

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC5317

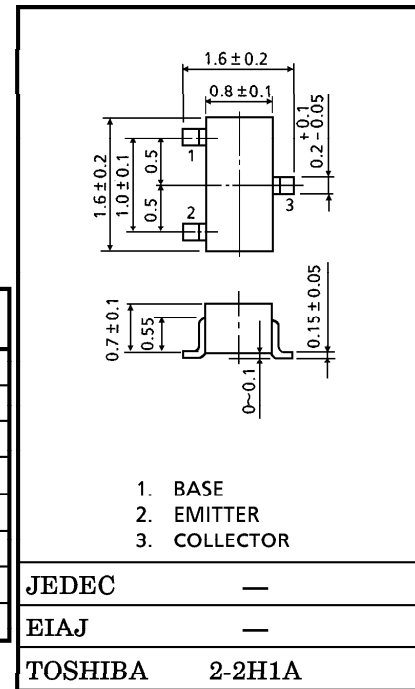
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS
(CHIP : $f_T=16\text{GHz}$ series)

Unit in mm

- Low Noise Figure : $NF=1.3\text{dB}$ ($f=2\text{GHz}$)
- High Gain : $G_a=9\text{dB}$ ($f=2\text{GHz}$)

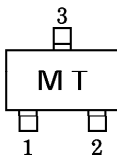
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|-----------------------------|-----------|---------------|------------------|
| Collector-Base Voltage | V_{CB0} | 8 | V |
| Collector-Emitter Voltage | V_{CEO} | 5 | V |
| Emitter-Base Voltage | V_{EB0} | 1.5 | V |
| Collector Current | I_C | 20 | mA |
| Base Current | I_B | 10 | mA |
| Collector Power Dissipation | P_C | 100 | mW |
| Junction Temperature | T_j | 125 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | $-55\sim 125$ | $^\circ\text{C}$ |



Weight : 2.4mg

MARKING



MICROWAVE CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|----------------------|-------------------|--|------|------|------|------|
| Transition Frequency | f_T | $V_{CE}=3\text{V}, I_C=15\text{mA}$ | 9 | — | — | GHz |
| Insertion Gain | $ S_{21e} ^2$ (1) | $V_{CE}=3\text{V}, I_C=15\text{mA}, f=1\text{GHz}$ | — | 15 | — | dB |
| | $ S_{21e} ^2$ (2) | $V_{CE}=3\text{V}, I_C=15\text{mA}, f=2\text{GHz}$ | — | 9 | — | |
| Noise Figure | NF (1) | $V_{CE}=3\text{V}, I_C=5\text{mA}, f=1\text{GHz}$ | — | 0.9 | 1.8 | dB |
| | NF (2) | $V_{CE}=3\text{V}, I_C=5\text{mA}, f=2\text{GHz}$ | — | 1.3 | 2.2 | |

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|------------------------------|-----------|--|------|------|------|---------|
| Collector Cut-off Current | I_{CBO} | $V_{CB} = 10V, I_E = 0$ | — | — | 1 | μA |
| Emitter Cut-off Current | I_{EBO} | $V_{EB} = 1V, I_C = 0$ | — | — | 1 | μA |
| DC Current Gain | h_{FE} | $V_{CE} = 3V, I_C = 15mA$ | 50 | — | 250 | V |
| Output Capacitance | C_{ob} | $V_{CB} = 2.5V, I_E = 0, f = 1MHz$ (Note) | — | 0.7 | — | pF |
| Reverse Transfer Capacitance | C_{re} | | — | 0.5 | 0.85 | pF |

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

CAUTION

This device electrostatic sensitivity. Please handle with caution.