NPN Silicon AF Transistors

BCX 22
BCX 24
BCX 94

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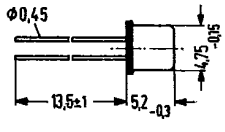
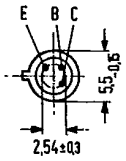
BCX 22, BCX 24, and BCX 94 are epitaxial NPN silicon planar transistors in TO 18 metal case (18 A 3 DIN 41 876). The collector is electrically connected to the case. These transistors are particularly suitable for use in AF input and driver stages as well as for universal applications at higher reverse voltages.

Type	Ordering code
BCX 22	Q62702-C732
BCX 24	Q62702-C750
BCX 94	Q62702-C856





Approx. weight 0.33 g

Dimensions in mm

Maximum ratings (T_{amb} = 25 °C)		BCX 22	BCX 24	BCX 94	
Collector-emitter voltage	V_{CES}	125	100	100	V
Collector-emitter voltage	V_{CEO}	125	100	100	V
Emitter-base voltage	V_{EBO}	5	5	5	V
Collector current	I_C	800	800	800	mA
Collector peak current	I_{CM}	1	1	1	A
Base current	I_B	100	100	100	mA
Junction temperature	T_j	200	200	200	°C
Storage temperature range	T_{stg}	−65 to +200	−65 to +200	−65 to +200	°C
Total power dissipation (T_{amb} = 25 °C)	P_{tot}	450	450	450	mW
Total power dissipation (T_{case} = 45 °C)	P_{tot}	1.55	1.55	1.55	W
Thermal resistance					
Junction to ambient air	R_{thJA}	<390	<390	<390	K/W
Junction to case	R_{thJC}	<100	<100	<100	K/W

Static characteristics (T_{amb} = 25°C)		BCX 22	BCX 24	BCX 94	
Collector-emitter breakdown voltage (I_C = 10 mA)	$V_{(BR)CEO}$	>125	>100	>100	V
Collector-emitter breakdown voltage (I_C = 100 µA)	$V_{(BR)CES}$	>125	>100	>100	V
Emitter-base breakdown voltage (I_E = 100 µA)	$V_{(BR)EBO}$	>5	>5	>5	V
Collector-emitter saturation voltage (I_C = 300 mA; I_B = 30 mA)	V_{CEsat}	≤0.9	≤0.9	<0.9	V
Base-emitter saturation voltage (I_C = 300 mA; I_B = 30 mA)	V_{BEsat}	≤1.4	–	≤1.4	V
Base-emitter saturation voltage (I_C = 100 µA; I_B = 2.5 µA)	V_{BEsat}	–	≤1.5	–	V
Collector cutoff current (V_{CES} = 100 V)	I_{CES}	≤100	≤30	≤100	nA
(V_{CES} = 100 V; T_{amb} = 150°C)	I_{CES}	≤10	≤10	≤10	µA
Emitter cutoff current (V_{EB} = 4 V)	I_{EBO}	≤100	≤100	≤100	nA
DC current gain					
(I_C = 100 mA; V_{CE} = 1 V)	h_{FE}	>63	>40	>63	–
(I_C = 200 mA; V_{CE} = 1 V)	h_{FE}	>40	–	>40	–
(I_C = 10 µA; V_{CE} = 1 V)	h_{FE}	–	≥20	–	–
(I_C = 100 µA; V_{CE} = 1 V)	h_{FE}	–	≥20	–	–

Dynamic characteristics (T_{amb} = 25°C)					
Transition frequency (I_C = 10 mA; V_{CE} = 5 V; f = 20 MHz)	f_T	100	100	100	MH
Output capacitance (V_{CB} = 10 V; I_E = 0; f = 1 MHz)	C_{ob}	12	12	12	pF

