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|--------------|----------|---|
| SANYO | No.1954C | 2SC3779 |
| | | NPN Epitaxial Planar Silicon Transistor UHF Low-Noise Amp, Wide-Band Amp Applications |

Applications

- . UHF low-noise amplifiers, wide-band amplifiers

Features

- . Small noise figure: NF=1.5dB typ(f=0.9GHz).
- . High power gain: MAG=14dB typ(f=0.9GHz).
- . High cutoff frequency: $f_T=5\text{GHz}$ typ.

Absolute Maximum Ratings at Ta=25°C

| | | | unit |
|------------------------------|-----------|-------------|------|
| Collector to Base Voltage | V_{CB0} | 20 | V |
| Collector to Emitter Voltage | V_{CE0} | 12 | V |
| Emitter to Base Voltage | V_{EB0} | 3 | V |
| Collector Current | I_C | 100 | mA |
| Base Current | I_B | 40 | mA |
| Collector Dissipation | P_C | 600 | mW |
| Junction Temperature | T_j | 150 | °C |
| Storage Temperature | T_{stg} | -55 to +150 | °C |

Electrical Characteristics at Ta=25°C

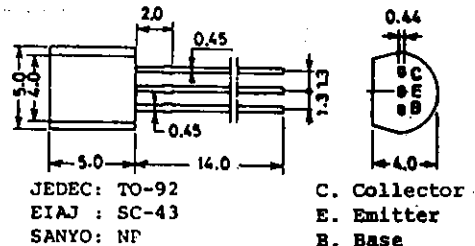
| | | | min | typ | max | unit |
|------------------------------|---------------|---|-----|-----|------|---------------|
| Collector Cutoff Current | I_{CB0} | $V_{CB}=12\text{V}, I_E=0$ | | | 1.0 | μA |
| Emitter Cutoff Current | I_{EB0} | $V_{EB}=2\text{V}, I_C=0$ | | | 10 | μA |
| DC Current Gain | h_{FE} | $V_{CE}=10\text{V}, I_C=20\text{mA}$ | 40* | | 200* | |
| Gain-Bandwidth Product | f_T | $V_{CE}=10\text{V}, I_C=20\text{mA}$ | | 5.0 | | GHz |
| Output Capacitance | c_{ob} | $V_{CB}=10\text{V}, f=1\text{MHz}$ | | 1.0 | | pF |
| Reverse Transfer Capacitance | c_{re} | $V_{CB}=10\text{V}, f=1\text{MHz}$ | | 0.7 | | pF |
| Forward Transfer Gain | $ S_{21e}^2 $ | $V_{CE}=10\text{V}, I_C=20\text{mA}, f=0.9\text{GHz}$ | 8.5 | 10 | | dB |
| Maximum Available Power Gain | MAG | $V_{CE}=10\text{V}, I_C=20\text{mA}, f=0.9\text{GHz}$ | | 14 | | dB |
| Noise Figure | NF | $V_{CE}=10\text{V}, I_C=5\text{mA}, f=0.9\text{GHz}$ | 1.5 | 3.0 | | dB |

See specified Test Circuit.

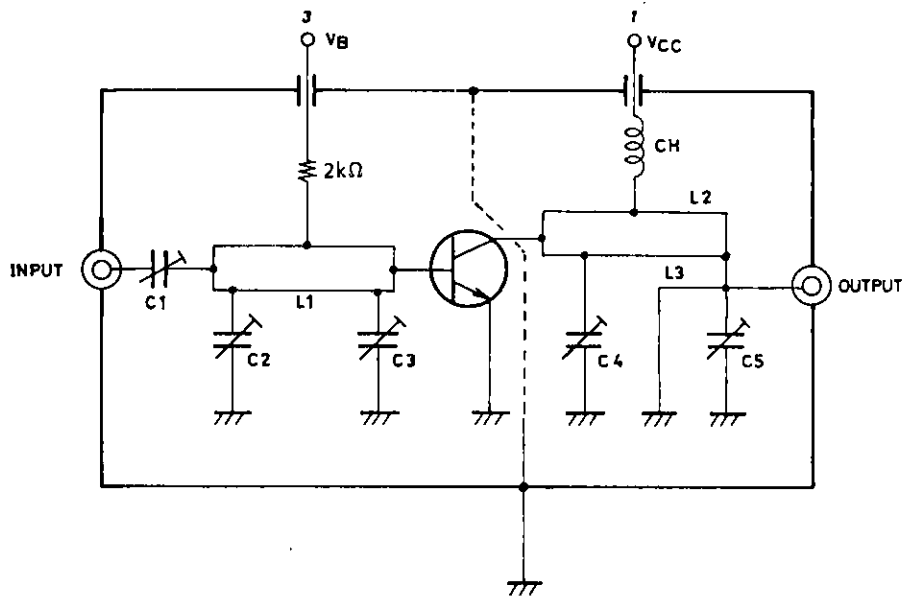
*: The 2SC3779 is classified by 20mA h_{FE} as follows:

