

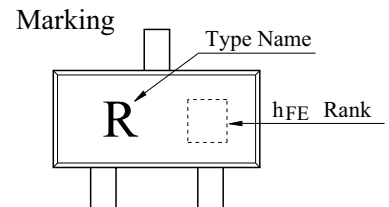
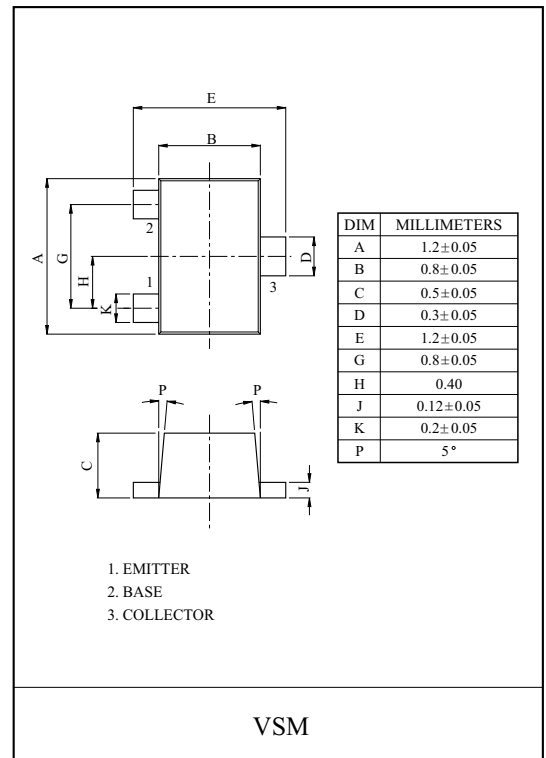
VHF/UHF WIDE BAND AMPLIFIER APPLICATION.

FEATURES

- Low Noise Figure, High Gain.
- $NF=1.1dB$, $|S_{21e}|^2=11dB$ ($f=1GHz$).

MAXIMUM RATING (Ta=25 °C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|-----------------------------|-----------|---------|------|
| Collector-Base Voltage | V_{CBO} | 20 | V |
| Collector-Emitter Voltage | V_{CEO} | 12 | V |
| Emitter-Base Voltage | V_{EBO} | 3 | V |
| Collector Current | I_C | 100 | mA |
| Collector Power Dissipation | P_C | 100 | mW |
| Junction Temperature | T_j | 150 | °C |
| Storage Temperature Range | T_{stg} | -55~150 | °C |



ELECTRICAL CHARACTERISTICS (Ta=25 °C)

