

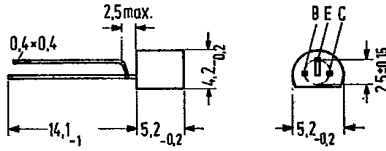
NPN Silicon RF Transistor

BF 502

SIEMENS AKTIENGESELLSCHAFT 4505 D

BF 502 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 502	Q62702-F572



Approx. weight 0.25 g Dimensions in mm

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

- Collector-emitter voltage
- Collector-base voltage
- Emitter-base voltage
- Collector current
- Collector peak current
- Base current
- Junction temperature
- Storage temperature range
- Total power dissipation

$V_{CEO}$	30	V
$V_{CBO}$	40	V
$V_{EBO}$	4	V
$I_C$	20	mA
$I_{CM}$	50	mA
$I_B$	5	mA
$T_j$	150	$^{\circ}\text{C}$
$T_{stg}$	-55 to +150	$^{\circ}\text{C}$
$P_{tot}$	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 ( $I_C = 5\text{ mA}; I_B = 0.5\text{ mA}$ )	$V_{CEsat}$	$\leq 0.6$	V

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

Transition frequency ( $I_C = 5\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$ )	$f_T$	700 ( $\geq 350$ )	MHz
Noise figure ( $I_C = 3\text{ mA}; V_{CE} = 10\text{ V}; f = 200\text{ MHz}; R_g = 60\text{ }\Omega$ )	NF	3 (<5)	dB
Collector-base capacitance ( $f = 1\text{ MHz}; V_{CB} = 10\text{ V}; V_{BE} = 0\text{ V}$ ) <sup>1)</sup>	$C_{CB}$	$\leq 0.35$	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 screening potential.



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