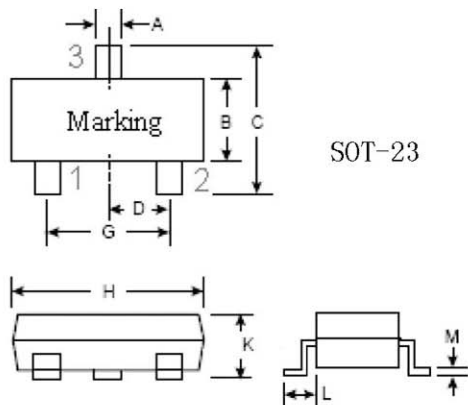


管脚定义：1：基极（Base） 2：发射极（Emitter） 3：集电极（Collector）



| 符号 | 最小值 (mm) | 最大值 (mm) |
|----|----------|----------|
| A | 0.30 | 0.40 |
| B | 1.20 | 1.40 |
| C | 2.65 | 2.95 |
| D | 0.95 | |
| G | 1.80 | 2.00 |
| H | 2.80 | 3.00 |
| K | 0.9 | 1.10 |
| L | 0.70 | |
| M | 0.10 | 0.20 |

• 描述

硅外延 NPN 超高频晶体管，具有低噪声和高增益特性，采用 SOT-23 贴片式封装。主要应用于 VHF、UHF 和 CATV 高频低噪声放大器和振荡器。

• 主要特性

高增益： $|S_{21}|^2$ 典型值为 11.5dB
 低噪声：NF 典型值为 1.6dB
 增益带宽乘积： f_T 典型值为 6GHz

@ $V_{CE}=8V$, $I_C=30mA$, $f=1GHz$
 @ $V_{CE}=10V$, $I_C=5mA$, $f=1GHz$
 @ $V_{CE}=5V$, $I_C=30mA$, $f=1GHz$

• 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} | 15 | 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} | 3 | V |
| 集电极电流 | I_C | 35 | mA |
| 基极电流 | I_B | 10 | mA |
| 功耗 | P_C | 200 | mW |
| 结温度 | T_j | 150 | $^\circ C$ |
| 存储温度 | T_{stg} | -65 ~ +150 | $^\circ C$ |



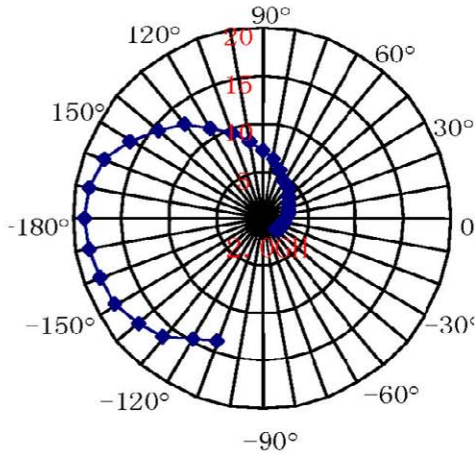
• 电学特性 (TA=25°C)

| 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} | 15 | | | V | I _C = 1.0uA |
| 集电极基极漏电流 | I _{CB0} | | | 0.1 | uA | V _{CB} = 10V |
| 发射极基极电流 | I _{EB0} | | | 1.0 | uA | V _{EB} = 1V |
| 直流增益 | h _{FE} | 50 | 150 | 250 | | V _{CE} = 5V, I _C = 30mA |
| 增益带宽乘积 | f _T | 5 | 6 | | GHz | V _{CE} = 5V, I _C = 30mA, f = 1GHz |
| 输出反馈电容 | C _{re} | | 0.6 | 1.0 | pF | V _{CE} = 5V, I _E = 0mA, f = 1MHz |
| 插入功率增益 | S ₂₁ ² | 10 | 11.5 | | dB | V _{CE} = 8V, I _C = 30mA, f = 1GHz |
| 噪声因子 | NF | | 1.6 | 2.0 | dB | V _{CE} = 10V, I _C = 5mA, f = 1GHz |

