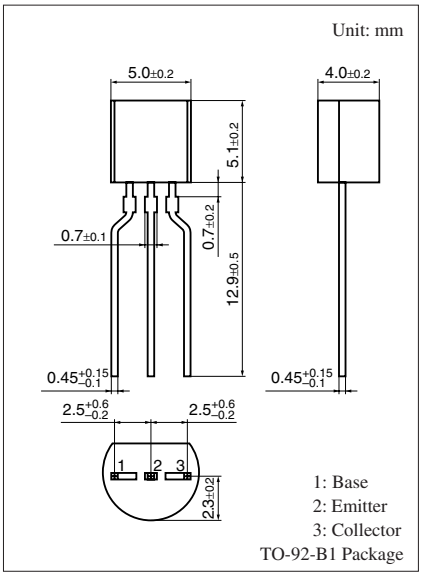
# 2SC2671F

## 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 $f_T$

### ■ Absolute Maximum Ratings $T_a = 25°C$

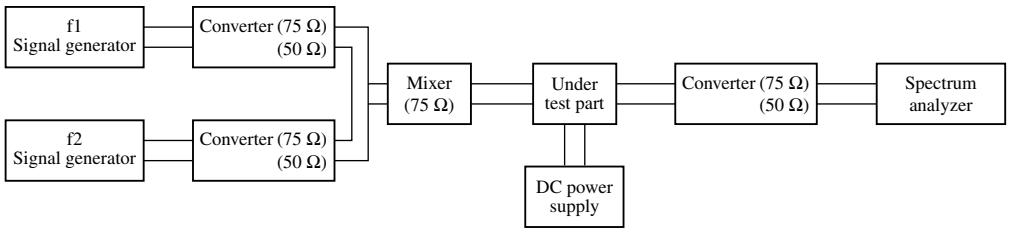
| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | 15 | V |
| Collector-emitter voltage (Resistor between B and E) * | $V_{CER}$ | 14 | V |
| Emitter-base voltage (Collector open) | $V_{EBO}$ | 2 | V |
| Collector current | $I_C$ | 80 | mA |
| Collector power dissipation | $P_C$ | 600 | mW |
| Junction temperature | $T_j$ | 150 | °C |
| Storage temperature | $T_{stg}$ | −55 to +150 | °C |

Note) *: $R_{BE}$ = 1 kΩ

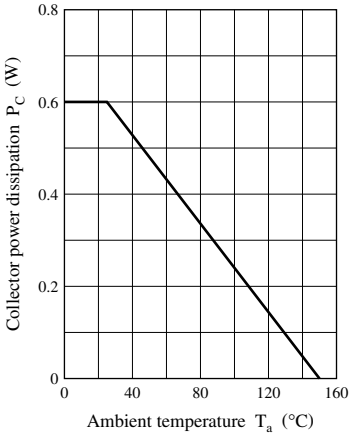
### ■ Electrical Characteristics $T_a = 25°C \pm 3°C$

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector-base cutoff current (Emitter open) | $I_{CBO}$ | $V_{CB}$ = 10 V, $I_E$ = 0 | | | 1 | µA |
| Emitter-base cutoff current (Collector open) | $I_{EBO}$ | $V_{EB}$ = 1 V, $I_C$ = 0 | | | 1 | µA |
| Forward current transfer ratio | $h_{FE}$ | $V_{CE}$ = 8 V, $I_C$ = 40 mA | 50 | 150 | 300 | — |
| Transition frequency | $f_T$ | $V_{CE}$ = 8 V, $I_C$ = 40 mA, f = 0.8 GHz | 3.5 | 5.5 | | GHz |
| Collector output capacitance (Common base, input open circuited) | $C_{ob}$ | $V_{CB}$ = 10 V, $I_E$ = 0, f = 1 MHz | | 0.8 | 1.5 | pF |
| Foward transfer gain | $\|S_{21e}\|^2$ | $V_{CE}$ = 8 V, $I_C$ = 40 mA, f = 0.8 GHz | 9 | 12 | | dB |
| Maximum unilateral power gain | $G_{UM}$ | $V_{CE}$ = 8 V, $I_C$ = 40 mA, f = 0.8 GHz | 10 | 13 | 15 | dB |
| Noise figure | NF | $V_{CE}$ = 8 V, $I_C$ = 40 mA, f = 0.8 GHz | | 2.0 | 3.2 | dB |
| Second inter modulation distortion * | $IM_2$ | $V_{CE}$ = 8 V, $I_C$ = 40 mA, $f_1$ = 200 MHz, $f_2$ = 500 MHz, $V_O$ = 100 dBµ/75 Ω | 50 | 60 | | dB |
| Third inter modulation distortion * | $IM_3$ | $V_{CE}$ = 8 V, $I_C$ = 40 mA, $f_1$ = 600 MHz, $f_2$ = 500 MHz, $V_O$ = 100 dBµ/75 Ω | 75 | 86 | | dB |

