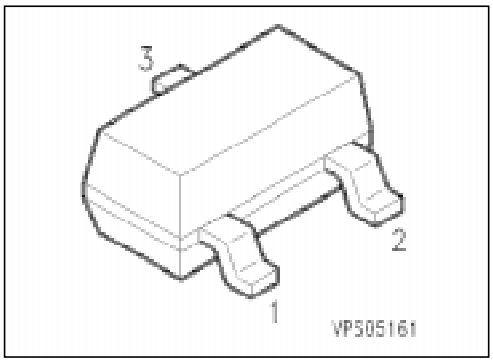
SIEMENS

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 1	2	3	Package[1)]
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 ˚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 cm^2 Cu.

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	$V_{(BR)CE0}$				V
BCW 65		32	–	–	
BCW 66		45	–	–	
Collector-base breakdown voltage I_C = 10 µA	$V_{(BR)CB0}$				
BCW 65		60	–	–	
BCW 66		75	–	–	
Emitter-base breakdown voltage, I_E = 10 µA	$V_{(BR)EB0}$	5	–	–	
Collector cutoff current	I_{CB0}				
V_{CB} = 32 V, BCW 65		–	–	20	nA
V_{CB} = 45 V, BCW 66		–	–	20	nA
V_{CB} = 32 V, T_A = 150 °C, BCW 65		–	–	20	µA
V_{CB} = 45 V, T_A = 150 °C, BCW 66		–	–	20	µA
Emitter-base cutoff current, V_{EB} = 4 V	I_{EB0}	–	–	20	nA
DC current gain[1)]	h_{FE}				–
I_C = 100 µA, V_{CE} = 10 V					
BCW 65 A, BCW 66 F		35	–	–	
BCW 65 B, BCW 66 G		50	–	–	
BCW 65 C, BCW 66 H		80	–	–	
I_C = 10 mA, V_{CE} = 1 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 mA, V_{CE} = 1 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 mA, V_{CE} = 2 V					
BCW 65 A, BCW 66 F		35	–	–	
BCW 65 B, BCW 66 G		60	–	–	
BCW 65 C, BCW 66 H		100	–	–	

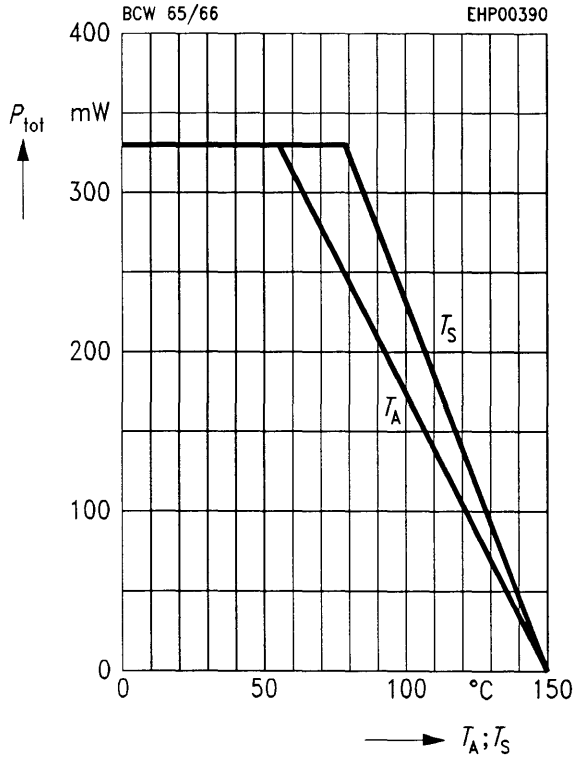
1) Pulse test: $t \leq 300$ µs, D = 2 %.

