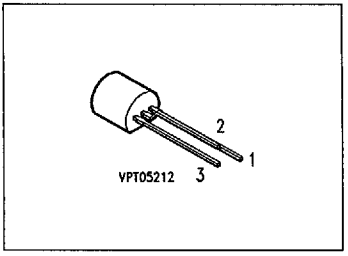
SIEMENS SIEMENS AKTIENGESELLSCHAF

T-29-21

NPN Silicon AF Transistors

BCX 73
BCX 74

- High current gain
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BCX 75, BCX 76 (PNP)



Type	Marking	Ordering Code	Pin Configuration 1	2	3	Package[1]
BCX 73	–	Q62702-C634	C	B	E	TO-92
BCX 73-16		Q62702-C634-S1				
BCX 73-25		Q62702-C634-S2				
BCX 73-40		Q62702-C634-S3				
BCX 74		Q62702-C635				
BCX 74-16		Q62702-C635-S1				
BCX 74-25		Q62702-C635-S2				
BCX 74-40		Q62702-C635-S3				

[1] For detailed information see chapter Package Outlines.

Maximum Ratings

Parameter	Symbol	Values BCX 73	BCX 74	Unit
Collector-emitter voltage	V_{CEO}	32	45	V
Collector-base voltage	V_{CBO}	60	75	
Emitter-base voltage	V_{EBO}	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 ... + 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.

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

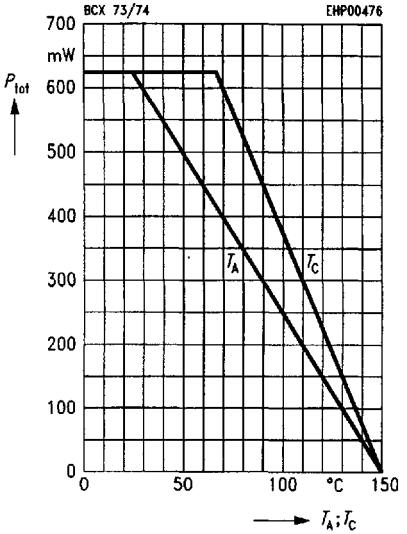
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC characteristics					
Collector-emitter breakdown voltage	$V_{(BR)CE0}$				V
I_C = 10 mA BCX 73		32	–	–	
BCX 74		45	–	–	
Collector-base breakdown voltage	$V_{(BR)CB0}$				
I_C = 100 µA BCX 73		60	–	–	
BCX 74		75	–	–	
Emitter-base breakdown voltage	$V_{(BR)EB0}$	5	–	–	
I_E = 10 µA					
Collector cutoff current	I_{CB0}				
V_{CB} = 35 V BCX 73		–	–	20	nA
V_{CB} = 45 V BCX 74		–	–	20	nA
V_{CB} = 35 V, T_A = 150 °C BCX 73		–	–	5	µA
V_{CB} = 45 V, T_A = 150 °C BCX 74		–	–	5	µA
Emitter cutoff current	I_{EB0}	–	–	100	nA
V_{EB} = 4 V					
DC current gain	h_{FE}				–
I_C = 100 µA, V_{CE} = 10 V		35	–	–	
I_C = 1 mA, V_{CE} = 1 V		50	–	–	
I_C = 10 mA, V_{CE} = 1 V		75	–	–	
I_C = 100 mA, V_{CE} = 1 V [1]					
BCX 73-16, BCX 74-16		100	160	250	
BCX 73-25, BCX 74-25		160	250	400	
BCX 73-40, BCX 74-40		250	350	630	
I_C = 500 mA, V_{CE} = 2 V [1]		35	–	–	
Collector-emitter saturation voltage [1]	V_{CEsat}				V
I_C = 100 mA, I_B = 10 mA		–	–	0.25	
I_C = 500 mA, I_B = 50 mA		–	–	0.6	
Base-emitter saturation voltage [1]	V_{BEsat}	–	–	1.5	
I_C = 500 mA, I_B = 50 mA					

[1] Pulse test: $t \leq 300$ µs, $D \leq 2$ %.

