

PNP Silicon AF and Switching Transistors

BCX 42
BSS 63

- For general AF applications
- High breakdown voltage
- Low collector-emitter saturation voltage
- Complementary types: BCX 41, BSS 64 (NPN)



Type	Marking	Ordering Code (tape and reel)	Pin Configuration			Package ¹⁾
			1	2	3	
BCX 42 BSS 63	DKs BMs	Q62702-C1485 Q62702-S534	B	E	C	SOT-23

Maximum Ratings

Parameter	Symbol	Values		Unit
		BSS 63	BCX 42	
Collector-emitter voltage	V_{CE0}	100	125	V
Collector-base voltage	V_{CB0}	110	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, $T_s = 79\text{ °C}$	P_{tot}	330		mW
Junction temperature	T_j	150		°C
Storage temperature range	T_{stg}	- 65 ... + 150		

Thermal Resistance

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

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 $T_A = 25\text{ °C}$, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC characteristics

Collector-emitter breakdown voltage $I_C = 10\text{ mA}$	BCX 42 BSS 63	$V_{(BR)CE0}$	125 100	– –	– –	V
Collector-base breakdown voltage ¹⁾ $I_C = 100\text{ }\mu\text{A}$	BCX 42 BSS 63	$V_{(BR)CB0}$	125 110	– –	– –	
Emitter-base breakdown voltage, $I_E = 10\text{ }\mu\text{A}$		$V_{(BR)EB0}$	5	–	–	
Collector cutoff current $V_{CB} = 80\text{ V}$	BSS 63	I_{CB0}	–	–	100	nA
$V_{CB} = 100\text{ V}$	BCX 42		–	–	100	nA
$V_{CB} = 80\text{ V}, T_A = 150\text{ °C}$	BSS 63		–	–	20	μA
$V_{CB} = 100\text{ V}, T_A = 150\text{ °C}$	BCX 42		–	–	20	μA
Collector cutoff current $V_{CE} = 100\text{ V}$		I_{CE0}				μA
$T_A = 85\text{ °C}$	BCX 42		–	–	10	
$T_A = 125\text{ °C}$	BCX 42		–	–	75	
Emitter cutoff current, $V_{EB} = 4\text{ V}$		I_{EB0}	–	–	100	nA
DC current gain ¹⁾ $I_C = 100\text{ }\mu\text{A}, V_{CE} = 1\text{ V}$	BCX 42	h_{FE}	25	–	–	–
$I_C = 10\text{ mA}, V_{CE} = 5\text{ V}$	BSS 63		30	–	–	
$I_C = 20\text{ mA}, V_{CE} = 5\text{ V}$	BSS 63		30	–	–	
$I_C = 100\text{ mA}, V_{CE} = 1\text{ V}$	BCX 42		63	–	–	
$I_C = 200\text{ mA}, V_{CE} = 1\text{ V}$	BCX 42		40	–	–	
Collector-emitter saturation voltage ¹⁾ $I_C = 300\text{ mA}, I_B = 30\text{ mA}$	BCX 42	V_{CEsat}	–	–	0.9	V
$I_C = 25\text{ mA}, I_B = 2.5\text{ mA}$	BSS 63		–	–	0.25	
$I_C = 75\text{ mA}, I_B = 7.5\text{ mA}$	BSS 63		–	–	0.9	
Base-emitter saturation voltage ¹⁾ $I_C = 300\text{ mA}, I_B = 30\text{ mA}$	BCX 42	V_{BEsat}	–	–	1.4	

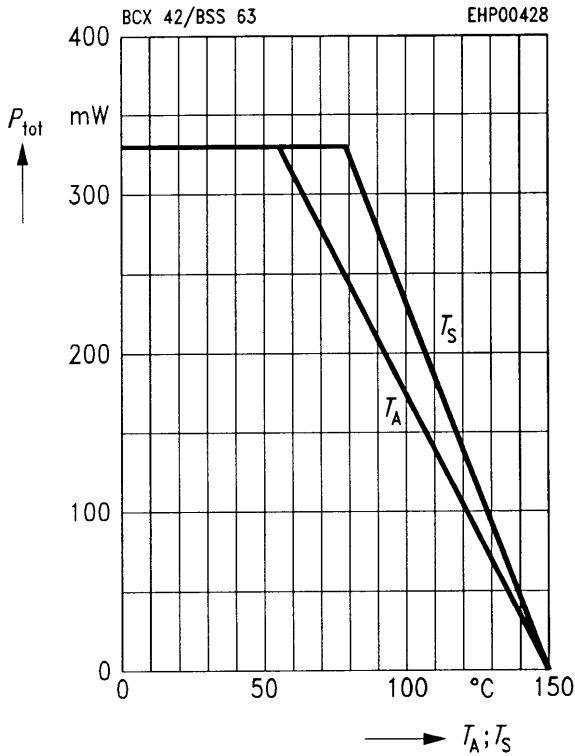
AC characteristics

Transition frequency $I_C = 20\text{ mA}, V_{CE} = 5\text{ V}, f = 20\text{ MHz}$		f_t	–	150	–	MHz
Output capacitance $V_{CB} = 10\text{ V}, f = 1\text{ MHz}$		C_{obo}	–	12	–	pF

