

描述

BFS520 是生产的超高频低噪声晶体管，采用平面 NPN 硅外延双极型工艺，具有高功率增益、低噪声特性。采用超小型的 SOT-323 封装，适用于高密度表面贴片安装，主要用于 VHF，UHF，CATV 等高频低噪声放大器。

主要特性

高增益: $|S_{21e}|^2$ 典型值为 12.5dB

低噪声: NF 典型值为 1.5dB

增益带宽乘积: f_T 典型值为 8GHz

@ $V_{CE}=6V$, $I_C=20mA$, $f=0.9GHz$

@ $V_{CE}=6V$, $I_C=5mA$, $f=1GHz$

@ $V_{CE}=6V$, $I_C=20mA$, $f=1GHz$

订购信息

产品号	标准包装
BFS520	3K/盘

极限工作条件范围 ($T_A=25^{\circ}C$)

参数	符号	极值	单位
集电极基极击穿电压	V_{CBO}	20	V
集电极发射极击穿电压	V_{CEO}	12	V
发射极基极击穿电压	V_{EBO}	2	V
集电极电流	I_C	100	mA
功耗	P_C	150	mW
结温度	T_j	150	$^{\circ}C$
存储温度	T_{stg}	-65 ~ +150	$^{\circ}C$

HFE 档位

分档	B	C	D
标号	N2		
HFE	90-140	120-180	170-250

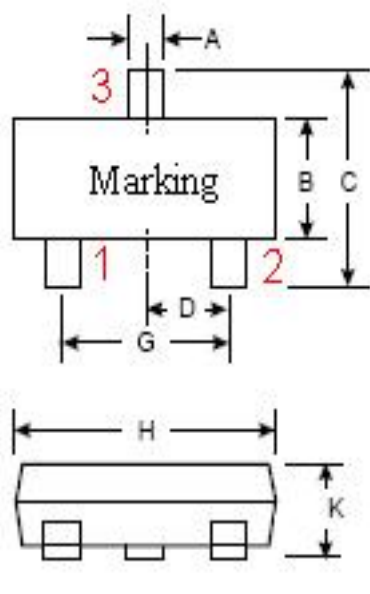
电学特性 (TA=25°C)

参数	符号	最小	典型	最大	单位	测试条件
集电极基极击穿电压	V _{CB0}	20			V	I _c =1.0μA
集电极基极漏电流	I _{CB0}			0.1	μA	V _{CB} =10V
发射极基极漏电流	I _{EB0}			0.1	μA	V _{EB} =1V
直流增益	h _{FE}	90	150	250		V _{CE} =6V, I _c =20mA
特征频率	f _T		8		GHz	V _{CE} =6V, I _c =20mA, f=1GHz
输出反馈电容	C _{re}		0.4	0.7	pF	V _{CB} =6V, I _E =0mA, f=1MHz
功率增益	S _{21e} ²		12.5		dB	V _{CE} =6V, I _c =20mA, f=1GHz
噪声系数	NF		1.5	2.0	dB	V _{CE} =6V, I _c =5mA, f=1GHz

