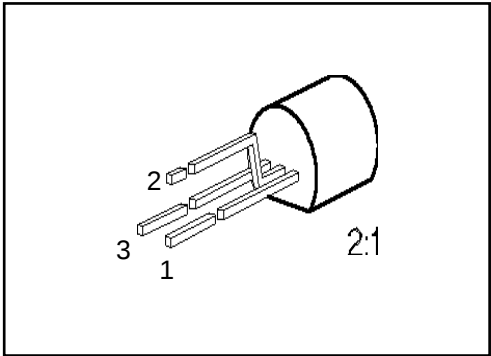


PNP Silicon AF Transistors

BC 327
BC 328

- High current gain
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BC 337, BC 338 (NPN)



Type	Marking	Ordering Code	Pin Configuration			Package ¹⁾
			1	2	3	
BC 327	—	Q62702-C311	C	B	E	TO-92
BC 327-16		Q62702-C311-V3				
BC 327-25		Q62702-C311-V4				
BC 327-40		Q62702-C311-V2				
BC 328		Q62702-C312				
BC 328-16		Q62702-C312-V3				
BC 328-25		Q62702-C312-V4				
BC 328-40		Q62702-C312-V2				

¹⁾ For detailed information see chapter Package Outlines.

Maximum Ratings

Parameter	Symbol	Values		Unit
		BC 327	BC 328	
Collector-emitter voltage	V_{CE0}	45	25	V
Collector-base voltage	V_{CB0}	50	30	
Emitter-base voltage	V_{EB0}	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, $T_C = 66\text{ }^{\circ}\text{C}$	P_{tot}	625		mW
Junction temperature	T_j	150		$^{\circ}\text{C}$
Storage temperature range	T_{stg}	− 65 ... + 150		

Thermal Resistance

Junction - ambient	$R_{th\ JA}$	≤ 200	K/W
Junction - case ¹⁾	$R_{th\ JC}$	≤ 135	

¹⁾ Mounted on Al heat sink 15 mm × 25 mm × 0.5 mm.

Electrical Characteristics

at $T_A = 25\text{ °C}$, 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
BC 327		45	—	—	
BC 328		25	—	—	
Collector-base breakdown voltage $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CB0}$				
BC 327		50	—	—	
BC 328		30	—	—	
Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EB0}$	5	—	—	
Collector cutoff current $V_{CB} = 25\text{ V}$	I_{CB0}	—	—	100	nA
BC 328		—	—	100	nA
$V_{CB} = 45\text{ V}$		—	—	10	μA
BC 327		—	—	10	μA
$V_{CB} = 25\text{ V}, T_A = 150\text{ °C}$		—	—	10	μA
BC 328		—	—	10	μA
$V_{CB} = 45\text{ V}, T_A = 150\text{ °C}$		—	—	10	μA
BC 327		—	—	10	μA
Emitter cutoff current $V_{EB} = 4\text{ V}$	I_{EB0}	—	—	100	nA
DC current gain ¹⁾ $I_C = 100\text{ mA}; V_{CE} = 1\text{ V}$	h_{FE}				—
BC 327/16; BC 328/16		100	160	250	
BC 327/25; BC 328/25		160	250	400	
BC 327/40; BC 328/40		250	350	630	
$I_C = 300\text{ mA}; V_{CE} = 1\text{ V}$					
BC 327/16; BC 328/16		60	—	—	
BC 327/25; BC 328/25		100	—	—	
BC 327/40; BC 328/40		170	—	—	
Collector-emitter saturation voltage ¹⁾ $I_C = 500\text{ mA}; I_B = 50\text{ mA}$	V_{CEsat}	—	—	0.7	V
Base-emitter saturation voltage ¹⁾ $I_C = 500\text{ mA}; I_B = 50\text{ mA}$	V_{BEsat}	—	—	2	

