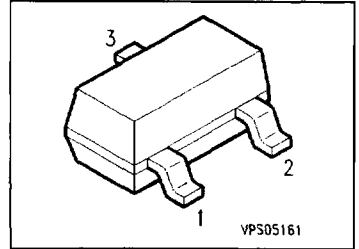# SIEMENS

NPN Silicon AF and Switching Transistor

BCX 41
BSS 64

- High breakdown voltage
- Low collector-emitter saturation voltage
- Complementary types: BCX 42, BSS 63 (PNP)

Type	Marking	Ordering Code (tape and reel)	Pin Configuration			Package[1]
			1	2	3	
BCX 41	EKs	Q62702-C1659	B	E	C	SOT-23
BSS 64	AMs	Q62702-S535				

Maximum Ratings

Parameter	Symbol	Values		Unit
		BSS 64	**BCX 41**	
Collector-emitter voltage	V_{CEO}	80	125	V
Collector-base voltage	V_{CBO}	120	125	
Emitter-base voltage	V_{EBO}	5	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, $T_S = 79\ °C$	P_{tot}	330		mW
Junction temperature	T_j	150		°C
Storage temperature range	T_{stg}	$-65 \ldots + 150$		

Thermal Resistance

Junction - ambient [2]	$R_{th\ JA}$	≤ 285	K/W
Junction - soldering point	$R_{th\ JS}$	≤ 215	

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[1] For detailed information see chapter Package Outlines.

[2] Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm² Cu.

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

Parameter		Symbol	Values			Unit
			min.	typ.	max.	
DC characteristics						
Collector-emitter breakdown voltage		$V_{(BR)CEO}$				V
$I_C = 10$ mA	BSS 64		80	–	–	
	BCX 41		125	–	–	
Collector-base breakdown voltage[1]		$V_{(BR)CBO}$				
$I_C = 100\ \mu A$	BSS 64		120	–	–	
	BCX 41		125	–	–	
Emitter-base breakdown voltage		$V_{(BR)EBO}$	5	–	–	
$I_E = 10\ \mu A$						
Collector cutoff current		I_{CBO}				
$V_{CB} = 80$ V	BSS 64		–	–	100	nA
$V_{CB} = 100$ V	BCX 41		–	–	100	nA
$V_{CB} = 80$ V, $T_A = 150\ ^\circ C$	BSS 64		–	–	20	μA
$V_{CB} = 100$ V, $T_A = 150\ ^\circ C$	BCX 41		–	–	20	μA
Collector cutoff current		I_{CEO}				μA
$V_{CE} = 100$ V						
$T_A = 85\ ^\circ C$	BCX 41		–	–	10	
$T_A = 125\ ^\circ C$	BCX 41		–	–	75	
Emitter cutoff current		I_{EBO}	–	–	100	nA
$V_{EB} = 4$ V						
DC current gain[1]		h_{FE}				–
$I_C = 100\ \mu A$, $V_{CE} = 1$ V	BCX 41		25	–	–	
$I_C = 1$ mA, $V_{CE} = 1$ V	BSS 64		–	60	–	
$I_C = 4$ mA, $V_{CE} = 1$ V	BSS 64		20	80	–	
$I_C = 10$ mA, $V_{CE} = 1$ V	BSS 64		–	80	–	
$I_C = 20$ mA, $V_{CE} = 1$ V	BSS 64		–	55	–	
$I_C = 100$ mA, $V_{CE} = 1$ V	BCX 41		63	–	–	
$I_C = 200$ mA, $V_{CE} = 1$ V	BCX 41		40	–	–	
Collector-emitter saturation voltage[1]		V_{CEsat}				V
$I_C = 300$ mA, $I_B = 30$ mA	BCX 41		–	–	0.9	
$I_C = 4$ mA, $I_B = 0.4$ mA	BSS 64		–	–	0.7	
$I_C = 50$ mA, $I_B = 15$ mA	BSS 64		–	–	3.0	
Base-emitter saturation voltage[1]		V_{BEsat}	–	–	1.4	
$I_C = 300$ mA, $I_B = 30$ mA	BCX 41					
AC characteristics						
Transition frequency		f	–	100	–	MHz
$I_C = 20$ mA, $V_{CE} = 5$ V, $f = 20$ MHz						
Output capacitance		C_{obo}	–	12	–	pF
$V_{CB} = 10$ V, $f = 1$ MHz						

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

SIEMENS

BCX 41
BSS 64

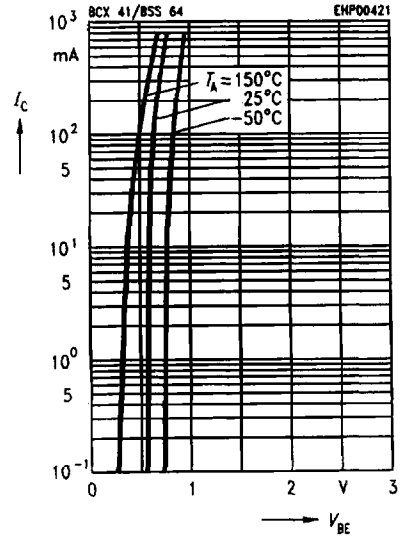## Total power dissipation $P_{tot} = f(T_A^*; T_S)$
*Package mounted on epoxy
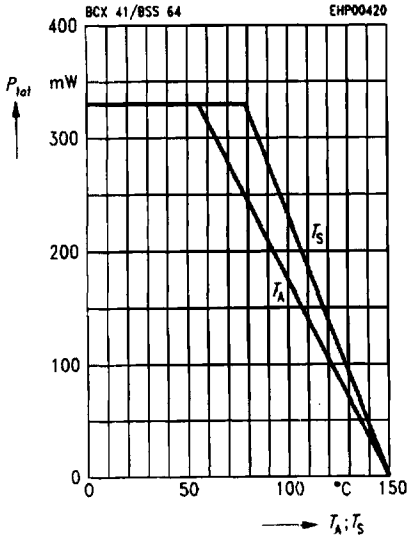
Collector current $I_C = f(V_{BE})$
$V_{CE} = 1$ V