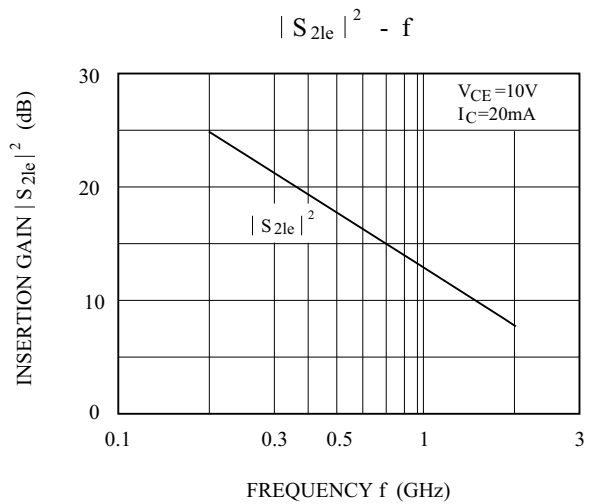
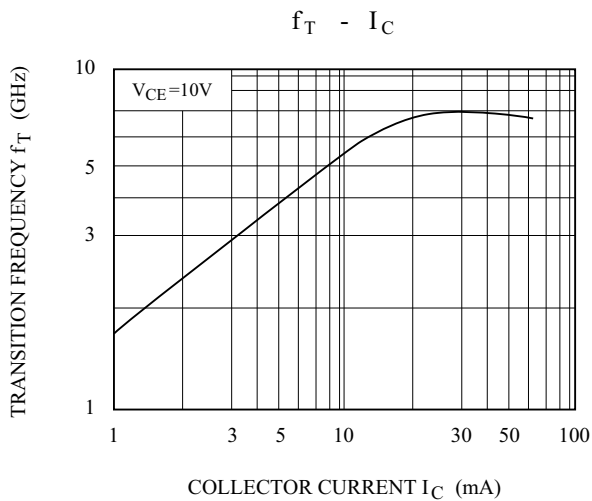
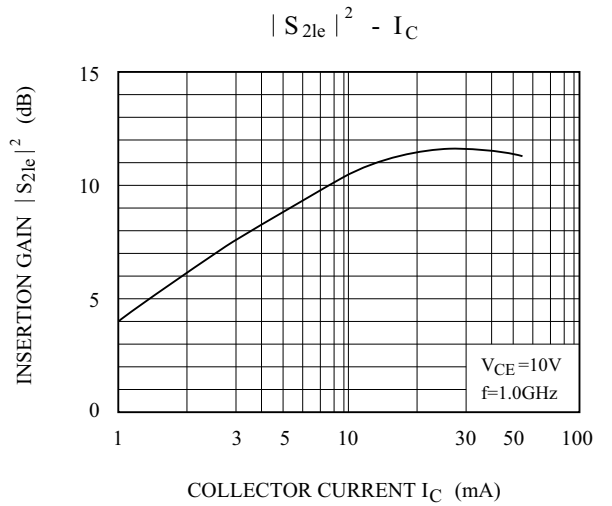
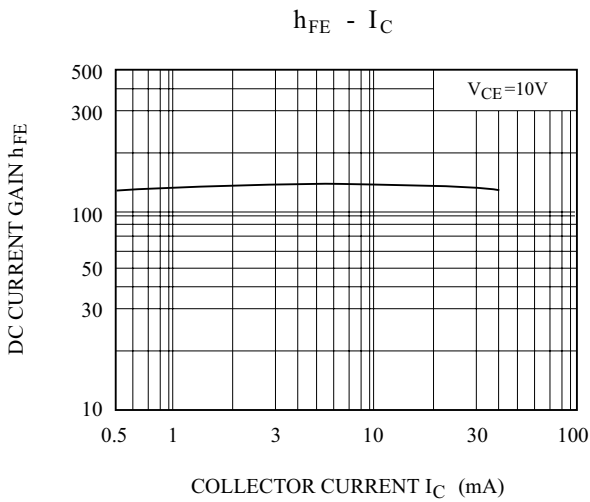
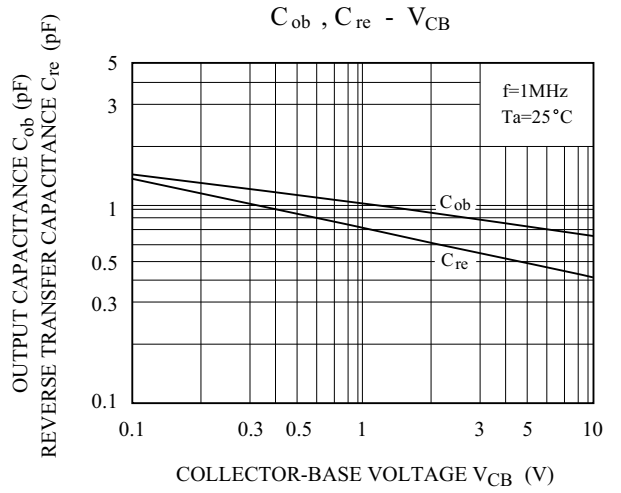
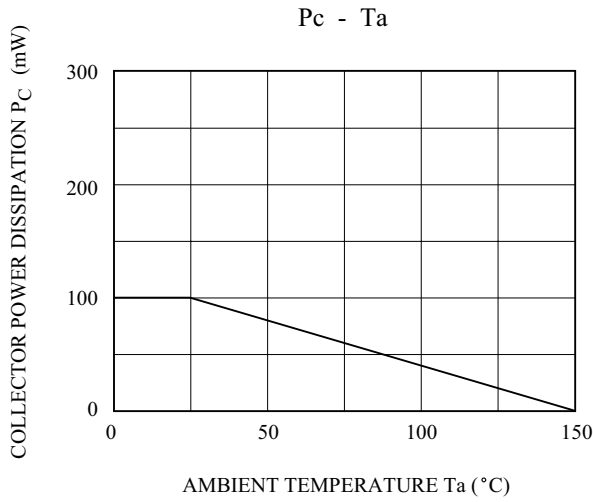
| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|------------------------------|------------------|-------------------------------------|------|------|------|------|
| Collector Cut-off Current | I_{CBO} | $V_{CB}=10V, I_E=0$ | - | - | 1 | μA |
| Emitter Cut-off Current | I_{EBO} | $V_{EB}=1V, I_C=0$ | - | - | 1 | μA |
| DC Current Gain | h_{FE} (Note1) | $V_{CE}=10V, I_C=20mA$ | 50 | - | 250 | |
| Collector Output Capacitance | C_{ob} | $V_{CB}=10V, I_E=0, f=1MHz$ (Note2) | - | - | 1.0 | pF |
| Reverse Transfer Capacitance | C_{re} | | - | 0.65 | 1.15 | pF |
| Transition Frequency | f_T | $V_{CE}=10V, I_C=20mA$ | 5 | 7 | - | GHz |
| Insertion Gain | $ S_{21e} ^2$ | $V_{CE}=10V, I_C=20mA, f=1GHz$ | 7.5 | 11.5 | - | dB |
| Noise Figure | NF | $V_{CE}=10V, I_C=7mA, f=1GHz$ | - | 1.1 | 2 | dB |