封装形式

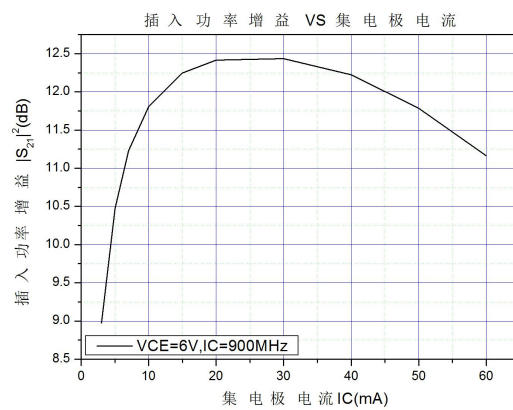
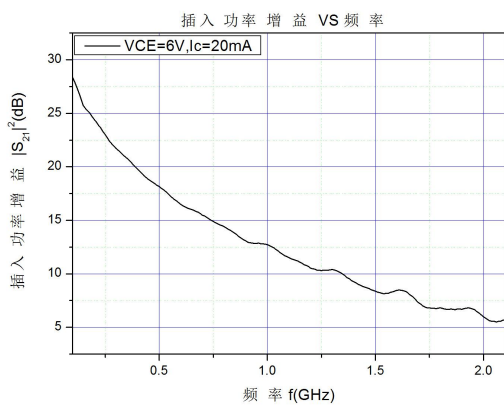
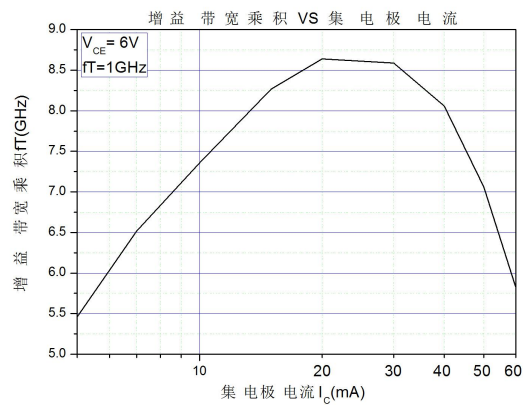
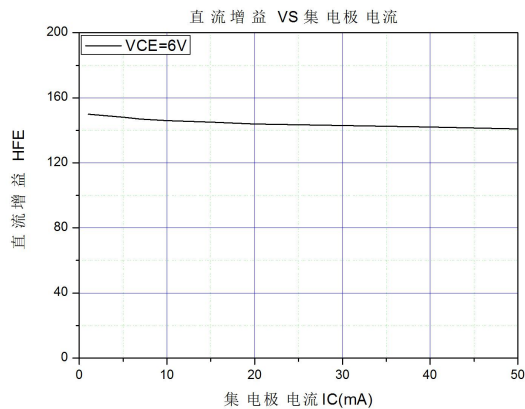
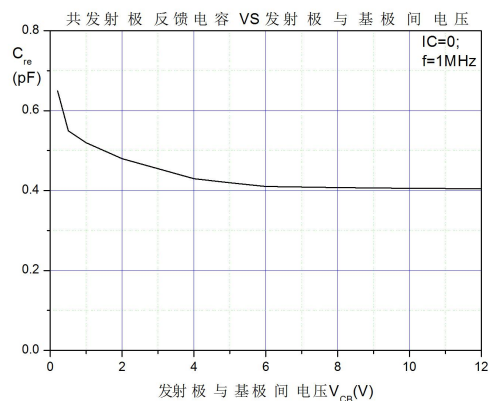
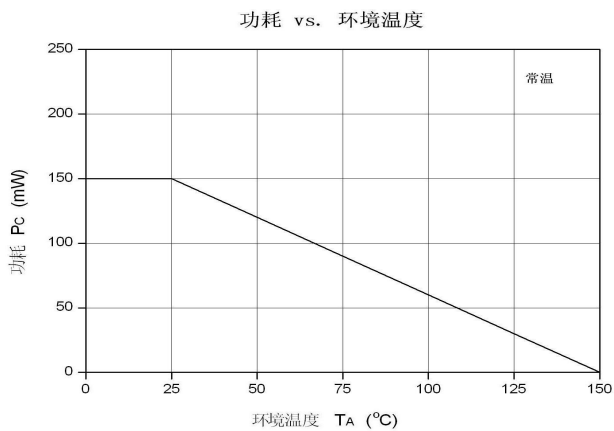
SOT-323

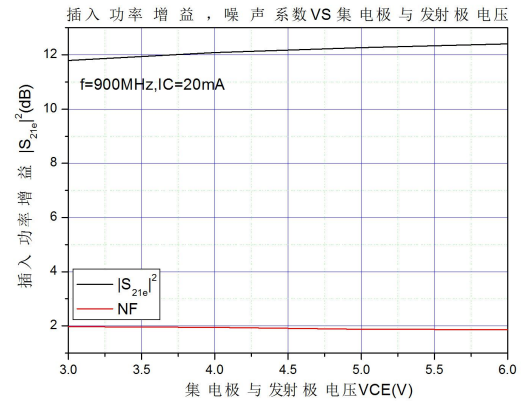
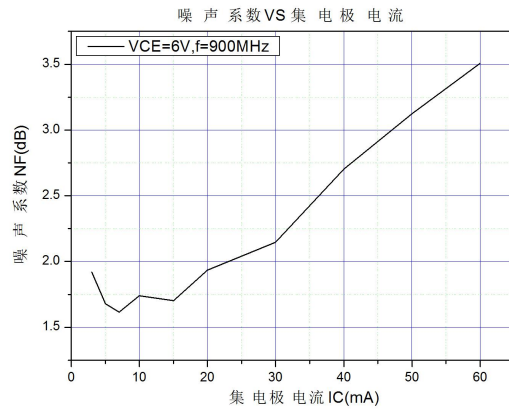
管脚定义：1：基极（Base） 2：发射极（Emitter） 3：集电极（Collector）



符号	最小值 (mm)	最大值 (mm)
A	0.200	0.400
B	1.150	1.350
C	2.150	2.450
D	0.650	
G	1.200	1.400
H	2.000	2.200
K	0.900	1.100
L	0.525	
M	0.080	0.150