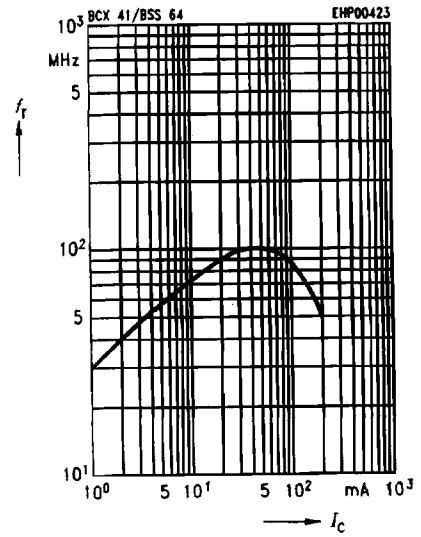## Permissible pulse load $P_{tot\,max}/P_{tot\,DC} = f(t_p)$
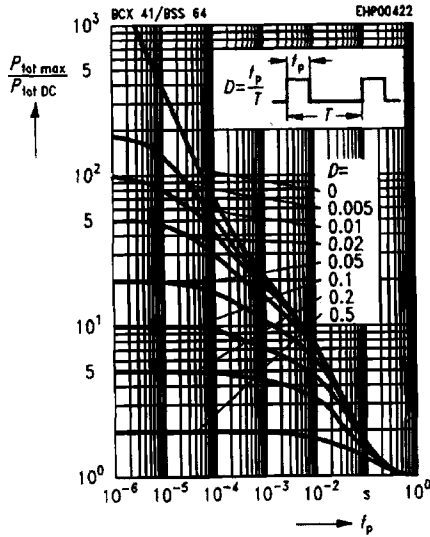
Transition frequency $f_T = f(I_C)$
$V_{CE} = 5$ V

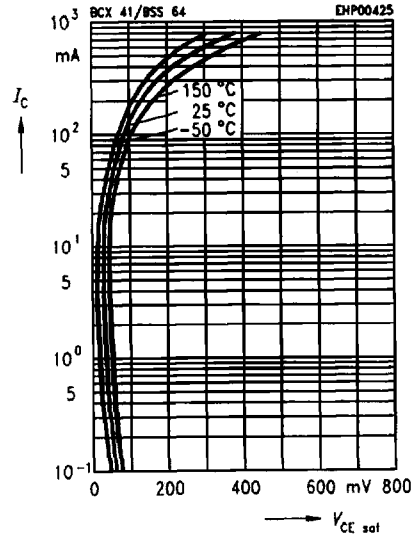## Base-emitter saturation voltage

$I_C = f(V_{BEsat})$

$h_{FE} = 10$

BCX 41/BSS 64   EHP00424

I_C (mA)

150°C
25°C
−50°C

$V_{BE\ sat}$
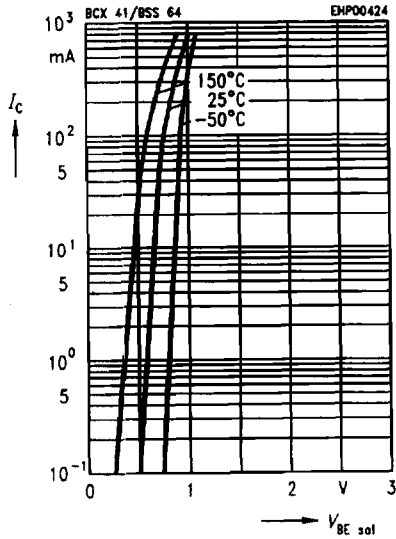
Collector-emitter saturation voltage

$I_C = f(V_{CEsat})$

$h_{FE} = 10$

BCX 41/BSS 64   EHP00425

I_C (mA)

150 °C
25 °C
−50 °C

$V_{CE\ sat}$

Collector cutoff current $I_{CBO} = f(T_A)$

$V_{CB} = V_{CE\ max}$

BCX 41/BSS 64   EHP00426

I_{CBO} (nA)

max

typ

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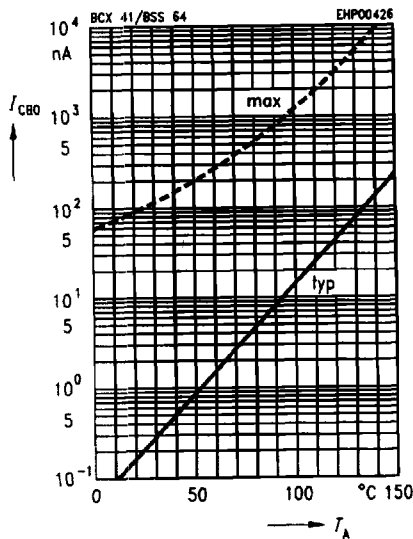
DC current gain $h_{FE} = f(I_C)$

$V_{CE} = 1$ V

BCX 41/BSS 64   EHP00427

h_{FE}

150°C
25°C
−50°C

I_C