Note 1 : h_{FE} Classification A:50~100, B:80~160, C:125~250.

Note 2 : C_{re} is measured by 3 terminal method with capacitance bridge.

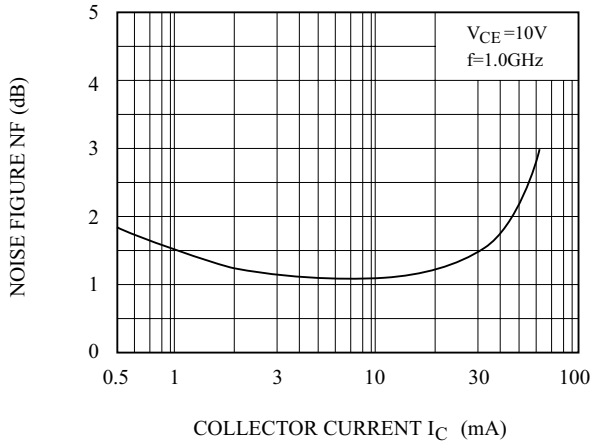
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TYPICAL CHARACTERISTICS (Ta=25°C)

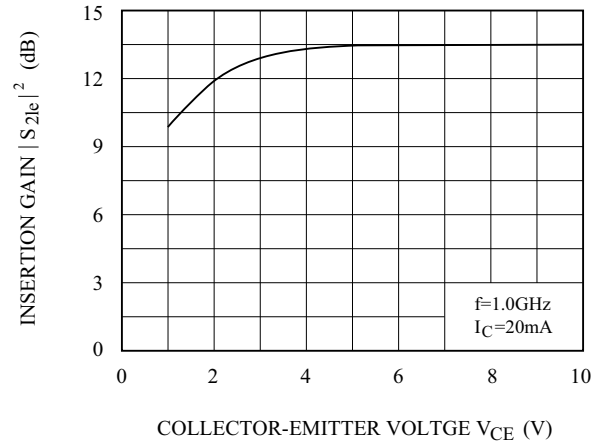


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NF - I_C



$|S_{21c}|^2 - V_{CE}$



S-PARAMETER

($V_{CE}=10V$, $I_C=5mA$, $Z_0=50 \Omega$)

