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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				

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[1] For detailed information see chapter Package Outlines.

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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, $T_C = 66 \, ˚C$	P_{tot}	625		mW
Junction temperature	T_j	150		˚C
Storage temperature range	T_{stg}	$- 65 \ldots + 150$		

Thermal Resistance

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

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[1] Mounted on Al heat sink 15 mm $\times$ 25 mm $\times$ 0.5 mm.

Electrical Characteristics

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC characteristics

Parameter	Symbol	min.	typ.	max.	Unit
Collector-emitter breakdown voltage $I_C = 10$ mA	$V_{(BR)CE0}$				V
BC 337		45	–	–	
BC 338		25	–	–	
Collector-base breakdown voltage $I_C = 100\ \mu A$	$V_{(BR)CB0}$				
BC 337		50	–	–	
BC 338		30	–	–	
Emitter-base breakdown voltage $I_E = 10\ \mu A$	$V_{(BR)EB0}$	5	–	–	
Collector cutoff current	I_{CB0}				
$V_{CB} = 25$ V BC 338		–	–	100	nA
$V_{CB} = 45$ V BC 337		–	–	100	nA
$V_{CB} = 25$ V, $T_A = 150\ °C$ BC 338		–	–	10	μA
$V_{CB} = 45$ V, $T_A = 150\ °C$ BC 337		–	–	10	μA
Emitter cutoff current $V_{EB} = 4$ V	I_{EB0}	–	–	100	nA
DC current gain[1] $I_C = 100$ mA; $V_{CE} = 1$ V	h_{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	
$I_C = 300$ mA; $V_{CE} = 1$ 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] $I_C = 500$ mA; $I_B = 50$ mA	V_{CEsat}	–	–	0.7	V
Base-emitter saturation voltage $I_C = 500$ mA; $I_B = 50$ mA	V_{BEsat}	–	–	2	

[1] Pulse test: $t \le 300\ \mu s$, $D \le 2\ \%$.
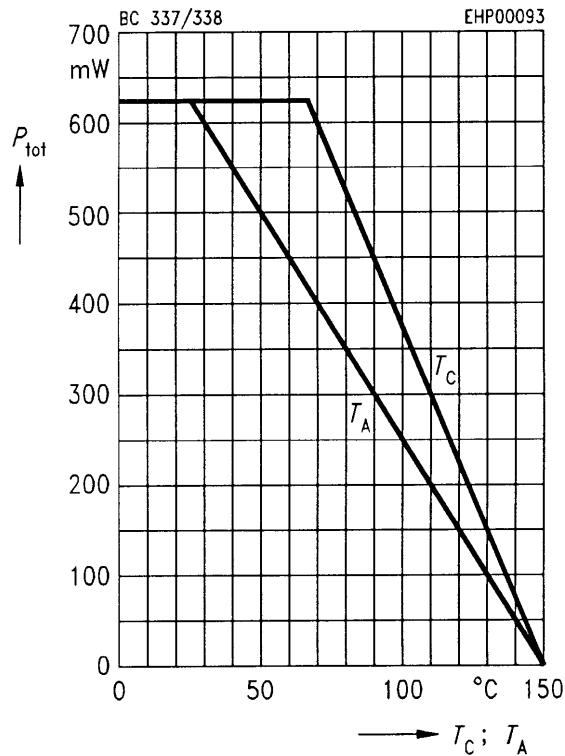
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Electrical Characteristics

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

AC characteristics
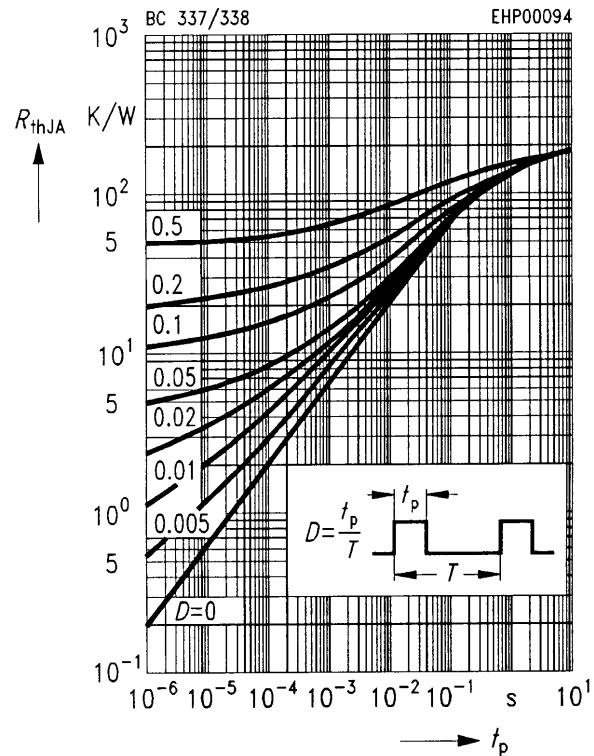
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Transition frequency I_C = 50 mA, V_{CE} = 5 V, f = 20 MHz	f_f	–	170	–	MHz
Output capacitance V_{CB} = 10 V, f = 1 MHz	C_{obo}	–	8	–	pF
Input capacitance V_{EB} = 0.5 V, f = 1 MHz	C_{ibo}	–	60	–	