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

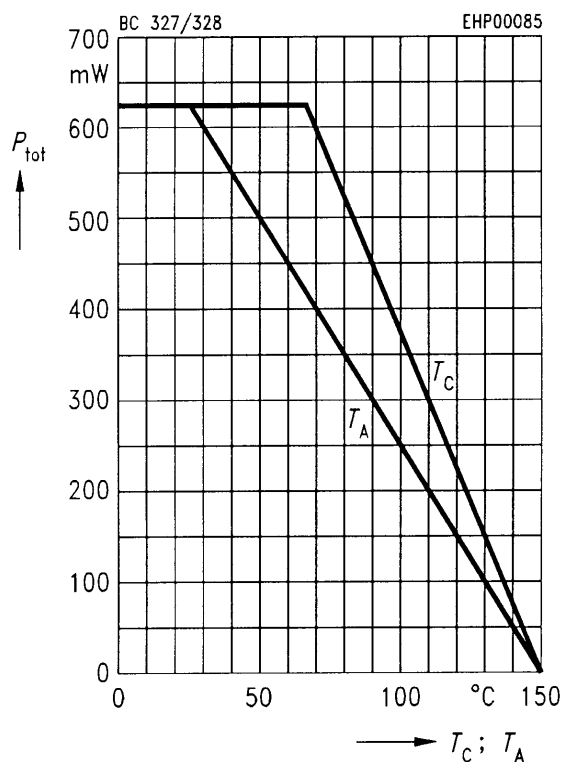
Electrical Characteristicsat $T_A = 25\text{ °C}$, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

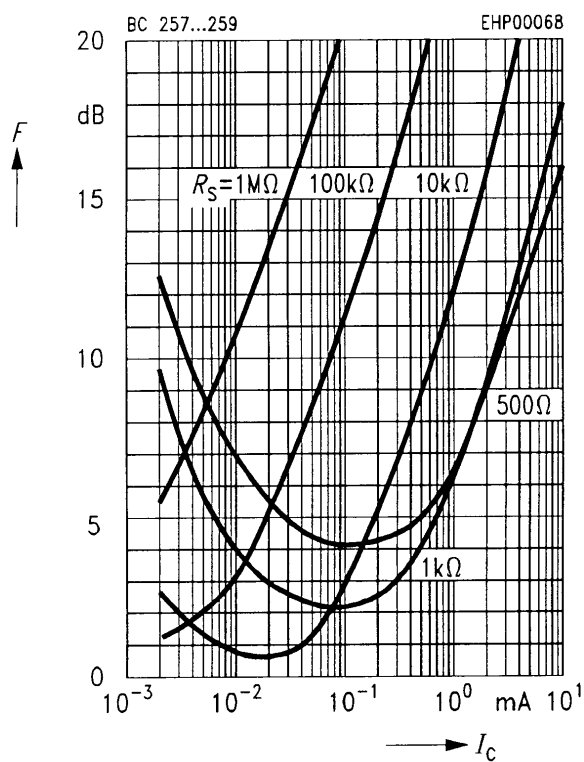
AC characteristics

Transition frequency $I_C = 50\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 20\text{ MHz}$	f_t	–	200	–	MHz
Output capacitance $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{obo}	–	12	–	pF
Input capacitance $V_{EB} = 0.5\text{ V}$, $f = 1\text{ MHz}$	C_{ibo}	–	60	–	

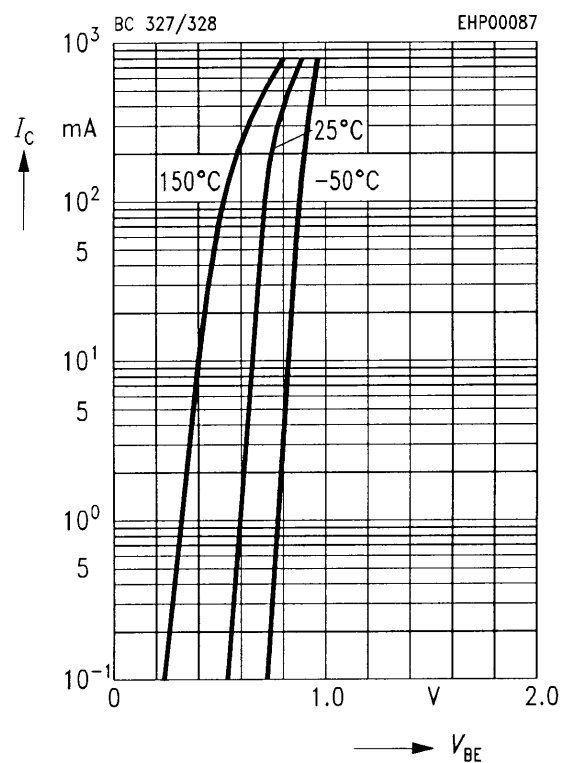
Total power dissipation $P_{\text{tot}} = f(T_A; T_C)$



