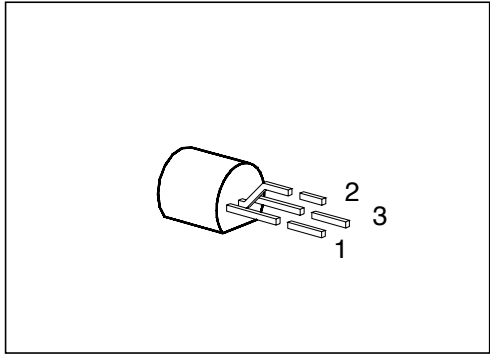


## PNP Silicon AF Transistors

**BC 636**  
**... BC 640**

- High current gain
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BC 635, BC 637,  
BC 639 (NPN)



Type	Marking	Ordering Code	Pin Configuration			Package <sup>1)</sup>
			1	2	3	
BC 636 BC 638 BC 640	—	Q68000-A3365 Q68000-A3366 Q68000-A3367	E	C	B	TO-92

If desired, selected transistors, type BC 6 ★ ★ –10 ( $h_{FE} = 63 \dots 160$ ), or BC 6 ★ ★ –16 ( $h_{FE} = 100 \dots 250$ ) are available. Ordering codes upon request.

<sup>1)</sup> For detailed information see chapter Package Outlines.

## Maximum Ratings

Parameter	Symbol	Values			Unit
		BC 636	BC 638	BC 640	
Collector-emitter voltage	$V_{CE0}$	45	60	80	V
Collector-base voltage	$V_{CB0}$	45	60	100	
Emitter-base voltage	$V_{EB0}$	5			
Collector current	$I_C$	1			A
Peak collector current	$I_{CM}$	1.5			
Base current	$I_B$	100			mA
Peak base current	$I_{BM}$	200			
Total power dissipation, $T_C = 90\text{ }^{\circ}\text{C}^{1)}$	$P_{tot}$	0.8 (1)			W
Junction temperature	$T_j$	150			$^{\circ}\text{C}$
Storage temperature range	$T_{stg}$	− 65 ... + 150			

## Thermal Resistance

Junction - ambient <sup>1)</sup>	$R_{th JA}$	≤ 156	K/W
Junction - case <sup>2)</sup>	$R_{th JC}$	≤ 55	

1) If the transistors with max. 4 mm lead length are fixed on PCBs with a min. 10 mm x 10 mm large copper area for the collector terminal,  $R_{th JA} = 125\text{ K/W}$  and thus  $P_{tot max} = 1\text{ W}$  at  $T_A = 25\text{ °C}$ .

2) Mounted on Al heat sink 15 mm x 25 mm x 0.5 mm.

