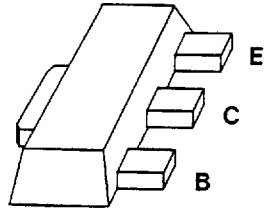
NPN Silicon AF Transistors

BCX 54
... BCX 56

SIEMENS AKTIENGESELLSCHAF

- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BCX 51... BCX 53 (PNP)



Type	Marking	Type	Marking	Ordering code	Package
BCX 54–6	BB	BCX 55–16	BM	Refer to index	SOT 89
BCX 54–10	BC	BCX 56–6	BJ		
BCX 54–16	BD	BCX 56–10	BK		
BCX 55–6	BF	BCX 56–16	BL		
BCX 55–10	BG				

Maximum ratings

Parameter	Symbol	BCX 54	BCX 55	BCX 56	Unit
Collector-emitter voltage	V_{CE0}	45	60	80	V
Collector-base voltage	V_{CB0}	45	60	100	V
Emitter-base voltage	V_{EB0}	5	5	5	V
Collector current	I_C		1		A
Peak collector current	I_{CM}		1,5		A
Base current	I_B		100		mA
Peak base current	I_{BM}		200		mA
Total power dissipation $T_A = 25\,°C$	P_{tot}		1		W
Junction temperature	T_j		150		°C
Storage temperature range	T_{stg}		$-65 \cdots +150$		°C
Thermal resistance junction-ambient package mounted on alumina 15 mm x 16.7 mm x 0.7 mm	R_{thJA}		≤ 125		K/W

T-33-05

Electrical characteristics

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

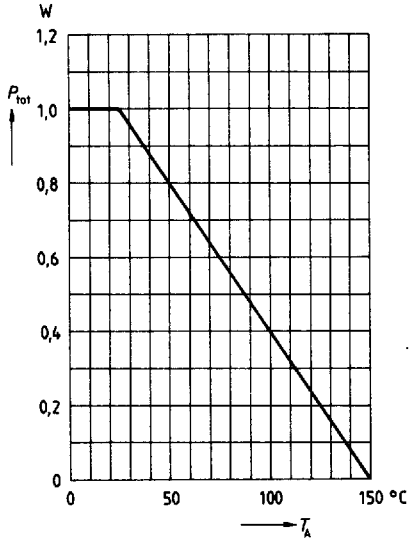
DC characteristics	Symbol	min	typ	max	Unit
Collector-emitter breakdown voltage $I_C = 10$ mA	$V_{(BR)\,CEO}$				
BCX 54		45	–	–	V
BCX 55		60	–	–	V
BCX 56		80	–	–	V
Collector-base breakdown voltage $I_C = 100\ \mu A$	$V_{(BR)\,CBO}$				
BCX 54		45	–	–	V
BCX 55		60	–	–	V
BCX 56		100	–	–	V
Emitter-base breakdown voltage $I_E = 10\ \mu A$	$V_{(BR)\,EBO}$	5	–	–	V
Collector cutoff current	I_{CBO}				
$V_{CB} = 30$ V		–	–	100	nA
$V_{CB} = 30$ V, $T_A = 150\,°C$		–	–	20	μA
Emitter cutoff current $V_{EB} = 4$ V	I_{EBO}	–	–	20	nA
DC current gain[1]) $I_C = 5$ mA, $V_{CE} = 2$ V	h_{FE}	25	–	–	–
$I_C = 150$ mA, $V_{CE} = 2$ V					
BCX 54, BCX 55, BCX 56-6		40	63	100	–
BCX 54, BCX 55, BCX 56-10		63	100	160	–
BCX 54-16, BCX 55-16, BCX 56-16		100	160	250	–
$I_C = 500$ mA, $V_{CE} = 2$ V		25	–	–	–
Collector-emitter saturation voltage[1]) $I_C = 500$ mA, $I_B = 50$ mA	V_{CEsat}	–	–	0,5	V
Base-emitter voltage[1]) $I_C = 500$ mA, $V_{CE} = 2$ V	V_{BE}	–	–	1	V

AC characteristics	Symbol	min	typ	max	Unit
Transition frequency $I_C = 50$ mA, $V_{CE} = 10$ V, $f = 20$ MHz	f_T	–	100	–	MHz

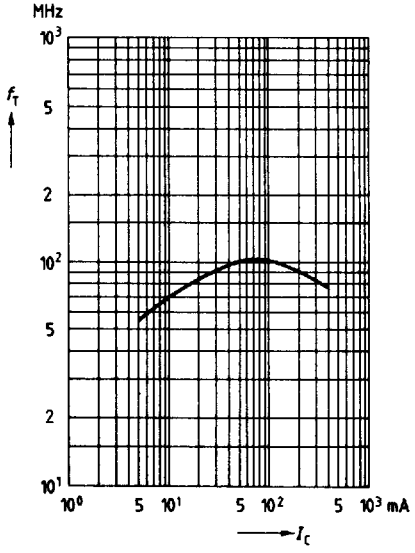
[1]) Pulse test: $t \leq 300\ \mu s$, D = 2%.