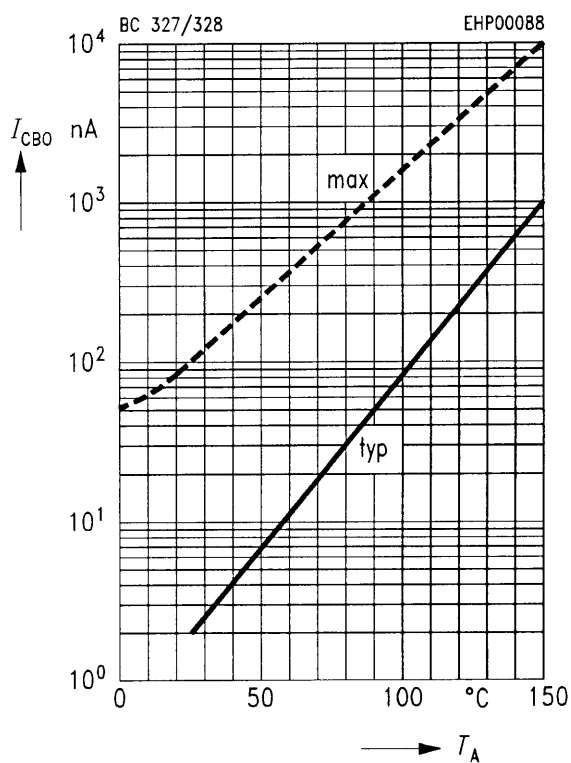
Permissible pulse load $R_{\text{thJA}} = f(t_p)$



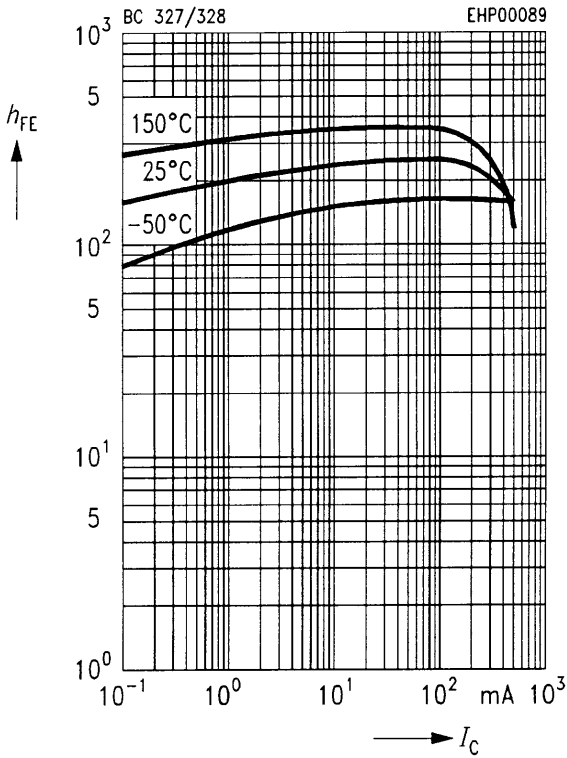
Collector current $I_C = f(V_{\text{BE}})$
 $V_{\text{CE}} = 1\text{ V}$