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

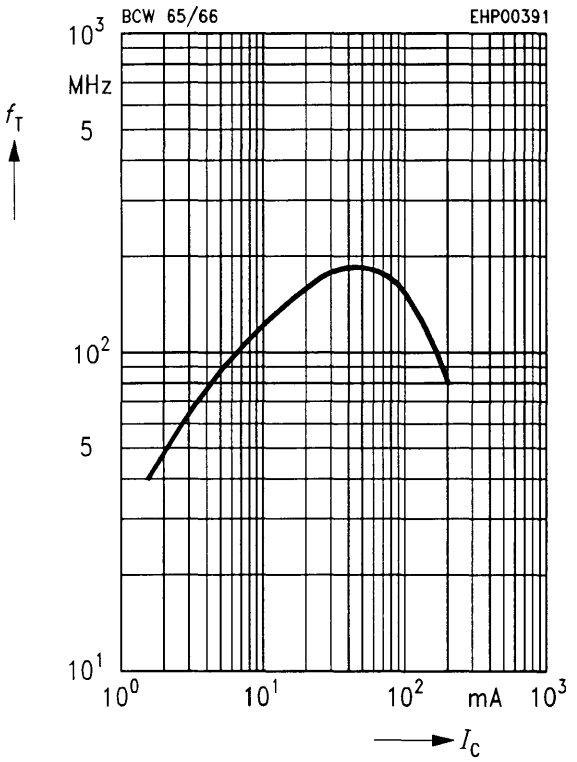
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC characteristics					
Collector-emitter saturation voltage[1)] I_C = 100 mA, I_B = 10 mA I_C = 500 mA, I_B = 50 mA	V_{CEsat}	 – –	 – –	 0.3 0.7	V
Base-emitter saturation voltage[1)] I_C = 100 mA, I_B = 10 mA I_C = 500 mA, I_B = 50 mA	V_{BEsat}	 – –	 – –	 1.25 2	
AC characteristics					
Transition frequency I_C = 50 mA, V_{CE} = 5 V, f = 20 MHz	f_T	–	170	–	MHz
Output capacitance V_{CB} = 10 V, f = 1 MHz	C_{obo}	–	6	–	pF
Input capacitance V_{EB} = 0.5 V, f = 1 MHz	C_{ibo}	–	60	–	

1) Pulse test: $t \leq 300$ µs, D = 2 %.

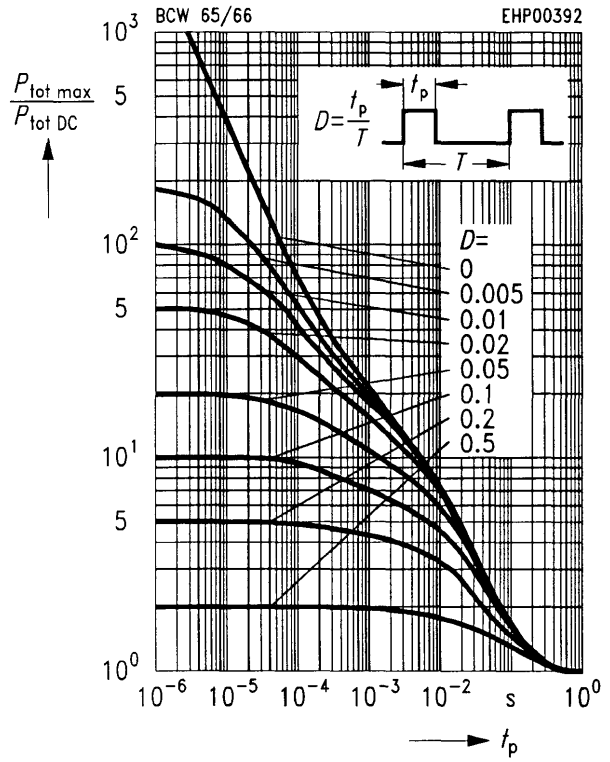
Total power dissipation $P_{tot} = f(T_A^*; T_S)$
* Package mounted on epoxy



