

描述

FC3356G 是上海镭芯微电子股份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 SC-59 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 11.5dB

低噪声: NF 典型值为 1.3dB

增益带宽乘积: f_T 典型值为 7GHz

@ $V_{CE}=10V$, $I_C=20mA$, $f=1GHz$

@ $V_{CE}=10V$, $I_C=7mA$, $f=1GHz$

@ $V_{CE}=10V$, $I_C=20mA$, $f=1GHz$

订购信息

| 产品号 | 标准包装 |
|---------|------|
| FC3356G | 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 | 200 | 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 | R24 | R25 | |
| HFE | 90-140 | 120-180 | 170-250 |

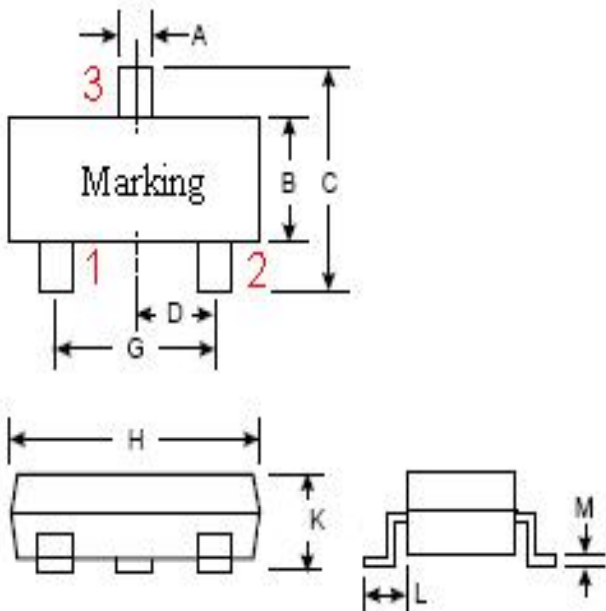
电学特性 (TA=25°C)

| 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 | 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=10V,IC=20mA |
| 增益带宽乘积 | f _T | 6 | 7 | | GHz | VCE=10V,IC=20mA |
| 输出反馈电容 | Cre | | 0.65 | | pF | VCB=10V,IE=0mA,f=1MHz |
| 功率增益 | S _{21e} ² | 11 | 11.5 | | dB | VCE=10V,IC=20mA,f=1GHz |
| 噪声因子 | NF | | 1.3 | 1.8 | dB | VCE=10V,IC=7mA,f=1GHz |

封装形式

SC-59

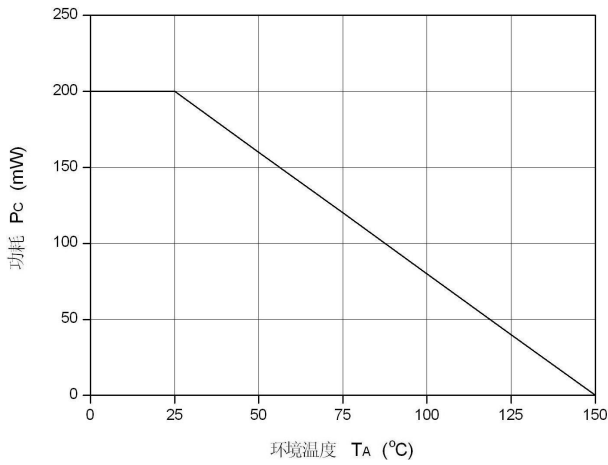
管脚定义：1：基极（Base） 2：发射极（Emitter） 3：集电极（Collector）