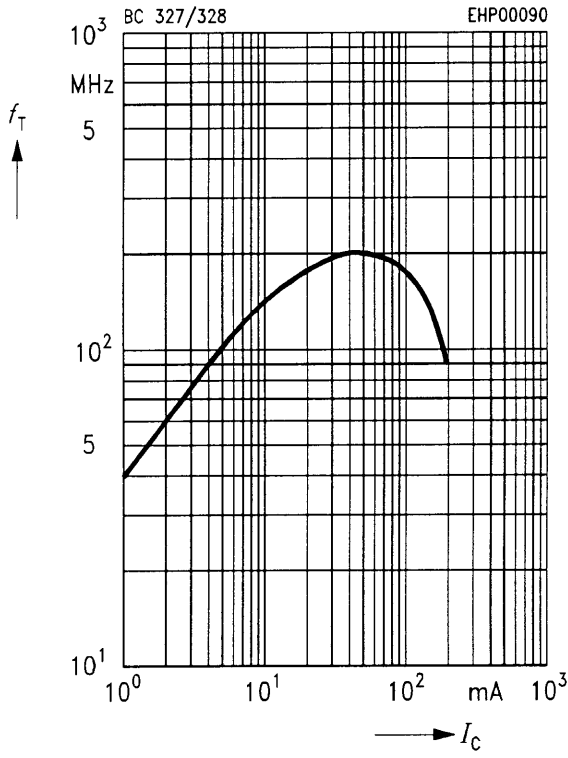
Collector cutoff current $I_{\text{CBO}} = f(T_A)$
 $V_{\text{CB}} = 45\text{ V}$



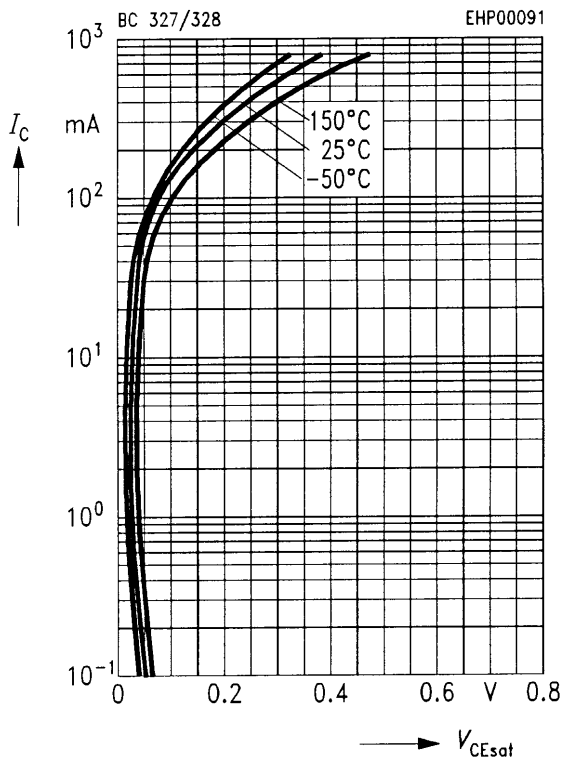
DC current gain $h_{FE} = f(I_C)$
 $V_{CE} = 1\text{ V}$



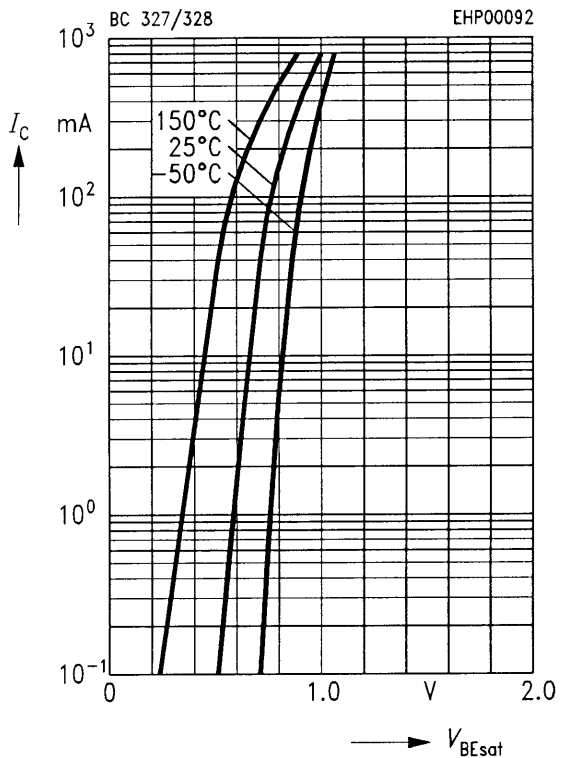
Transition frequency $f_T = f(I_C)$
 $f = 20\text{ MHz}$, $T_A = 25^\circ\text{C}$



