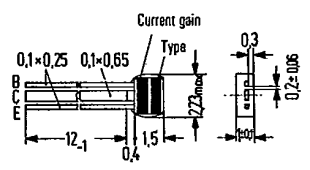


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BC 201, BC 202, and BC 203 are epitaxial PNP silicon planar transistors of miniature design in U 32 plastic package. The types are marked by a green (BC 201), blue (BC 202), and grey (BC 203) color line on the case. The transistors are particularly intended for use in low noise AF amplifiers and as complementary transistors to BC 121, BC 122, and BC 123.

Type	Ordering code
BC 201 <sup>1)</sup>	Q62702-C149
BC 201 white	Q62702-C167
BC 201 yellow	Q62702-C168
BC 201 green	Q62702-C310
BC 201 blue	Q62702-C170
BC 202 <sup>1)</sup>	Q62702-C150
BC 202 white	Q62702-C172
BC 202 yellow	Q62702-C173
BC 202 green	Q62702-C361-X1
BC 202 blue	Q62702-C175
BC 203 <sup>1)</sup>	Q62702-C151
BC 203 white	Q62702-C177
BC 203 yellow	Q62702-C178
BC 203 green	Q62702-C362



Approx. weight 20 g

Dimensions in mm

Maximum ratings		BC 201	BC 202	BC 203	
Collector-emitter voltage	$-V_{CEO}$	5	20	30	V
Collector-base voltage	$-V_{CBO}$	5	30	45	V
Emitter-base voltage	$-V_{EBO}$	5	5	5	V
Collector current	$-I_C$	75	75	75	mA
Emitter current	$I_E$	85	85	85	mA
Base current	$-I_B$	10	10	10	mA
Junction temperature	$T_J$	150	150	150	°C
Storage temperature range	$T_{stg}$		-55 to +125		°C
Total power dissipation [lead length "L" = 2 mm; see diagram $R_{th} = f(L)$ ]	$P_{tot}$	250	250	250	mW

Thermal resistance					
see diagram <sup>2)</sup> $R_{th} = f(L)$	$R_{thJA}$	<1000	<1000	<1000	K/W

1) If the order does not include any exact indication of the current amplification group desired, a transistor of a current amplification group just available from stock will be delivered.  
(page 175)

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

The transistors are grouped according to their small-signal current gain  $h_{fe}$  and are marked with a color line. At a collector-emitter voltage of  $V_{CE} = 2\text{ V}$  and the collector currents stated below the following static characteristics apply.

$h_{fe}$ group	white	yellow	green	blue	
Type	BC 201 BC 202 BC 203	BC 201 BC 202 BC 203	BC 201 BC 202 BC 203	BC 201 BC 202 BC 203	BC 201 BC 202 BC 203
$-I_C$ mA	$h_{fe}$ $I_C/I_B$	$h_{fe}$ $I_C/I_B$	$h_{fe}$ $I_C/I_B$	$h_{fe}$ $I_C/I_B$	$-V_{BE}$ V
0.25	100	175	290	520	0.58 (0.52 to 0.68)

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

Saturation voltages	$-V_{CEsat}$	$-V_{BEsat}$	
( $-I_C = 10\text{ mA}$ ; $-I_B = 0.5\text{ mA}$ )	0.1 (<0.2)	0.7 (<0.8)	V
( $-I_C = 50\text{ mA}$ ; $-I_B = 2.5\text{ mA}$ )	0.18 (<0.35)	0.8 (<0.92)	V

	BC 201	BC 202	BC 203	
Collector cutoff current ( $-V_{CB} = 2\text{ V}$ )	$-I_{CBO}$ 2 (<100)	-	-	nA
Collector cutoff current ( $-V_{CB} = 15\text{ V}$ )	$-I_{CBO}$ -	2 (<100)	-	nA
Collector cutoff current ( $-V_{CB} = 25\text{ V}$ )	$-I_{CBO}$ -	-	2 (<100)	nA
Collector-emitter breakdown voltage ( $-I_{CE} = 100\text{ }\mu\text{A}$ )	$-V_{(BR)CEO}$ 5	20	30	V
Collector-base breakdown voltage ( $-I_{CB} = 100\text{ }\mu\text{A}$ )	$-V_{(BR)CBO}$ 5	30	45	V
Emitter-base breakdown voltage ( $-I_{EB} = 100\text{ }\mu\text{A}$ )	$-V_{(BR)EBO}$ 5	5	5	V