| | | | | | | | | |
|----|---|----|----|---|-----|-----|---|-----|
| 40 | C | 80 | 60 | D | 120 | 100 | E | 200 |
|----|---|----|----|---|-----|-----|---|-----|

Package Dimensions 2004A
(unit: mm)

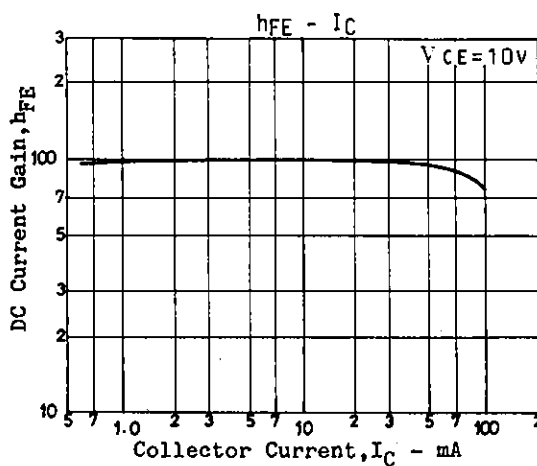
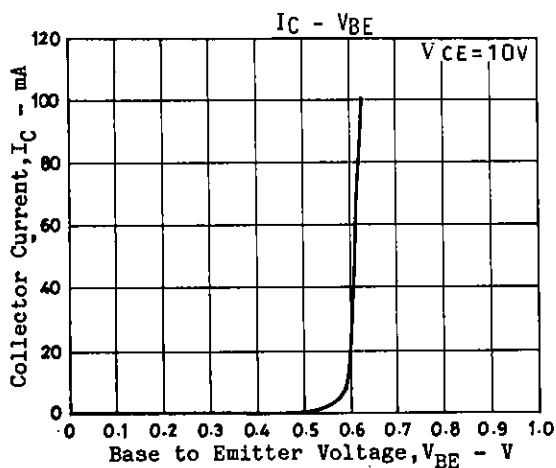


