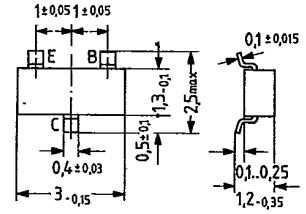
NPN Silicon RF Transistors

BFS 18
BFS 18 R
BFS 19
BFS 19 R

SIEMENS AKTIENGESELLSCHAF D T-31-15

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		BFS 18 BFS 19	
Collector-emitter voltage	V_{CEO}	20	V
Collector-base voltage	V_{CBO}	30	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	30	mA
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	−65 to +125	°C
Total power dissipation (T_{SB} < 65 °C)	P_{tot}	150	mW
Thermal resistance			
Junction to ambient air	R_{thJA}	520	K/W
Junction to substrate back[1)]	R_{thJSB}	410	K/W

1) Ceramic substrate 0.7 mm; 2.5 cm^2 area

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BFS 19
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Static characteristics (T_{amb} = 25 °C)		**BFS 18**	**BFS 19**	
Collector-emitter breakdown voltage (I_{CEO} = 2 mA)	$V_{(BR)CEO}$	>20	>20	V
Collector cutoff current (V_{CBO} = 20 V)	I_{CBO}	<100	<100	nA
(V_{CBO} = 20 V; T_j = 100 °C)	I_{CBO}	<10	<10	µA
Base-emitter voltage (V_{CE} = 10 V; I_C = 1 mA)	V_{BE}	650 to 740	650 to 740	mV
DC current gain (V_{CE} = 10 V; I_C = 1 mA)	h_{FE}	35 to 125	65 to 225	–
Dynamic characteristics (T_{amb} = 25 °C)				
Transition frequency (V_{CE} = 10 V; I_C = 1 mA; f = 100 MHz)	f_T	200	260	MHz
Reverse transfer capacitance (V_{CE} = 10 V; I_C = 1 mA; f = 1 MHz)	C_{12e}	0.85	0.85	pF
Collector-base capacitance (V_{CB} = 10 V; f = 1 MHz)	C_{CBO}	1	1	pF
Noise figure (V_{CE} = 10 V; I_C = 1 mA; R_g = 100 Ω; f = 100 MHz)	NF	4	4	dB

Total perm. power dissipation versus temperature
$P_{tot} = f(T)$