

# 2SC5019

## Silicon NPN epitaxial planer type

For UHF band low-noise amplification

### Features

- Low noise figure NF.
- High gain.
- High transition frequency  $f_T$ .
- Mini Power type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.

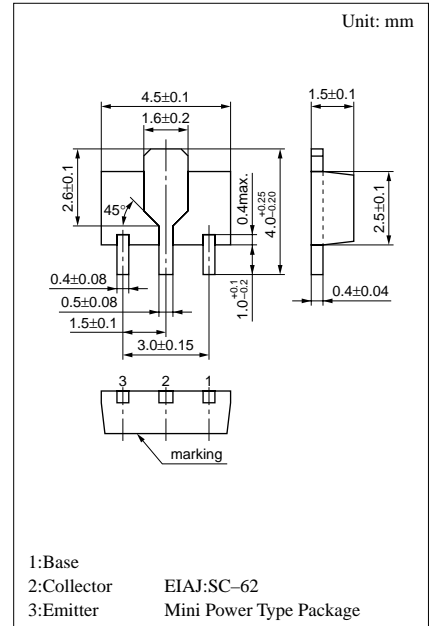
### Absolute Maximum Ratings (Ta=25°C)

| Parameter                    | Symbol    | Ratings    | Unit |
|------------------------------|-----------|------------|------|
| Collector to base voltage    | $V_{CBO}$ | 15         | V    |
| Collector to emitter voltage | $V_{CEO}$ | 10         | V    |
| Emitter to base voltage      | $V_{EBO}$ | 2          | V    |
| Collector current            | $I_C$     | 80         | mA   |
| Collector power dissipation  | $P_C^*$   | 1          | W    |
| Junction temperature         | $T_j$     | 150        | °C   |
| Storage temperature          | $T_{stg}$ | -55 ~ +150 | °C   |

\* Printed circuit board: Copper foil area of 1cm<sup>2</sup> or more, and the board thickness of 1.7mm for the collector portion

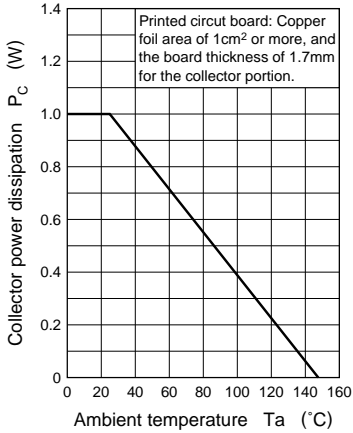
### Electrical Characteristics (Ta=25°C)

| Parameter                      | Symbol        | Conditions                            | min | typ  | max | Unit |
|--------------------------------|---------------|---------------------------------------|-----|------|-----|------|
| Collector cutoff current       | $I_{CBO}$     | $V_{CB} = 10V, I_E = 0$               |     |      | 1   | μA   |
| Emitter cutoff current         | $I_{EBO}$     | $V_{EB} = 2V, I_C = 0$                |     |      | 1   | μA   |
| Collector to base voltage      | $V_{CBO}$     | $I_C = 10\mu A, I_E = 0$              | 15  |      |     | V    |
| Collector to emitter voltage   | $V_{CEO}$     | $I_C = 100\mu A, I_B = 0$             | 10  |      |     | V    |
| Forward current transfer ratio | $h_{FE}$      | $V_{CE} = 8V, I_C = 20mA$             | 80  |      | 250 |      |
| Transition frequency           | $f_T$         | $V_{CE} = 8V, I_C = 20mA, f = 800MHz$ | 5   | 6    |     | GHz  |
| Collector output capacitance   | $C_{ob}$      | $V_{CB} = 10V, I_E = 0, f = 1MHz$     |     | 0.9  | 1.2 | pF   |
| Forward transfer gain          | $ S_{21e} ^2$ | $V_{CE} = 8V, I_C = 20mA, f = 800MHz$ | 7.5 | 10   |     | dB   |
| Maximum unilateral power gain  | GUM           | $V_{CE} = 8V, I_C = 20mA, f = 800MHz$ |     | 11.5 |     | dB   |
| Noise figure                   | NF            | $V_{CE} = 8V, I_C = 20mA, f = 800MHz$ |     | 1.7  |     | dB   |