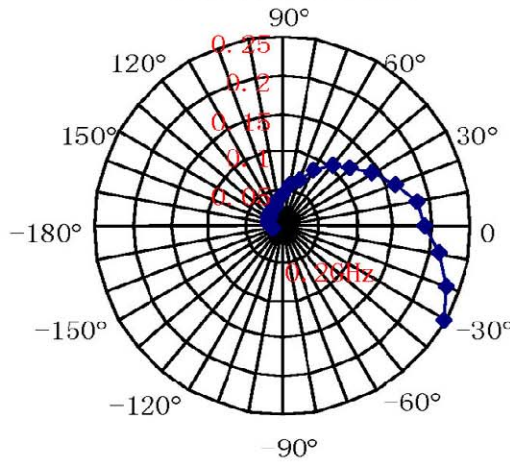
SMITH 图

测试条件: V_{CE} = 5V, I_C = 20mA, Z_o = 50 Ω

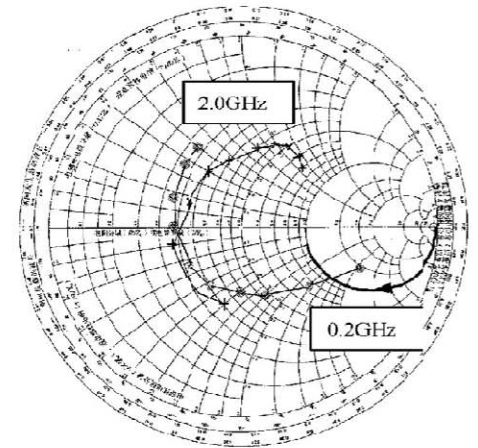
S₂₁-FREQUENCY



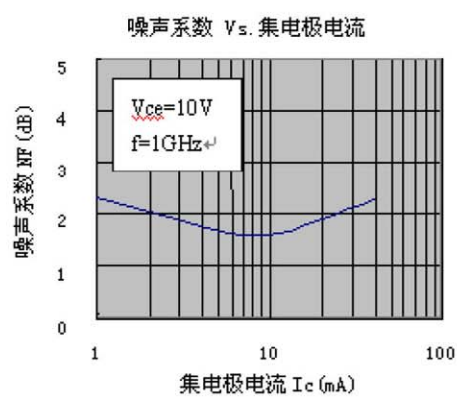
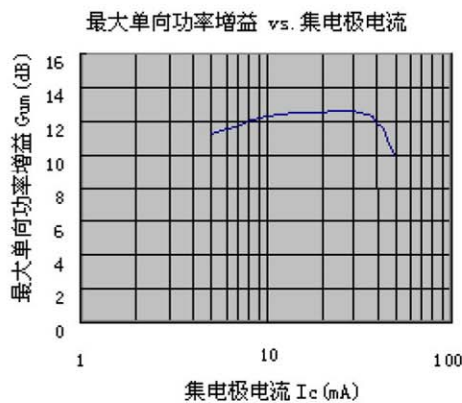
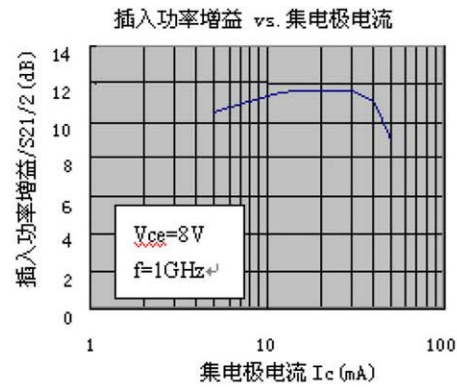
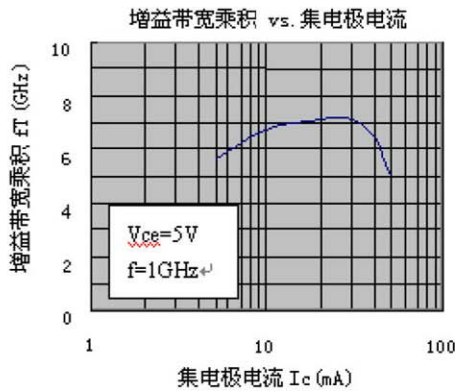
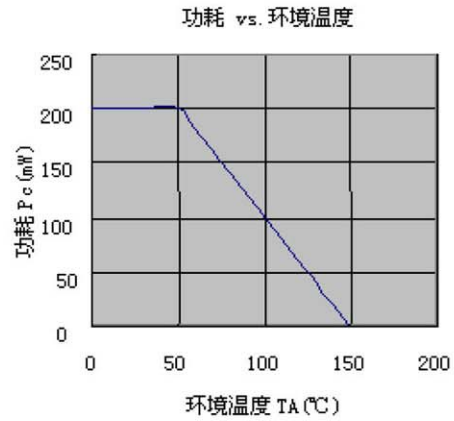
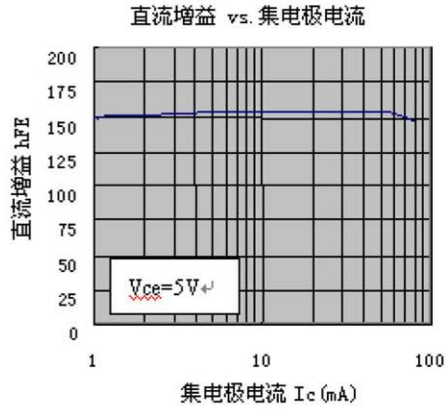
S₁₂-FREQUENCY