## Total power dissipation $P_{tot} = f(T_A; T_C)$
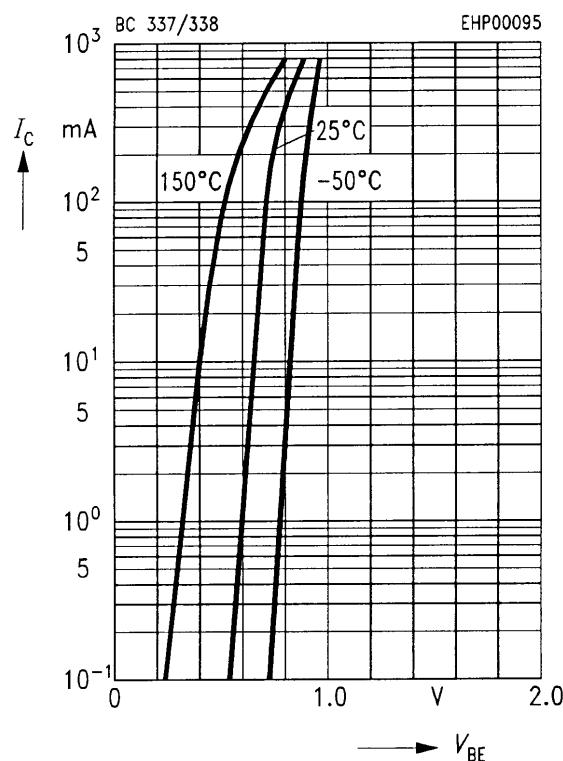
Permissible pulse load $R_{thJA} = f(t_p)$
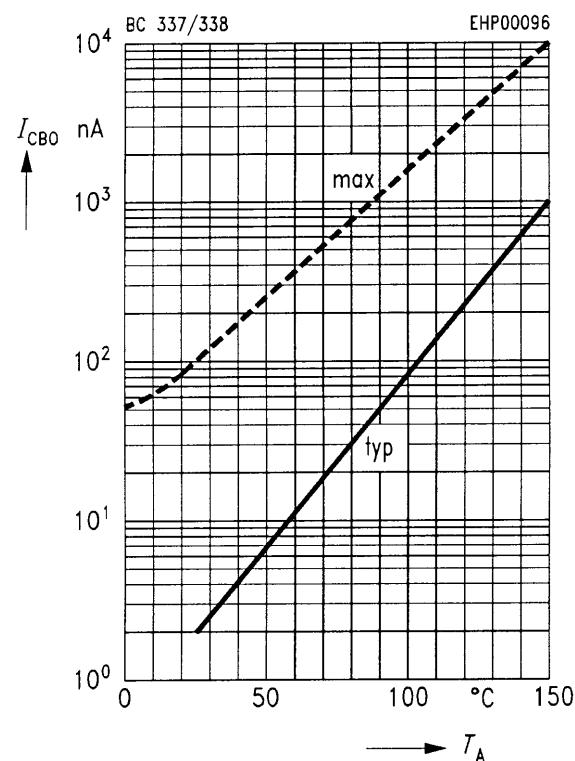