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

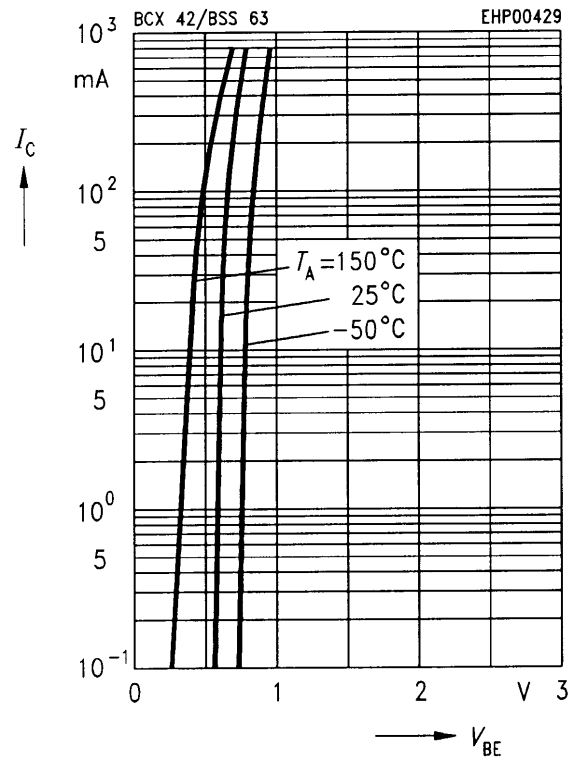
Total power dissipation $P_{tot} = f(T_A^*; T_S)$

