SIEMENS
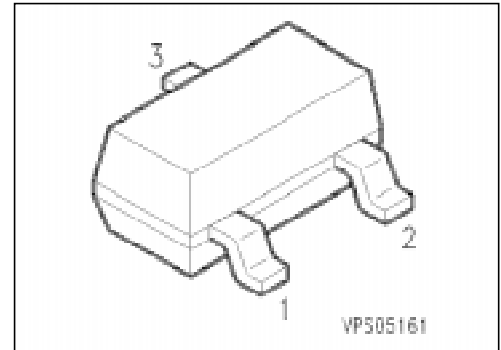
NPN Silicon AF and Switching Transistor

**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 1	2	3	Package[1]
BCX 41	EKs	Q62702-C1659	B	E	C	SOT-23
BSS 64	AMs	Q62702-S535				

Maximum Ratings

Parameter	Symbol	Values BSS 64	BCX 41	Unit
Collector-emitter voltage	V_{CE0}	80	125	V
Collector-base voltage	V_{CB0}	120	125	
Emitter-base voltage	V_{EB0}	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 $\times$ 40 mm $\times$ 1.5 mm/6 cm^2 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	$V_{(BR)CE0}$				V
$I_C = 10$ mA BSS 64		80	–	–	
BCX 41		125	–	–	
Collector-base breakdown voltage[1]	$V_{(BR)CB0}$				
$I_C = 100\ \mu A$ BSS 64		120	–	–	
BCX 41		125	–	–	
Emitter-base breakdown voltage	$V_{(BR)EB0}$	5	–	–	
$I_E = 10\ \mu A$					
Collector cutoff current	I_{CB0}				
$V_{CB} = 80$ 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_{CE0}				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_{EB0}	–	–	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_t	–	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					

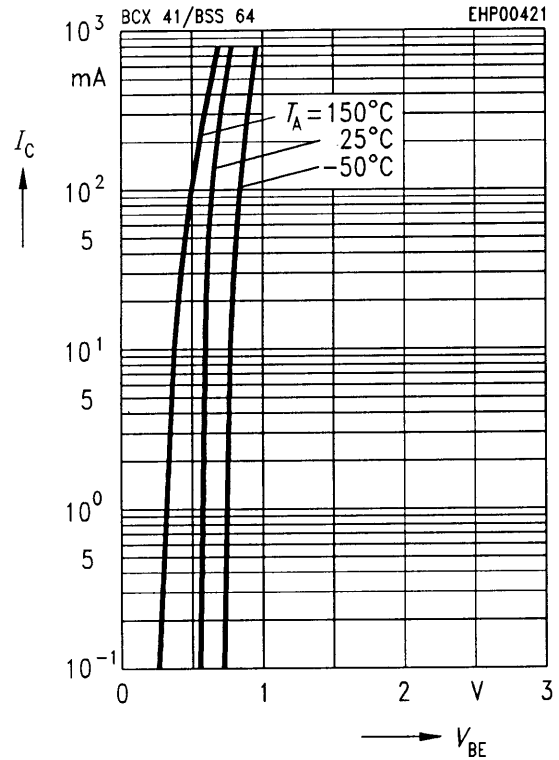[1] Pulse test: $t \leq 300\ \mu s$, $D = 2\ \%$

