

描述

FCT801 是上海镭芯微电子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、低噪声系数、大动态范围和理想的电流特性，采用 SOT-363 贴片式封装，主要应用于 VHF，UHF 和 CATV 高频宽带低噪声放大器。

主要特性

高增益: $|S_{21e}|^2$ 典型值为 11dB
 低噪声: NF 典型值为 1.4dB
 增益带宽乘积: f_T 典型值为 4.5GHz

@ $V_{CE}=3V$, $I_c=7mA$, $f=1GHz$
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订购信息

产品号	标准包装
FCT801	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	VCBO	20	V
集电极发射极击穿电压	VCEO	12	V
发射极基极击穿电压	VEBO	2.5	V
集电极电流	IC	100	mA
功耗	PC	150	mW
结温度	Tj	150	°C
存储温度	Tstg	-65 ~ +150	°C

HFE 档位

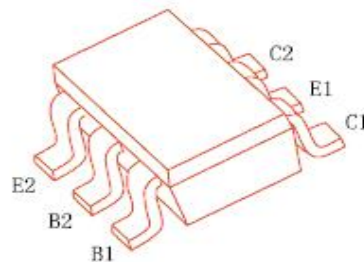
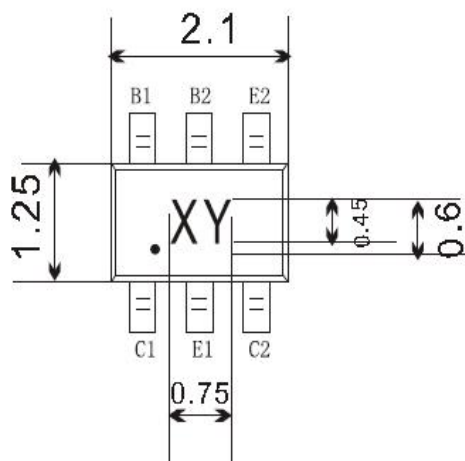
分档	B	C	D
标号	.XY		
HFE	90-130	120-180	170-250

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	VCBO	20			V	IC=1.0μA
集电极基极漏电流	ICBO			0.1	μA	VCB=10V
发射极基极漏电流	IEBO			0.1	μA	VEB=1V
直流增益	HFE	90	150	250		VCE=3V, IC=7mA
特征频率	f _r		4.5		GHz	VCE=3V, IC=7mA, f=1GHz
输出反馈电容	Cre		0.65		pF	VCB=10V, IE=0mA, f=1MHz
功率增益	S _{21e} ²		11		dB	VCE=3V, IC=7mA, f=1GHz
噪声因子	NF		1.4	2.0	dB	VCE=3V, IC=7mA, f=1GHz

封装形式

SOT-363:



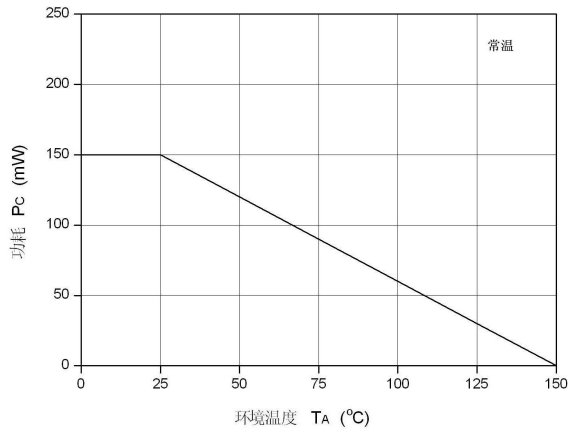
符号	定义
1	1号管
2	2号管
B	基极 (Base)
C	集电极 (Collector)
E	发射极 (Emitter)

单位：毫米 (mm)

