

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

**2SC5256**

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATION

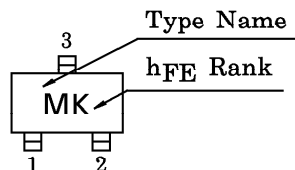
Unit in mm

- Low Noise Figure : NF=1.5dB (f=2GHz)
- High Gain : Gain=8.5dB (f=2GHz)

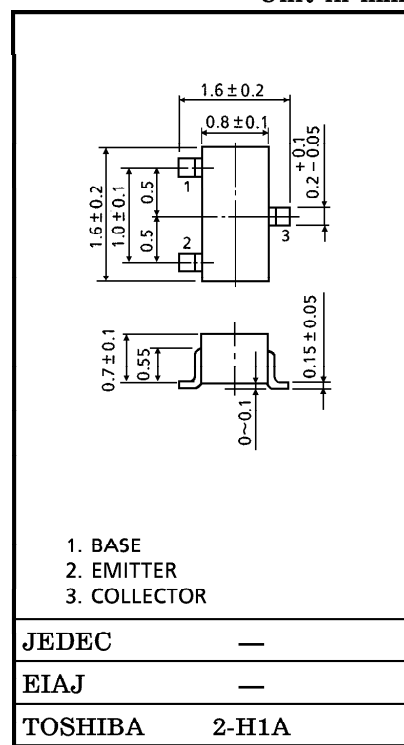
MAXIMUM RATINGS (Ta = 25°C)

| 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   |

MARKING



MK : R Rank  
ML : O Rank



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 | 11.5 | 14.5 | —    | dB   |
|                      | S <sub>21e</sub>   <sup>2</sup> (2) | V <sub>CE</sub> = 5V, I <sub>C</sub> = 20mA, f = 2GHz | 5.5  | 8.5  | —    |      |
| 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    |      |

