

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

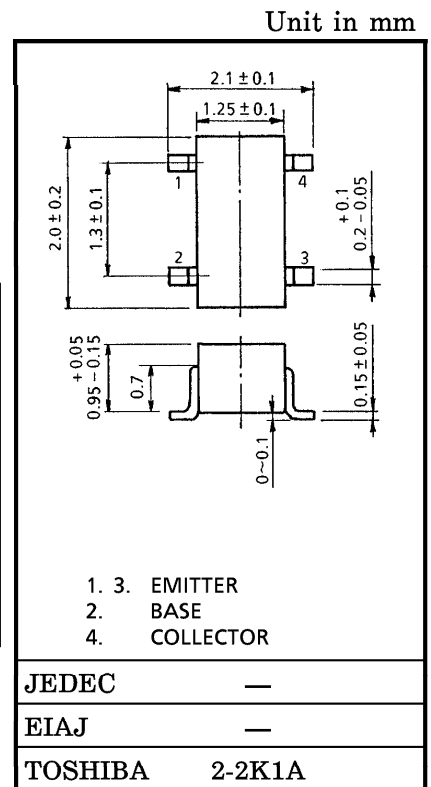
# 2SC5258

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

- Low Noise Figure : NF = 1.5dB (f = 2GHz)
- High Gain : Gain = 10dB (f = 2GHz)

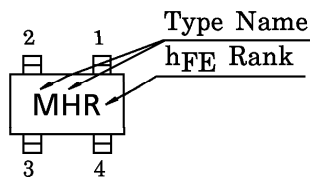
MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC              | SYMBOL           | RATING  | UNIT |
|-----------------------------|------------------|---------|------|
| Collector-Base Voltage      | V <sub>CBO</sub> | 15      | V    |
| Collector-Emitter Voltage   | V <sub>CEO</sub> | 7       | V    |
| Emitter-Base Voltage        | V <sub>EBO</sub> | 1.5     | V    |
| Collector Current           | I <sub>C</sub>   | 40      | mA   |
| Base Current                | I <sub>B</sub>   | 20      | mA   |
| Collector Power Dissipation | P <sub>C</sub>   | 100     | mW   |
| Junction Temperature        | T <sub>j</sub>   | 125     | °C   |
| Storage Temperature Range   | T <sub>stg</sub> | -55~125 | °C   |



Weight : 0.006g

MARKING



MICROWAVE CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC       | SYMBOL                              | TEST CONDITION  | MIN. | TYP. | MAX. | UNIT |
|----------------------|-------------------------------------|---|------|------|------|------|
| Transition Frequency | f <sub>T</sub>                      | V <sub>CE</sub> = 5V, I <sub>C</sub> = 20mA           | 9    | 12   | —    | GHz  |
| Insertion Gain       | S <sub>21e</sub>   <sup>2</sup> (1) | V <sub>CE</sub> = 5V, I <sub>C</sub> = 20mA, f = 1GHz | 13   | 16   | —    | dB   |
|                      | S <sub>21e</sub>   <sup>2</sup> (2) | V <sub>CE</sub> = 5V, I <sub>C</sub> = 20mA, f = 2GHz | 7    | 10   | —    |      |
| Noise Figure         | NF (1)                              | V <sub>CE</sub> = 5V, I <sub>C</sub> = 5mA, f = 1GHz  | —    | 1.1  | —    | dB   |
|                      | NF (2)                              | V <sub>CE</sub> = 5V, I <sub>C</sub> = 5mA, f = 2GHz  | —    | 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    | $\mu A$ |
| Emitter Cut-off Current      | $I_{EBO}$            | $V_{EB} = 1V, I_C = 0$                       | —    | —    | 1    | $\mu A$ |
| DC Current Gain              | $h_{FE}$<br>(Note 1) | $V_{CE} = 5V, I_C = 20mA$                    | 50   | —    | 160  | —       |
| Output Capacitance           | $C_{ob}$             | $V_{CB} = 5V, I_E = 0, f = 1MHz$<br>(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.

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Datasheets for electronics components.