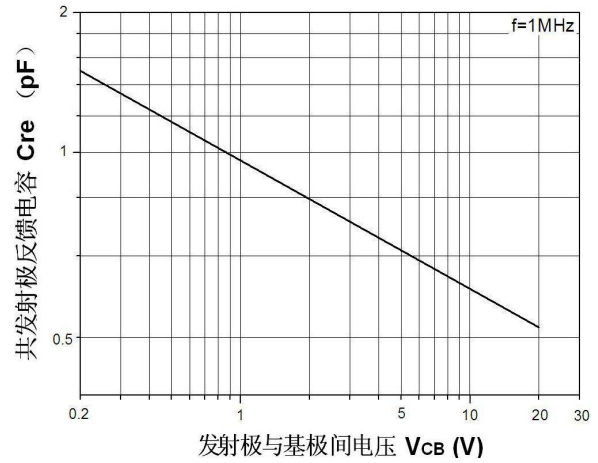
B1: 1号管基极 B2: 2号管基极
 C1: 1号管集电极 C2: 2号管集电极
 E1: 1号管发射极 E2: 2号管发射极

典型特性曲线 (TA = 25°C)

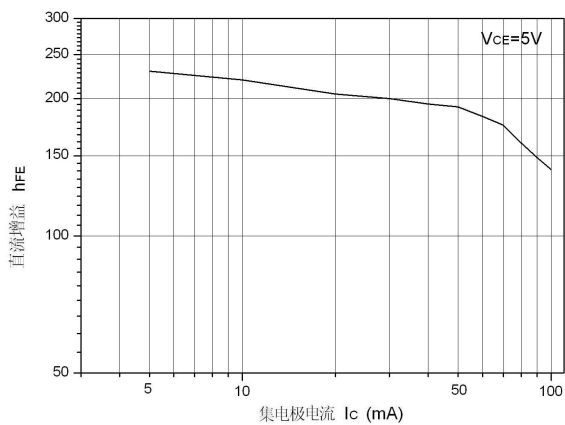
功耗 vs. 环境温度



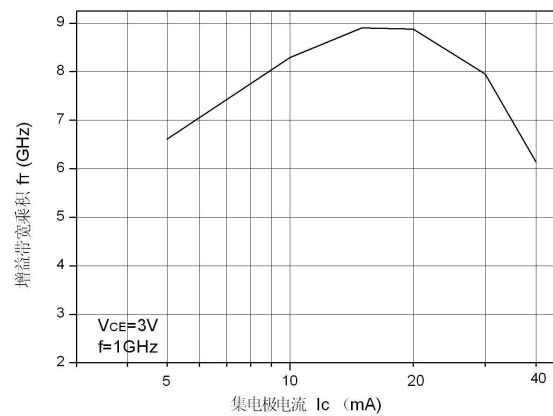
共发射极反馈电容 vs. 发射极与基极间电压



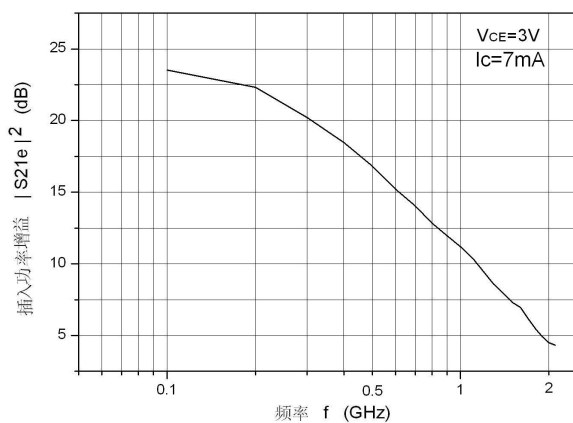
直流增益 vs. 集电极电流



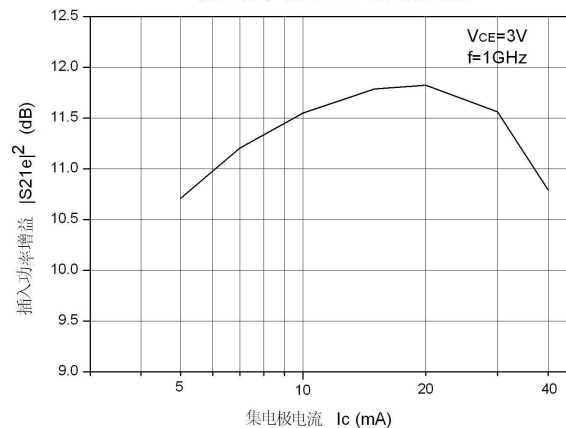
增益带宽乘积 vs. 集电极电流



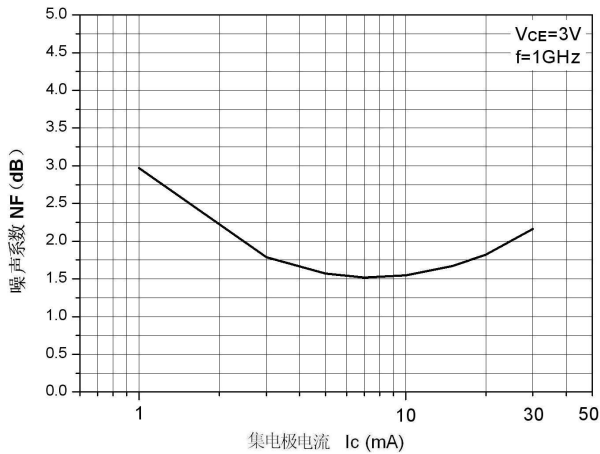
插入功率增益 vs. 频率



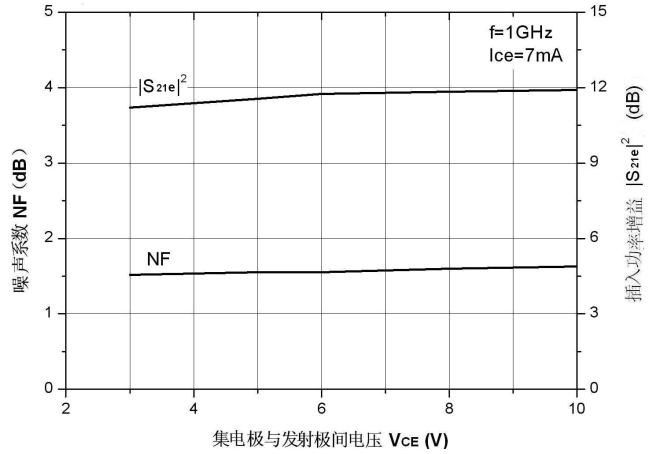
插入功率增益 vs. 集电极电流



噪声系数 vs. 集电极电流



噪声系数, 插入功率增益 vs. 集电极与发射极电压

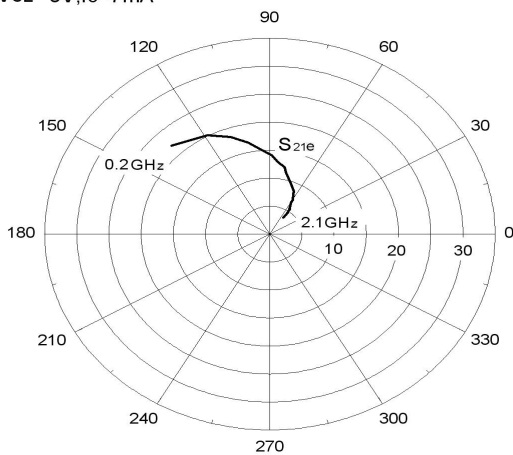


SMITH 图

测试条件: $V_{CE}=3V, I_c=7mA$

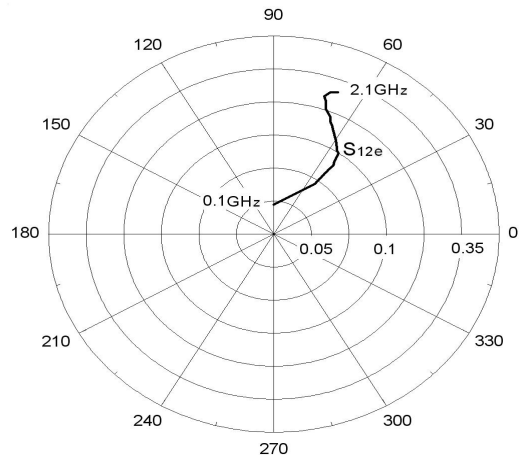
S_{21e} -FREQUENCY

条件: $V_{CE}=3V, I_c=7mA$



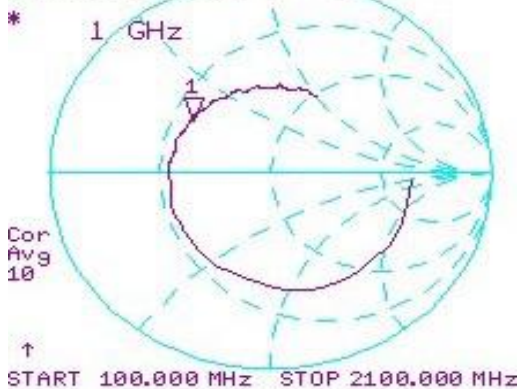
S_{12e} -FREQUENCY

