

NPN Silicon Planar Transistors

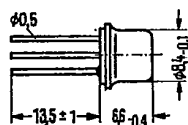
BSX 62

BSX 63

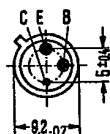
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BSX 62 and BSX 63 are epitaxial NPN silicon planar transistors in TO 39 case (5 C 3 DIN 41873). The collector is electrically connected to the case. The transistors are particularly suitable for AF output stages and as a medium-power switch.

Type	Ordering code
BSX 62	Q60218-X62
BSX 62-6	Q60218-X62-B
BSX 62-10	Q60218-X62-C
BSX 62-16	Q60218-X62-D
BSX 63	Q60218-X63
BSX 63-6	Q60218-X63-B
BSX 63-10	Q60218-X63-C



Approx. weight 1.5 g



Dimensions in mm

Maximum ratings

		BSX 62	BSX 63	
Collector-emitter voltage	V_{CE0}	40	60	V
Collector-emitter voltage	V_{CES}	60	80	V
Emitter-base voltage	V_{EBO}	5	5	V
Collector current	I_C	3	3	A
Base current	I_B	500	500	mA
Junction temperature	T_j	200	200	°C
Storage temperature range	T_{stg}	-65 to +200	-65 to +200	°C
Total power dissipation ($T_{case} \leq 25^\circ\text{C}$)	P_{tot}	5	5	W

Thermal resistance

Junction to case	R_{thJC}	≤ 35	≤ 35	K/W
Junction to ambient air	R_{thJA}	≤ 200	≤ 200	K/W

Static characteristics ($T_{case} = 25^\circ\text{C}$)

Transistors BSX 62 and BSX 63 are grouped according to their DC current gain h_{FE} at $I_C = 1\text{ A}$ and $V_{CE} = 1\text{ V}$. The different groups are marked by figures of the DIN-R 5 series. Valid for the following operating points are:

Type	BSX 62	BSX 62	BSX 62	BSX 62, BSX 63			
	BSX 63	BSX 63	-				
h_{FE} group	6	10	16				
V_{CE} V	I_C A	h_{FE} I_C/I_B	h_{FE} I_C/I_B	h_{FE} I_C/I_B	V_{BE} V	$V_{CEsat}^{1)}$ V	$V_{BEsat}^{1)}$ V
1	0.1	70 (>30)	110	180	0.72 (<1)	-	-
1	1	63 (40 to 100)*	100 (63 to 160)*	160 (100 to 250)*	0.9 (<1.2)	-	-
5	2	40 (>25)	70	120	1.0 (<1.3)	-	-
	2	-	-	-	-	0.4 (<0.8)	1.0 (<1.3)
	2	-	-	-	-	0.2 (<0.7)	0.9 (<1.2)

1) The transistor is saturated to such an extent that the DC current gain decreases to $h_{FE} = 10$.

* AQL = 0.65%

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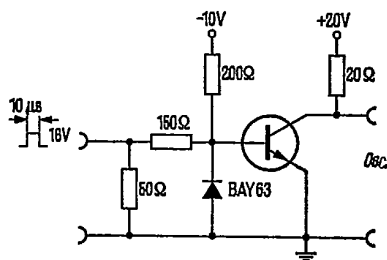
Static characteristics ($T_{amb} = 25^{\circ}\text{C}$)

		BSX 62	BSX 63	
Collector cutoff current ($V_{CES} = 40\text{ V}$)	I_{CES}	10 (<100)*	—	nA
Collector cutoff current ($V_{CES} = 60\text{ V}$)	I_{CES}	—	10 (<100)*	nA
Collector cutoff current ($V_{CES} = 40\text{ V}$; $T_{case} = 150^{\circ}\text{C}$)	I_{CES}	10 (<100)	—	μA
Collector cutoff current ($V_{CES} = 60\text{ V}$; $T_{case} = 150^{\circ}\text{C}$)	I_{CES}	—	10 (<100)	μA
Collector-emitter breakdown voltage ($I_{CE} = 100\text{ mA}$; pulse length 200 μs ; duty cycle 1%)	$V_{(BR)CEO}$	>40	>60	V
Emitter-base breakdown voltage ($I_{EB} = 10\text{ }\mu\text{A}$)	$V_{(BR)EBO}$	>5	>5	V
Collector-base breakdown voltage ($I_{CB} = 100\text{ }\mu\text{A}$)	$V_{(BR)CBO}$	>60	>60	V