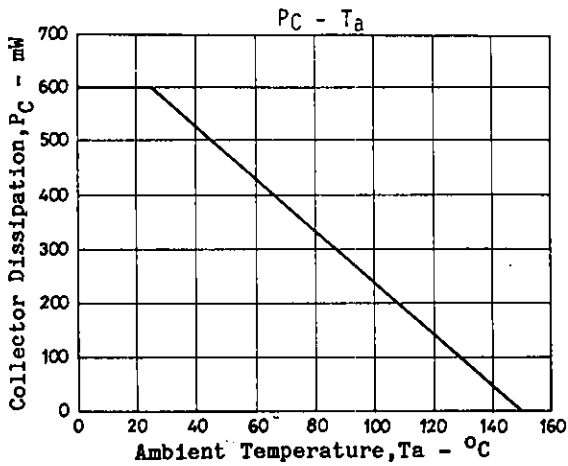
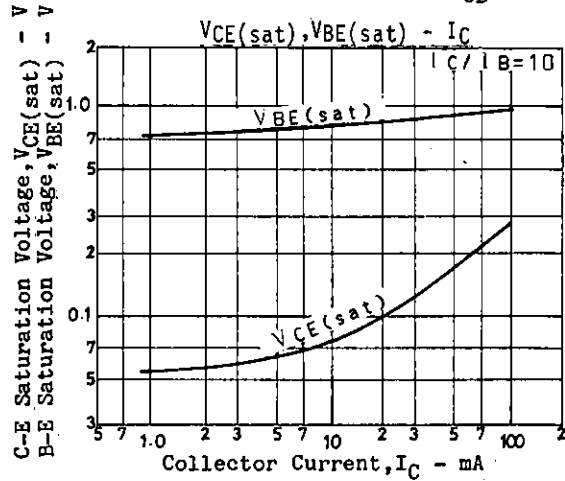
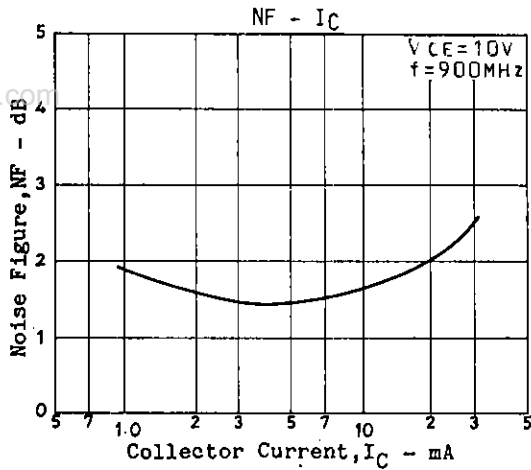
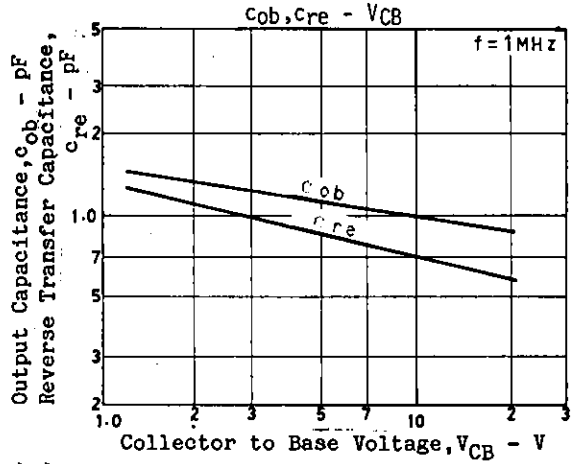
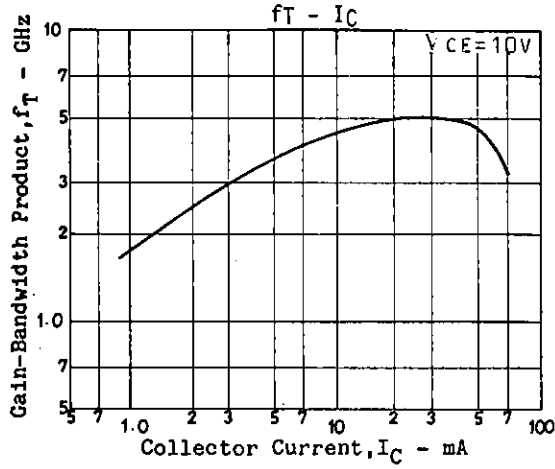
NF Test Circuit



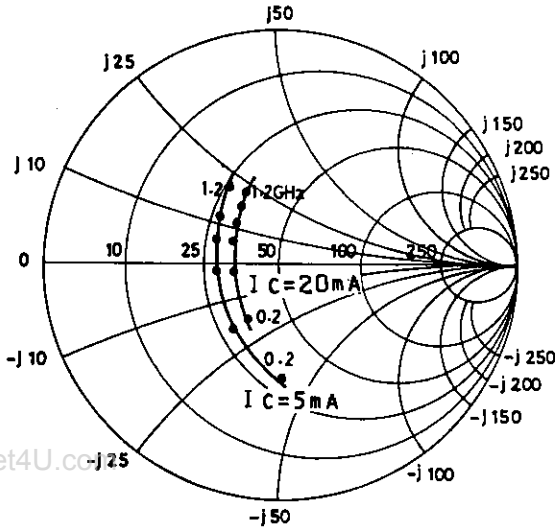
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| f = 900 MHz | |
|-------------|------------------------|
| C1 | ~5 pF |
| C2 | ~10 pF |
| C3 | ~10 pF |
| C4 | ~10 pF |
| C5 | ~10 pF |
| L1 | W = 1.5 mm, l = 2.5 mm |
| L2 | W = 4.0 mm, l = 2.5 mm |
| L3 | 0.5 φ, l = 4.0 mm |