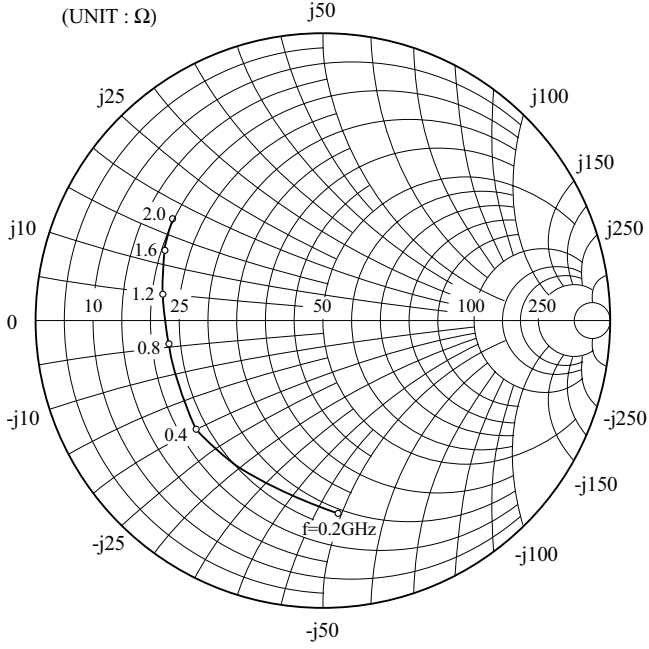
| f (MHz) | $ S_{11} $ | $\angle S_{11}$ | $ S_{21} $ | $\angle S_{21}$ | $ S_{12} $ | $\angle S_{12}$ | $ S_{22} $ | $\angle S_{22}$ |
|---------|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|
| 200 | 0.651 | -69.3 | 10.616 | 129.3 | 0.051 | 59.2 | 0.735 | -28.1 |
| 400 | 0.467 | -113.3 | 6.856 | 104.4 | 0.071 | 54.4 | 0.550 | -34.1 |
| 600 | 0.391 | -139.3 | 4.852 | 90.9 | 0.086 | 56.0 | 0.468 | -33.9 |
| 800 | 0.360 | -159.2 | 3.802 | 81.2 | 0.101 | 59.1 | 0.426 | -33.6 |
| 1000 | 0.360 | -176.9 | 3.098 | 72.9 | 0.118 | 61.0 | 0.397 | -35.7 |
| 1200 | 0.361 | 172.7 | 2.646 | 67.3 | 0.137 | 63.5 | 0.373 | -38.3 |
| 1400 | 0.381 | 160.3 | 2.298 | 59.3 | 0.157 | 63.3 | 0.360 | -43.0 |
| 1600 | 0.398 | 152.2 | 2.071 | 55.2 | 0.180 | 64.1 | 0.337 | -45.9 |
| 1800 | 0.423 | 143.3 | 1.836 | 49.0 | 0.203 | 63.7 | 0.320 | -52.3 |
| 2000 | 0.445 | 137.6 | 1.689 | 46.2 | 0.220 | 64.7 | 0.302 | -52.2 |

($V_{CE}=10V$, $I_C=20mA$, $Z_0=50 \Omega$)

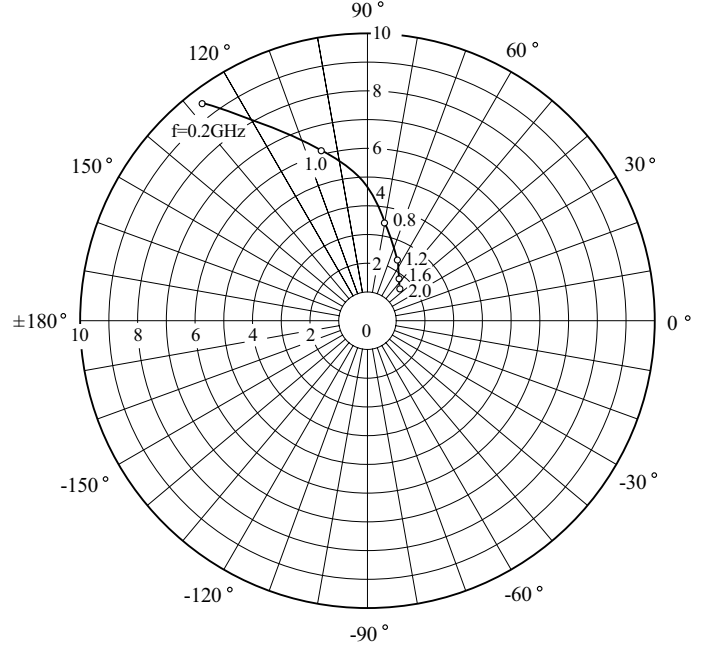
| f (MHz) | $ S_{11} $ | $\angle S_{11}$ | $ S_{21} $ | $\angle S_{21}$ | $ S_{12} $ | $\angle S_{12}$ | $ S_{22} $ | $\angle S_{22}$ |
|---------|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|
| 200 | 0.339 | -107.0 | 16.516 | 108.7 | 0.035 | 66.1 | 0.459 | -36.6 |
| 400 | 0.258 | -147.3 | 8.928 | 92.1 | 0.060 | 71.0 | 0.343 | -32.9 |
| 600 | 0.243 | -167.7 | 6.022 | 83.0 | 0.085 | 71.9 | 0.305 | -29.9 |
| 800 | 0.242 | 177.0 | 4.633 | 76.2 | 0.109 | 72.2 | 0.284 | -29.4 |
| 1000 | 0.260 | 164.5 | 3.744 | 69.9 | 0.136 | 70.4 | 0.266 | -31.7 |
| 1200 | 0.269 | 157.6 | 3.193 | 65.7 | 0.160 | 69.9 | 0.246 | -35.0 |
| 1400 | 0.294 | 148.7 | 2.750 | 58.8 | 0.187 | 66.7 | 0.233 | -40.4 |
| 1600 | 0.314 | 143.1 | 2.479 | 55.5 | 0.212 | 65.2 | 0.208 | -43.6 |
| 1800 | 0.343 | 136.5 | 2.185 | 50.1 | 0.238 | 62.4 | 0.190 | -50.5 |
| 2000 | 0.367 | 131.4 | 2.016 | 47.8 | 0.254 | 61.6 | 0.173 | -48.3 |

