

TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

2SC3122

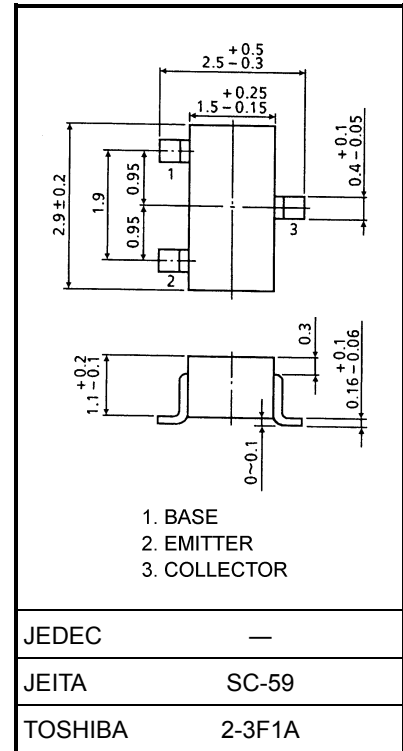
TV VHF RF Amplifier Applications

- High gain: $G_{pe} = 24\text{dB}$ (typ.) ($f = 200\text{ MHz}$)
- Low noise: $NF = 2.0\text{dB}$ (typ.) ($f = 200\text{ MHz}$)
- Excellent forward AGC characteristics

Maximum Ratings ($T_a = 25^\circ\text{C}$)

| Characteristics | Symbol | Rating | Unit |
|-----------------------------|-----------|---------|------------------|
| Collector-base voltage | V_{CB0} | 30 | V |
| Collector-emitter voltage | V_{CEO} | 30 | V |
| Emitter-base voltage | V_{EBO} | 3 | V |
| Collector current | I_C | 20 | mA |
| Base current | I_B | 10 | mA |
| Collector power dissipation | P_C | 150 | mW |
| Junction temperature | T_j | 125 | $^\circ\text{C}$ |
| Storage temperature range | T_{stg} | -55~125 | $^\circ\text{C}$ |

Unit: mm

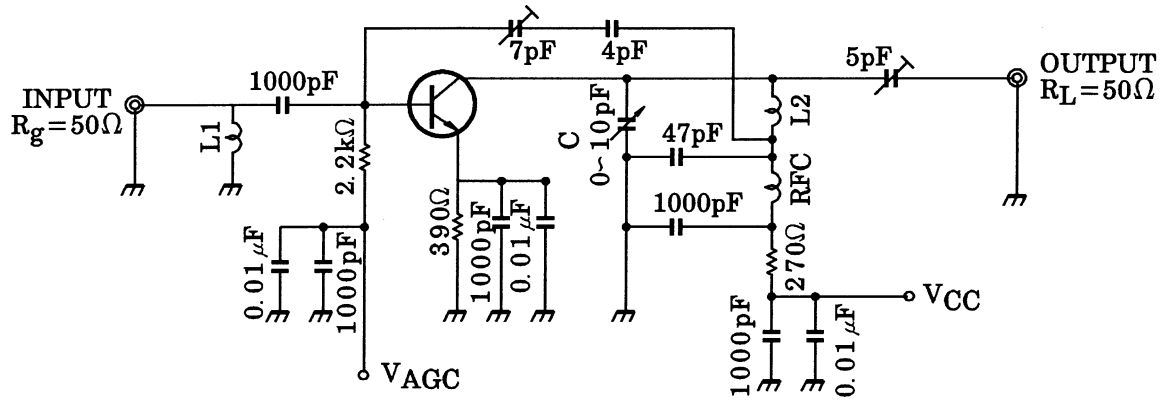


Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Weight: 0.012 g (typ.)

| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|-------------------------------------|---------------|--|-----|------|------|------|
| Collector cut-off current | I_{CBO} | $V_{CB} = 25\text{ V}, I_E = 0$ | — | — | 100 | nA |
| Emitter cut-off current | I_{EBO} | $V_{EB} = 2\text{ V}, I_C = 0$ | — | — | 100 | nA |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C = 1\text{ mA}, I_B = 0$ | 30 | — | — | V |
| DC current gain | h_{FE} | $V_{CE} = 10\text{ V}, I_C = 2\text{ mA}$ | 60 | 150 | 300 | |
| Reverse transfer capacitance | C_{re} | $V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$ | — | 0.3 | 0.45 | pF |
| Transition frequency | f_T | $V_{CE} = 10\text{ V}, I_C = 2\text{ mA}$ | 400 | 650 | — | MHz |
| Power gain | G_{pe} | $V_{CE} = 12\text{ V}, V_{AGC} = 1.4\text{ V}, f = 200\text{ MHz}$ | 20 | 24 | 28 | dB |
| Noise figure | NF | | — | 2.0 | 3.2 | dB |
| AGC voltage | V_{AGC} | $V_{CC} = 12\text{ V}, GR = 30\text{dB}, f = 200\text{ MHz}$ (Note) | 3.6 | 4.4 | 5.1 | V |

Note: V_{AGC} measured by test circuit shown in Figure 1 when power gain is reduced to 30dB compared that of V_{AGC} at 1.4 V.

