

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

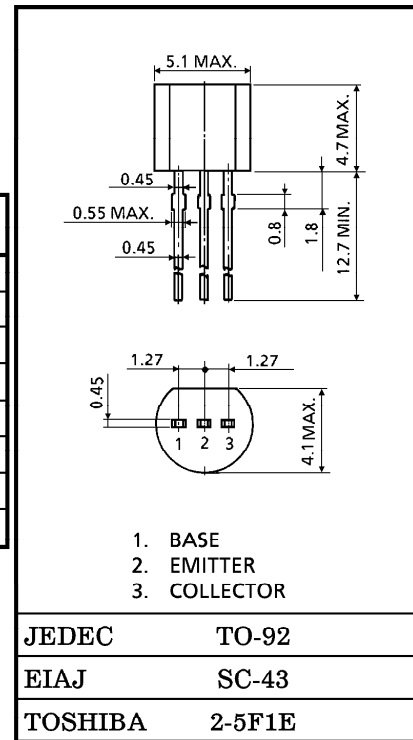
# 2SC2498

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATION

Unit in mm

**MAXIMUM RATINGS (Ta = 25°C)**

| CHARACTERISTIC              | SYMBOL           | RATING  | UNIT |
|-----------------------------|------------------|---------|------|
| Collector-Base Voltage      | V <sub>CB0</sub> | 30      | V    |
| Collector-Emitter Voltage   | V <sub>CEO</sub> | 20      | V    |
| Emitter-Base Voltage        | V <sub>EB0</sub> | 3       | V    |
| Collector Current           | I <sub>C</sub>   | 50      | mA   |
| Base Current                | I <sub>B</sub>   | 25      | mA   |
| Collector Power Dissipation | P <sub>C</sub>   | 300     | mW   |
| Junction Temperature        | T <sub>j</sub>   | 125     | °C   |
| Storage Temperature Range   | T <sub>stg</sub> | -55~125 | °C   |



**MICROWAVE CHARACTERISTICS (Ta = 25°C)**

Weight : 0.21g

| CHARACTERISTIC       | SYMBOL                              | TEST CONDITION   | MIN. | TYP. | MAX. | UNIT |
|----------------------|-------------------------------------|--|------|------|------|------|
| Transition Frequency | f <sub>T</sub>                      | V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA             | —    | 3.5  | —    | GHz  |
| Insertion Gain       | S <sub>21e</sub>   <sup>2</sup> (1) | V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA, f = 500MHz | —    | 14.5 | —    | dB   |
|                      | S <sub>21e</sub>   <sup>2</sup> (2) | V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA, f = 1GHz   | —    | 9    | —    |      |
| Noise Figure         | NF (1)                              | V <sub>CE</sub> = 10V, I <sub>C</sub> = 5mA, f = 500MHz  | —    | 2.5  | —    | dB   |
|                      | NF (2)                              | V <sub>CE</sub> = 10V, I <sub>C</sub> = 5mA, f = 1GHz    | —    | 4    | —    |      |

**MICROWAVE 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>  | V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA                  | 30   | 80   | 300  | —    |
| Collector Output Capacitance | C <sub>ob</sub>  | V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f = 1MHz<br>(Note) | —    | 1.15 | —    | pF   |
| Reverse Transfer Capacitance | C <sub>re</sub>  |   | —    | 0.75 | —    |      |