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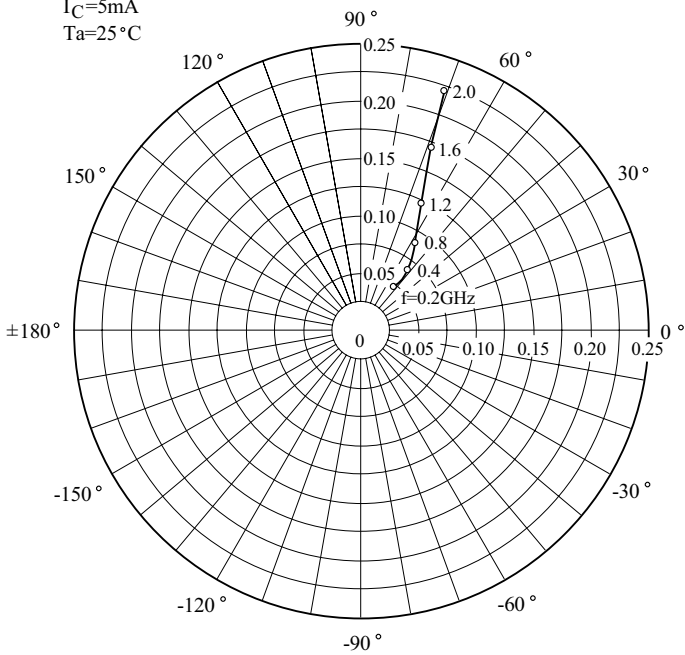
S_{11e}
 V_{CE}=10V
 I_C=5mA
 T_a=25°C
 (UNIT : Ω)