Collector current $I_C = f(V_{BE})$
$V_{CE} = 1$ V
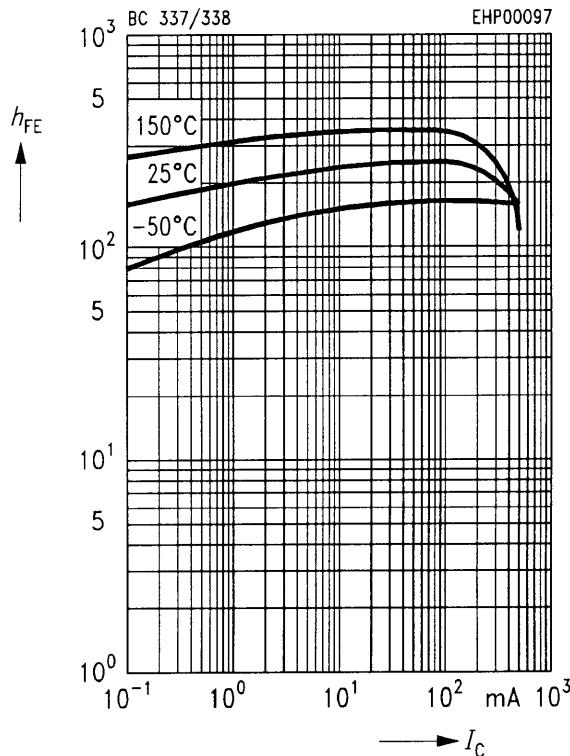
Collector cutoff current $I_{CB0} = f(T_A)$
$V_{CB} = 45$ V

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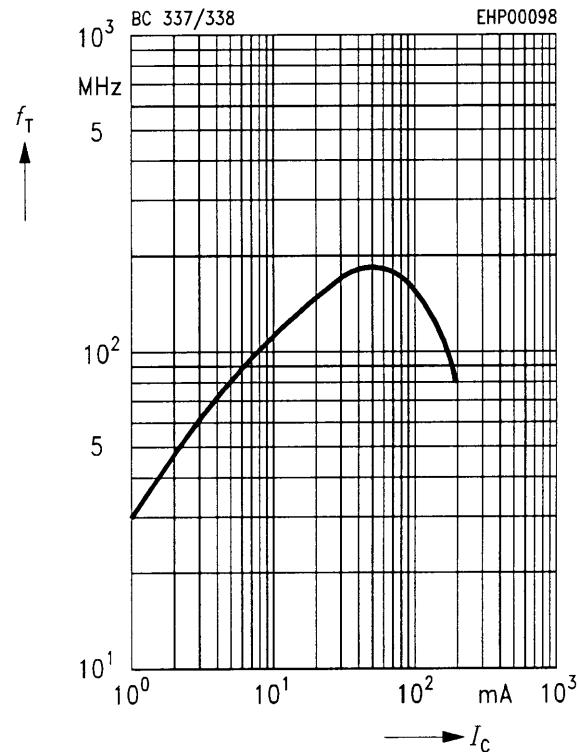
DC current gain $h_{FE} = f(I_C)$
$V_{CE} = 1$ V
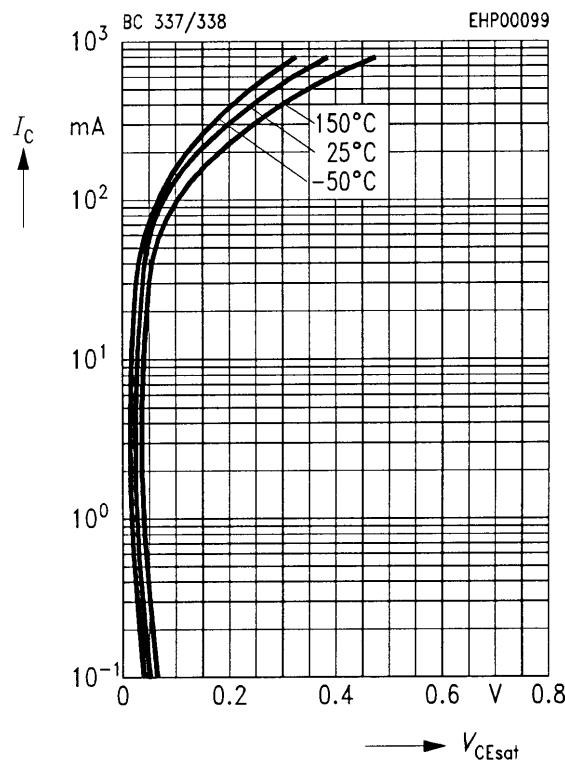
Transition frequency $f_T = f(I_C)$
$f = 20$ MHz, $T_A = 25$ °C

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

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