Collector-emitter saturation voltage $V_{CEsat} = f(I_C)$
 $h_{FE} = 10$



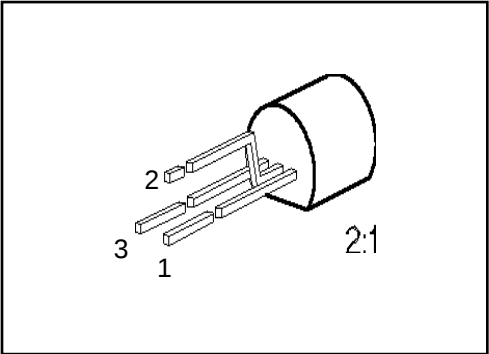
Base-emitter saturation voltage $V_{BEsat} = f(I_C)$
 $h_{FE} = 10$



NPN Silicon AF Transistors

BC 337
BC 338

- High current gain
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BC 327, BC 328 (PNP)



Type	Marking	Ordering Code	Pin Configuration			Package ¹⁾
			1	2	3	
BC 337	—	Q62702-C313	C	B	E	TO-92
BC 337-16		Q62702-C313-V3				
BC 337-25		Q62702-C313-V1				
BC 337-40		Q62702-C313-V2				
BC 338		Q62702-C314				
BC 338-16		Q62702-C314-V1				
BC 338-25		Q62702-C314-V2				
BC 338-40		Q62702-C314-V3				

¹⁾ For detailed information see chapter Package Outlines.

Maximum Ratings

Parameter	Symbol	Values		Unit
		BC 337	BC 338	
Collector-emitter voltage	V_{CE0}	45	25	V
Collector-base voltage	V_{CB0}	50	30	
Emitter-base voltage	V_{EB0}	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, $T_C = 66\text{ }^{\circ}\text{C}$	P_{tot}	625		mW
Junction temperature	T_j	150		$^{\circ}\text{C}$
Storage temperature range	T_{stg}	− 65 ... + 150		

Thermal Resistance

Junction - ambient	$R_{th JA}$	≤ 200	K/W
Junction - case ¹⁾	$R_{th JC}$	≤ 135	

¹⁾ Mounted on Al heat sink 15 mm × 25 mm × 0.5 mm.

Electrical Characteristics

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC characteristics					
Collector-emitter breakdown voltage <i>I</i> _C = 10 mA	<i>V</i> _{(BR)CE0}				V
BC 337		45	—	—	
BC 338		25	—	—	
Collector-base breakdown voltage <i>I</i> _C = 100 μA	<i>V</i> _{(BR)CB0}				
BC 337		50	—	—	
BC 338		30	—	—	
Emitter-base breakdown voltage <i>I</i> _E = 10 μA	<i>V</i> _{(BR)EB0}	5	—	—	
Collector cutoff current <i>V</i> _{CB} = 25 V	<i>I</i> _{CB0}				
BC 338		—	—	100	nA
BC 337		—	—	100	nA
BC 338		—	—	10	μA
BC 337		—	—	10	μA
Emitter cutoff current <i>V</i> _{EB} = 4 V	<i>I</i> _{EB0}	—	—	100	nA
DC current gain ¹⁾ <i>I</i> _C = 100 mA; <i>V</i> _{CE} = 1 V	<i>h</i> _{FE}				—
BC 337/16; BC 338/16		100	160	250	
BC 337/25; BC 338/25		160	250	400	
BC 337/40; BC 338/40		250	350	630	
<i>I</i> _C = 300 mA; <i>V</i> _{CE} = 1 V					
BC 337/16; BC 338/16		60	—	—	
BC 337/25; BC 338/25		100	—	—	
BC 337/40; BC 338/40	170	—	—		
Collector-emitter saturation voltage ¹⁾ <i>I</i> _C = 500 mA; <i>I</i> _B = 50 mA	<i>V</i> _{CEsat}	—	—	0.7	V
Base-emitter saturation voltage <i>I</i> _C = 500 mA; <i>I</i> _B = 50 mA	<i>V</i> _{BEsat}	—	—	2	