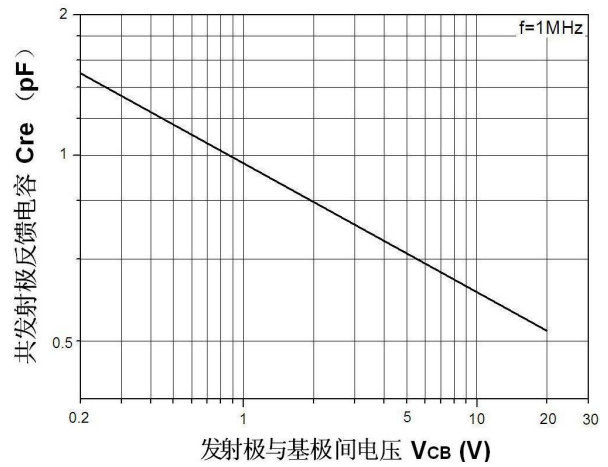
| SC-59 | | |
|-------|-------------|-------------|
| 符号 | 最小值 (mm) | 最大值 (mm) |
| A | 0.35 | 0.5 |
| B | 1.4 | 1.7 |
| C | 2.7 | 3.1 |
| D | 0.95 | |
| G | 1.7 | 2.1 |
| H | 2.7 | 3.1 |
| K | 1 | 1.3 |
| L | 0.5 | 0.85 |
| M | 0.1 | 0.35 |

典型特性曲线 (TA = 25°C)