条件: $V_{CE}=3V, I_c=7mA$



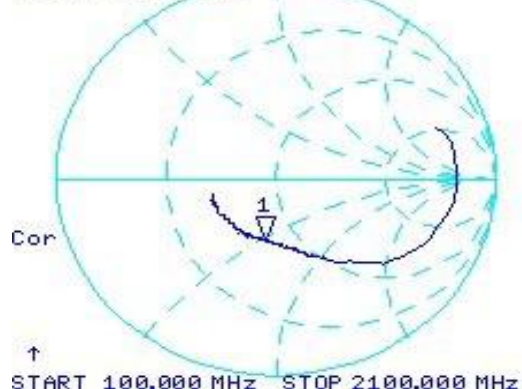
S_{11e} -FREQUENCY

1: 20.716 Ω 13.967 Ω 2.2229 nH
1 000.000 000 MHz



S_{22e} -FREQUENCY

1: 36.736 Ω -25.246 Ω 6.3041 pF
1 000.000 000 MHz



散射参数 (S-PARAMETER)

 测试条件: $V_{CE}=3V, I_c=7mA, Z_o=50\Omega$

测试频率	S11		S21		S12		S22	
	GHZ	MA	ANG	MAG	ANG	MAG	ANG	MAG
0.1	0.837	-51.504	15.410	162.27	0.030	90.634	0.721	14.286
0.2	0.702	-91.21	12.588	134.06	0.052	69.454	0.654	-31.348
0.3	0.590	-118.96	10.110	118.67	0.067	58.736	0.520	-51.074
0.4	0.528	-141.29	8.282	109.33	0.075	55.394	0.443	-62.32
0.5	0.493	-158.72	6.861	101.68	0.080	52.684	0.397	-71.255
0.6	0.476	-173.65	5.789	95.648	0.086	52.998	0.364	-79.509
0.7	0.465	172.81	5.061	88.999	0.097	53.56	0.343	-86.516