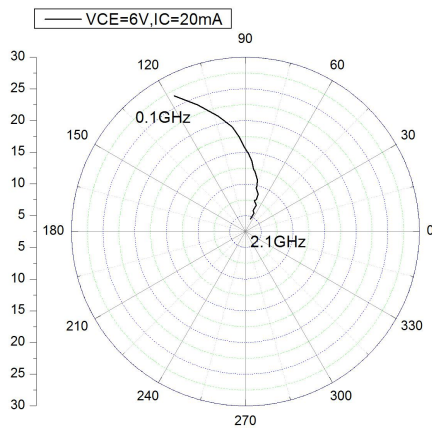
典型特性曲线 ($T_A = 25^\circ\text{C}$)



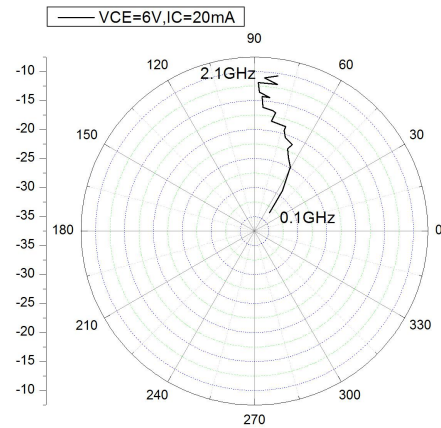


SMITH 图

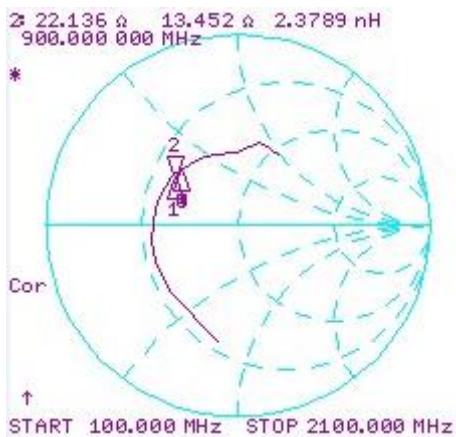
测试条件: VCE=6V, IC=20mA
S_{21e} -FREQUENCY



S_{12e} -FREQUENCY



S_{11e} -FREQUENCY



S_{22e} -FREQUENCY



散射参数 (S-PARAMETER)

测试条件: $V_{CE}=6V$, $I_C=20mA$, $Z_0=50\Omega$

测试频率	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
GHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.1	-3.968	-100.19	26.697	117.75	-33.407	50.515	-3.4933	-70.359
0.2	-6.0174	-134.08	23.879	110.76	-28.98	55.092	-7.1947	-78.18
0.3	-6.6333	-156.09	21.2	103.43	-26.485	58.917	-9.6217	-84.694
0.4	-6.8898	-169.55	19.125	97.1	-24.833	60.883	-10.85	-87.512
0.5	-7.0566	178.6	17.47	93.748	-23.524	65.087	-11.788	-92.589
0.6	-7.2003	168.28	15.845	90.718	-22.174	68.075	-12.169	-96.618
0.7	-7.253	159.99	14.807	87.639	-21.273	66.418	-12.41	-99.684
0.8	-7.3099	151.63	13.648	84.548	-20.476	71.739	-12.635	-103.63
0.9	-7.508	143.8	12.417	82.532	-19.41	73.519	-12.439	-106.85
1	-7.5639	136.62	12.028	80.88	-18.72	73.217	-12.479	-109.04
1.1	-7.7841	128.65	10.862	76.867	-18.316	81.252	-12.393	-114.53
1.2	-7.9778	122.16	9.9387	75.906	-16.756	79.78	-12.073	-116.47
1.3	-8.0504	114.61	9.5905	76.073	-16.512	81.227	-12.096	-119.06
1.4	-8.1647	107.65	8.7216	71.336	-16.096	86.038	-12.346	-123.51
1.5	-8.2313	104.46	7.7844	71.039	-14.239	86.81	-11.303	-123.27
1.6	-8.2685	95.335	7.5717	73.709	-14.324	83.437	-11.656	-125.35
1.7	-8.2623	89.382	7.0271	67.552	-13.53	87.9	-11.8	-132.21
1.8	-8.0808	88.48	6.1835	69.686	-11.9	88.576	-10.235	-133.42
1.9	-7.0628	75.506	5.9958	70.012	-11.933	81.004	-11.325	-139.96
2	-7.2531	67.538	5.6937	65.499	-11.008	86.331	-12.559	-147.55
2.1	-7.3646	60.937	4.6181	69.081	-10.451	81.436	-11.198	-148.59