* Package mounted on epoxy

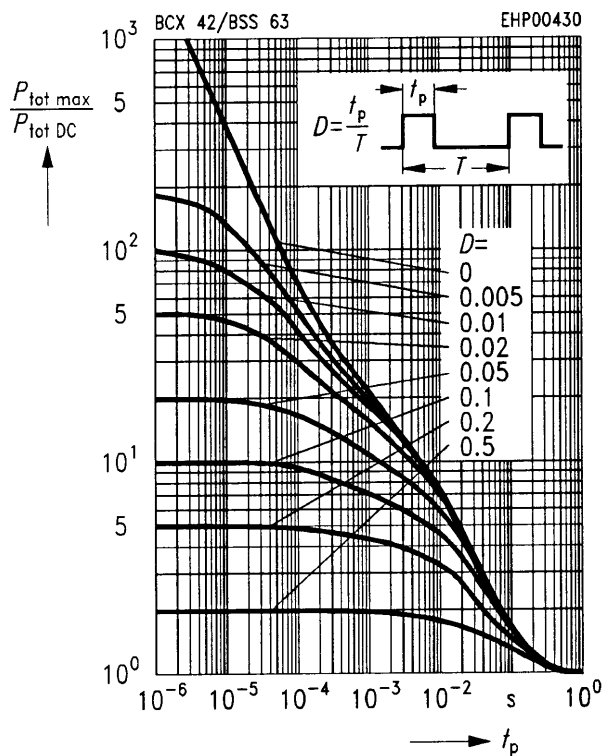


Collector current $I_C = f(V_{BE})$

$V_{CE} = 1 V$

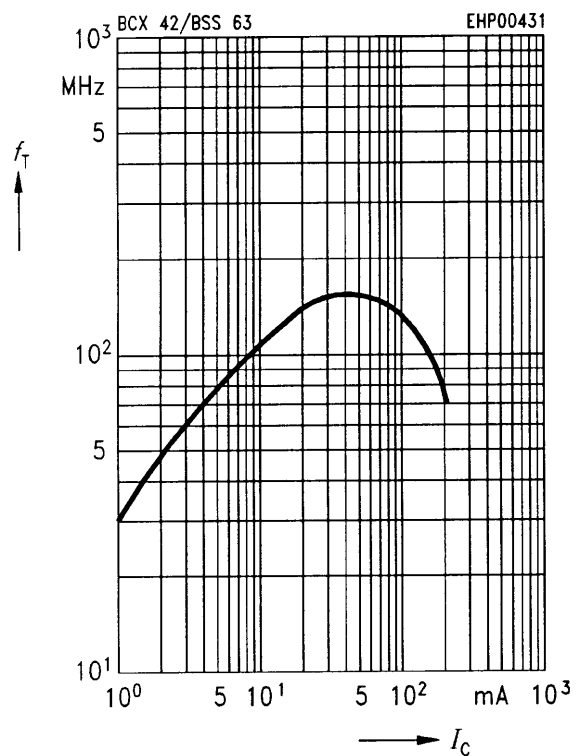


Permissible pulse load $P_{tot max}/P_{tot DC} = f(t_p)$



Transition frequency $f_T = f(I_C)$

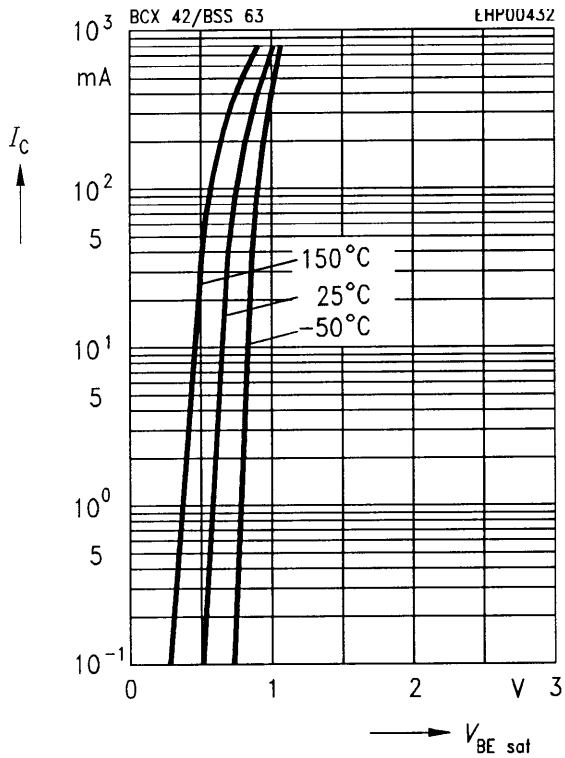
$V_{CE} = 5 V$



Base-emitter saturation voltage

$I_C = f(V_{BEsat})$

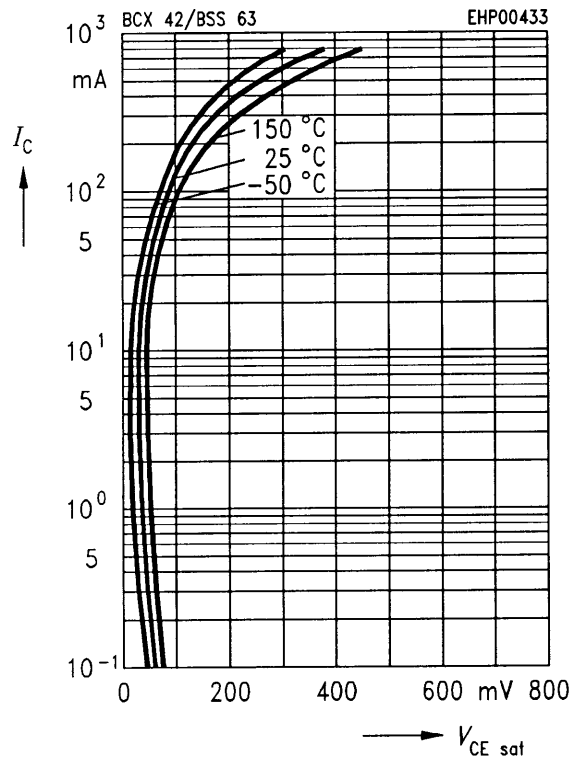
$h_{FE} = 10$



Collector-emitter saturation voltage

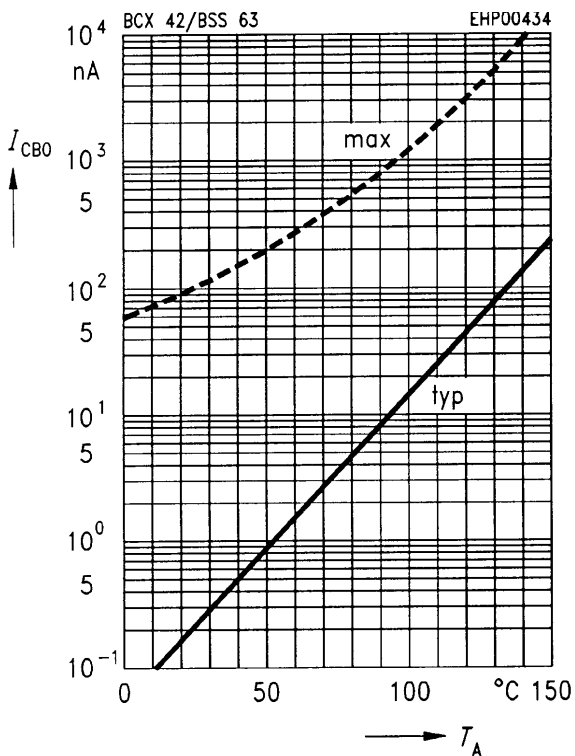
$I_C = f(V_{CEsat})$

$h_{FE} = 10$



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

$V_{CB} = V_{CEmax}$



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

$V_{CE} = 1 V$