S₁₁, S₂₂-FREQUENCY



典型特性曲线 (TA=25°C)



散射参数 (S-PARAMETER)

测试条件: $V_{CE}=5V$, $I_C=20mA$, $Z_0=50\Omega$

| Freq. | S11 | | S21 | | S12 | | S22 | |
|-------|--------|--------|---------|--------|--------|--------|--------|--------|
| GHz | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 0.2 | 0.276 | -0.388 | -15.277 | 6.758 | -0.002 | 0.037 | 0.516 | -0.003 |
| 0.3 | -0.220 | -0.268 | -5.560 | 10.892 | 0.012 | 0.041 | 0.312 | -0.147 |
| 0.4 | -0.317 | -0.103 | -1.438 | 9.117 | 0.019 | 0.045 | 0.224 | -0.181 |
| 0.5 | -0.332 | 0.014 | 0.464 | 7.382 | 0.027 | 0.051 | 0.167 | -0.203 |
| 0.6 | -0.320 | 0.103 | 1.451 | 6.020 | 0.036 | 0.055 | 0.121 | -0.217 |
| 0.7 | -0.287 | 0.180 | 2.031 | 4.962 | 0.045 | 0.060 | 0.077 | -0.231 |
| 0.8 | -0.246 | 0.232 | 2.355 | 4.085 | 0.054 | 0.065 | 0.039 | -0.239 |
| 0.9 | -0.204 | 0.282 | 2.560 | 3.313 | 0.065 | 0.064 | -0.006 | -0.240 |
| 1 | -0.143 | 0.322 | 2.703 | 2.649 | 0.076 | 0.067 | -0.050 | -0.235 |
| 1.1 | -0.086 | 0.342 | 2.775 | 2.088 | 0.088 | 0.067 | -0.091 | -0.225 |
| 1.2 | -0.029 | 0.357 | 2.794 | 1.599 | 0.101 | 0.065 | -0.129 | -0.208 |
| 1.3 | 0.037 | 0.359 | 2.743 | 1.183 | 0.116 | 0.063 | -0.166 | -0.185 |
| 1.4 | 0.095 | 0.348 | 2.654 | 0.814 | 0.132 | 0.061 | -0.203 | -0.156 |
| 1.5 | 0.149 | 0.331 | 2.560 | 0.481 | 0.147 | 0.056 | -0.230 | -0.122 |
| 1.6 | 0.205 | 0.306 | 2.411 | 0.188 | 0.164 | 0.048 | -0.252 | -0.081 |
| 1.7 | 0.252 | 0.266 | 2.285 | -0.064 | 0.170 | 0.032 | -0.272 | -0.037 |
| 1.8 | 0.289 | 0.219 | 2.127 | -0.338 | 0.184 | 0.024 | -0.283 | 0.006 |
| 1.9 | 0.316 | 0.173 | 2.015 | -0.535 | 0.194 | 0.008 | -0.284 | 0.053 |
| 2 | 0.336 | 0.110 | 1.894 | -0.693 | 0.203 | -0.011 | -0.280 | 0.099 |