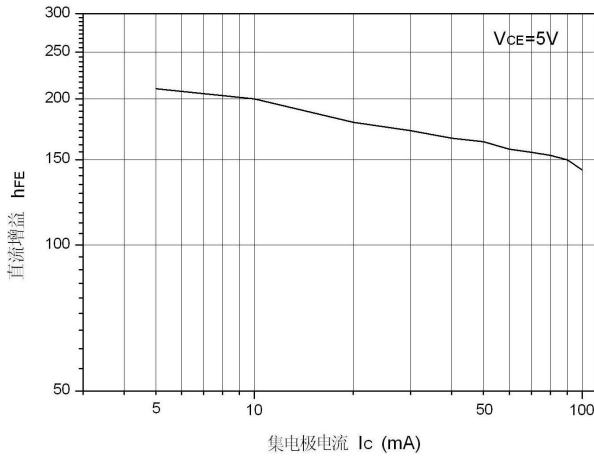
功耗 vs. 环境温度



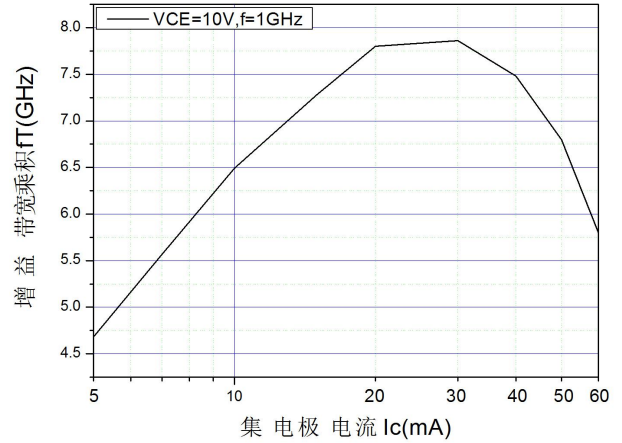
共发射极反馈电容 vs. 发射极与基极间电压



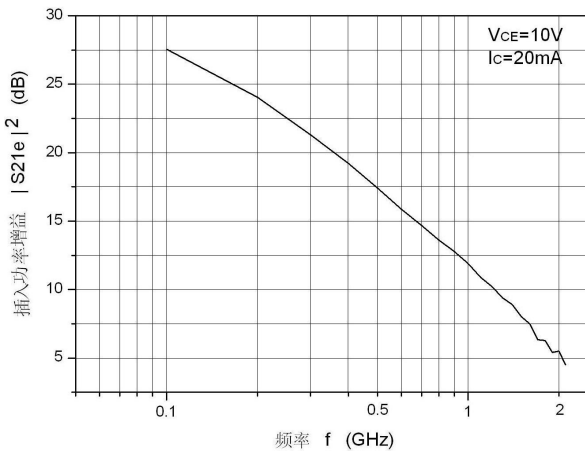
直流增益 vs. 集电极电流



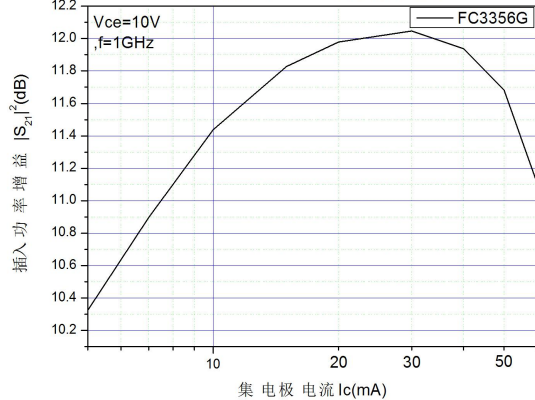
增益 带宽乘积 VS 集电极电流



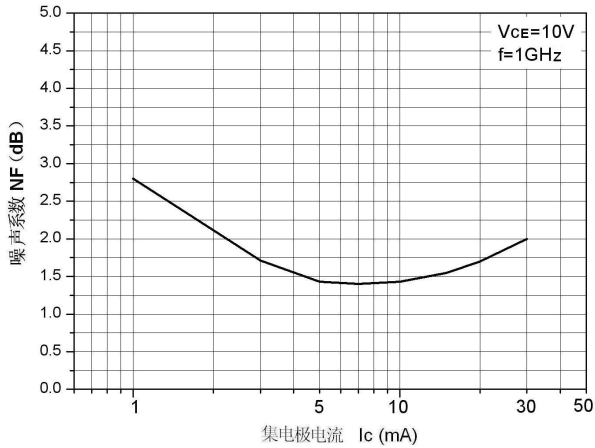
插入功率增益 vs. 频率



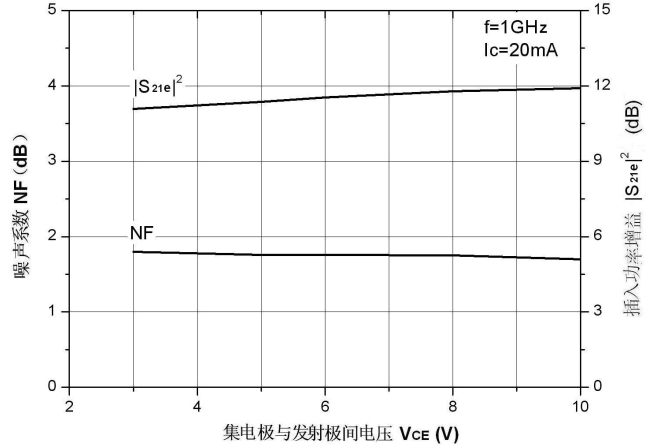
插入功率增益 VS 集电极电流



噪声系数 vs. 集电极电流



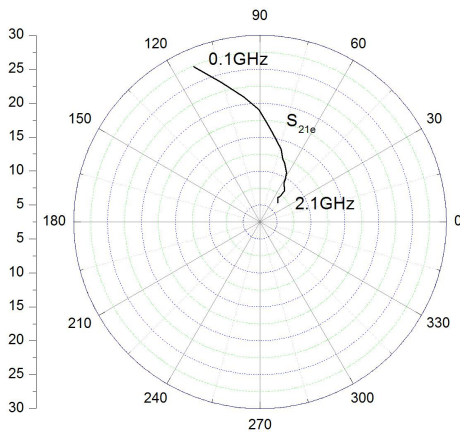
噪声系数, 插入功率增益 vs. 集电极与发射极电压



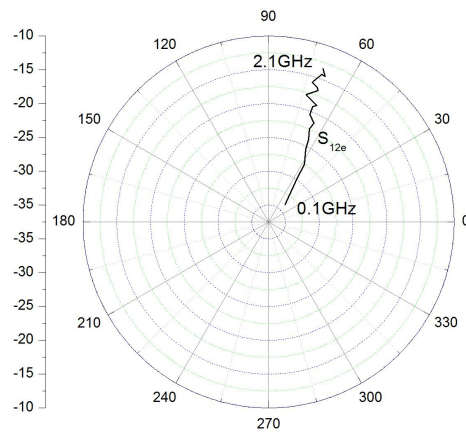
SMITH 图

测试条件: V_{CE}=10V, I_c=20mA

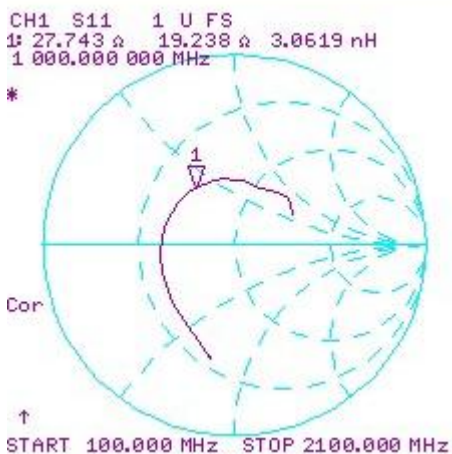
S_{21e} -FREQUENCY



S_{12e} -FREQUENCY



S_{11e} -FREQUENCY



S_{22e} -FREQUENCY



散射参数 (S-PARAMETER)

测试条件: $V_{CE}=10V, I_c=20mA, Z_0=50\Omega$

| 测试频率 | S ₁₁ | | S ₂₁ | | S ₁₂ | | S ₂₂ | |
|------|-----------------|---------|-----------------|--------|-----------------|--------|-----------------|---------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 0.1 | -4.8393 | -102.71 | 27.354 | 113.18 | -33.985 | 46.417 | -4.0362 | -58.038 |
| 0.2 | -7.0134 | -136.48 | 23.838 | 105.51 | -29.97 | 56.688 | -7.2632 | -60.141 |
| 0.3 | -7.8638 | -158.31 | 21.076 | 97.333 | -27.44 | 58.314 | -9.0263 | -64.013 |
| 0.4 | -8.1566 | -173.35 | 19.047 | 90.625 | -25.439 | 62.983 | -9.9769 | -65.571 |
| 0.5 | -8.4108 | 173.54 | 17.381 | 86.663 | -23.885 | 64.205 | -10.564 | -69.587 |