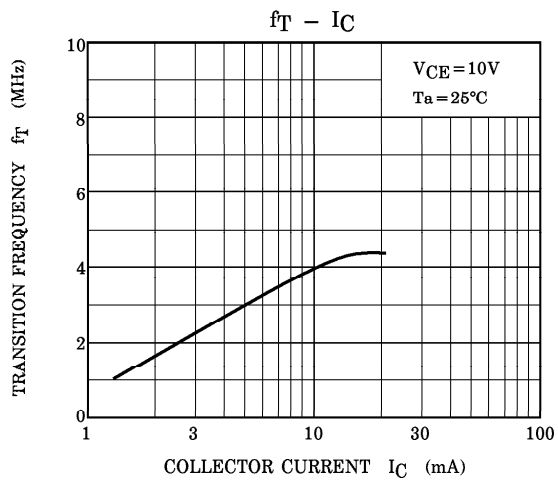
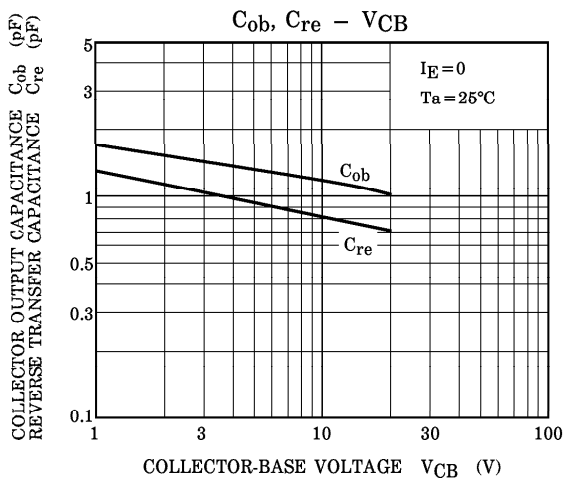
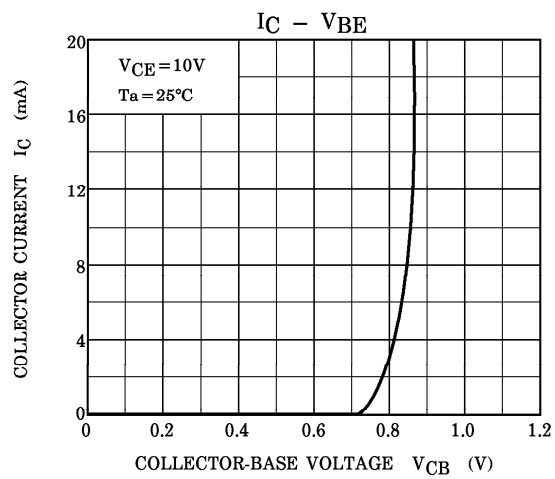
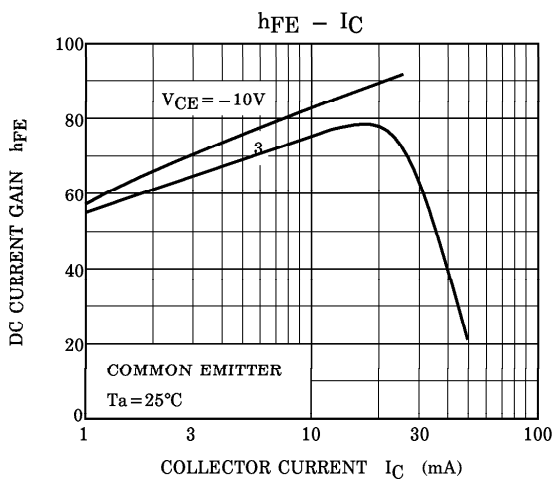
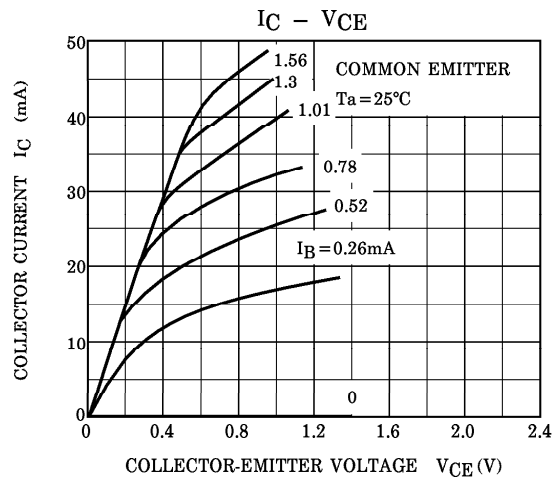
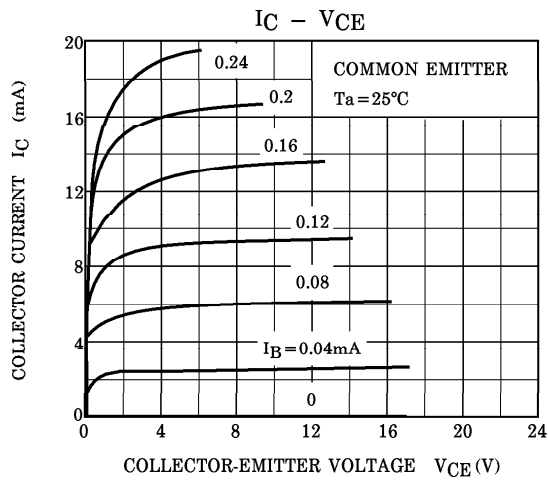
(Note) C<sub>re</sub> is measured by 3 terminal method with Capacitance Bridge.

