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| SANYO | No.1945B | 2SC3772 |
| | | NPN Epitaxial Planar Silicon Transistor UHF Oscillator, Mixer, Low-Noise Amp, Wide-Band Amp Applications |

Applications

- UHF frequency converters, local oscillators, low-noise amplifiers, wide-band amplifiers.

Features

- Small noise figure: NF=2.5dB typ(f=0.9GHz).
- High power gain: MAG=12dB typ(f=0.9GHz).
- High cutoff frequency: $f_T=3.0\text{GHz}$ typ.

Absolute Maximum Ratings at Ta=25°C

| | | | unit |
|------------------------------|-----------|-------------|------|
| Collector to Base Voltage | V_{CB0} | 25 | V |
| Collector to Emitter Voltage | V_{CE0} | 16 | V |
| Emitter to Base Voltage | V_{EB0} | 3 | V |
| Collector Current | I_C | 70 | mA |
| Base Current | I_B | 20 | mA |
| Collector Dissipation | P_C | 250 | 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} | $V_{CB}=16\text{V}, I_E=0$ | | | 1.0 | µA |
| Emitter Cutoff Current | I_{EB0} | $V_{EB}=2\text{V}, I_C=0$ | | | 10 | µA |
| DC Current Gain | h_{FE} | $V_{CE}=10\text{V}, I_C=10\text{mA}$ | 40* | | 200* | |
| Gain-Bandwidth Product | f_T | $V_{CE}=10\text{V}, I_C=10\text{mA}$ | 1.5 | 3.0 | | GHz |
| Output Capacitance | c_{ob} | $V_{CB}=10\text{V}, f=1\text{MHz}$ | | 0.65 | 1.0 | pF |
| Reverse Transfer Capacitance | c_{re} | $V_{CB}=10\text{V}, f=1\text{MHz}$ | | 0.45 | | pF |
| Forward Transfer Gain | $ S_{21e}^2 $ | $V_{CE}=10\text{V}, I_C=10\text{mA}, f=0.9\text{GHz}$ | 7 | 9 | | dB |
| Maximum Available Power Gain | MAG | $V_{CE}=10\text{V}, I_C=10\text{mA}, f=0.9\text{GHz}$ | | 12 | | dB |
| Noise Figure | NF | $V_{CE}=10\text{V}, I_C=3\text{mA}, f=0.9\text{GHz}$ | 2.5 | | | dB |

See specified Test Circuit.

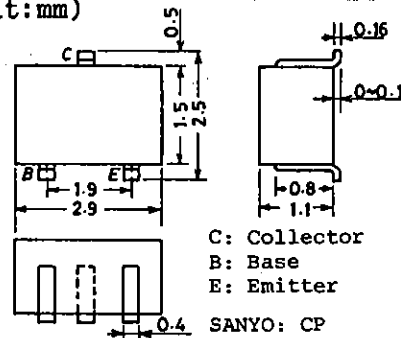
*: The 2SC3772 is classified by 10mA h_{FE} as follows:

| | | | | | | | | |
|----|---|----|----|---|-----|-----|---|-----|
| 40 | 2 | 80 | 60 | 3 | 120 | 100 | 4 | 200 |
|----|---|----|----|---|-----|-----|---|-----|