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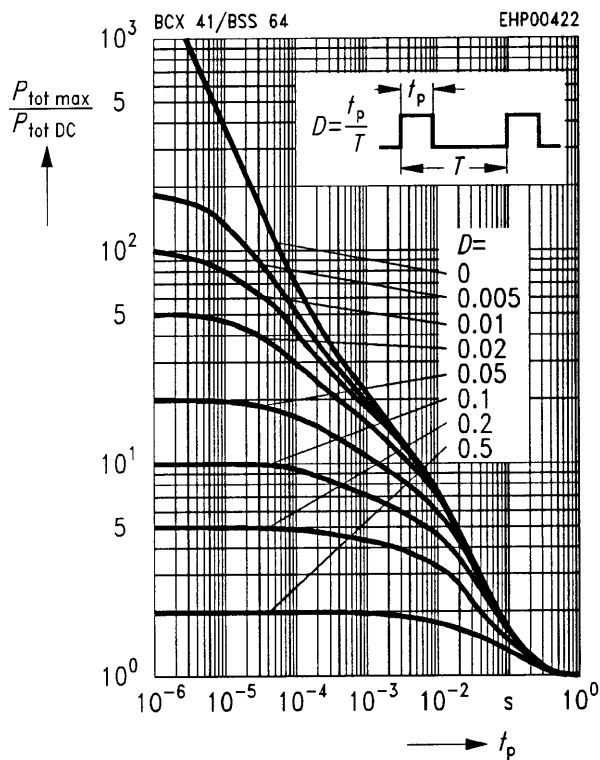* Package mounted on epoxy
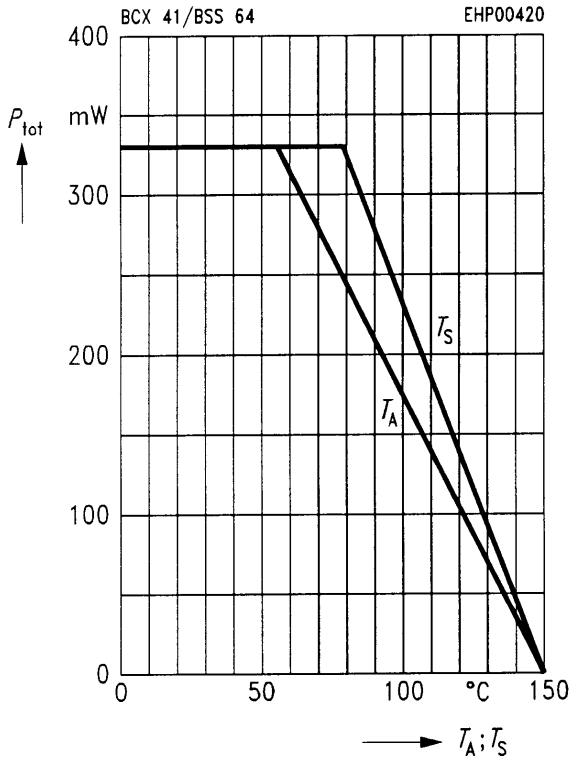
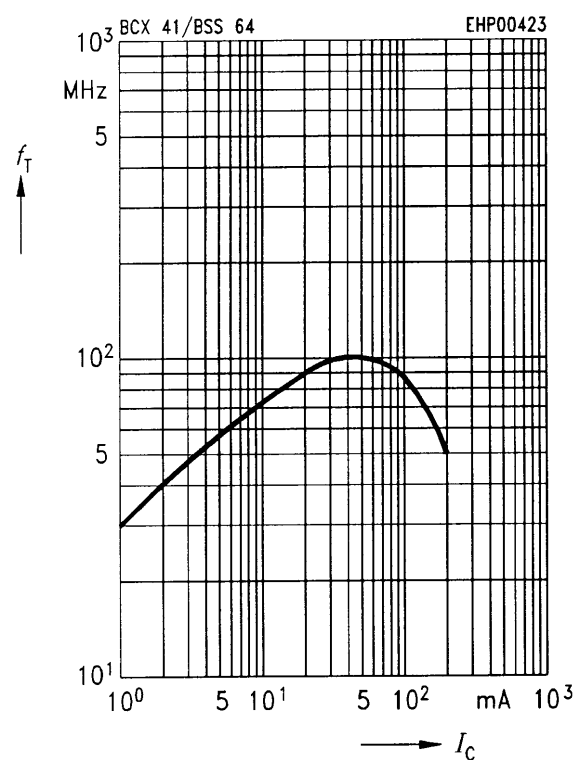**Collector current** $I_C = f\,(V_{BE})$
$V_{CE} = 1$ V