## Electrical Characteristics

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

### DC characteristics

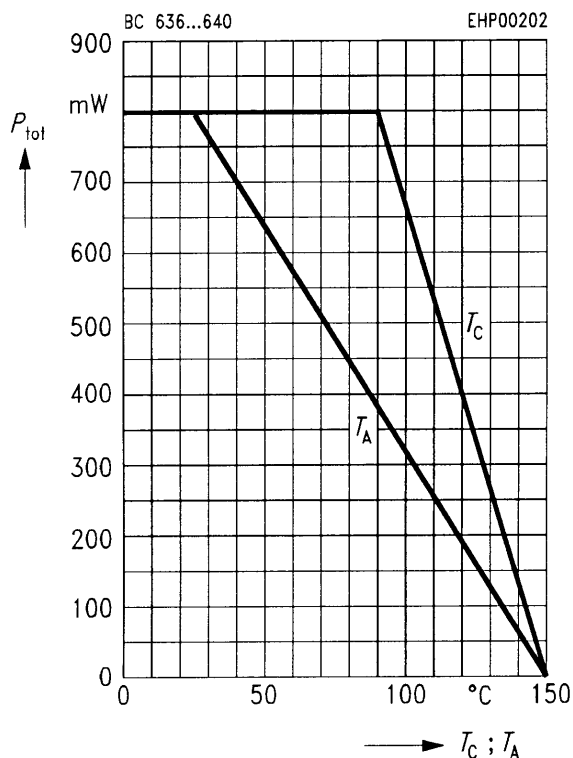
Collector-emitter breakdown voltage $I_C = 10\text{ mA}$	$V_{(BR)CE0}$				V
BC 636		45	—	—	
BC 638		60	—	—	
BC 640		80	—	—	
Collector-base breakdown voltage $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CB0}$				
BC 636		45	—	—	
BC 638		60	—	—	
BC 640		100	—	—	
Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EB0}$	5	—	—	
Collector cutoff current $V_{CB} = 30\text{ V}$ $V_{CB} = 30\text{ V}, T_A = 150\text{ }^{\circ}\text{C}$	$I_{CB0}$	— —	— —	100 20	nA $\mu\text{A}$
Emitter cutoff current $V_{EB} = 4\text{ V}$	$I_{EB0}$	—	—	100	nA
DC current gain $I_C = 5\text{ mA}; V_{CE} = 2\text{ V}$ $I_C = 150\text{ mA}; V_{CE} = 2\text{ V}^{1)}$ $I_C = 500\text{ mA}; V_{CE} = 2\text{ V}^{1)}$	$h_{FE}$	25 40 25	— — —	— 250 —	—
Collector-emitter saturation voltage <sup>1)</sup> $I_C = 500\text{ mA}; I_B = 50\text{ mA}$	$V_{CEsat}$	—	—	500	mV
Base-emitter voltage <sup>1)</sup> $I_C = 500\text{ mA}; V_{CE} = 2\text{ V}$	$V_{BE}$	—	—	1	V

### AC characteristics

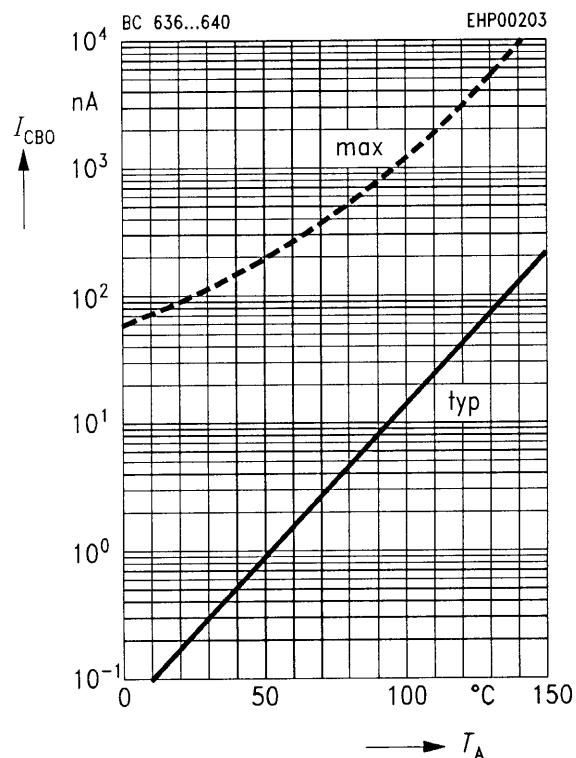
Transition frequency $I_C = 50\text{ mA}, V_{CE} = 10\text{ V}, f = 20\text{ MHz}$	$f_T$	—	100	—	MHz
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<sup>1)</sup> Pulse test:  $t \leq 300\text{ }\mu\text{s}$ ,  $D \leq 2\text{ }\%$ .