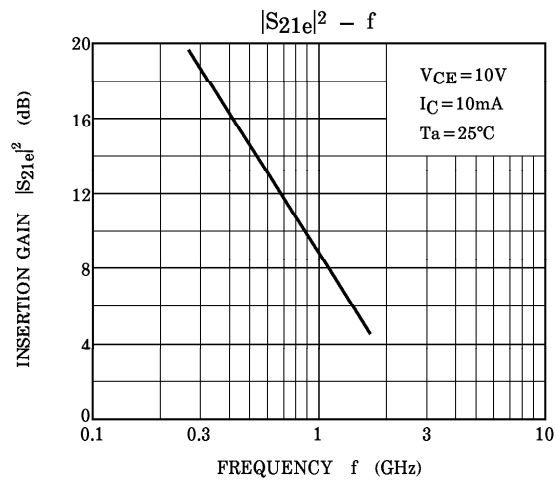
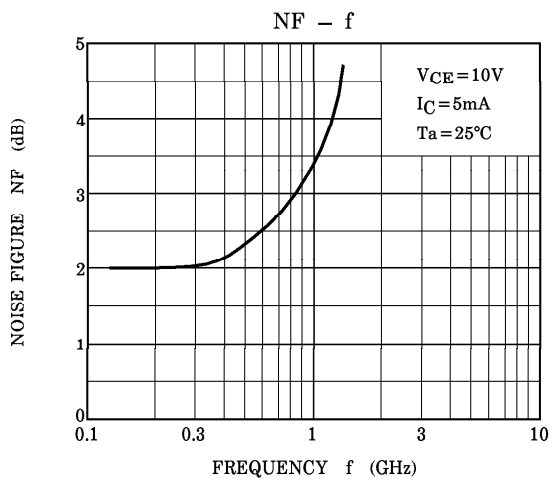
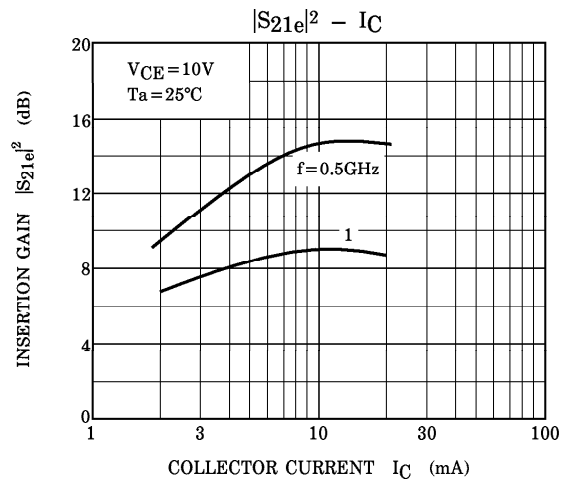
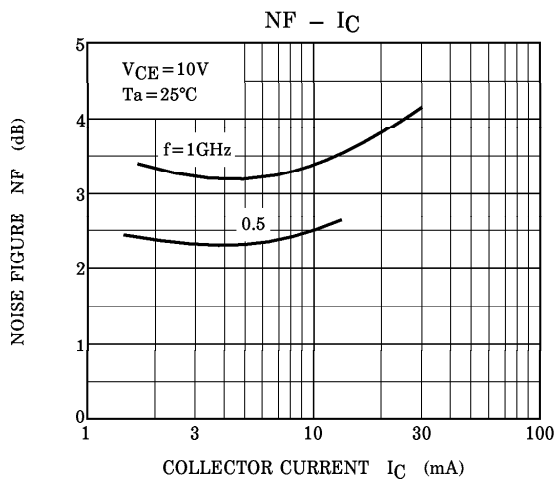
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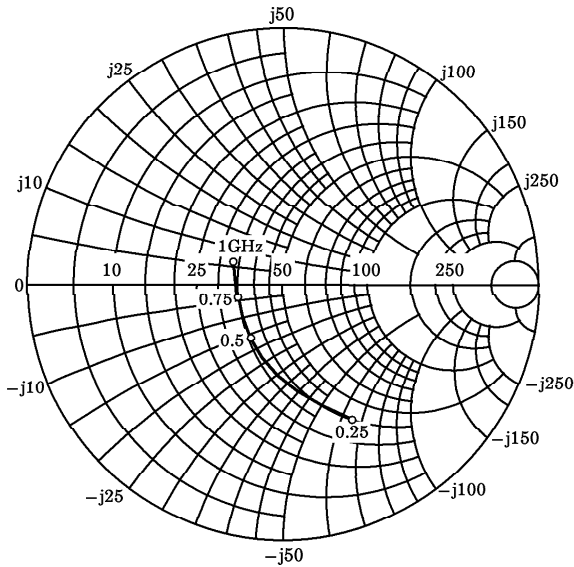
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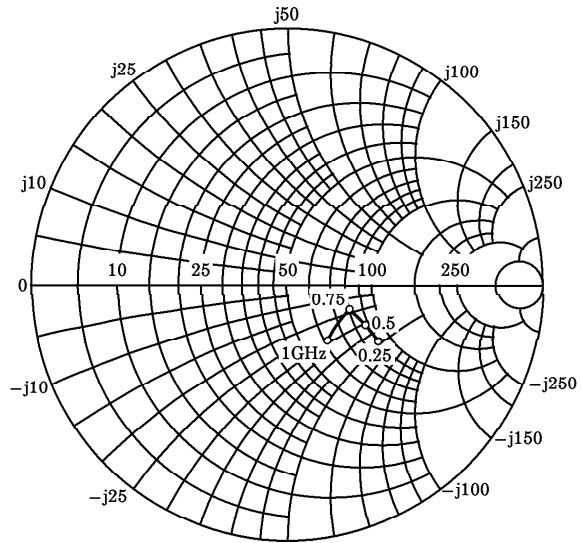