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

Electrical Characteristics

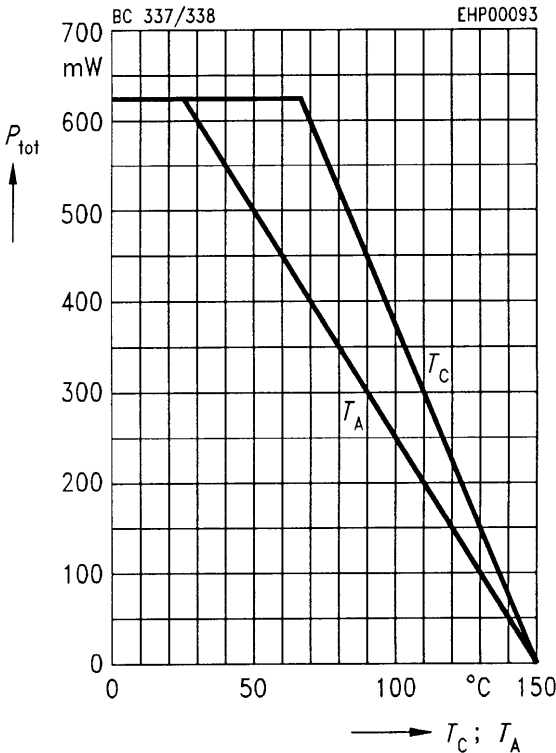
at $T_A = 25\text{ °C}$, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

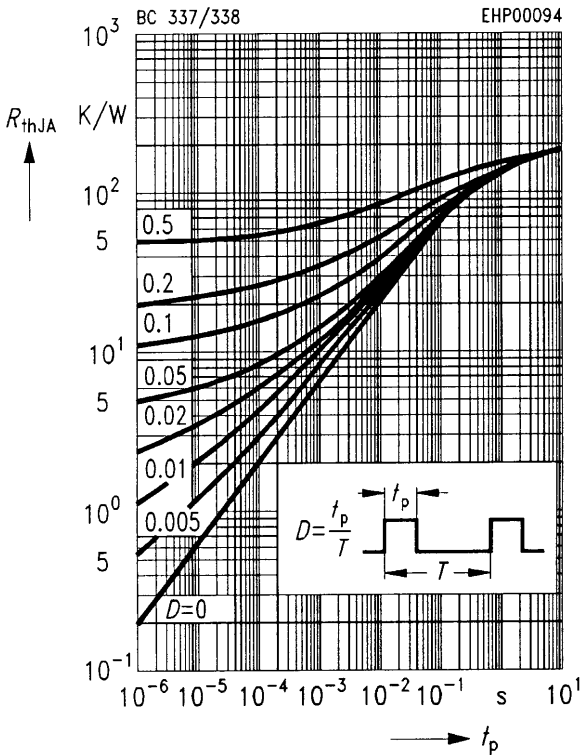
AC characteristics

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}	–	8	–	pF
Input capacitance $V_{EB} = 0.5\text{ V}$, $f = 1\text{ MHz}$	C_{ibo}	–	60	–	