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BC 201  
 BC 202  
 BC 203

Dynamic characteristics ( $T_{amb} = 25^{\circ}\text{C}$ )		BC 201	BC 202	BC 203	
Transition frequency ( $-I_C = 10 \text{ mA}$ ; $-V_{CE} = 0.5 \text{ V}$ )					
$f_T$		80	80	80	MHz
Collector-base capacitance ( $-V_{CBO} = 2 \text{ V}$ ; $f = 1 \text{ MHz}$ )					
$C_{CBO}$		5.4 (<11)	-	-	pF
Collector-base capacitance ( $-V_{CBO} = 10 \text{ V}$ ; $f = 1 \text{ MHz}$ )					
$C_{CBO}$		-	3.5 (<7)	3.5 (<7)	pF
Noise figure ( $-I_C = 200 \mu\text{A}$ ; $-V_{CE} = 0.5 \text{ V}$ ; $f = 1 \text{ kHz}$ ; $\Delta f = 200 \text{ Hz}$ ; $R_g = 2 \text{ k}\Omega$ )					
NF		2.5 (<10)	2.5 (<10)	2.5 (<10)	dB

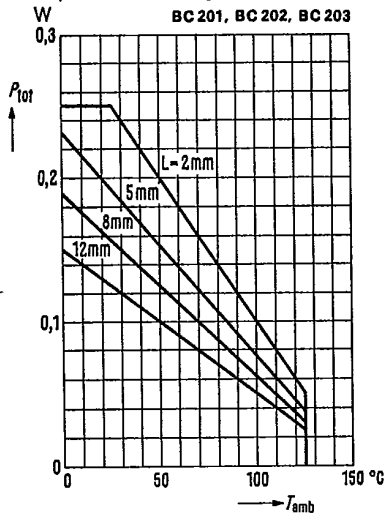
**Current-gain groups**

Transistors BC 201, BC 202, BC 203 are grouped according to their small signal current gain  $h_{fe}$ , and are marked with a color line on the case.

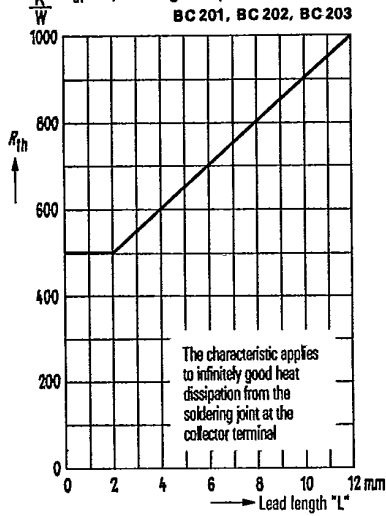
Operating point:  $-V_{CE} = 0.5 \text{ V}$ ;  $-I_C = 250 \mu\text{A}$

Color	white	yellow	green	blue
Type	BC 201 BC 202 BC 203	BC 201 BC 202 BC 203	BC 201 BC 202 BC 203	BC 201 BC 202 -
$h_{fe}$ group	75 to 150	125 to 260	240 to 500	450 to 900

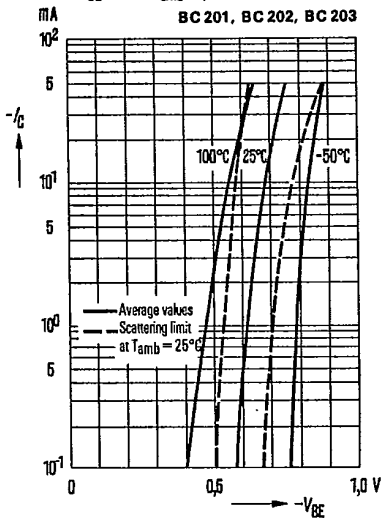
Total perm. power dissipation  
 versus temperature  $P_{tot} = f(T_{amb})$ ;  
 parameter = lead length "L"