T-33-05

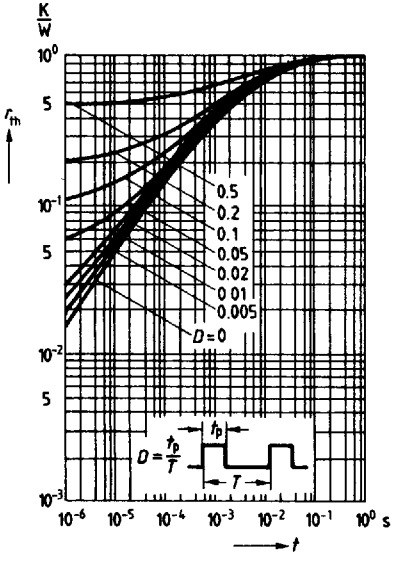
Total power dissipation $P_{tot} = f(T_A)$



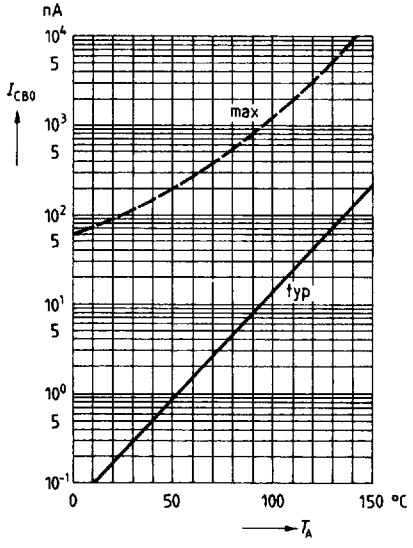
Transition frequency $f_T = f(I_C)$
$V_{CE} = 10$ V



Pulse handling capability $r_{th} = f(t)$
(standardized)

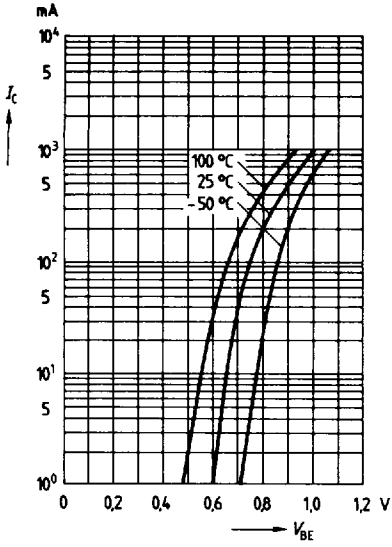


Collector cutoff current $I_{CBO} = f(T_A)$
$V_{CB} = 30$ V

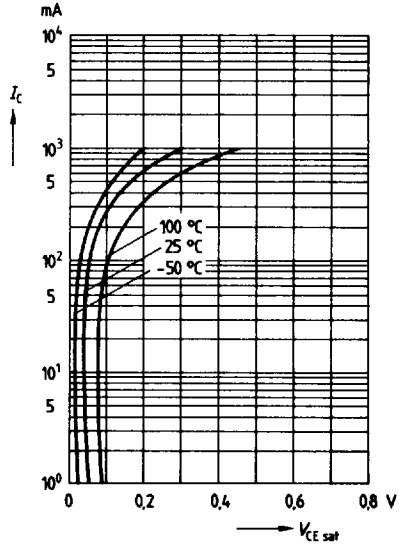


T-33-05

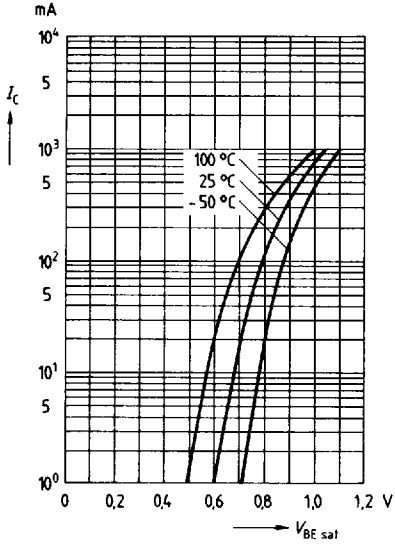
Collector current $I_C = f(V_{BE})$
$V_{CE} = 2\,V$



Collector-emitter saturation voltage
$I_C = f(V_{CE\,sat})$
$h_{FE} = 10$



Base-emitter saturation voltage $I_C = f(V_{BE\,sat})$
$h_{FE} = 10$



DC current gain $h_{FE} = f(I_C)$
$V_{CE} = 2\,V$