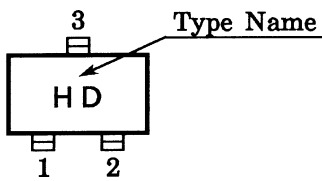


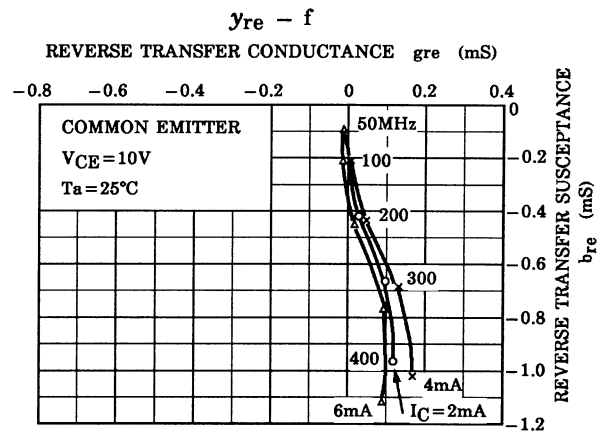
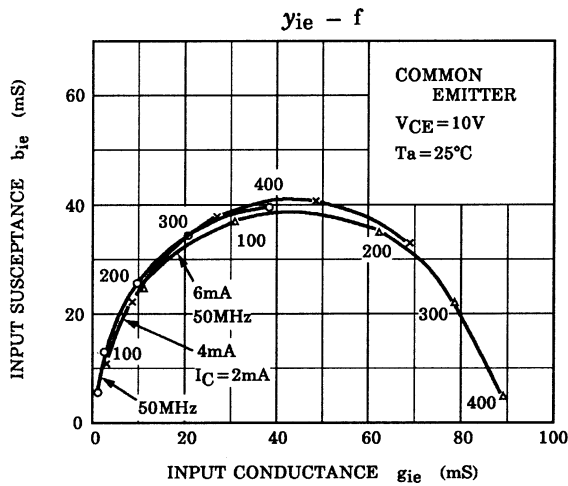
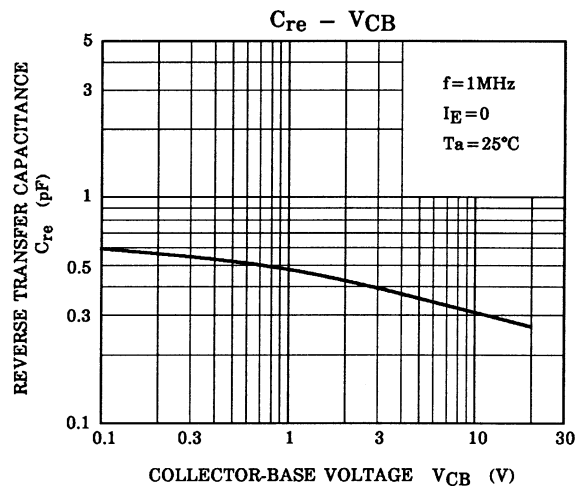
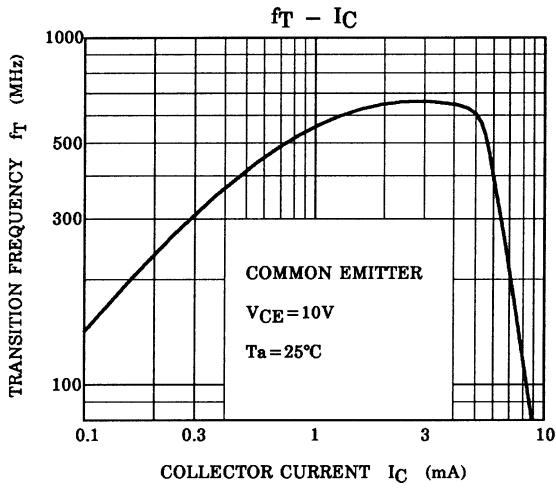
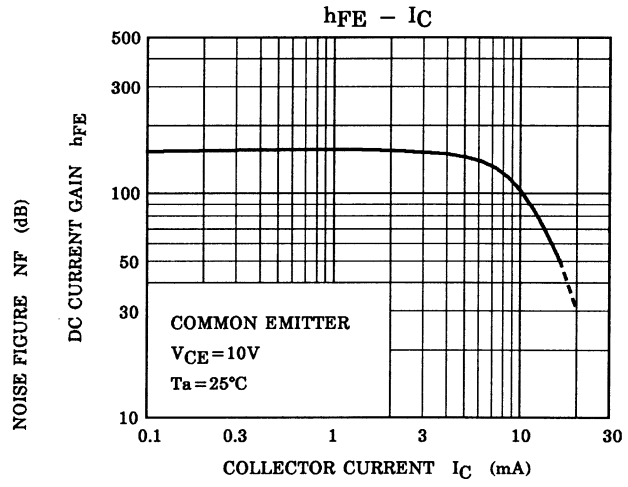
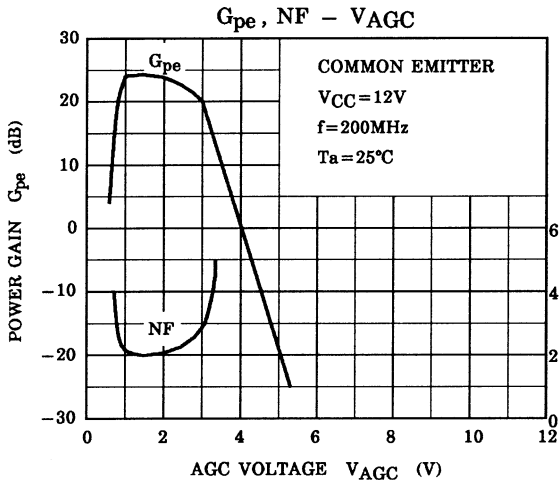
L1: RF Coil M-15 T (TOKO Inc.) or equivalent

