

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC5257

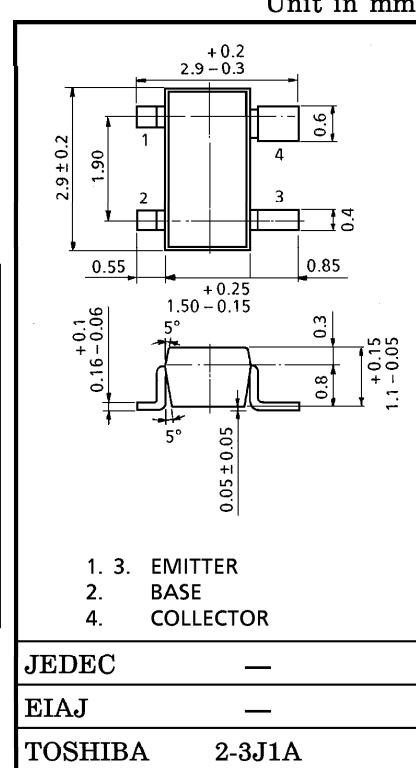
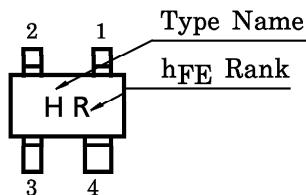
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

- Low Noise Figure : $NF = 1.5\text{dB}$ ($f = 2\text{GHz}$)
- High Gain : $\text{Gain} = 10\text{dB}$ ($f = 2\text{GHz}$)

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

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|-----------------------------|-----------|-------------------|------|
| Collector-Base Voltage | V_{CBO} | 15 | V |
| Collector-Emitter Voltage | V_{CEO} | 7 | V |
| Emitter-Base Voltage | V_{EBO} | 1.5 | V |
| Collector Current | I_C | 40 | mA |
| Base Current | I_B | 20 | mA |
| Collector Power Dissipation | P_C | 150 | mW |
| Junction Temperature | T_j | 125 | °C |
| Storage Temperature Range | T_{stg} | $-55\text{--}125$ | °C |

MARKING

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

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|----------------------|-------------------|----------------------------------------------------------------|------|------|------|------|
| Transition Frequency | f_T | $V_{CE} = 5\text{V}$, $I_C = 20\text{mA}$ | 9 | 12 | — | GHz |
| Insertion Gain | $ S_{21e} ^2$ (1) | $V_{CE} = 5\text{V}$, $I_C = 20\text{mA}$, $f = 1\text{GHz}$ | 13 | 16 | — | dB |
| | $ S_{21e} ^2$ (2) | $V_{CE} = 5\text{V}$, $I_C = 20\text{mA}$, $f = 2\text{GHz}$ | 7 | 10 | — | |
| Noise Figure | NF (1) | $V_{CE} = 5\text{V}$, $I_C = 5\text{mA}$, $f = 1\text{GHz}$ | — | 1.1 | — | dB |
| | NF (2) | $V_{CE} = 5\text{V}$, $I_C = 5\text{mA}$, $f = 2\text{GHz}$ | — | 1.5 | 3 | |

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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}} (Note 1) | V _{CE} =5V, I _C =20mA | 50 | — | 160 | — |
| Output Capacitance | C _{ob} | V _{CB} =5V, I _E =0, f=1MHz (Note 2) | — | 0.6 | — | pF |
| Reverse Transfer Capacitance | C _{re} | | — | 0.45 | 0.85 | pF |

(Note 1) : h_{FE} Classification R : 50~100, O : 80~160(Note 2) : C_{re} is measured by 3 terminal method with capacitance bridge.