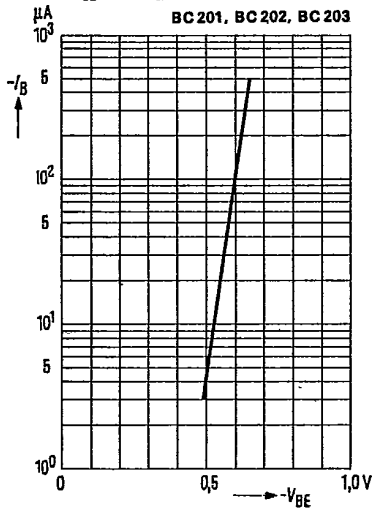
Thermal resistance  
 $R_{th} = f(\text{lead length "L"})$



Collector current  $I_C = f(V_{BE})$   
 $-V_{CE} = 5 \text{ V}; T_{amb} = \text{parameter}$

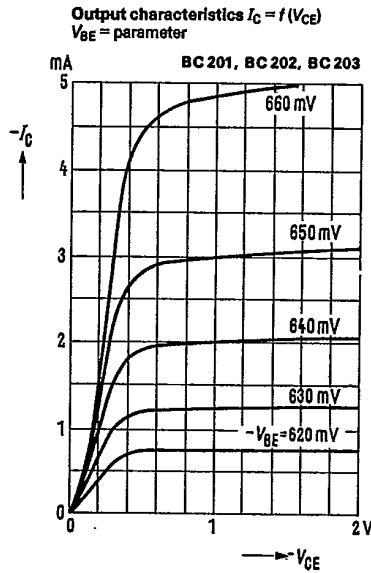
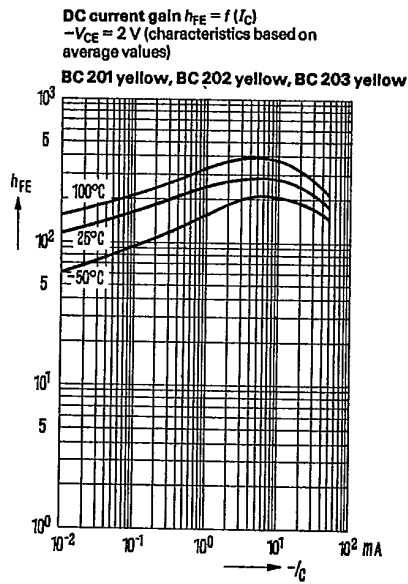
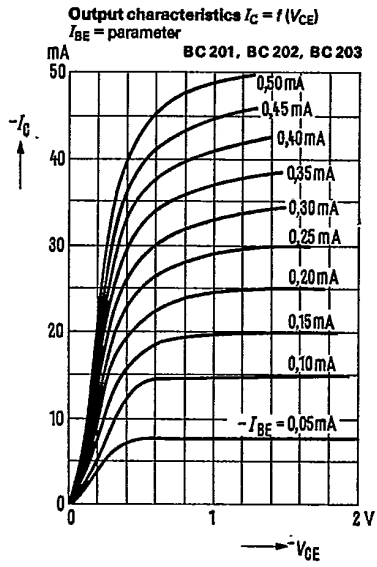
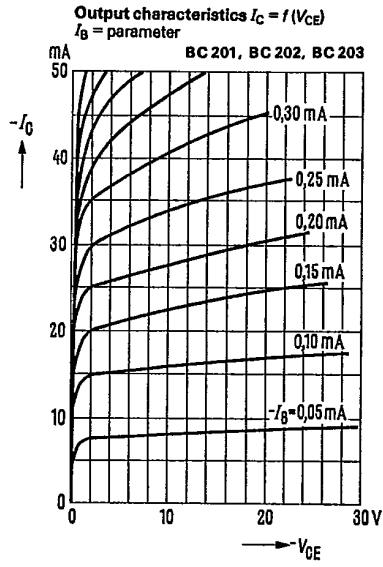


