

# 2SC5019

## Silicon NPN epitaxial planar type

For UHF band low-noise amplification

### ■ Features

- Low noise figure NF
- High maximum unilateral power gain  $G_{UM}$
- 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 $T_a = 25^\circ\text{C}$

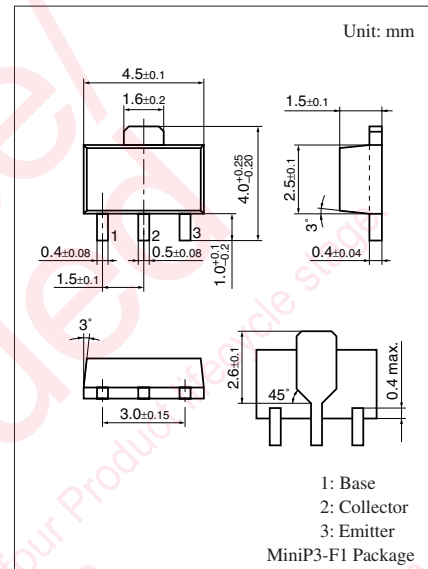
| Parameter                             | Symbol    | Rating      | Unit             |
|---------------------------------------|-----------|-------------|------------------|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | 15          | V                |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | 10          | V                |
| Emitter-base voltage (Collector open) | $V_{EBO}$ | 2           | V                |
| Collector current                     | $I_C$     | 80          | mA               |
| Collector power dissipation *         | $P_C$     | 1           | W                |
| Junction temperature                  | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature                   | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

Note) \*: Copper plate at the collector is more than  $1\text{ cm}^2$  in area, 1.7 mm in thickness  
Absolute maximum rating without heat sink for  $P_C$  is 0.5 W

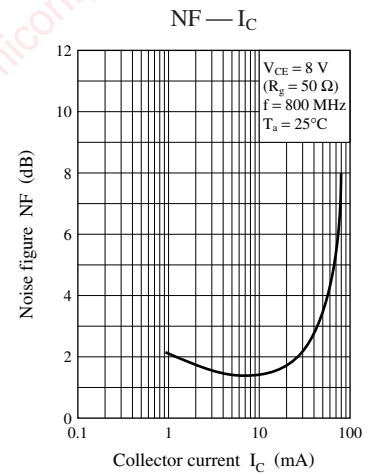
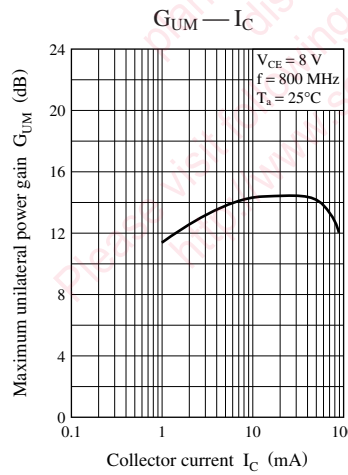
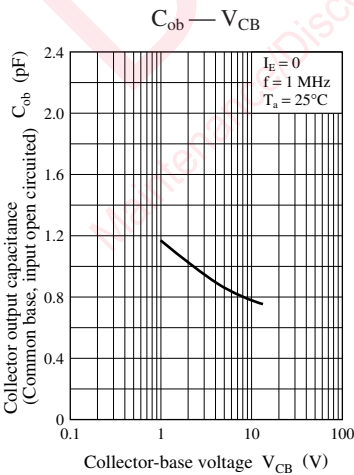
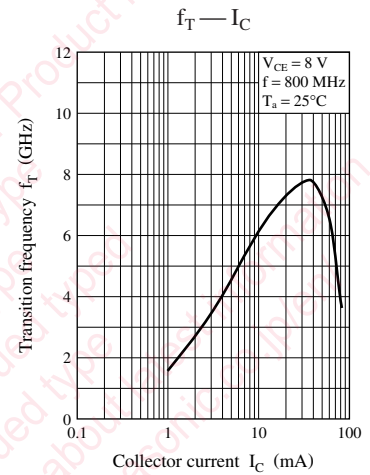
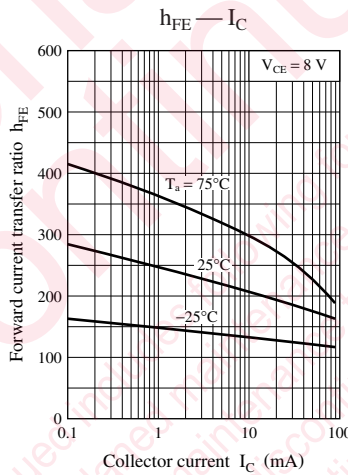
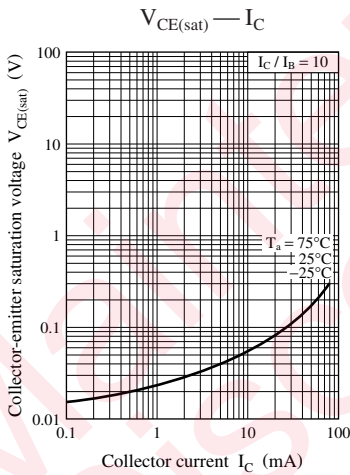
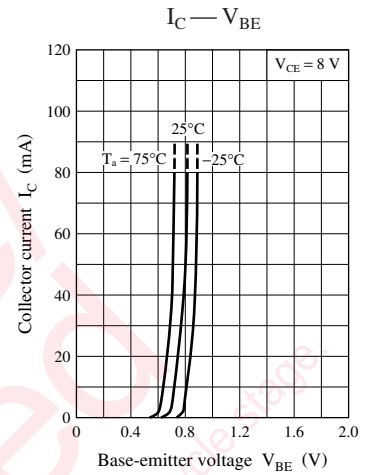
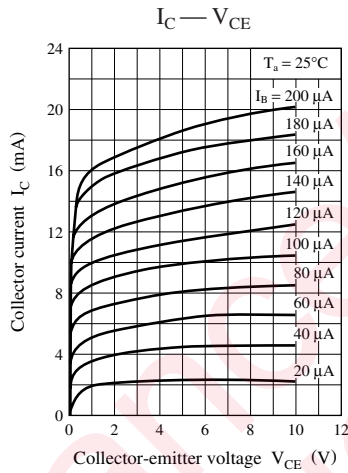
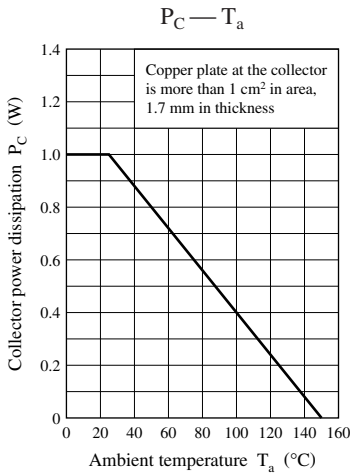
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