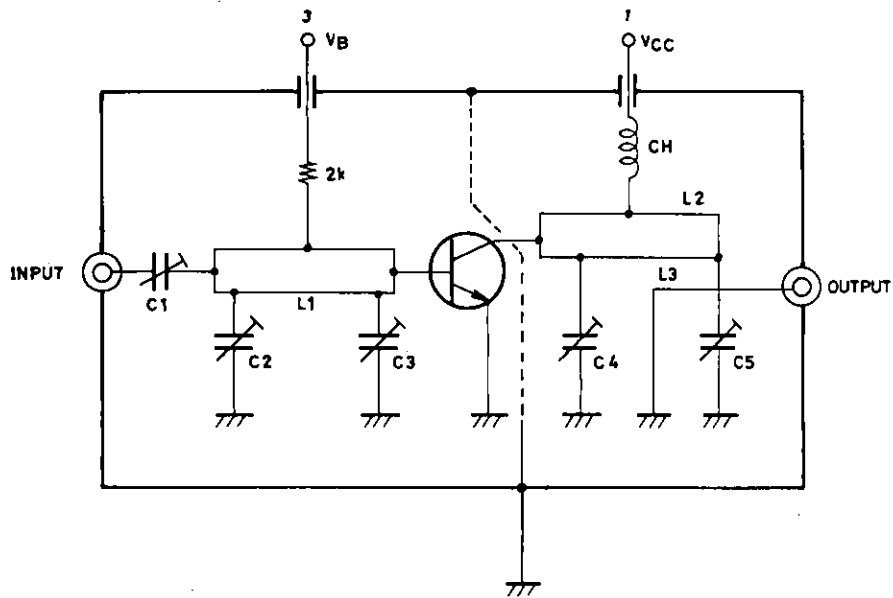
(Note) Marking :LY
 h_{FE} rank :2,3,4

Package Dimensions 2018A

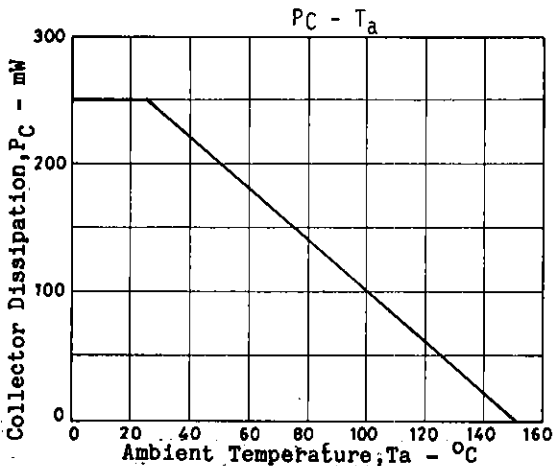
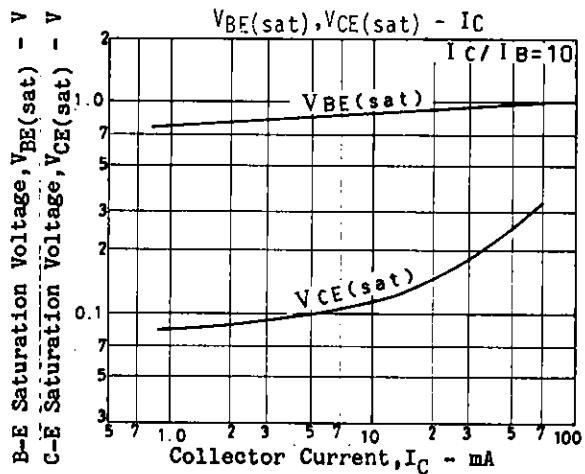
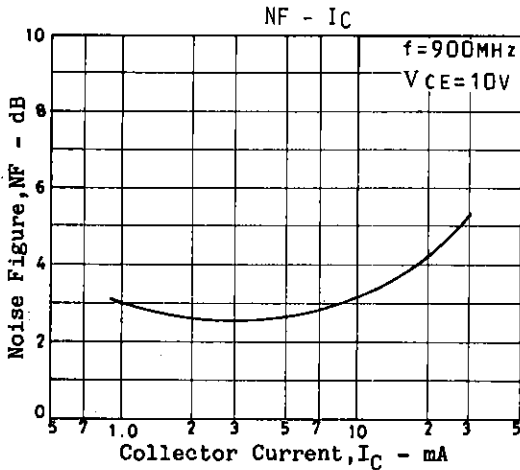