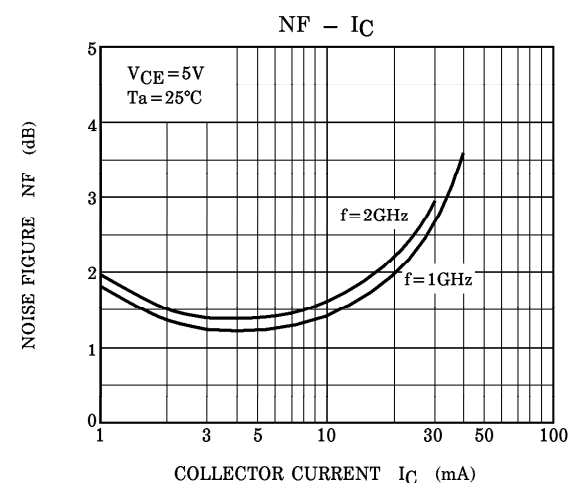
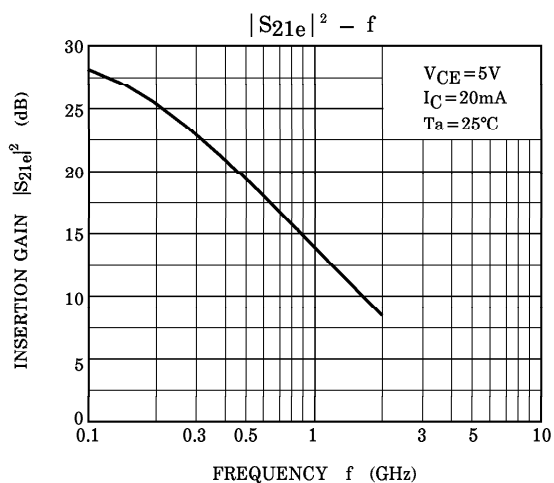
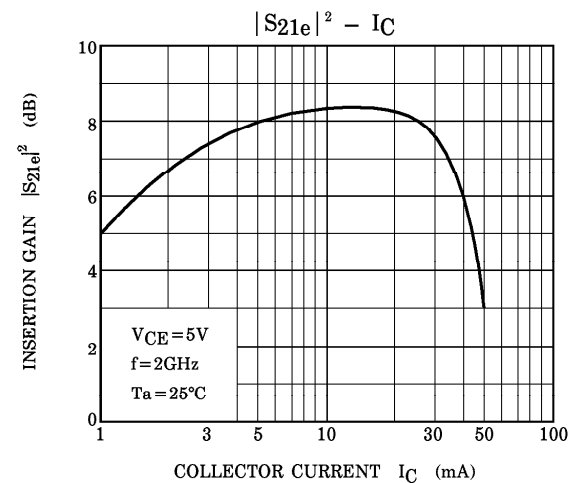
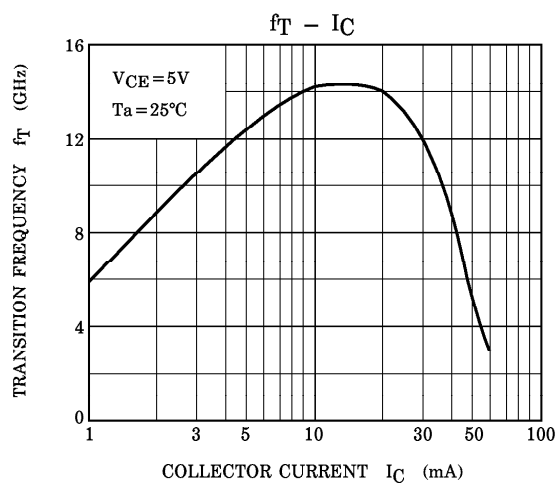
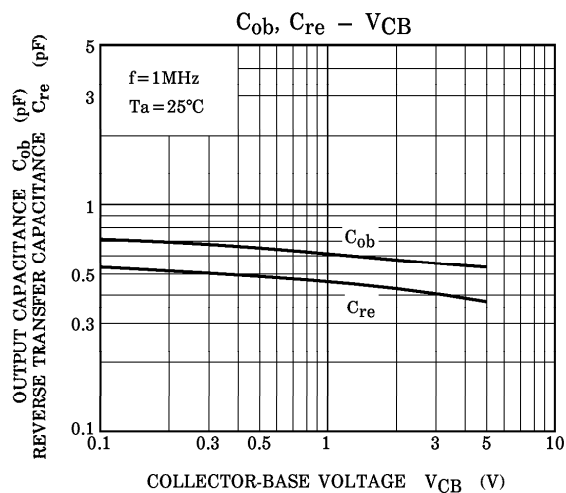
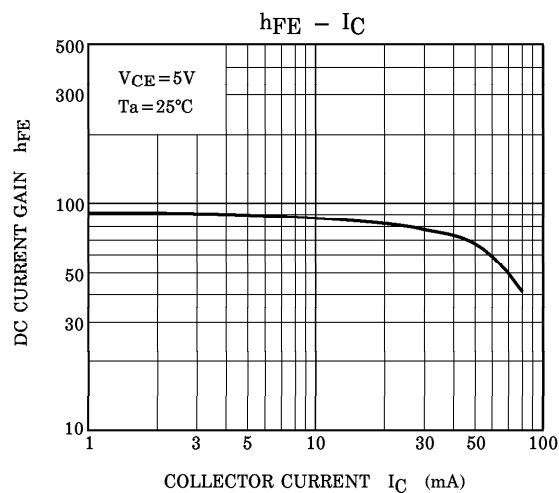
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC               | SYMBOL                      | TEST CONDITION                                                 | MIN. | TYP. | MAX. | UNIT |
|------------------------------|-----------------------------|----------------------------------------------------------------|------|------|------|------|
| Collector Cut-off Current    | I <sub>CBO</sub>            | V <sub>CB</sub> = 10V, I <sub>E</sub> = 0                      | —    | —    | 1    | μA   |
| Emitter Cut-off Current      | I <sub>EBO</sub>            | V <sub>EB</sub> = 1V, I <sub>C</sub> = 0                       | —    | —    | 1    | μA   |
| DC Current Gain              | h <sub>FE</sub><br>(Note 1) | V <sub>CE</sub> = 5V, I <sub>C</sub> = 20mA                    | 50   | —    | 160  | —    |
| Output Capacitance           | C <sub>ob</sub>             | V <sub>CB</sub> = 5V, I <sub>E</sub> = 0, f = 1MHz<br>(Note 2) | —    | 0.5  | —    | pF   |
| Reverse Transfer Capacitance | C <sub>re</sub>             |                                                                | —    | 0.4  | 0.8  | pF   |

(Note 1) : h<sub>FE</sub> Classification R : 50~100, O : 80~160(Note 2) : C<sub>re</sub> is measured by 3 terminal method with capacitance bridge.

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