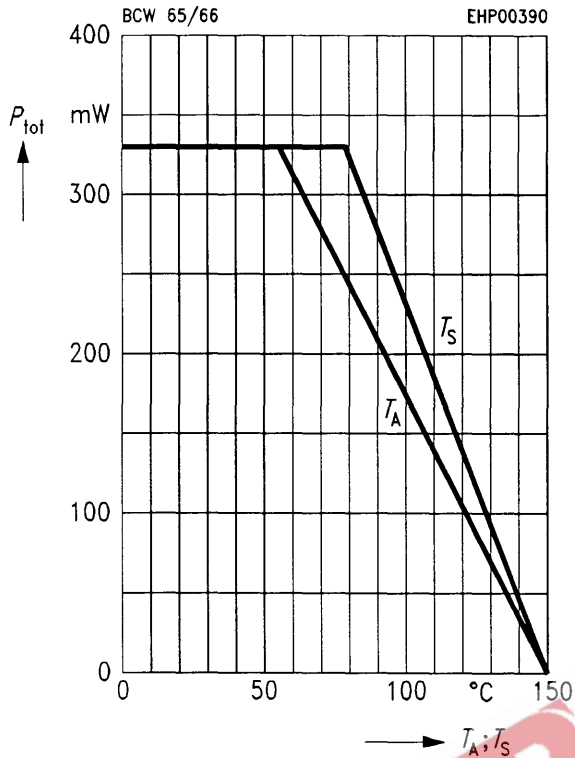
AC characteristics

Transition frequency $I_C = 50\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 20\text{ MHz}$	f_T	—	170	—	MHz
Output capacitance $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{obo}	—	6	—	pF
Input capacitance $V_{EB} = 0.5\text{ V}$, $f = 1\text{ MHz}$	C_{ibo}	—	60	—	

¹⁾ Pulse test: $t \leq 300\text{ }\mu\text{s}$, $D = 2\text{ }\%$.

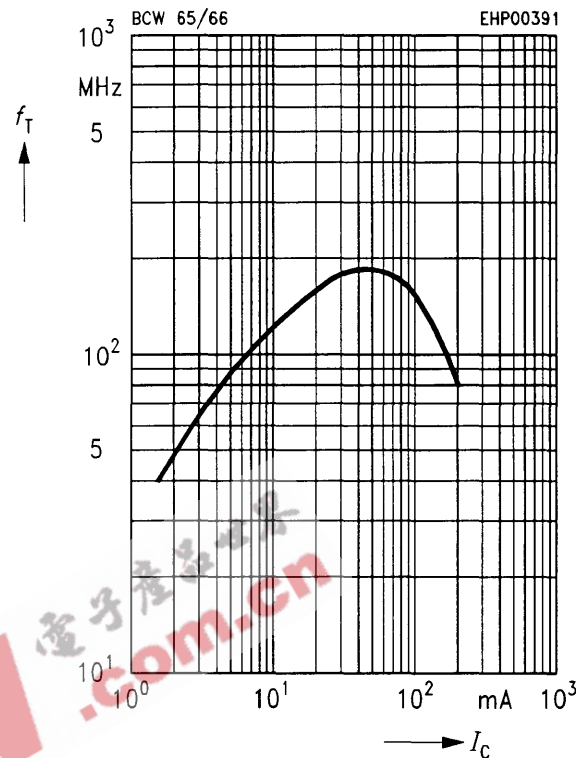
Total power dissipation $P_{\text{tot}} = f(T_A^*; T_S)$