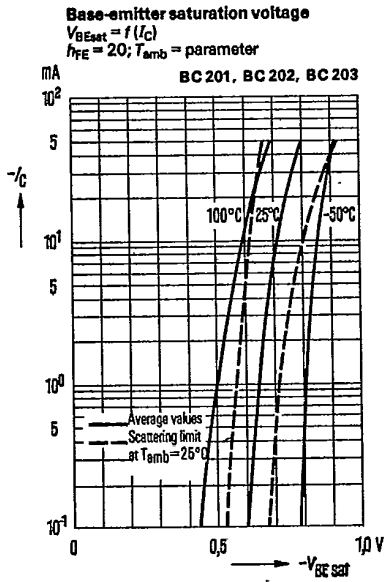
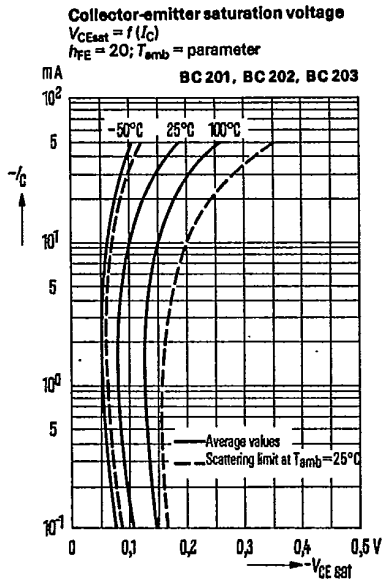
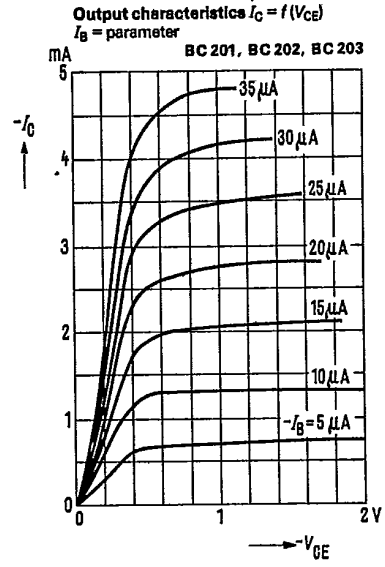
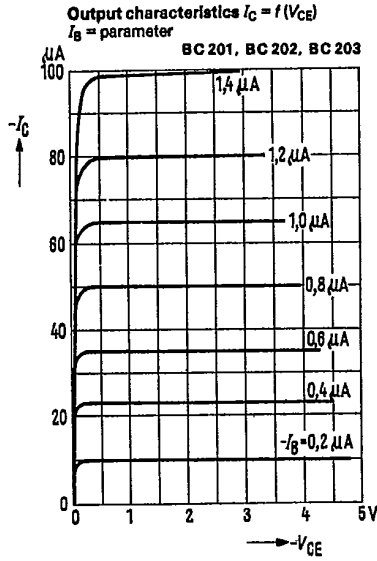
Input characteristic  $I_B = f(V_{BE})$   
 $-V_{CE} = 5 \text{ V}; T_{amb} = 25^\circ\text{C}$



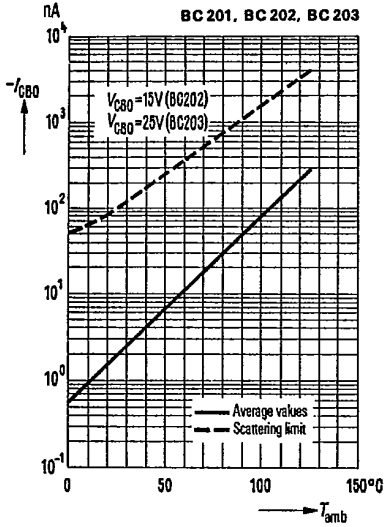
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BC 201  
BC 202  
BC 203