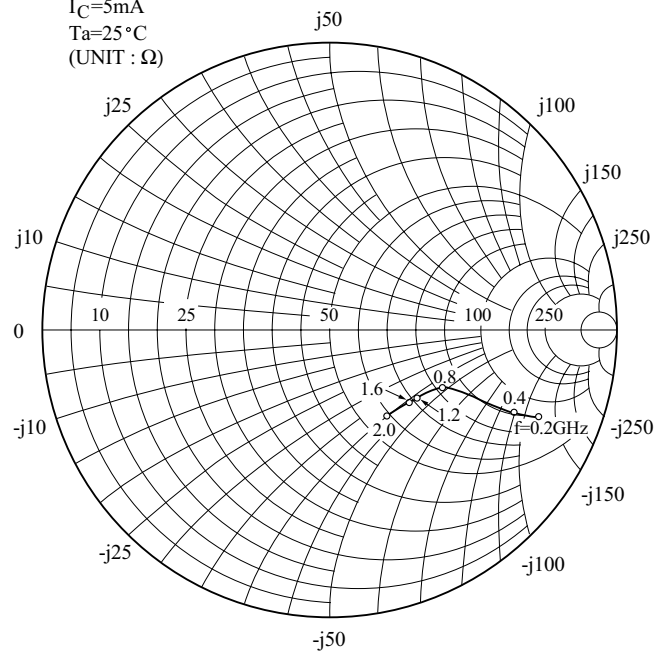
S_{12e}
 V_{CE}=10V
 I_C=5mA
 T_a=25°C



S_{21e}
 V_{CE}=10V
 I_C=5mA
 T_a=25°C

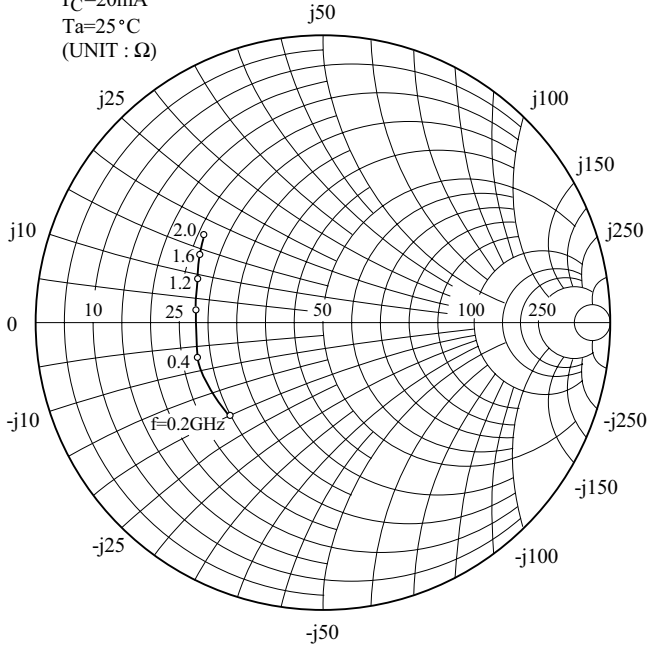


S_{22e}
 V_{CE}=10V
 I_C=5mA
 T_a=25°C
 (UNIT : Ω)

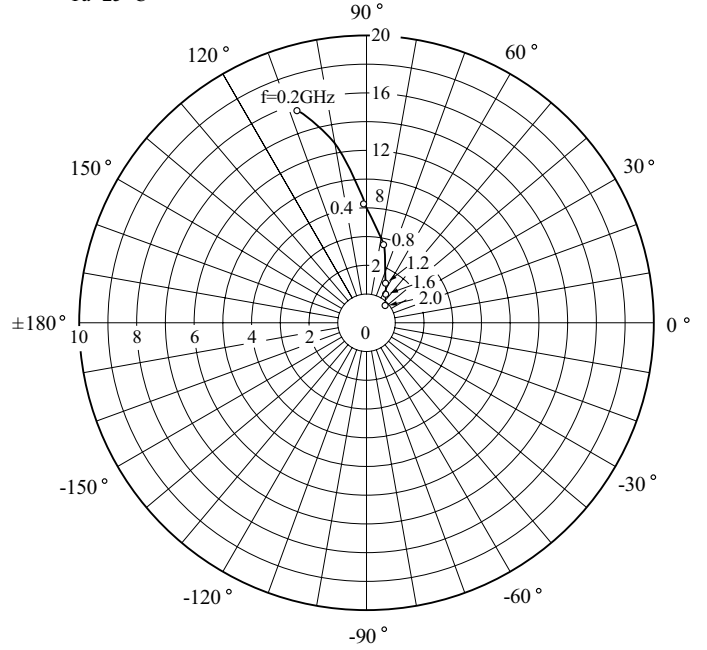


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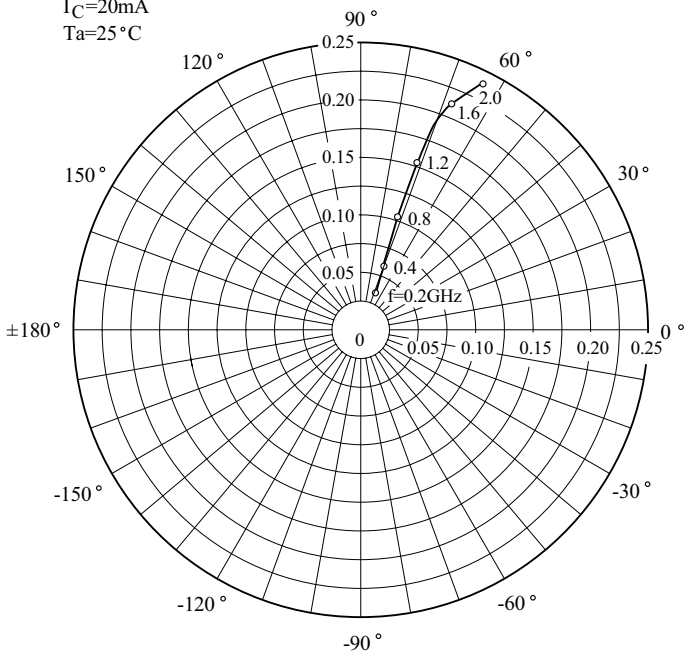
S_{11e}
V_{CE}=10V
I_C=20mA
T_a=25°C
(UNIT : Ω)



S_{12e}
V_{CE}=10V
I_C=20mA
T_a=25°C



S_{21e}
V_{CE}=10V
I_C=20mA
T_a=25°C



S_{22e}
V_{CE}=10V
I_C=20mA
T_a=25°C
(UNIT : Ω)

