

TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

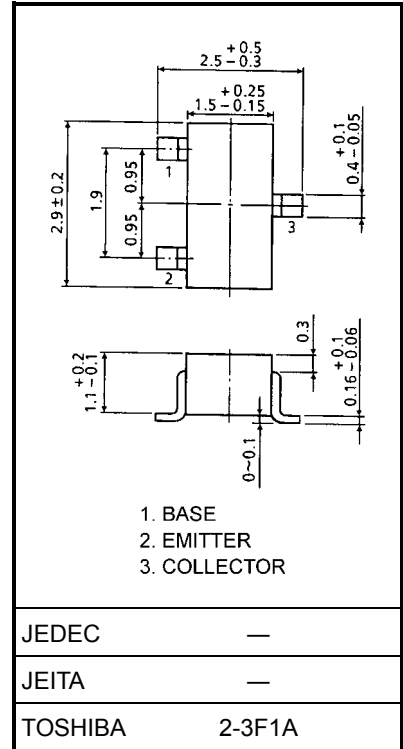
2SC3120

TV Tuner, UHF Mixer Applications
VHF~UHF Band RF Amplifier Applications

Unit: mm

Maximum Ratings (Ta = 25°C)

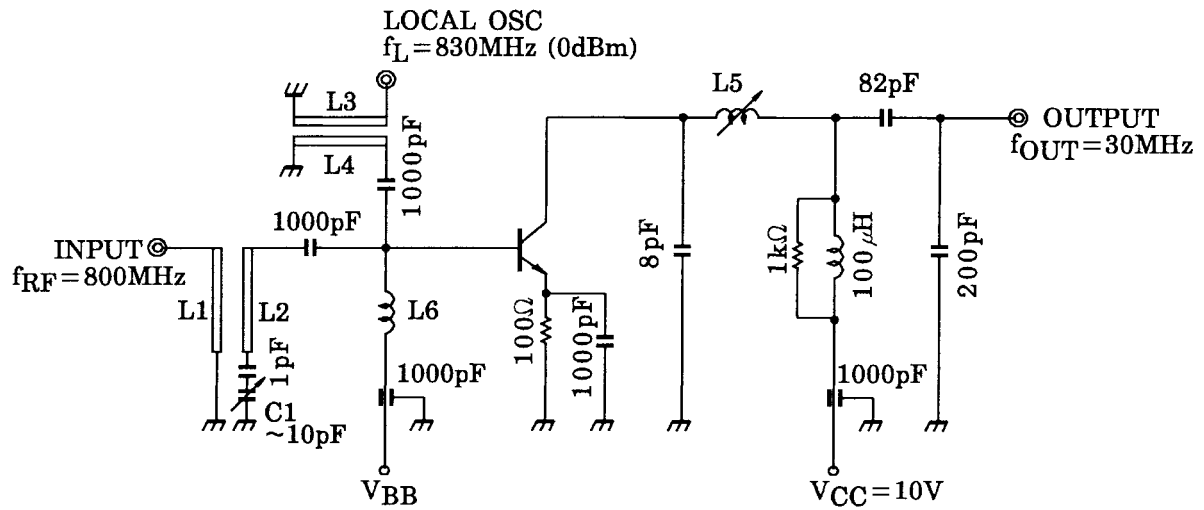
| Characteristics | Symbol | Rating | Unit |
|-----------------------------|------------------|---------|------|
| Collector-base voltage | V _{CB0} | 30 | V |
| Collector-emitter voltage | V _{CEO} | 15 | V |
| Emitter-base voltage | V _{EBO} | 3 | V |
| Collector current | I _C | 50 | mA |
| Base current | I _B | 25 | mA |
| Collector power dissipation | P _C | 150 | mW |
| Junction temperature | T _j | 125 | °C |
| Storage temperature range | T _{stg} | -55~125 | °C |



Electrical Characteristics (Ta = 25°C)

Weight: 0.012 g (typ.)

| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|-------------------------------------|----------------------|---|------|------|-----|------|
| Collector cut-off current | I _{CBO} | V _{CB} = 30 V, I _E = 0 | — | — | 0.1 | μA |
| Emitter cut-off current | I _{EBO} | V _{EB} = 2 V, I _C = 0 | — | — | 1.0 | μA |
| Collector-emitter breakdown voltage | V _{(BR)CEO} | I _C = 1 mA, I _B = 0 | 15 | — | — | V |
| DC current gain | h _{FE} | V _{CE} = 10 V, I _C = 5 mA | 40 | 100 | 200 | |
| Reverse transfer capacitance | C _{re} | V _{CB} = 10 V, I _E = 0, f = 1 MHz | — | 0.6 | 0.9 | pF |
| Transition frequency | f _T | V _{CE} = 10 V, I _C = 2 mA | 1500 | 2400 | — | MHz |
| Conversion gain | G _{ce} | V _{CC} = 10 V, I _C = 2 mA, f = 800 MHz, | 12 | 17 | — | dB |
| Noise figure | NF | f _L = 830 MHz (0dBm) (Figure 1) | — | 8 | — | dB |



L1~L4: $\phi 0.8$ mm silver plated copper wire

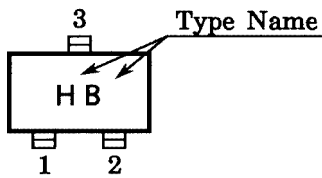
L5: Air coil SCN-5948 (1)-(3) TOKO or equivalent