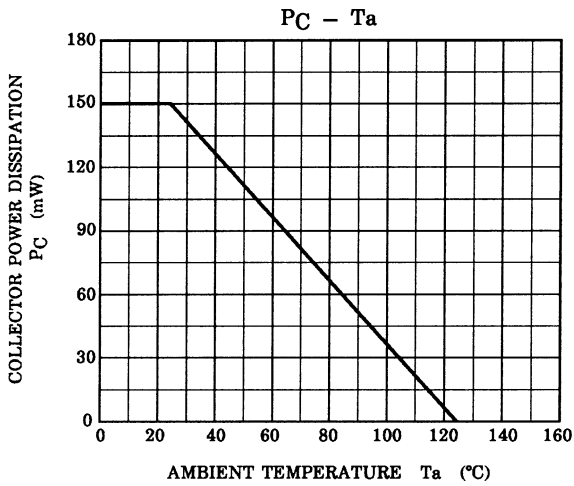
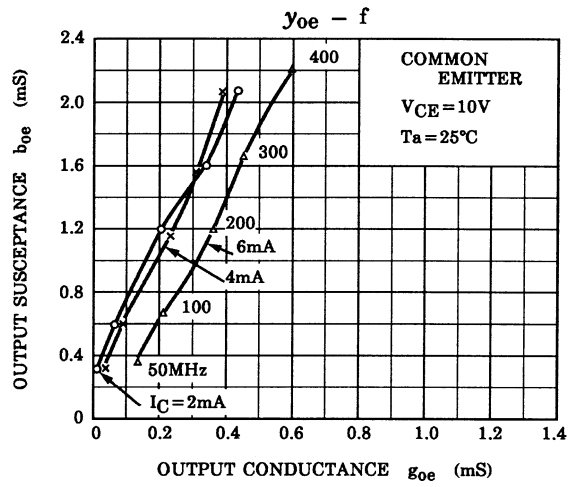
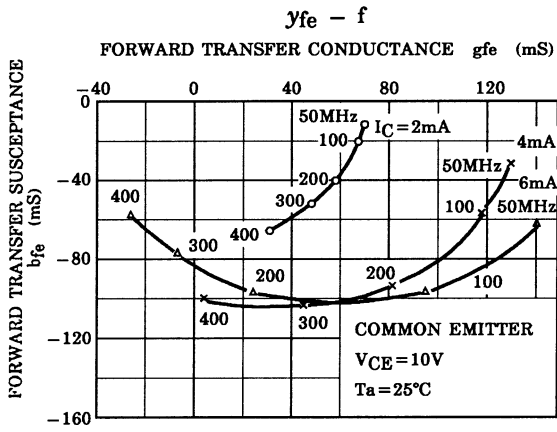
L2: RF Coil M-25 T (TOKO Inc.) or equivalent

Figure 1 200 MHz G_{pe} , NF Test Circuit

Marking







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