

TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

MT3S05T

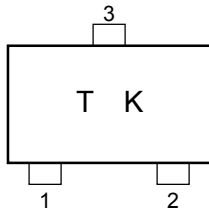
VHF~UHF Band Low Noise Amplifier Applications

- Suitable for use in an OSC
- Low noise figure
NF = 1.4dB
- Excellent collector current linearity
 $|S_{21e}|^2 = 8.5\text{dB}$ (@1 V/5 mA/1 GHz)

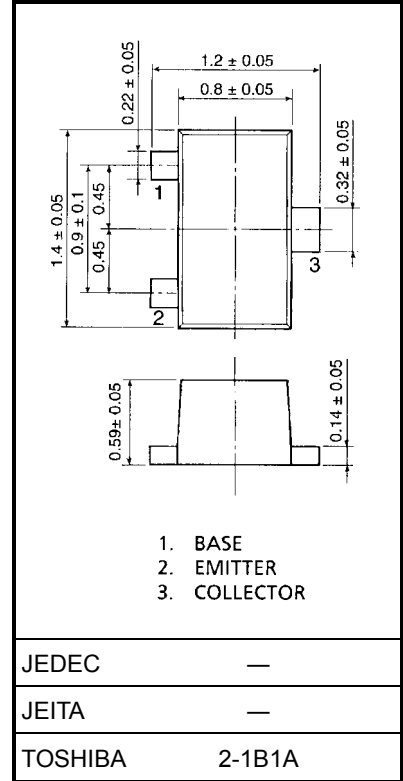
Maximum Ratings (Ta = 25°C)

| Characteristics | Symbol | Rating | Unit |
|-----------------------------|------------------|---------|------|
| Collector-base voltage | V _{CBO} | 10 | V |
| Collector-emitter voltage | V _{CEO} | 5 | V |
| Emitter-base voltage | V _{EBO} | 2 | V |
| Collector current | I _C | 40 | mA |
| Base current | I _B | 10 | mA |
| Collector power dissipation | P _C | 100 | mW |
| Junction temperature | T _J | 125 | °C |
| Storage temperature range | T _{stg} | -55~125 | °C |

Marking



Unit: mm



Weight: g (typ.)

Microwave Characteristics (Ta = 25°C)

| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|----------------------|------------------|---|-----|------|-----|------|
| Transition frequency | f_T | $V_{CE} = 1\text{ V}, I_C = 5\text{ mA}$ | 2 | 4.5 | — | GHz |
| Insertion gain | $ S_{21e} ^2(1)$ | $V_{CE} = 1\text{ V}, I_C = 5\text{ mA}, f = 1\text{ GHz}$ | — | 8.5 | — | dB |
| | $ S_{21e} ^2(2)$ | $V_{CE} = 3\text{ V}, I_C = 20\text{ mA}, f = 1\text{ GHz}$ | 8.5 | 11.5 | — | |
| Noise figure | NF | $V_{CE} = 1\text{ V}, I_C = 5\text{ mA}, f = 1\text{ GHz}$ | — | 1.4 | 2.2 | dB |

Electrical Characteristics (Ta = 25°C)

| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|------------------------------|-----------|--|-----|------|------|---------------|
| Collector cut-off current | I_{CBO} | $V_{CB} = 5\text{ V}, I_E = 0$ | — | — | 0.1 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB} = 1\text{ V}, I_C = 0$ | — | — | 1 | μA |
| DC current gain | h_{FE} | $V_{CE} = 1\text{ V}, I_C = 5\text{ mA}$ | 80 | — | 140 | — |
| Reverse transfer capacitance | C_{re} | $V_{CB} = 1\text{ V}, I_E = 0, f = 1\text{ MHz}$ (Note) | — | 0.9 | 1.25 | pF |

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

Caution

This device electrostatic sensitivity. Please handle with caution.

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