* Package mounted on epoxy

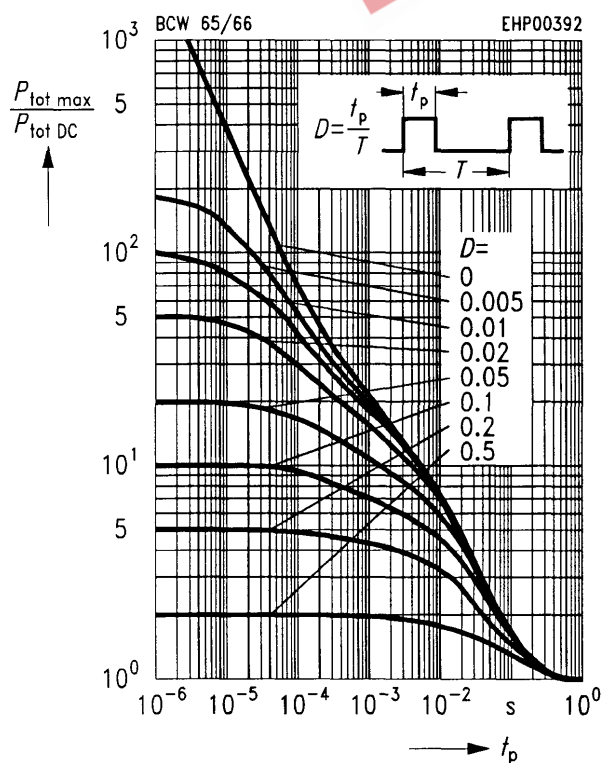


Transition frequency $f_T = f(I_C)$

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

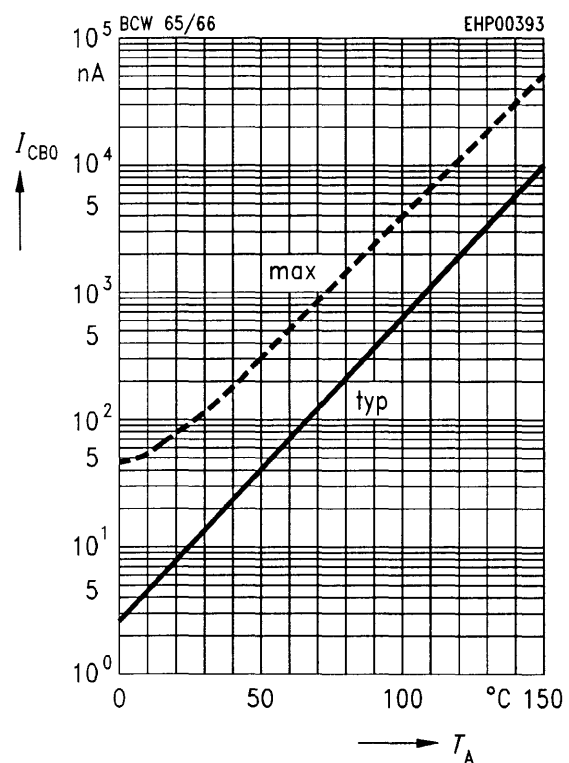


Permissible pulse load $P_{\text{tot max}}/P_{\text{tot DC}} = f(t_p)$



Collector cutoff current $I_{CB0} = f(T_A)$

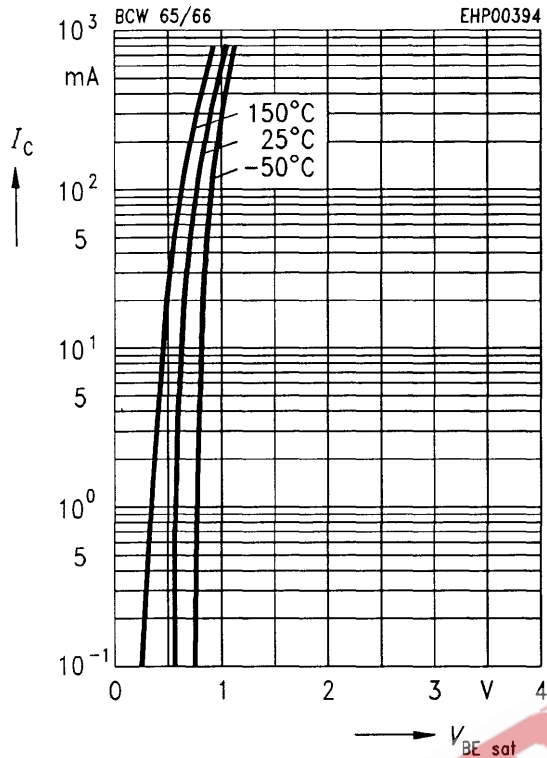
$V_{CB} = V_{CE\text{max}}$



Base-emitter saturation voltage

$$I_C = f(V_{BEsat})$$

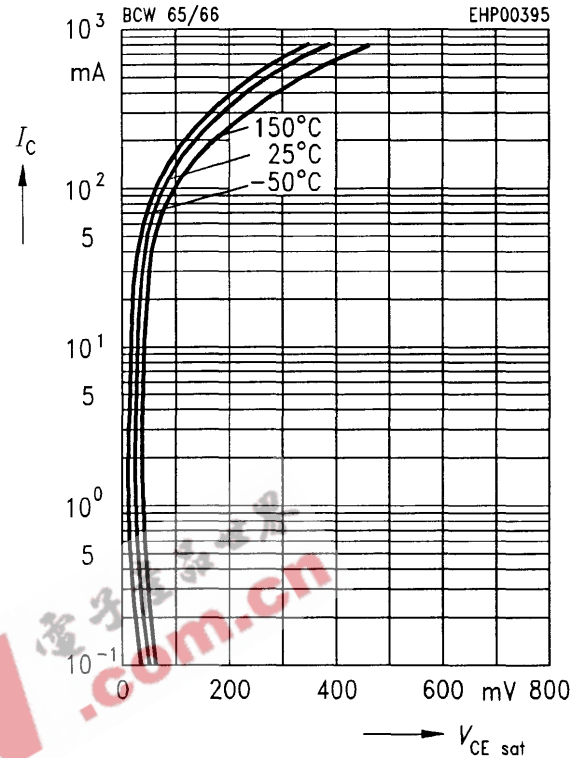
$$h_{FE} = 10$$



Collector-emitter saturation voltage

$$I_C = f(V_{CEsat})$$

$$h_{FE} = 10$$



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

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

