



描述

FCS957 是国芯佳品半导体有限公司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。由于采用了超小型的 SOT-323 封装，特别适用于高密度表面贴片安装，主要用于 VHF, UHF 低噪声放大器。

主要特性

高增益: $|S_{21e}|^2$ 典型值为 12dB

低噪声: NF 典型值为 1.5dB

增益带宽乘积: f_T 典型值为 8GHz

@ $V_{CE}=6V, I_c=30mA, f=1GHz$

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

@ $V_{CE}=6V, I_c=30mA, f=1GHz$

订购信息

产品号	标准包装
FCS957	3K/盘

极限工作条件范围 (TA=25°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}	10	V
发射极基极击穿电压	V_{EBO}	1.5	V
集电极电流	I_c	100	mA
功耗	P_c	200	mW
结温度	T_j	150	°C
存储温度	T_{stg}	-65 ~ +150	°C

HFE 档位

分档	B	C	D
标号	W2		
HFE	90-130	120-180	170-250

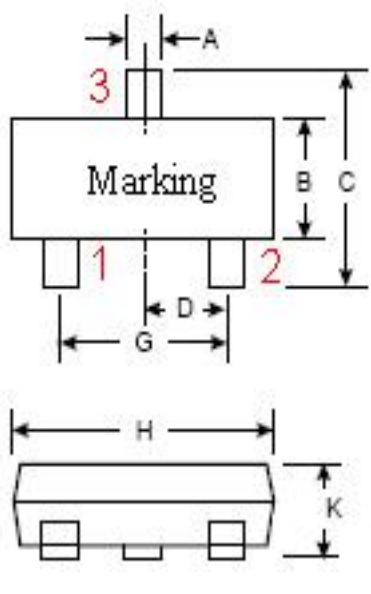
电学特性 (TA=25°C)

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 =30mA
特征频率	f _T		8		GHz	V _{CE} =6V, I _c =30mA, f=1GHz
输出反馈电容	C _{re}		0.65		pF	V _{CB} =10V, I _E =0mA, f=1MHz
功率增益	S _{21e} ²		12		dB	V _{CE} =6V, I _c =30mA, f=1GHz
噪声系数	NF		1.5		dB	V _{CE} =6V, I _c =5mA, f=1GHz

封装形式

SOT-323

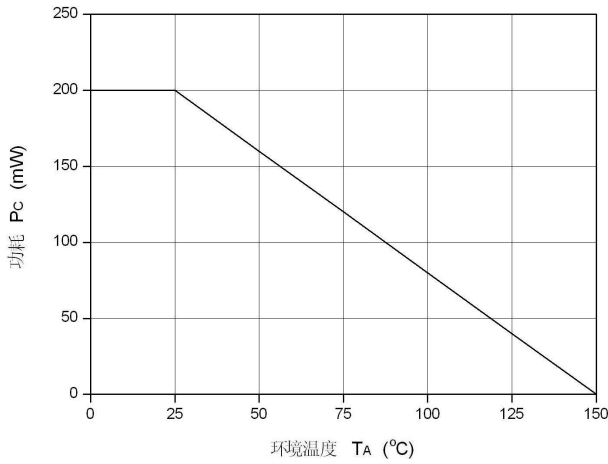
管脚定义：1：基极（Base） 2：发射极（Emitter） 3：集电极（Collector）



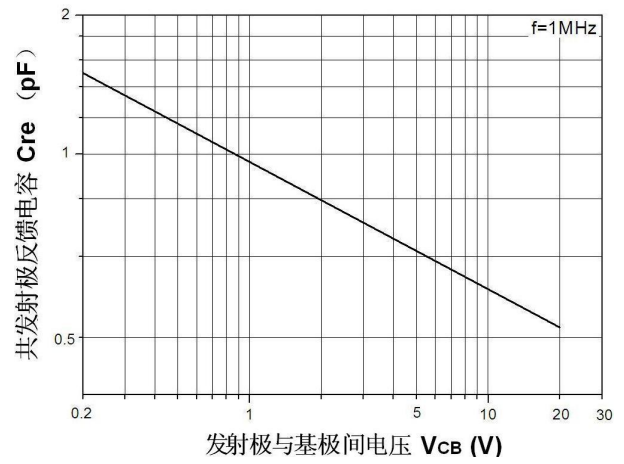
符号	最小值 (mm)	最大值 (mm)
A	0.200	0.400
B	1.150	1.350
C	2.150	2.450
D	0.650	
G	1.200	1.400
H	2.000	2.200
K	0.900	1.100
L	0.525	
M	0.080	0.150

典型特性曲线 (TA = 25°C)