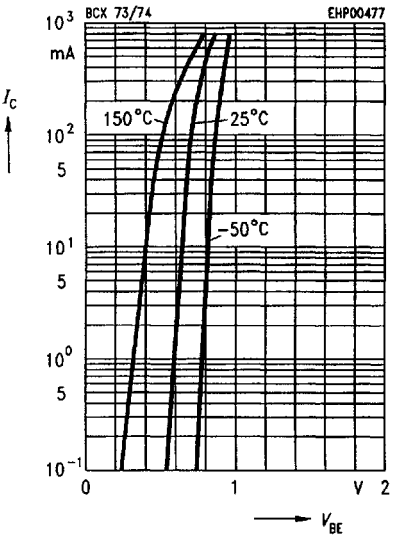
Electrical Characteristics
at T_A = 25 °C, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
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}	–	8	–	pF
Input capacitance V_{EB} = 0.5 V, f = 1 MHz	C_{ibo}	–	60	–	

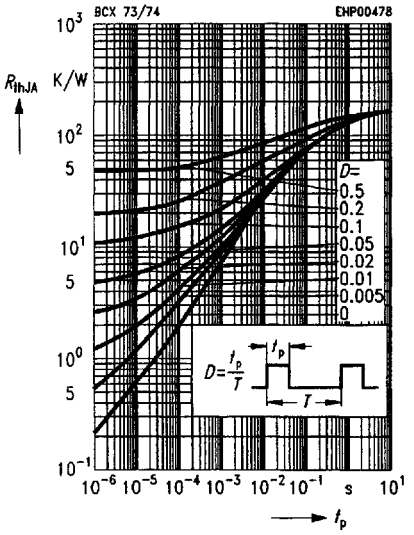
Total power dissipation $P_{tot} = f(T_A; T_C)$



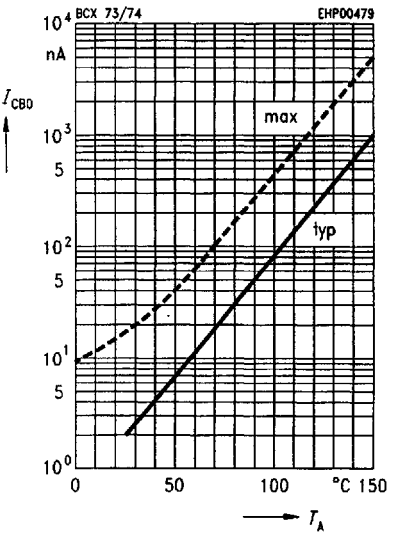
Collector current $I_C = f(V_{BE})$
V_{CE} = 1 V



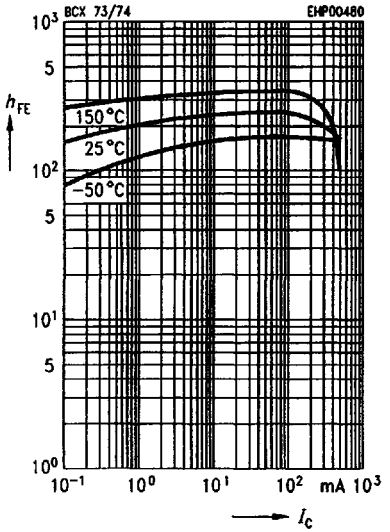
Permissible pulse load $R_{thJA} = f(t_p)$



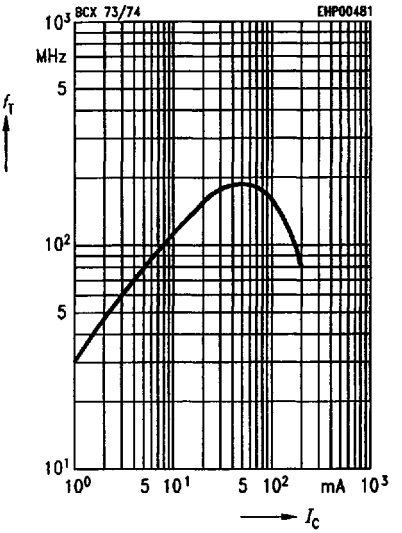
Collector cutoff current $I_{CB0} = f(T_A)$
V_{CB} = 45 V



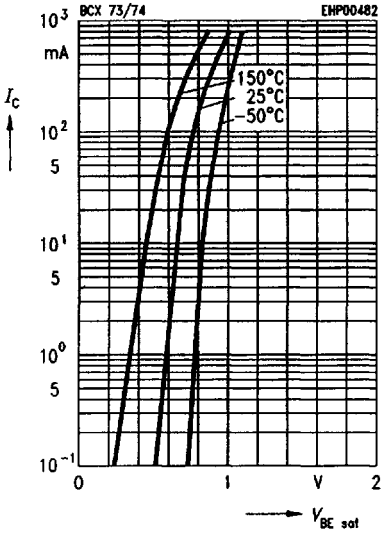
DC current gain $h_{FE} = f(I_C)$
$V_{CE} = 1$ V



Transition frequency $f_T = f(I_C)$
$V_{CE} = 5$ V, $f = 200$ MHz



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



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