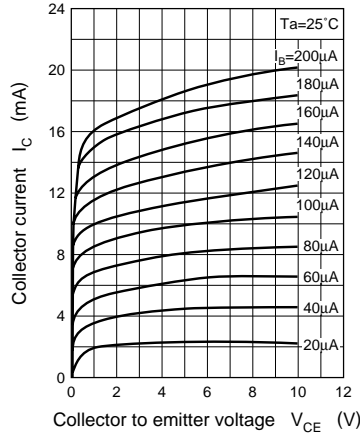


Marking symbol : W

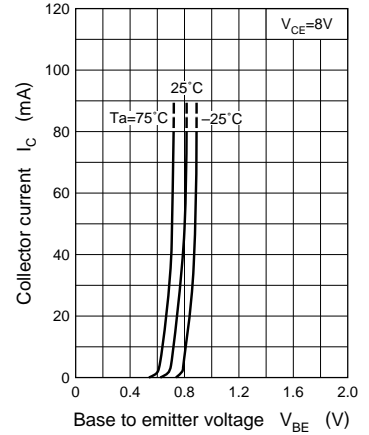
$P_C - T_a$



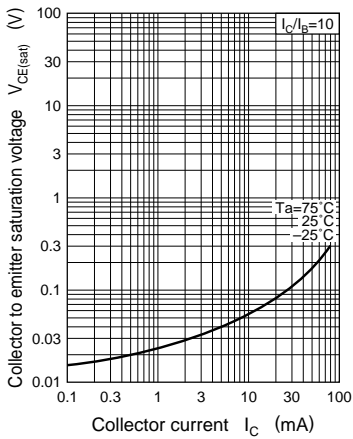
$I_C - V_{CE}$



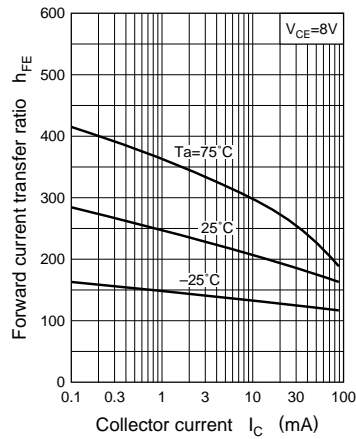
$I_C - V_{BE}$



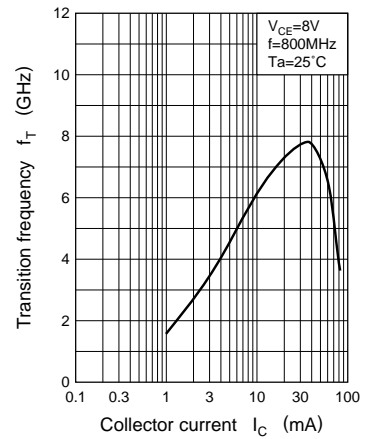
$V_{CE(sat)} - I_C$



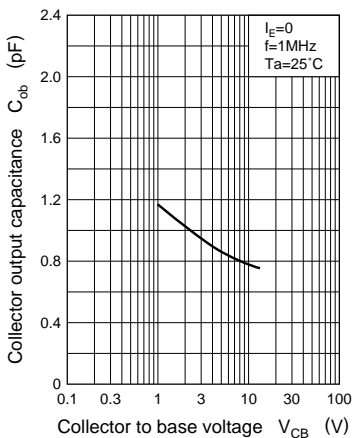
$h_{FE} - I_C$



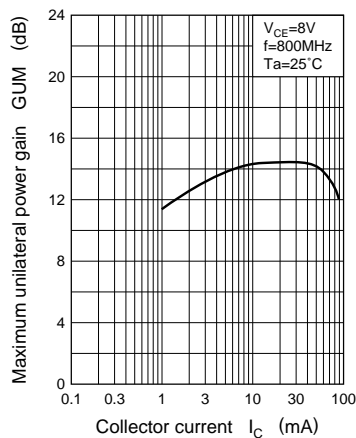
$f_T - I_C$



$C_{ob} - V_{CB}$



GUM -  $I_C$



NF -  $I_C$