Dynamic characteristics ($T_{case} = 25^{\circ}\text{C}$)

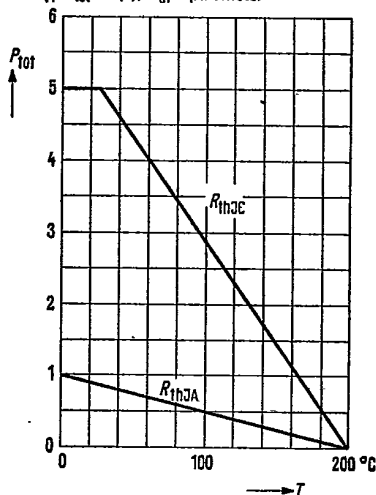
Transition frequency ($I_C = 200\text{ mA}$; $V_{CE} = 10\text{ V}$)	f_T	70 (>30)	70 (>30)	MHz
Collector-base capacitance ($V_{CB} = 10\text{ V}$)	C_{CBO}	35 (<70)	35 (<70)	pF
Switching times: (I_C approx. 1A; I_{B1} approx. $-I_{B2}$ approx. 50 mA)	t_{on}	<0.3	<0.3	μs
	t_{off}	<1.5	<1.5	μs

Test circuit for switching times

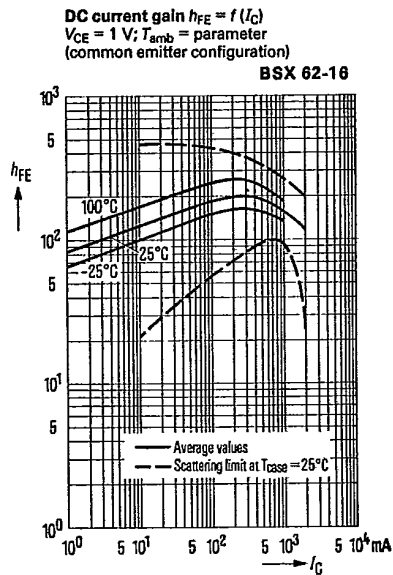
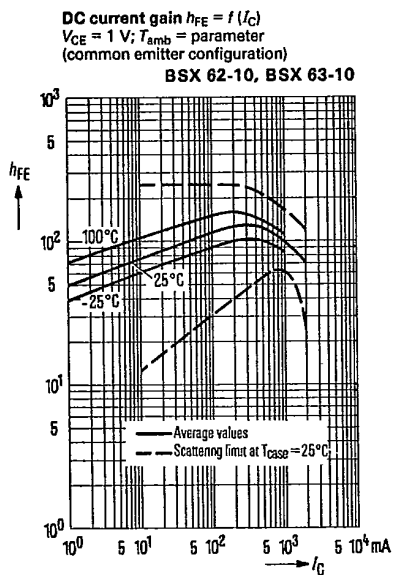
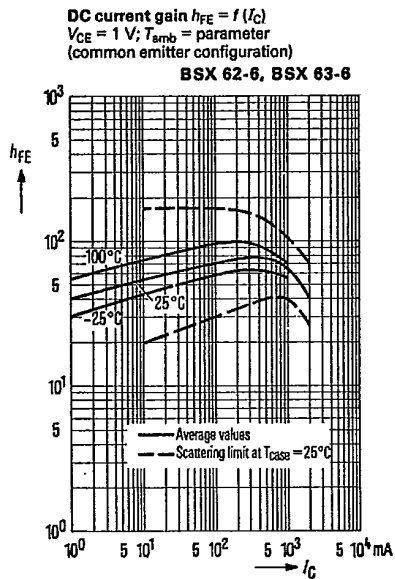
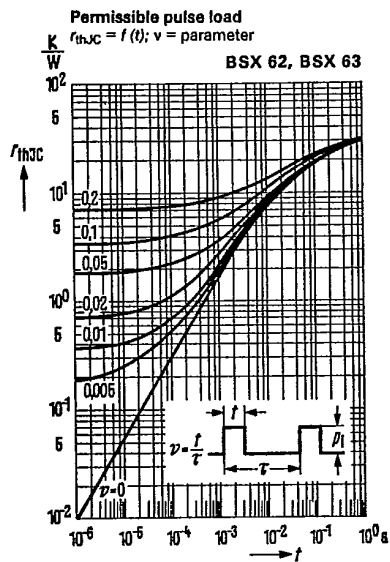