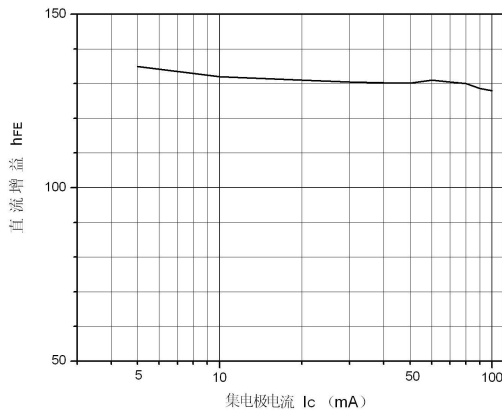
功耗 vs. 环境温度



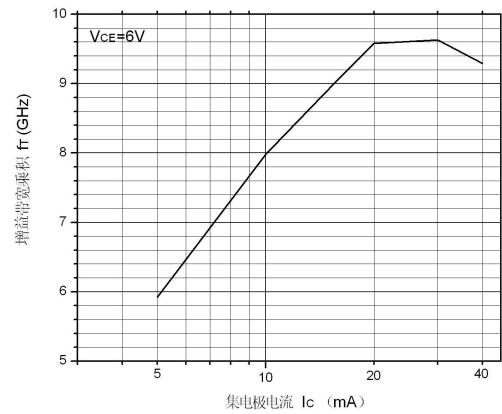
共发射极反馈电容 vs. 发射极与基极间电压



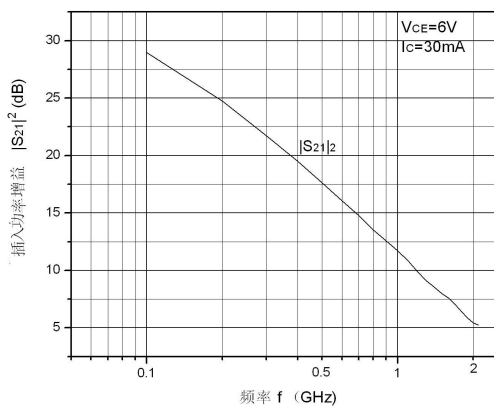
直流增益 vs. 集电极电流



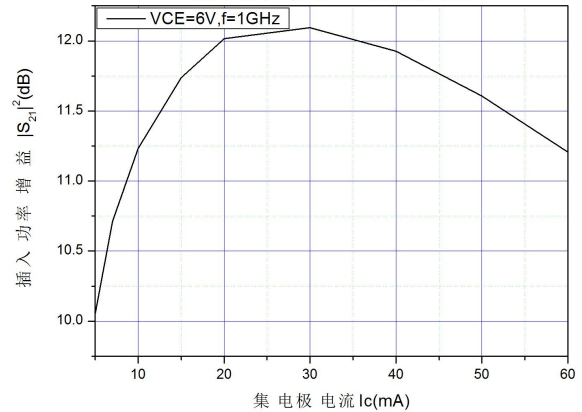
增益带宽乘积 vs. 集电极电流

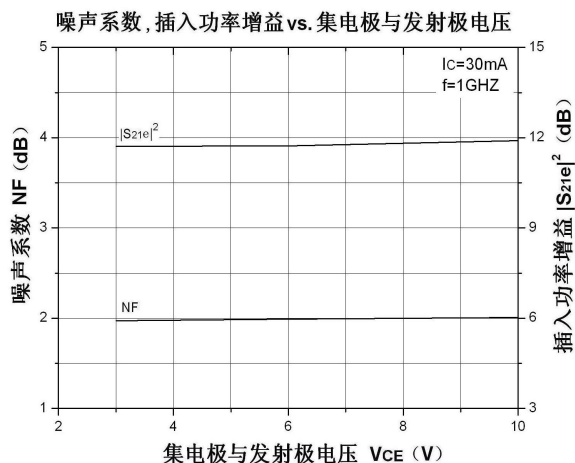
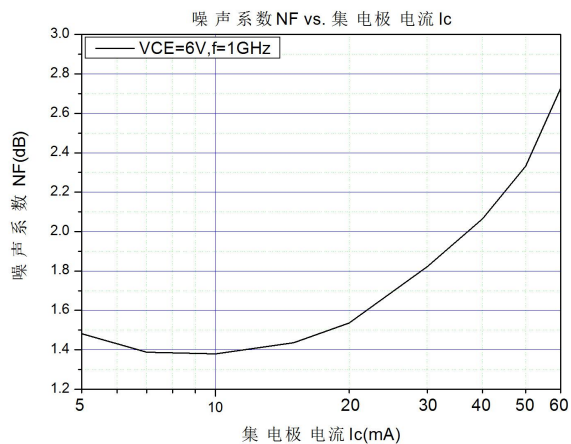