0.8	0.459	160.96	4.480	85.016	0.095	56.17	0.328	-92.889
0.9	0.456	150.14	4.040	78.937	0.102	57.537	0.317	-99.579
1	0.460	140.11	3.670	77.478	0.107	57.299	0.314	-106.13
1.1	0.459	131.17	3.216	71.977	0.121	62.331	0.307	-111.96
1.2	0.457	121.84	2.966	69.659	0.118	63.89	0.304	-116.52
1.3	0.457	114.19	2.666	63.976	0.134	66.158	0.294	-123.72
1.4	0.463	106.19	2.533	63.133	0.145	65.021	0.302	-130.69
1.5	0.457	99.679	2.259	59.597	0.151	73.143	0.295	-134.69
1.6	0.470	91.769	2.155	60.154	0.164	67.179	0.294	-142.53
1.7	0.466	86.234	1.853	56.271	0.181	71.028	0.295	-147.58
1.8	0.475	79.088	1.866	55.488	0.207	71.016	0.299	-153.11
1.9	0.474	73.497	1.678	54.307	0.200	73.151	0.286	-158.19
2	0.484	65.341	1.719	54.45	0.243	67.698	0.301	-166.82
2.1	0.495	60.006	1.522	55.139	0.254	68.342	0.302	-171.1