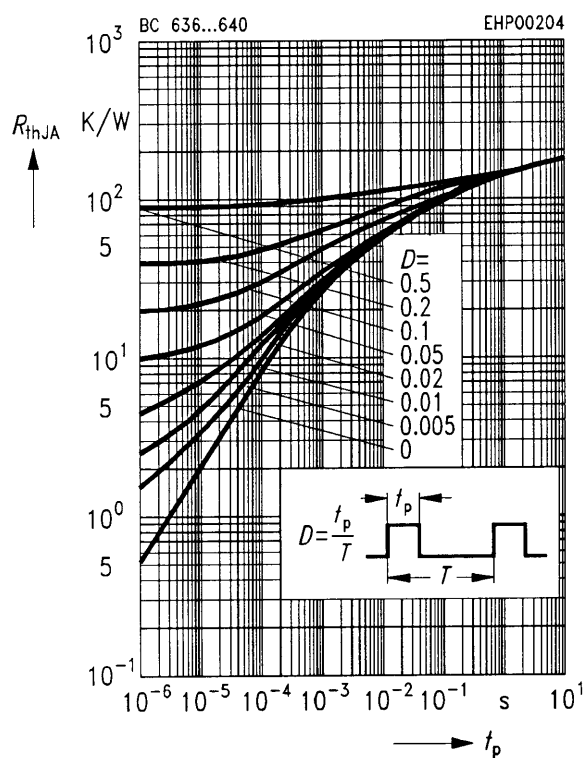
**Total power dissipation**  $P_{\text{tot}} = f(T_A; T_C)$



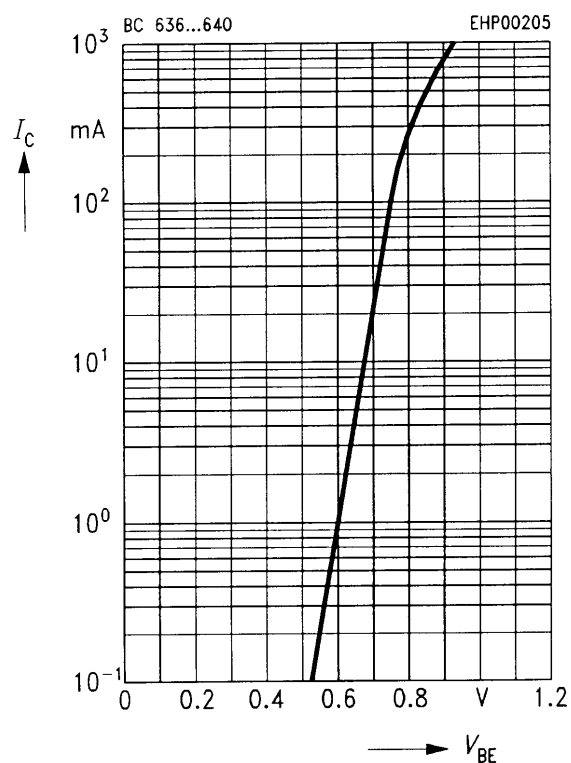
**Collector cutoff current**  $I_{\text{CB0}} = f(T_A)$   
 $V_{\text{CB}} = 30 \text{ V}$