| 0.6 | -8.5897 | 161.48 | 15.741 | 82.164 | -22.475 | 66.171 | -10.832 | -75.107 |
| 0.7 | -8.5724 | 152.49 | 14.756 | 78.409 | -21.406 | 65.34 | -10.981 | -79.959 |
| 0.8 | -8.5954 | 142.63 | 13.625 | 73.878 | -20.454 | 69.017 | -11.077 | -85.95 |
| 0.9 | -8.7249 | 133.17 | 12.333 | 69.977 | -19.205 | 68.986 | -11.011 | -92.516 |
| 1 | -8.656 | 125.13 | 11.979 | 67.772 | -18.809 | 67.505 | -11.026 | -97.484 |
| 1.1 | -8.985 | 116.59 | 10.775 | 61.665 | -17.875 | 73.541 | -11.049 | -106.59 |
| 1.2 | -9.0045 | 106.45 | 9.7305 | 59.315 | -16.729 | 69.413 | -10.983 | -112.46 |
| 1.3 | -9.0862 | 98.545 | 9.3382 | 58.601 | -16.394 | 70.119 | -11.134 | -118.76 |
| 1.4 | -9.3142 | 89.883 | 8.3342 | 52.274 | -15.849 | 72.587 | -11.507 | -125.53 |
| 1.5 | -9.4344 | 82.815 | 7.2309 | 51.669 | -14.277 | 70.164 | -10.864 | -128.95 |
| 1.6 | -9.6227 | 73.342 | 6.9838 | 53.92 | -14.442 | 68.743 | -11.102 | -130.2 |
| 1.7 | -9.7957 | 67.61 | 6.3472 | 46.987 | -13.418 | 70.502 | -10.757 | -136.02 |
| 1.8 | -9.6145 | 63.291 | 5.4625 | 49.903 | -12.014 | 67.89 | -8.8967 | -143.81 |
| 1.9 | -8.749 | 50.279 | 5.4824 | 50.135 | -12.146 | 61.827 | -9.547 | -154.5 |
| 2 | -8.6237 | 40.648 | 5.1001 | 43.768 | -10.9 | 61.593 | -9.9508 | -164.84 |
| 2.1 | -9.167 | 27.331 | 4.2408 | 49.473 | -10.763 | 55.002 | -8.5983 | -172.17 |