

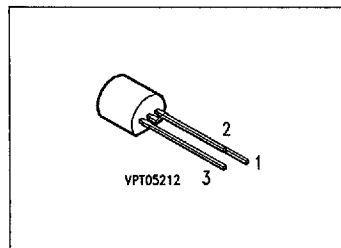
SIEMENS

SIEMENS AKTIENGESELLSCHAFT

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			Package ¹⁾
			1	2	3	
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		Unit
		BCX 73	BCX 74	
Collector-emitter voltage	V_{CE0}	32	45	V
Collector-base voltage	V_{CB0}	60	75	
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, $T_C = 66\text{ °C}$	P_{tot}		625	mW
Junction temperature	T_j		150	°C
Storage temperature range	T_{stg}		- 65 ... + 150	

Thermal Resistance

Junction - ambient	R_{thJA}	≤ 200	K/W
Junction - case ¹⁾	R_{thJC}	≤ 135	

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

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

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

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

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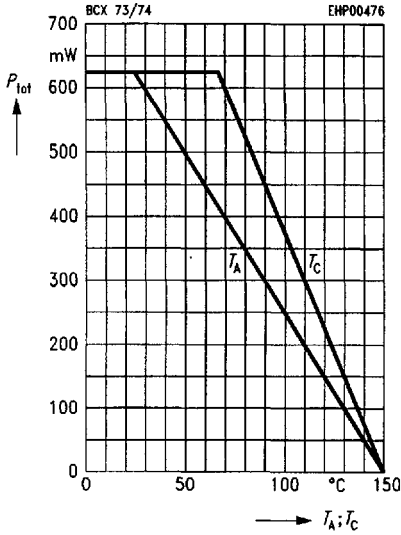
Electrical Characteristicsat $T_A = 25^\circ\text{C}$, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

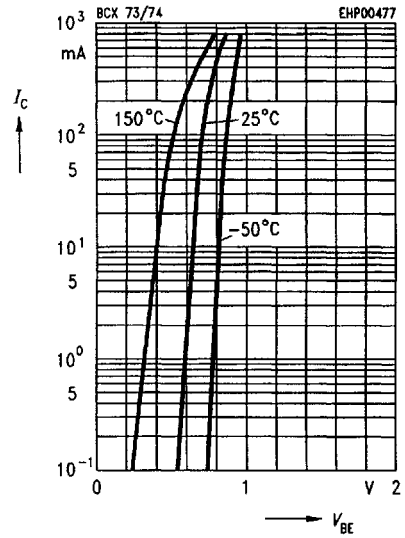
AC characteristics

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	–	

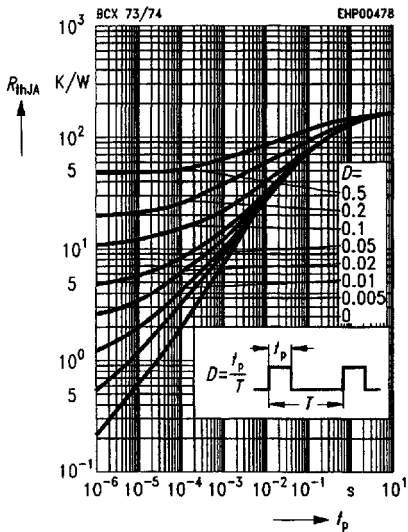
Total power dissipation $P_{tot} = f(T_A; T_C)$



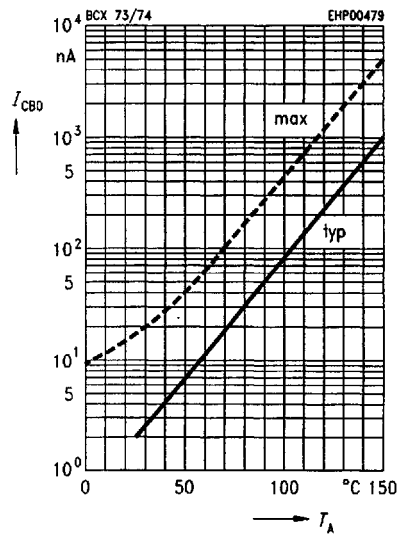
Collector current $I_C = f(V_{BE})$
 $V_{CE} = 1 \text{ V}$



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



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

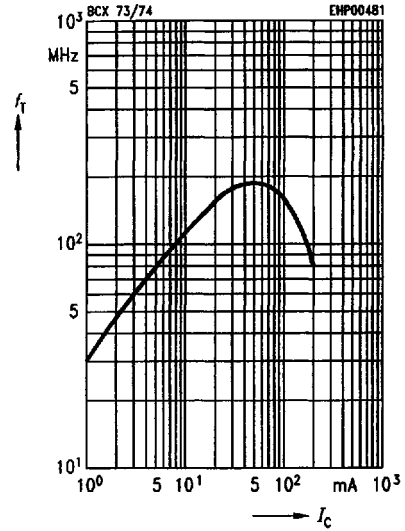
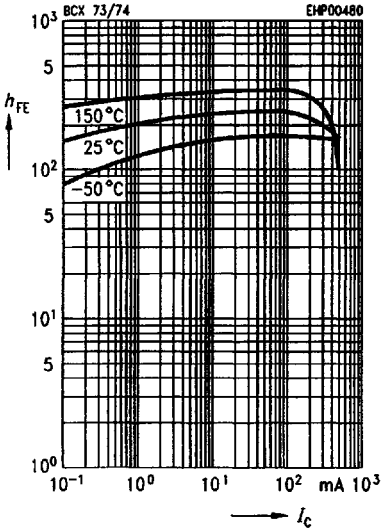


DC current gain $h_{FE} = f(I_C)$

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

Transition frequency $f_T = f(I_C)$

$V_{CE} = 5\text{ V}, f = 200\text{ MHz}$



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)