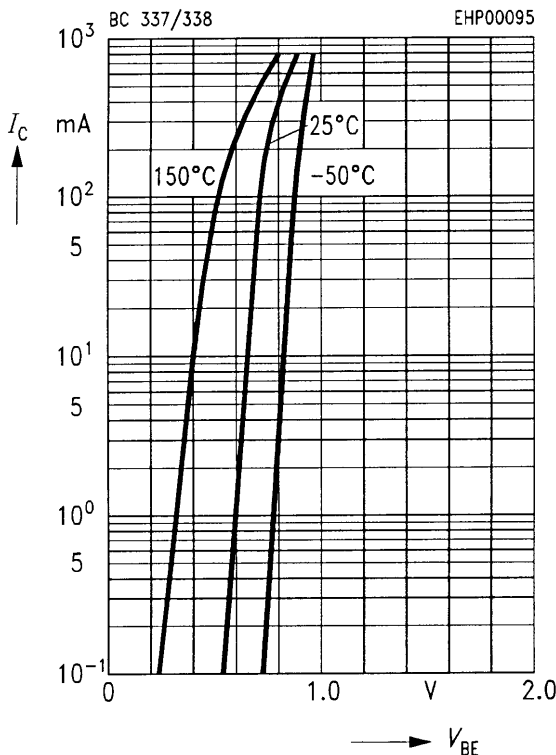
Total power dissipation $P_{\text{tot}} = f(T_A; T_C)$



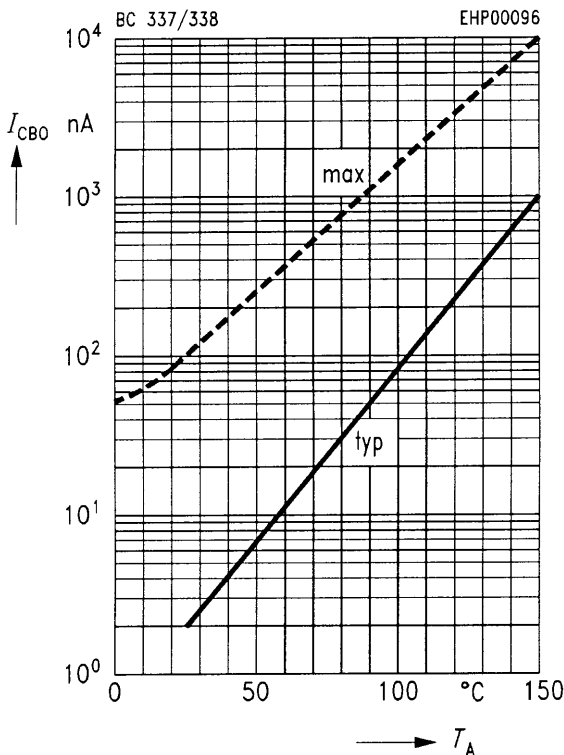
Permissible pulse load $R_{\text{thJA}} = f(t_p)$



Collector current $I_C = f(V_{\text{BE}})$
 $V_{\text{CE}} = 1 \text{ V}$

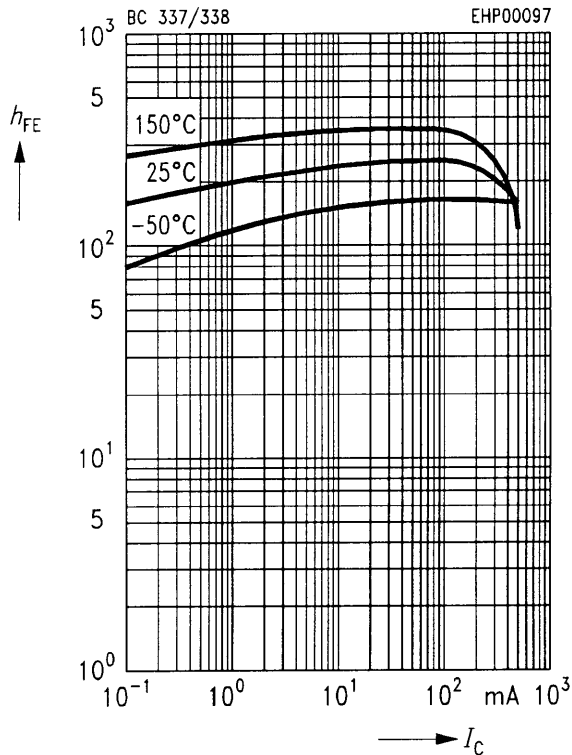


Collector cutoff current $I_{\text{CB0}} = f(T_A)$
 $V_{\text{CB}} = 45 \text{ V}$