COMMON EMITTER SMALL SIGNAL S-PARAMETERS OF 2SC2498.

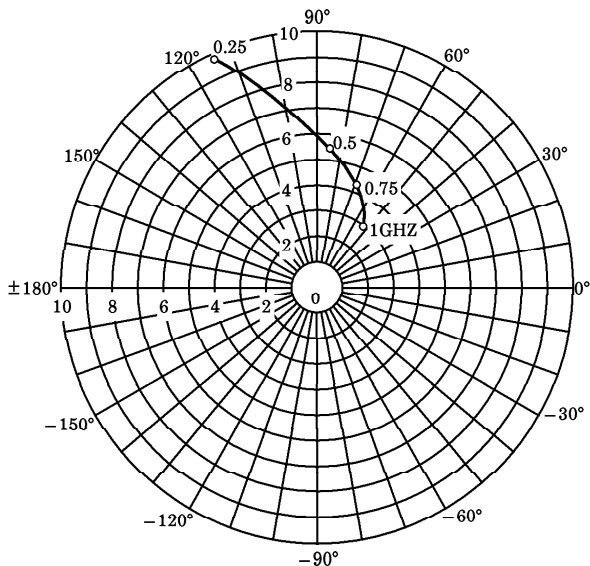
$V_{CE} = 10V, I_C = 10mA$



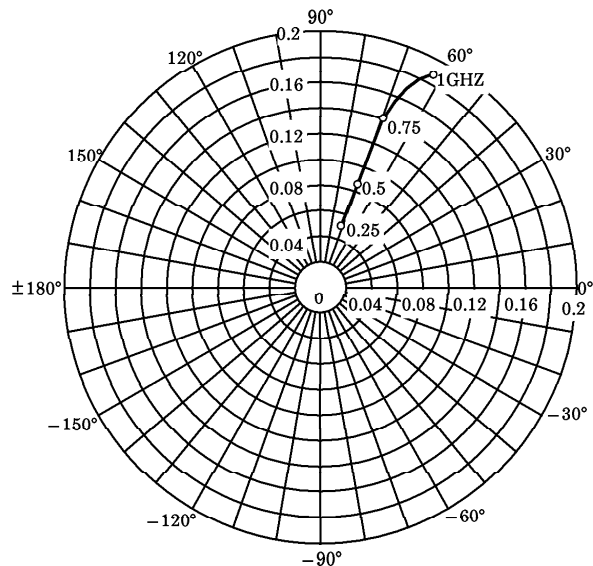
$S_{11e}$  (UNIT :  $\Omega$ )



$S_{22e}$  (UNIT :  $\Omega$ )



$S_{21e}$



$S_{12e}$