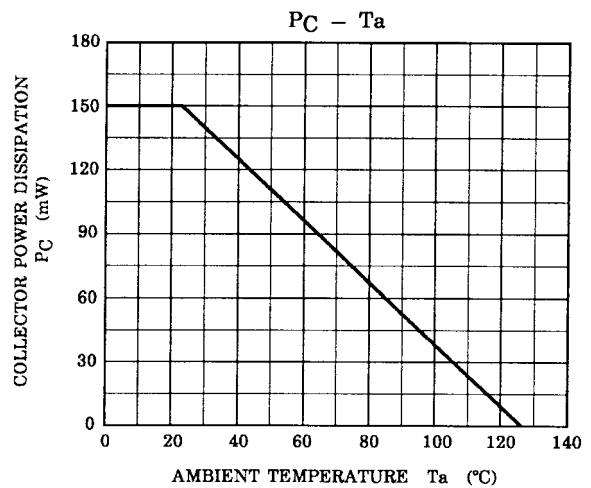
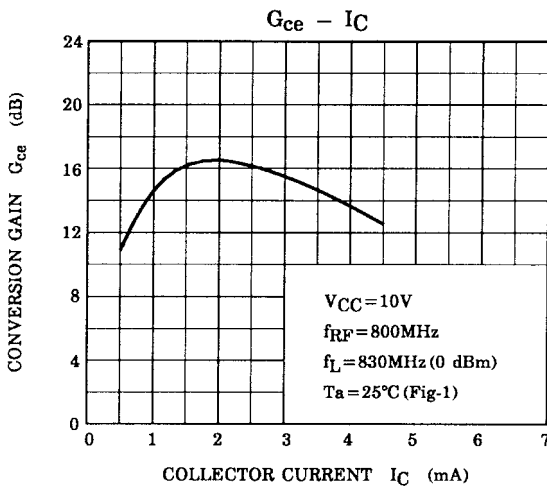
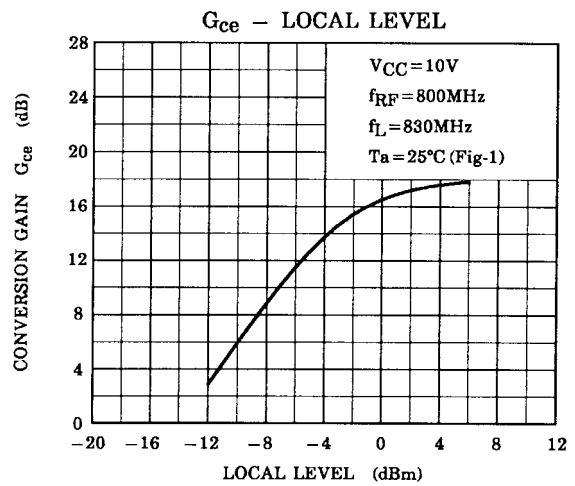
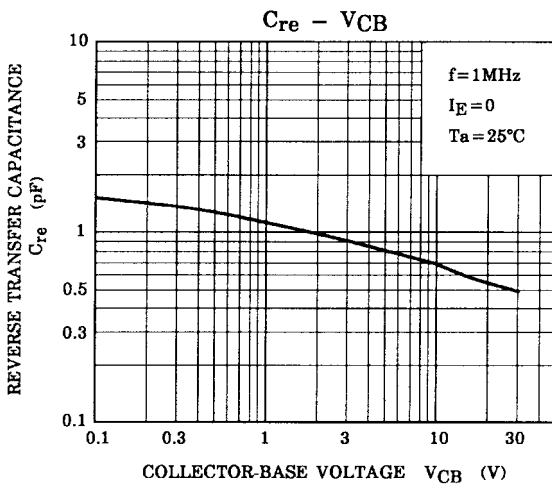
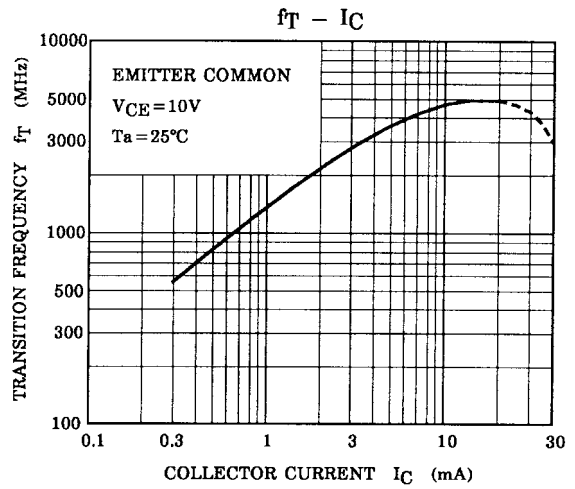
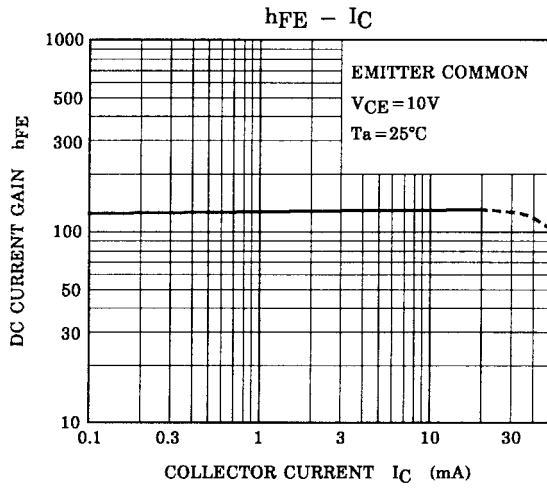
L6: $\phi 0.2$ mm copper wire 10 T 5 mm ID

C1: Air trimmer TTA23A100 MURATA Manufacturing. Co., Ltd. or equivalent

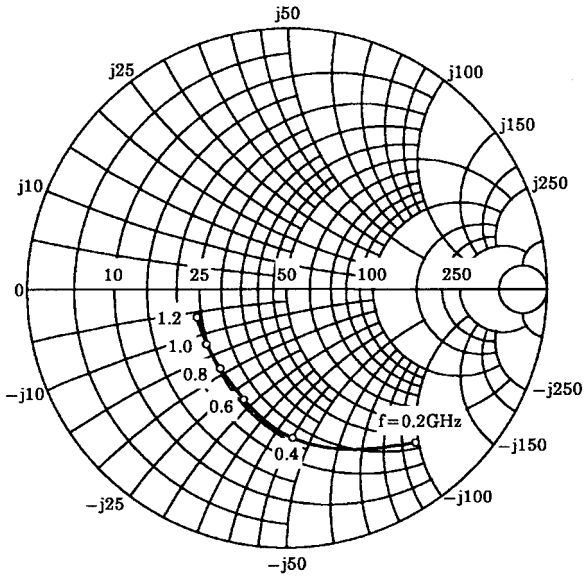
Figure 1 800 MHz G_{ce} , NF Test Circuit