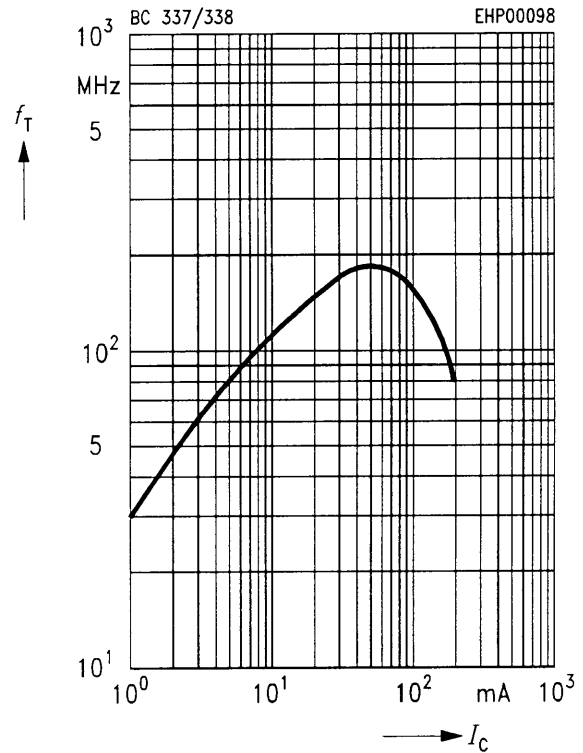
DC current gain $h_{FE} = f(I_C)$

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



Transition frequency $f_T = f(I_C)$

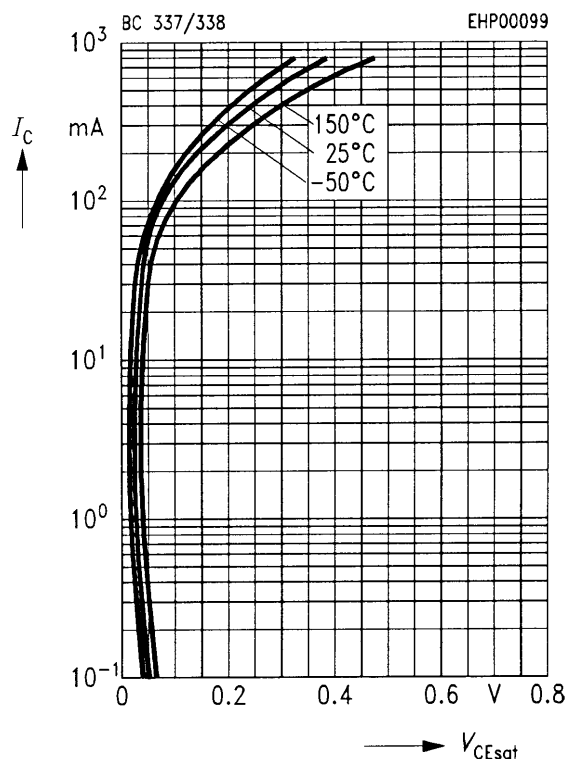
$f = 20 \text{ MHz}$, $T_A = 25^\circ\text{C}$



Collector-emitter saturation voltage $V_{CEsat} = f(I_C)$

$V_{CEsat} = f(I_C)$

$h_{FE} = 10$



Base-emitter saturation voltage $V_{BEsat} = f(I_C)$

$V_{BEsat} = f(I_C)$

$h_{FE} = 10$