| Parameter  | Symbol        | Conditions   | Min | Typ  | Max | Unit          |
|--|---------------|--|-----|------|-----|---------------|
| Collector-base voltage (Emitter open)                            | $V_{CBO}$     | $I_C = 10\ \mu\text{A}$ , $I_E = 0$                                    | 15  |      |     | V             |
| Collector-emitter voltage (Base open)                            | $V_{CEO}$     | $I_C = 100\ \mu\text{A}$ , $I_B = 0$                                   | 10  |      |     | V             |
| Collector-base cutoff current (Emitter open)                     | $I_{CBO}$     | $V_{CB} = 10\ \text{V}$ , $I_E = 0$                                    |     |      | 1   | $\mu\text{A}$ |
| Emitter-base cutoff current (Collector open)                     | $I_{EBO}$     | $V_{EB} = 2\ \text{V}$ , $I_C = 0$                                     |     |      | 1   | $\mu\text{A}$ |
| Forward current transfer ratio                                   | $h_{FE}$      | $V_{CE} = 8\ \text{V}$ , $I_C = 20\ \text{mA}$                         | 80  |      | 250 | —             |
| Transition frequency   | $f_T$         | $V_{CE} = 8\ \text{V}$ , $I_C = 20\ \text{mA}$ , $f = 0.8\ \text{GHz}$ | 5   | 6    |     | GHz           |
| Collector output capacitance (Common base, input open circuited) | $C_{ob}$      | $V_{CB} = 10\ \text{V}$ , $I_E = 0$ , $f = 1\ \text{MHz}$              |     | 0.9  | 1.2 | pF            |
| Forward transfer gain  | $ S_{21e} ^2$ | $V_{CE} = 8\ \text{V}$ , $I_C = 20\ \text{mA}$ , $f = 0.8\ \text{GHz}$ | 7.5 | 10.0 |     | dB            |
| Maximum unilateral power gain                                    | $G_{UM}$      | $V_{CE} = 8\ \text{V}$ , $I_C = 20\ \text{mA}$ , $f = 0.8\ \text{GHz}$ |     | 11.5 |     | dB            |
| Noise figure   | NF            | $V_{CE} = 8\ \text{V}$ , $I_C = 7\ \text{mA}$ , $f = 0.8\ \text{GHz}$  |     | 1.7  |     | dB            |

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.



Marking Symbol: 1W



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