插入功率增益 vs. 频率



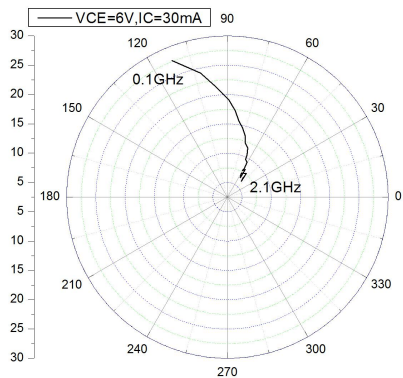
插入功率增益 VS. 集电极电流



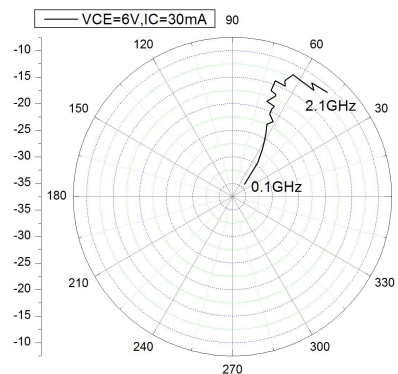


SMITH 图

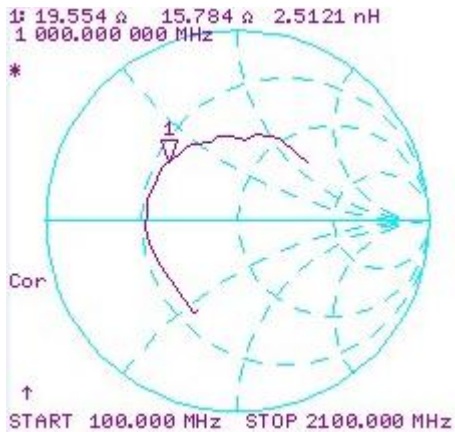
测试条件: VCE=6V, Ic=30mA
S21e -FREQUENCY



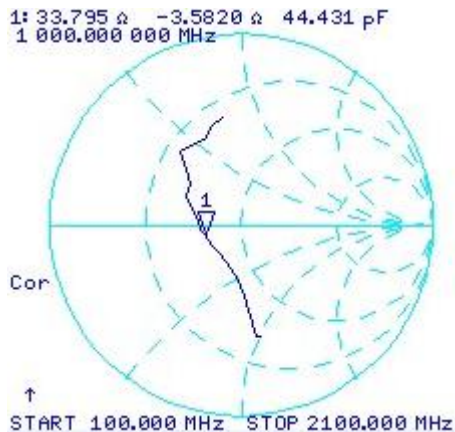
S12e -FREQUENCY



S11e -FREQUENCY



S22e -FREQUENCY





散射参数 (S-PARAMETER)

测试条件: $V_{CE}=6V, I_c=30mA, Z_o=50\Omega$

测试频率	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.1	-5.6868	-114.22	27.646	112.09	-34.226	45.932	-4.5954	-80.541
0.2	-6.5521	-149.85	24.168	102.17	-29.563	53.248	-8.7303	-87.148
0.3	-6.5012	-167.08	21.223	95.371	-27.084	57.614	-11.594	-96.17
0.4	-6.4096	-177.25	19.004	89.052	-25.525	60.087	-12.722	-104.66
0.5	-6.4447	173.16	17.296	84.764	-23.881	62.239	-13.667	-113.37
0.6	-6.2832	165.62	15.643	81.417	-22.474	64.652	-14.692	-123.99
0.7	-6.3086	160.4	14.534	77.379	-21.406	61.714	-14.846	-133.22
0.8	-6.4535	151.67	13.323	73.637	-20.468	65.723	-14.551	-144.76
0.9	-6.3233	144.59	12.202	71.642	-19.473	65.844	-14.384	-155.33
1	-6.3519	139.9	11.592	67.429	-18.758	65.293	-14.151	-165.66
1.1	-6.6699	131.01	10.419	64.845	-18.417	70.233	-13.046	-174.58
1.2	-6.5629	124.67	9.6487	64.164	-16.926	66.794	-12.738	173.79
1.3	-6.8081	118.18	9.3489	60.531	-16.571	67.184	-11.987	164.95
1.4	-7.2108	108.34	8.092	59.469	-16.25	70.008	-10.683	157.82
1.5	-6.8048	103.37	7.6758	60.668	-14.274	69.773	-9.6701	152.91
1.6	-7.0762	94.366	8.1034	56.687	-14.466	64.55	-9.3462	141.81
1.7	-7.44	84.147	6.4414	56.569	-13.561	65.642	-7.9262	134.84
1.8	-6.5694	77.513	7.2172	59.746	-11.875	63.531	-6.1216	129.94
1.9	-6.2884	62.882	7.6472	51.515	-12.324	52.53	-6.291	113.17
2	-6.6819	50.219	6.0977	48.441	-11.422	55.113	-5.3171	106.19
2.1	-6.3808	40.069	6.9193	51.227	-10.996	47.672	-4.7987	100.03