

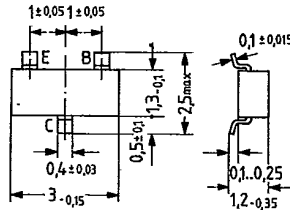
**NPN Silicon RF Transistors**

SIEMENS AKTIENGESELLSCHAFT **T-31-15**

**BFS 18**  
**BFS 18 R**  
**BFS 19**  
**BFS 19 R**

BFS 18 and BFS 19 are epitaxial NPN silicon planar transistors in TO 236 plastic package (23-A 3 DIN 41869). These transistors were especially designed for use in RF circuits in thick and thin film technology. For identification purposes, the transistors are marked as follows: BFS 18 = "CA"; BFS 19 = "CB"; The transistors are also available upon request with changed terminal sequence (emitter and base terminal interchanged) under the designation BFS 18R (mark "CY") and BFS 19R (mark "CZ").

Type	Mark	Ordering code
BFS 18	CA	Q62702-F348
BFS 19	CB	Q62702-F349
BFS 18R	CY	Q62702-F587
BFS 19R	CZ	Q62702-F588



Approx. weight 0.02 g Dimensions in mm

**Maximum ratings**

Collector-emitter voltage  
 Collector-base voltage  
 Emitter-base voltage  
 Collector current  
 Junction temperature  
 Storage temperature range  
 Total power dissipation ( $T_{SB} < 65^\circ\text{C}$ )

	BFS 18	BFS 19
$V_{CEO}$	20	V
$V_{CBO}$	30	V
$V_{EBO}$	5	V
$I_C$	30	mA
$T_j$	125	$^\circ\text{C}$
$T_{stg}$	-65 to +125	$^\circ\text{C}$
$P_{tot}$	150	mW

**Thermal resistance**

Junction to ambient air  
 Junction to substrate back<sup>1)</sup>

$R_{thJA}$	520	K/W
$R_{thJSB}$	410	K/W

1) Ceramic substrate 0.7 mm; 2.5 cm<sup>2</sup> area

BFS 18  
 BFS 18 R  
 BFS 19  
 BFS 19 R

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

Collector-emitter breakdown voltage

( $I_{CEO} = 2 \text{ mA}$ )

Collector cutoff current

( $V_{CBO} = 20 \text{ V}$ )

( $V_{CBO} = 20 \text{ V}; T_j = 100^{\circ}\text{C}$ )

Base-emitter voltage

( $V_{CE} = 10 \text{ V}; I_C = 1 \text{ mA}$ )

DC current gain ( $V_{CE} = 10 \text{ V}; I_C = 1 \text{ mA}$ )

	BFS 18	BFS 19	
$V_{(BR)CEO}$	> 20	> 20	V
$I_{CBO}$	< 100	< 100	nA
$I_{CBO}$	< 10	< 10	$\mu\text{A}$
$V_{BE}$	650 to 740	650 to 740	mV
$h_{FE}$	35 to 125	65 to 225	-

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

Transition frequency

( $V_{CE} = 10 \text{ V}; I_C = 1 \text{ mA}; f = 100 \text{ MHz}$ )

Reverse transfer capacitance

( $V_{CE} = 10 \text{ V}; I_C = 1 \text{ mA}; f = 1 \text{ MHz}$ )

Collector-base capacitance

( $V_{CB} = 10 \text{ V}; f = 1 \text{ MHz}$ )

Noise figure

( $V_{CE} = 10 \text{ V}; I_C = 1 \text{ mA};$

$R_g = 100 \Omega; f = 100 \text{ MHz}$ )

$f_T$	200	260	MHz
$C_{12e}$	0.85	0.85	pF
$C_{CBO}$	1	1	pF
NF	4	4	dB

