

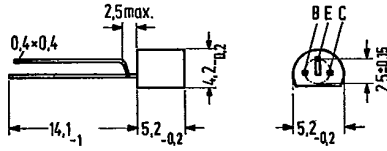
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NPN Silicon RF Transistor

T-31-21
BF 503

SIEMENS AKTIENGESELLSCHAFT

BF 503 is an NPN silicon planar RF transistor in TO 92 plastic package (10 A 3 DIN 41868). The transistor is particularly intended for use in VHF amplifiers, VHF mixers, and VHF oscillators.

Type	Ordering code
BF 503	Q62702-F574



Approx. weight 0.25 g

Dimensions in mm

Maximum ratings ($T_{amb} = 25^\circ\text{C}$)

Collector-emitter voltage	V_{CEO}	30	V
Collector-base voltage	V_{CBO}	40	V
Emitter-base voltage	V_{EBO}	4	V
Collector current	I_C	20	mA
Collector peak current	I_{CM}	50	mA
Base current	I_B	5	mA
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to +150	$^\circ\text{C}$
Total power dissipation	P_{tot}	500	mW

Thermal resistance
 Junction to ambient air

R_{thJA}	≤ 250	K/W
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Static characteristics ($T_{amb} = 25^{\circ}\text{C}$)

Collector cutoff current

 $(V_{CBO} = 25\text{ V})$ $I_{CBO} \leq 100$ nA

Collector-emitter breakdown voltage

 $(I_C = 1\text{ mA})$ $V_{(BR)CEO} \geq 30$ V

Collector-base breakdown voltage

 $(I_C = 10\text{ }\mu\text{A})$ $V_{(BR)CBO} \geq 40$ V

Emitter-base breakdown voltage

 $(I_E = 10\text{ }\mu\text{A})$ $V_{(BR)EBO} \geq 4$ V

DC current gain

 $(I_C = 1\text{ mA}; V_{CE} = 10\text{ V})$ $h_{FE} \geq 30$ - $(I_C = 5\text{ mA}; V_{CE} = 10\text{ V})$ $h_{FE} \geq 40$ -

Collector-emitter saturation voltage

 $(I_C = 5\text{ mA}; I_B = 0,5\text{ mA})$ $V_{CEsat} \leq 0,6$ VDynamic characteristics ($T_{amb} = 25^{\circ}\text{C}$)

Transition frequency

 $(I_C = 5\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz})$ $f_T \geq 750$ (≥400) MHz

Noise figure

 $(I_C = 3\text{ mA}; V_{CE} = 10\text{ V}; f = 200\text{ MHz}; R_g = 60\text{ }\Omega)$ $NF \leq 3$ (<5) dB

Collector-base capacitance

 $(f = 1\text{ MHz}; V_{CB} = 10\text{ V}; V_{BE} = 0\text{ V})^1)$ $C_{CB} \leq 0,55$ (<0.7) pF

Collector-emitter capacitance

 $(f = 1\text{ MHz}; V_{CE} = 10\text{ V}; V_{BE} = 0\text{ V})^1)$ $C_{CE} \leq 0,65$ pF

Output admittance

 $(I_C = 1\text{ mA}; V_{CE} = 10\text{ V}; f = 10,7\text{ MHz})$ $g_{22e} \leq 10,5$ μS

1) Third terminal at creening potential.