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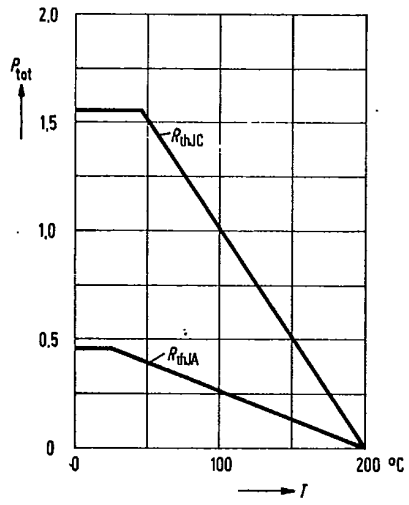
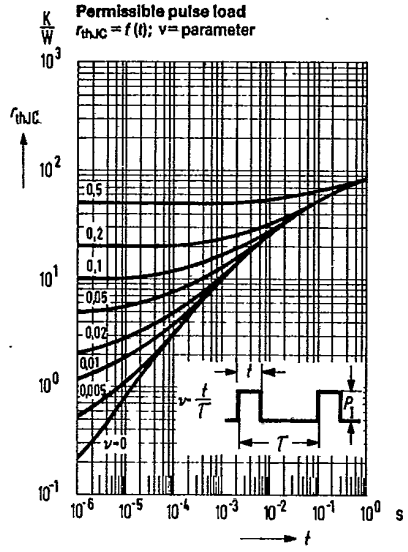
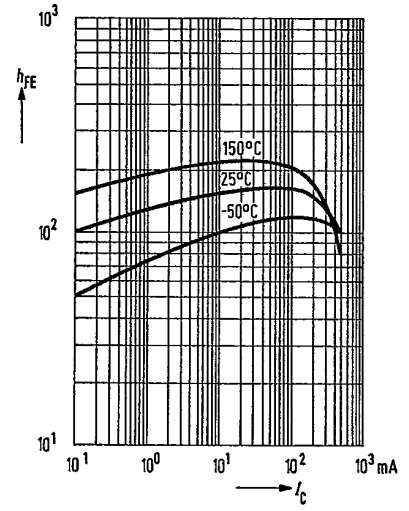
Total perm. power dissipation versus temperature
$P_{tot} = f(T)$; R_{th} = parameter



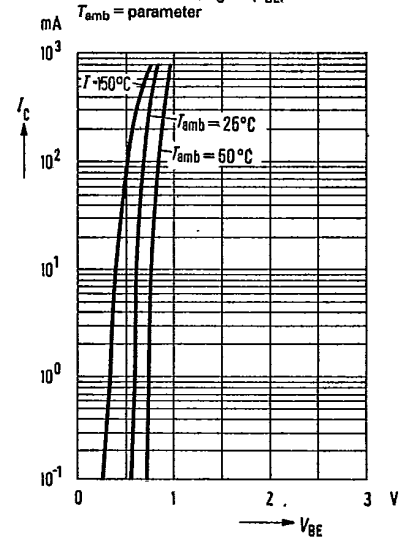
Permissible pulse load
$r_{thJC} = f(t)$; ν = parameter



DC current gain $h_{FE} = f(I_C)$
T_{amb} = parameter; $V_{CE} = 1$ V



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



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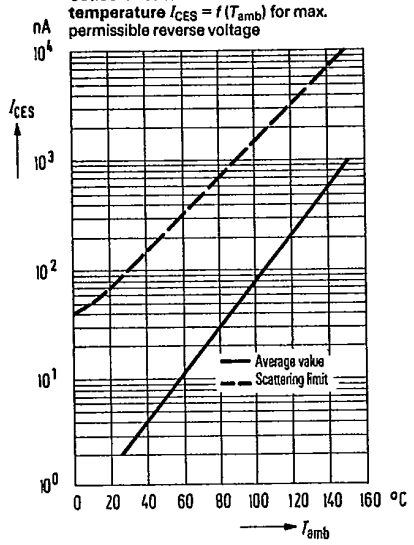
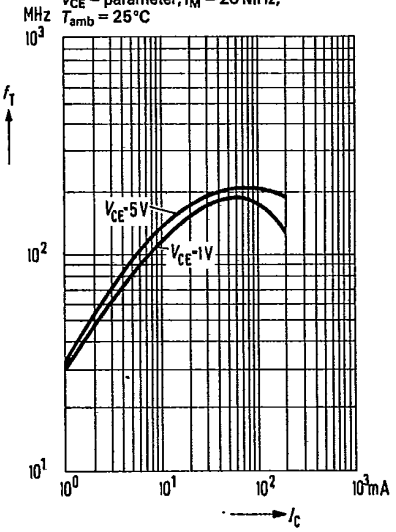
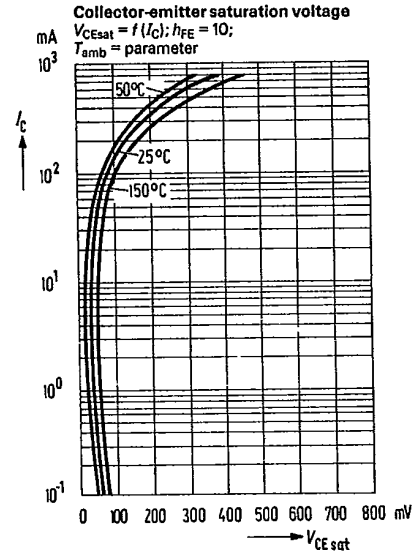
Collector cutoff current versus temperature $I_{CES} = f(T_{amb})$ for max. permissible reverse voltage



Transition frequency $f_T = f(I_C)$
V_{CE} = parameter; f_M = 20 MHz;
T_{amb} = 25°C



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



Base-emitter saturation voltage
$V_{BEsat} = f(I_C)$; $h_{FE} = 10$; T_{amb} = parameter