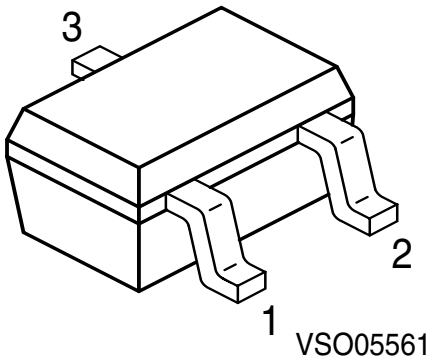
NPN Silicon RF Transistor

- Especially suitable for TV-Sat and UHF tuners



ESD: **E**lectro**s**tatic **d**ischarge sensitive device, observe handling precaution!

Type	Marking	Pin Configuration			Package
BF 775W	LOs	1 = B	2 = E	3 = C	SOT-323

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}	15	V
Collector-emitter voltage	V_{CES}	20	
Collector-base voltage	V_{CBO}	20	
Emitter-base voltage	V_{EBO}	2.5	
Collector current	I_C	30	mA
Base current	I_B	4	
Total power dissipation $T_S \leq 86°C$[1)]	P_{tot}	280	mW
Junction temperature	T_j	150	°C
Ambient temperature	T_A	-65 ... 150	
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point	R_{thJS}	≤230	K/W

[1] T_S is measured on the collector lead at the soldering point to the pcb

Electrical Characteristics

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics					
Collector-emitter breakdown voltage I_C = 1 mA, I_B = 0	$V_{(BR)CEO}$	15	-	-	V
Collector-emitter cutoff current V_{CE} = 20 V, V_{BE} = 0	I_{CES}	-	-	10	µA
Collector -base cutoff current V_{CB} = 10 V, I_E = 0	I_{CBO}	-	-	100	nA
Emitter-base cutoff current V_{EB} = 2.5 V, I_C = 0	I_{EBO}	-	-	100	µA
DC current gain I_C = 10 mA, V_{CE} = 8 V	h_{FE}	40	100	200	-

Electrical Characteristics

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Transition frequency I_C = 10 mA, V_{CE} = 8 V, f = 500 MHz	f_T	3.5	5.5	-	GHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz	C_{cb}	-	0.4	0.6	pF
Collector emitter capacitance V_{CE} = 10 V, f = 1 MHz	C_{ce}	-	0.25	-	
Emitter-base capacitance V_{EB} = 0.5 V, f = 1 MHz	C_{eb}	-	0.5	-	
Noise figure I_C = 2 mA, V_{CE} = 6 V, Z_S = Z_{Sopt}, f = 900 MHz f = 1.8 GHz	F	 - -	 1 1.6	 - -	dB
Power gain, maximum available[F)] I_C = 10 mA, V_{CE} = 8 V, Z_S = Z_{Sopt}, Z_L = Z_{Lopt}, f = 900 MHz f = 1.8 GHz	G_{ma}	 - -	 17 11.5	 - -	
Transducer gain I_C = 10 mA, V_{CE} = 8 V, Z_S = Z_L = 50Ω, f = 900 MHz f = 1.8 GHz	$\lvert S_{21e}\rvert^2$	 - -	 13.5 8	 - -	

[1] $G_{ma} = |S_{21}/S_{12}| (k-(k^2-1)^{1/2})$