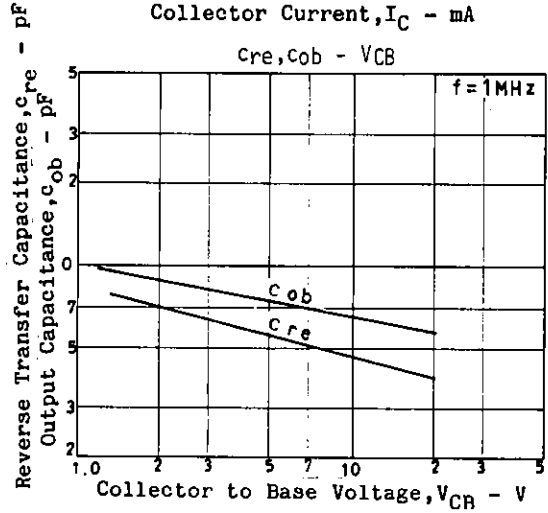
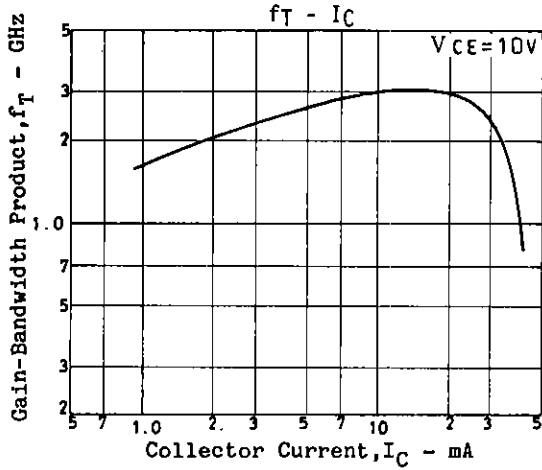
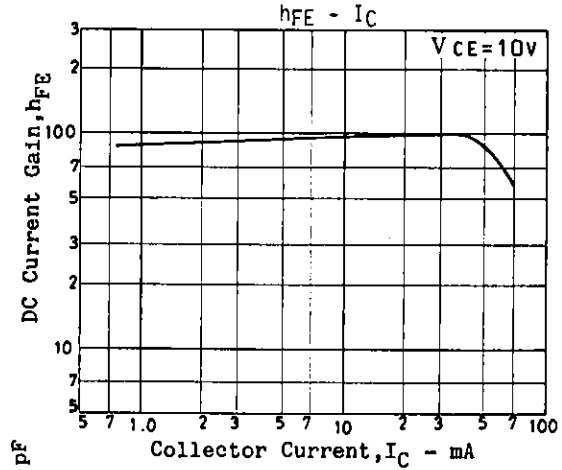
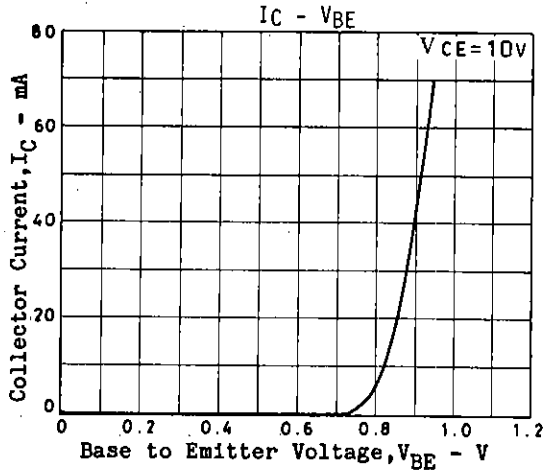
(unit:mm)



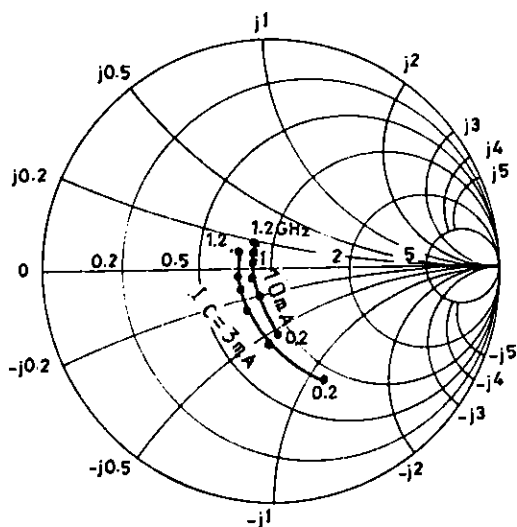
NF Test Circuit

Unit (Resistance : Ω)