Marking

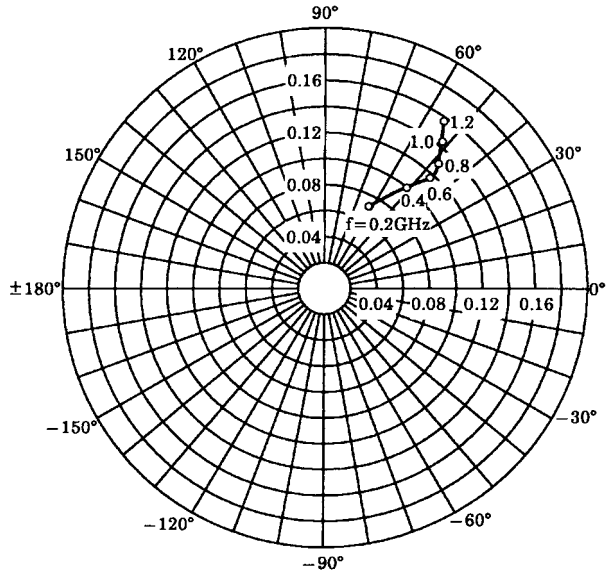




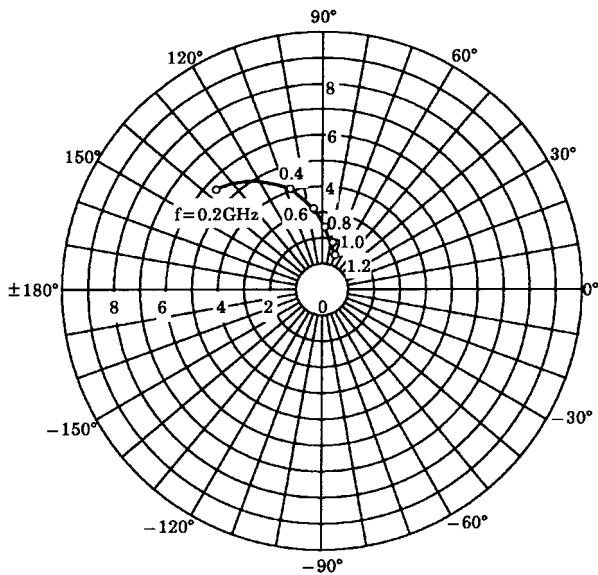
S11e
 $V_{CE} = 10V$
 $I_C = 2mA$
 $T_a = 25^\circ C$
 (UNIT : Ω)



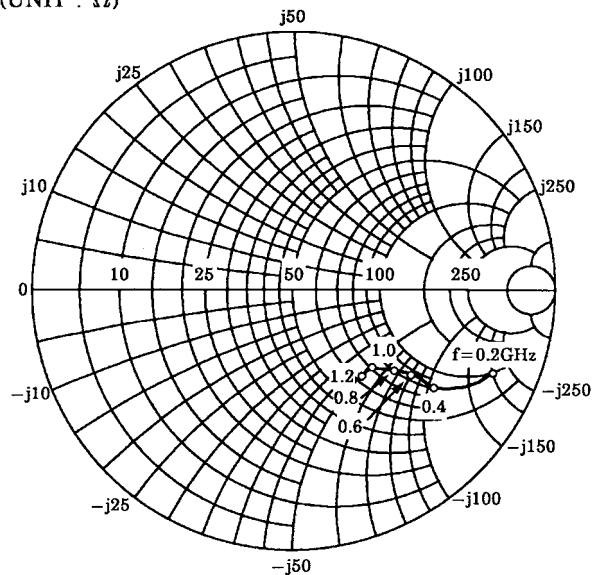
S12e
 $V_{CE} = 10V$
 $I_C = 2mA$
 $T_a = 25^\circ C$



S21e
 $V_{CE} = 10V$
 $I_C = 2mA$
 $T_a = 25^\circ C$



S22e
 $V_{CE} = 10V$
 $I_C = 2mA$
 $T_a = 25^\circ C$
 (UNIT : Ω)



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