

# 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 $T_a = 25^\circ\text{C}$

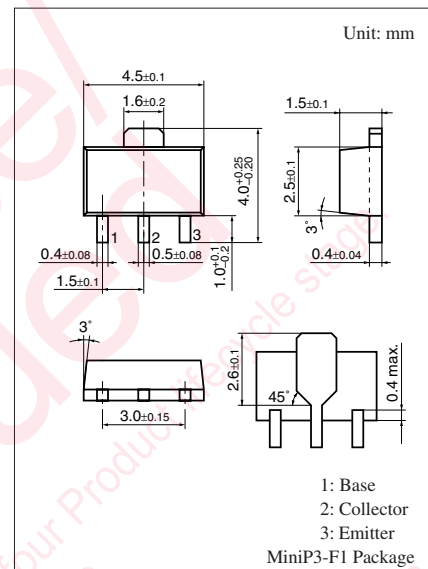
Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	15	V
Collector-emitter voltage (Base open)	$V_{CEO}$	10	V
Emitter-base voltage (Collector open)	$V_{EBO}$	2	V
Collector current	$I_C$	80	mA
Collector power dissipation *	$P_C$	1	W
Junction temperature	$T_j$	150	$^\circ\text{C}$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

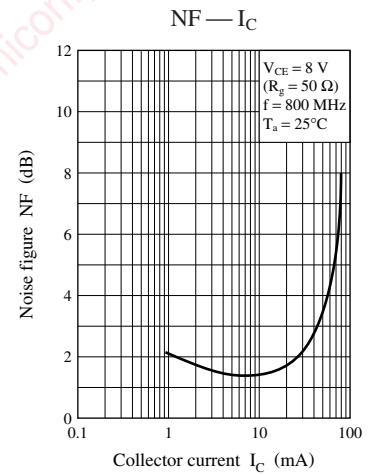
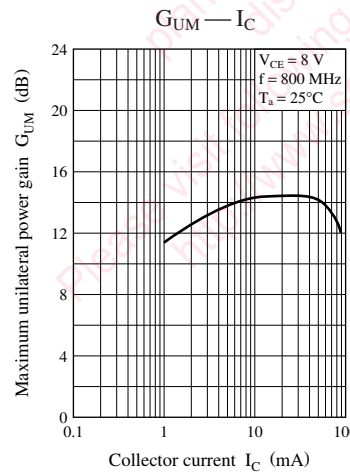
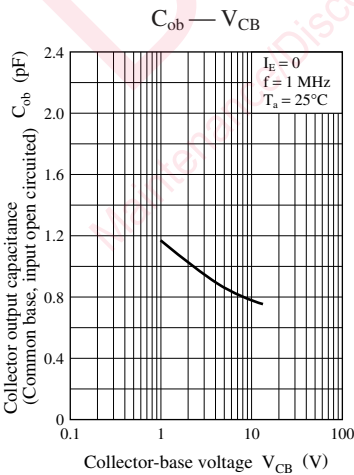
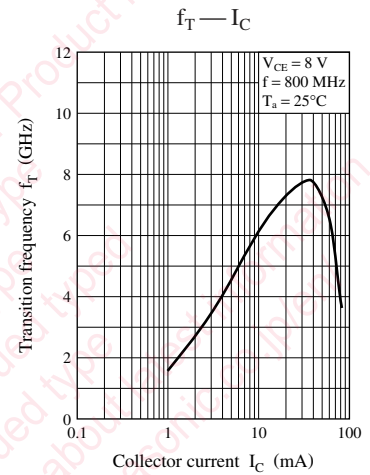
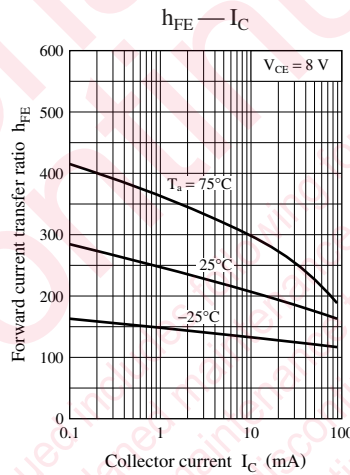
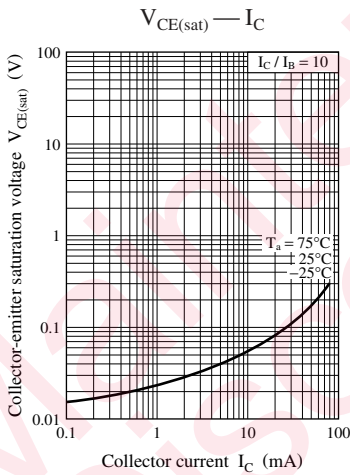
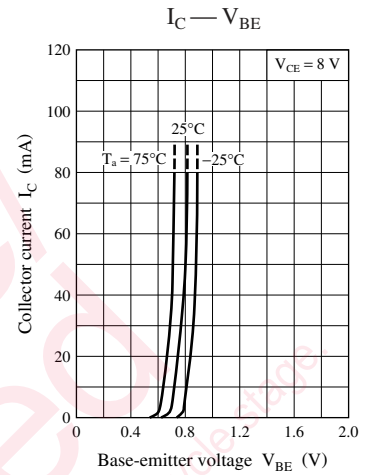
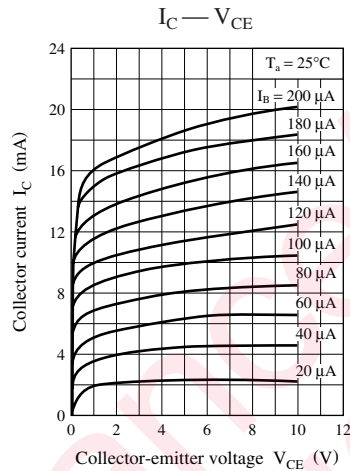
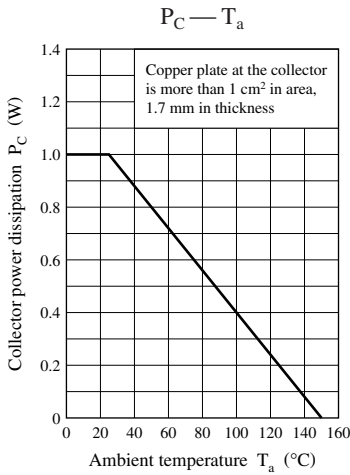
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

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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