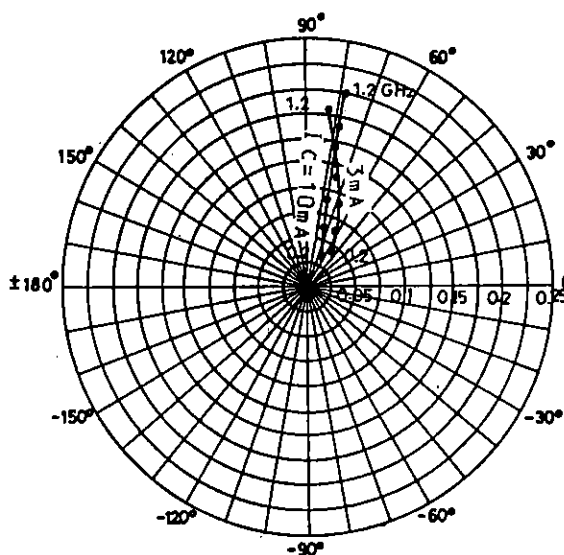
| 900MHz | |
|--------|---|
| C1 | ~5 pF |
| C2 | ~10 pF |
| C3 | ~10 pF |
| C4 | ~10 pF |
| C5 | ~10 pF |
| L1 | W \div 1.5mm, l \div 25mm strip line |
| L2 | W \div 4mm, l \div 25mm strip line |
| L3 | 0.5 ϕ , l \div 40mm |
| CH | 2t+bead core |



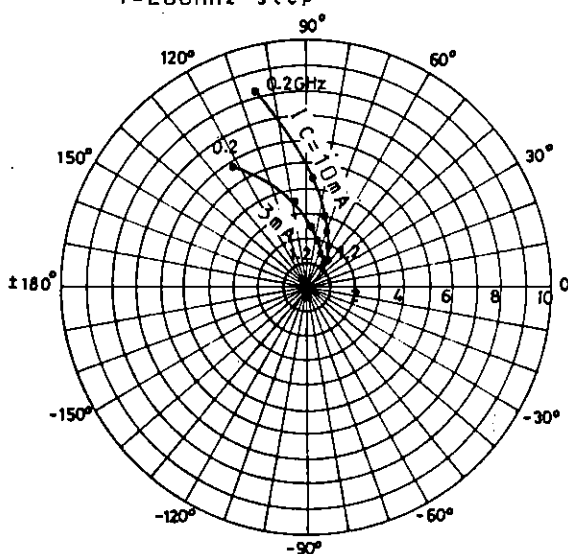
S11e : $V_{CE}=10V$
 $f=200MHz$ step



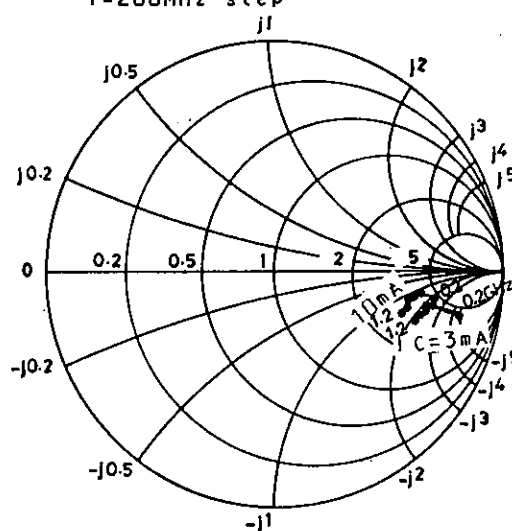
S12e : $V_{CE}=10V$
 $f=200MHz$ step



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



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



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