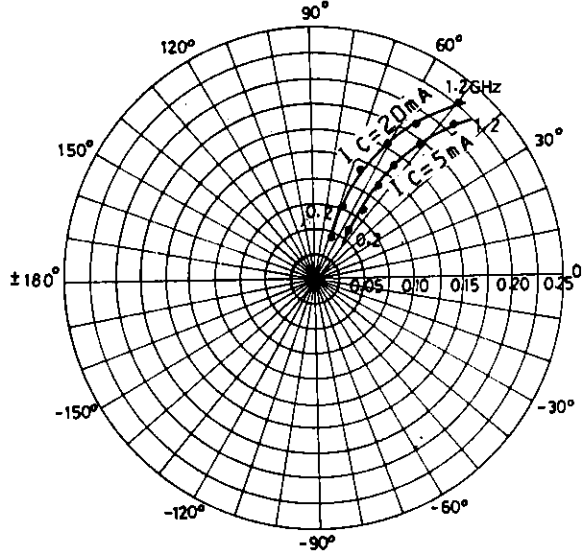




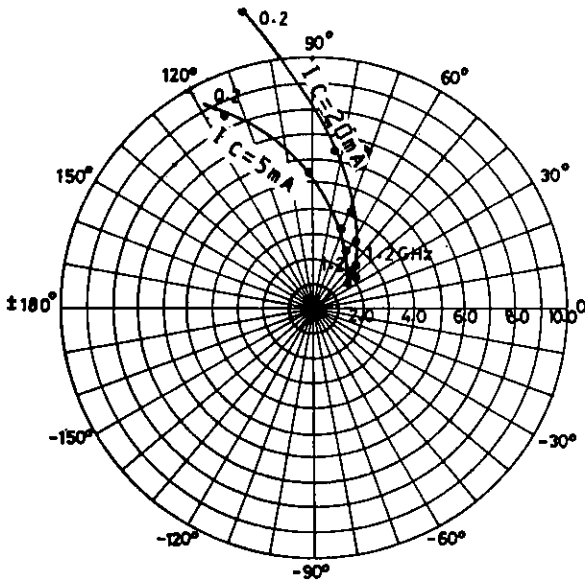
S11e : $V_{CE}=10V$
f=200MHz step



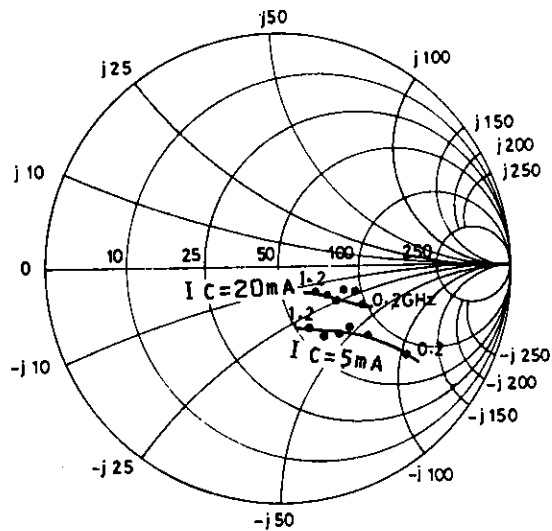
S12e : $V_{CE}=10V$
f=200MHz step



S21e : $V_{CE}=10V$
f=200MHz step



S22e : $V_{CE}=10V$
f=200MHz step



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