Permissible pulse load $P_{tot\,max}/P_{tot\,DC} = f\,(t_p)$
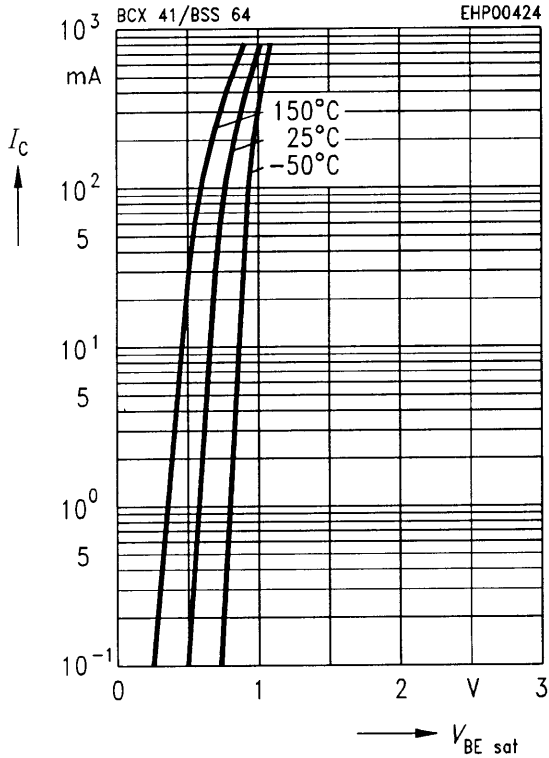

Transition frequency $f_T = f\,(I_C)$
$V_{CE} = 5$ V

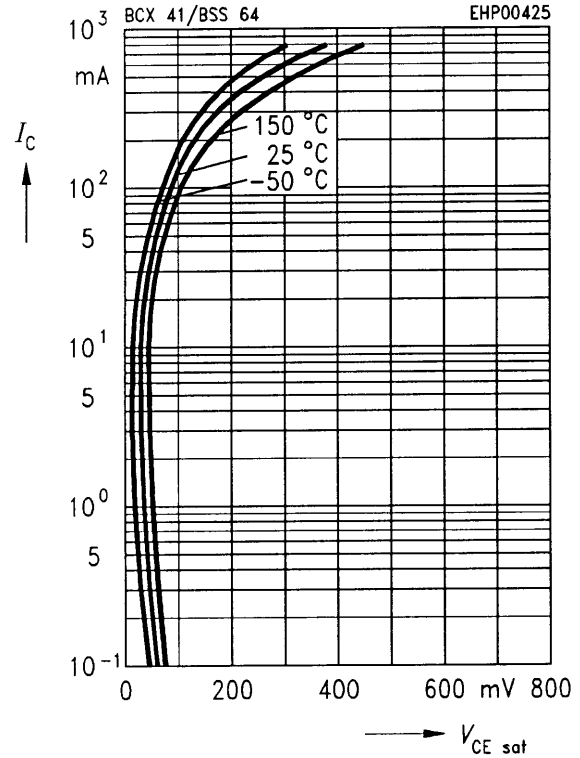## Base-emitter saturation voltage

$I_C = f(V_{BEsat})$

$h_{FE} = 10$
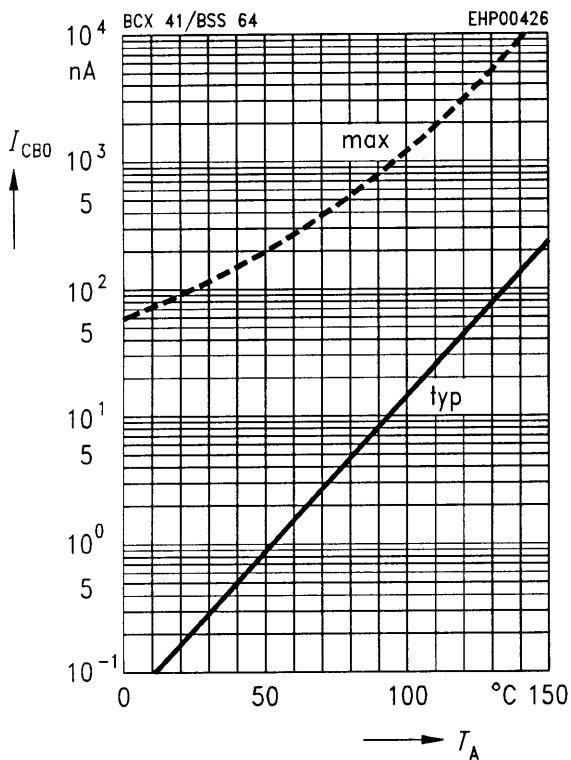

Collector-emitter saturation voltage

$I_C = f(V_{CEsat})$

$h_{FE} = 10$

Collector cutoff current $I_{CB0} = f(T_A)$

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

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

$V_{CE} = 1\ V$