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

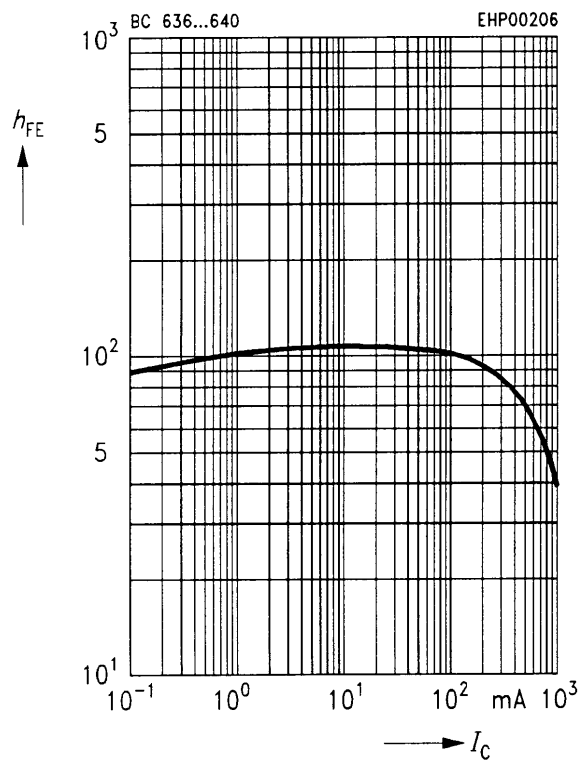


**Collector current**  $I_C = f(V_{\text{BE}})$   
 $V_{\text{CE}} = 2 \text{ V}$



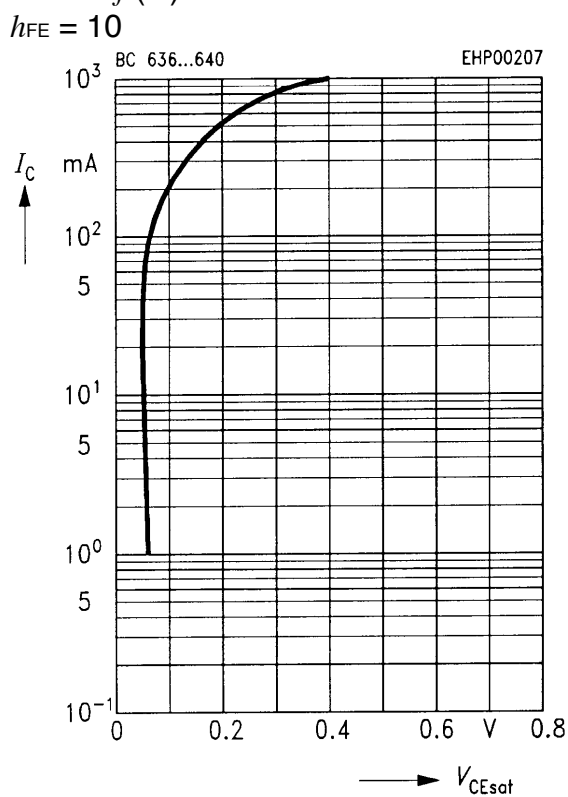
## DC current gain $h_{FE} = f(I_C)$

$V_{CE} = 2 \text{ V}$

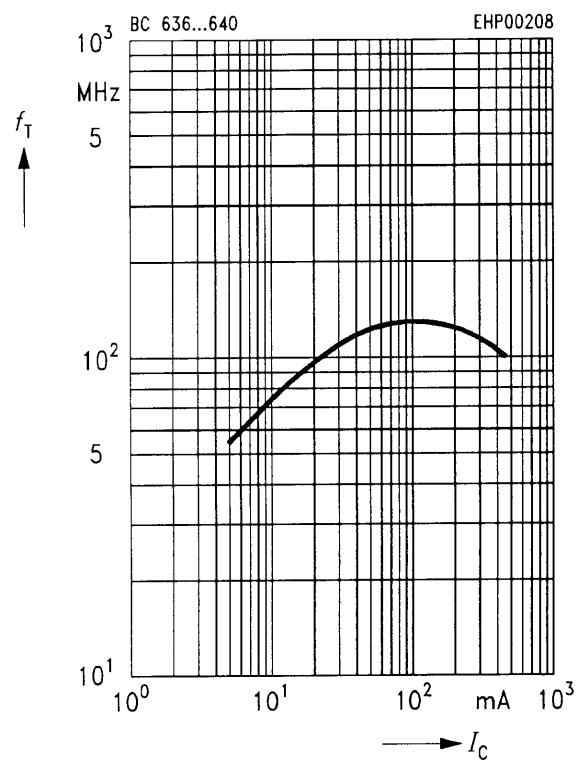


## Collector-emitter saturation voltage $V_{CEsat} = f(I_C)$

$h_{FE} = 10$



## Transition frequency $f_T = f(I_C)$



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Datasheets for electronics components.