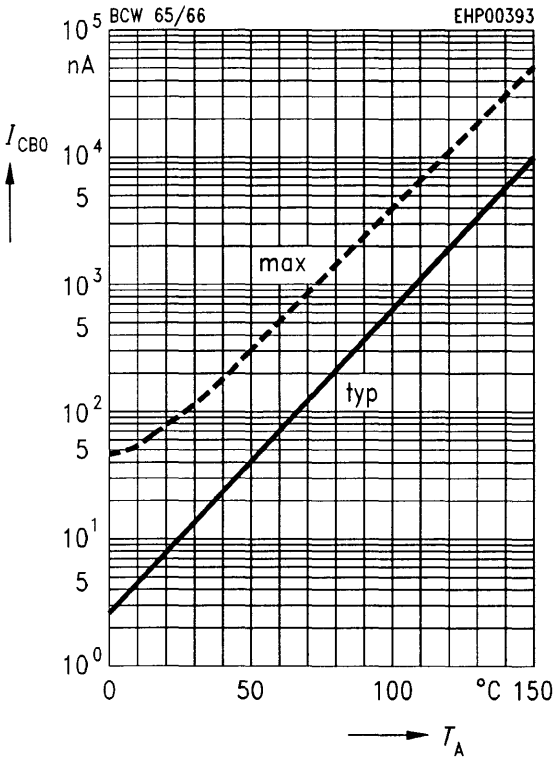
Transition frequency $f_T = f(I_C)$
V_{CE} = 5 V



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



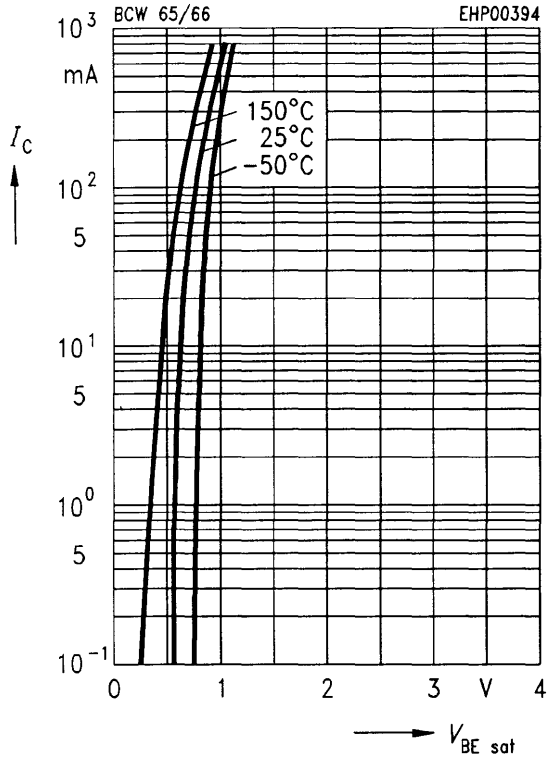
Collector cutoff current $I_{CB0} = f(T_A)$
$V_{CB} = V_{CEmax}$



Base-emitter saturation voltage

$I_C = f(V_{BEsat})$

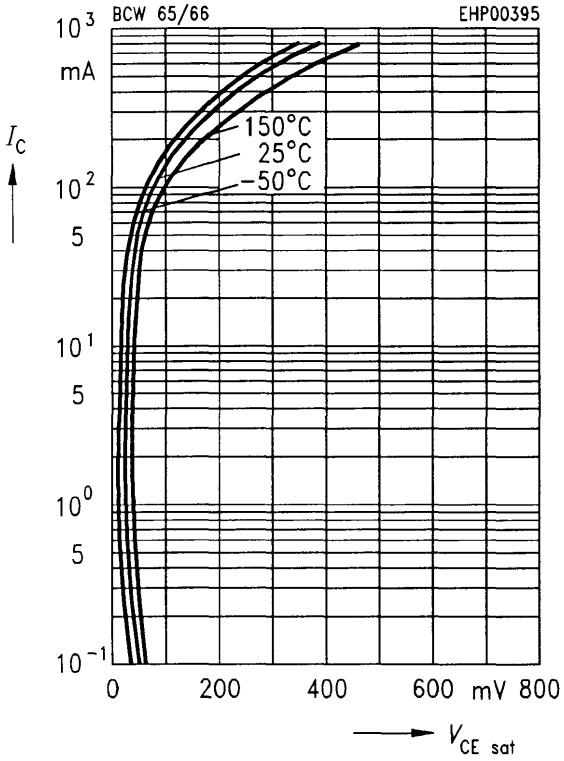
$h_{FE} = 10$



Collector-emitter saturation voltage

$I_C = f(V_{CEsat})$

$h_{FE} = 10$



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

$V_{CE} = 1$ V