* AQL = 0.65%

Total perm. power dissipation
versus temperature
 $P_{tot} = f(T)$; R_{th} = parameter



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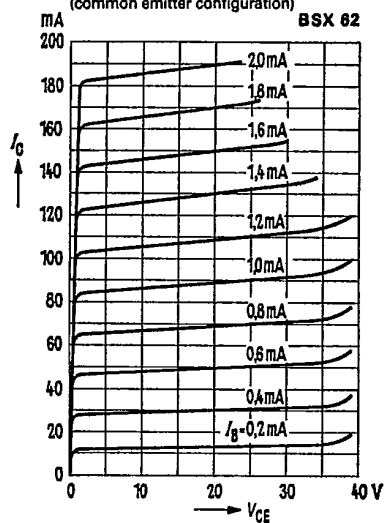


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Output characteristics $I_C = f(V_{CE})$ I_B = parameter

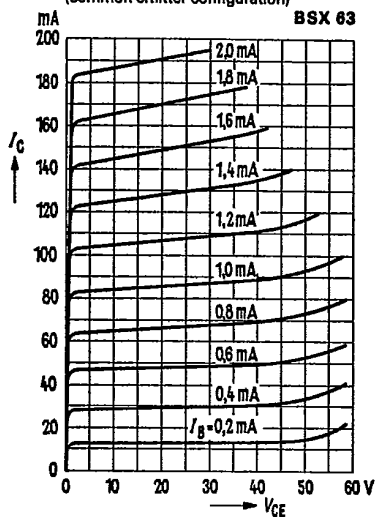
(common emitter configuration)

BSX 62

Output characteristics $I_C = f(V_{CE})$ I_B = parameter

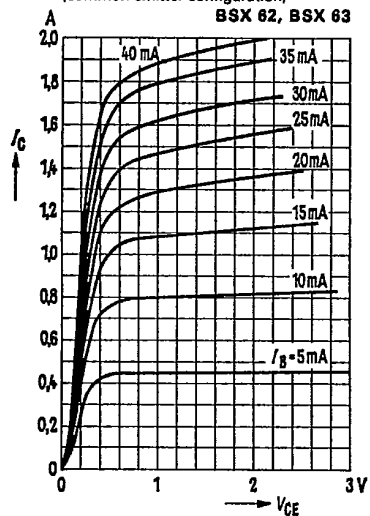
(common emitter configuration)

BSX 63

Output characteristics $I_C = f(V_{CE})$ I_B = parameter

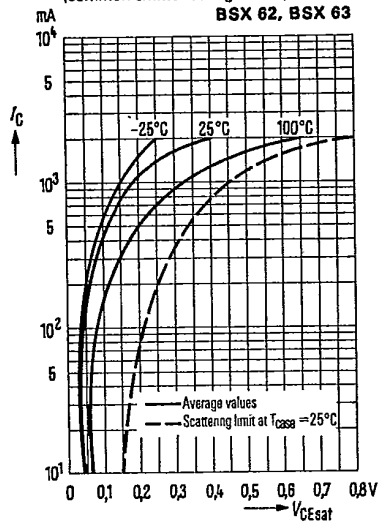
(common emitter configuration)

BSX 62, BSX 63

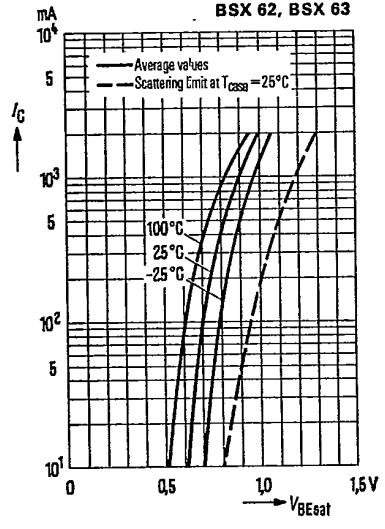


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Collector-emitter saturation
 voltage $V_{CEsat} = f(I_C)$
 $h_{FE} = 10$; $T_{amb} = \text{parameter}$
 (common emitter configuration)



Collector-base saturation
 voltage $V_{BEsat} = f(I_C)$
 $h_{FE} = 10$; $T_{amb} = \text{parameter}$
 (common emitter configuration)



Collector cutoff current versus
 temperature $I_{CBO} = f(T_{amb})$

