

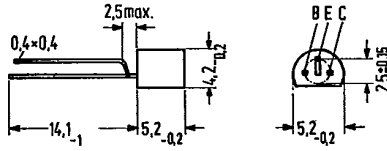
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**NPN Silicon RF Transistor**

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

$R_{thJA}$	$\leq 250$	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

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

1) Third terminal at creening potential.



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