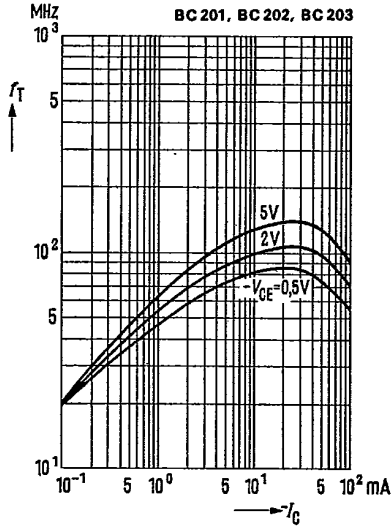




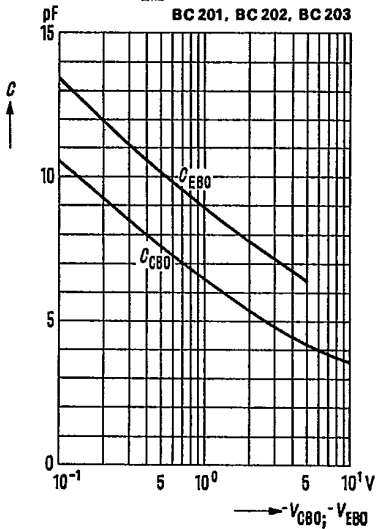
Collector cutoff current versus temperature  
 $I_{CBO} = f(T_{amb})$



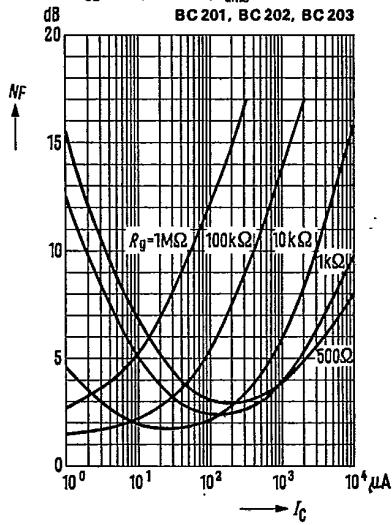
Transition frequency  $f_T = f(I_C)$   
 $T_{amb} = 25^\circ\text{C}; V_{CE} = \text{parameter}$



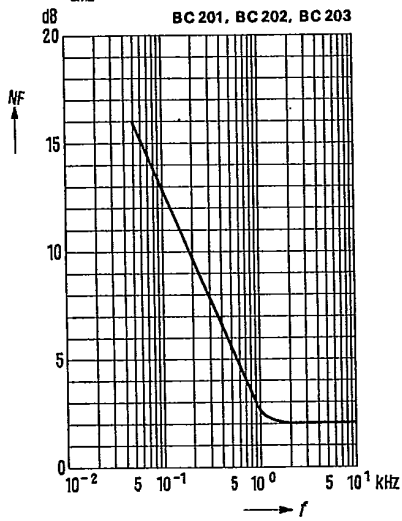
Collector-base capacitance  
 $C_{CBO} = f(V_{CBO})$   
Emitter-base capacitance  $C_{EBO} = f(V_{EBO})$   
 $f = 1\text{ MHz}; T_{amb} = 25^\circ\text{C}$



Noise figure  $NF = f(I_C)$   
 $-V_{CE} = 5\text{ V}; f = 1\text{ kHz}; T_{amb} = 25^\circ\text{C}$



Noise figure  $NF = f(f)$   
 $R_G = 2 \text{ k}\Omega$ ;  $-V_{CE} = 5 \text{ V}$ ;  $-I_C = 0.2 \text{ mA}$ ;  
 $T_{amb} = 25^\circ\text{C}$



Noise figure  $NF = f(V_{CE})$   
 $-I_C = 0.2 \text{ mA}$ ;  $R_G = 2 \text{ k}\Omega$ ;  $f = 1 \text{ kHz}$ ;  
 $T_{amb} = 25^\circ\text{C}$