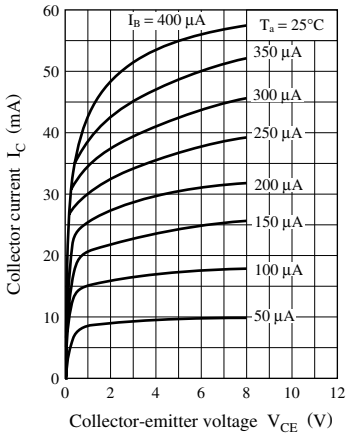
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. *: See measurement circuit



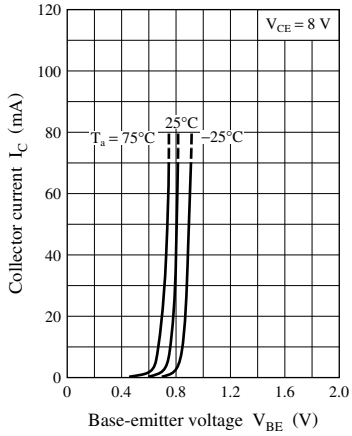
$P_C$ — $T_a$



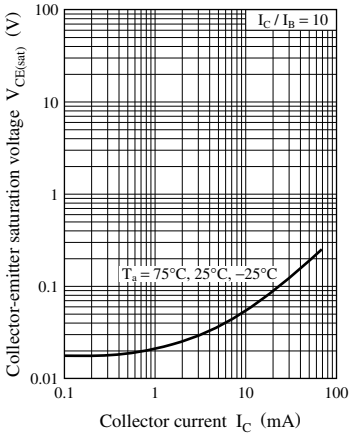

$I_C$ — $V_{CE}$



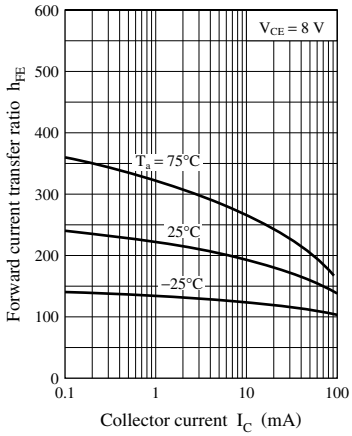

$I_C$ — $V_{BE}$



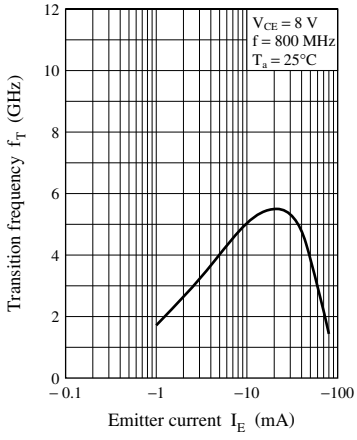

$V_{CE(sat)}$ — $I_C$



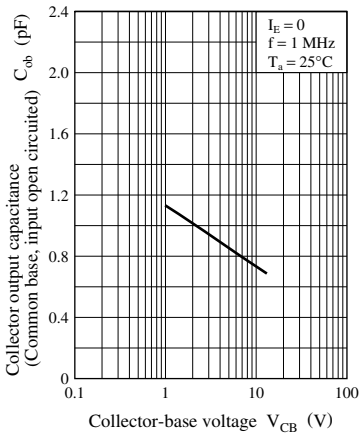

$h_{FE}$ — $I_C$



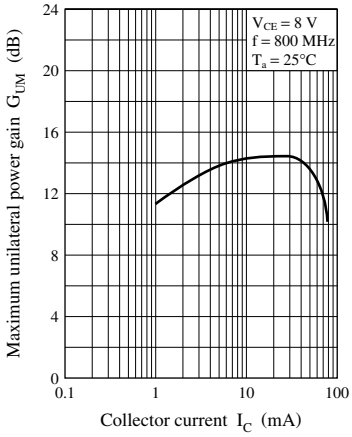

$f_T$ — $I_E$



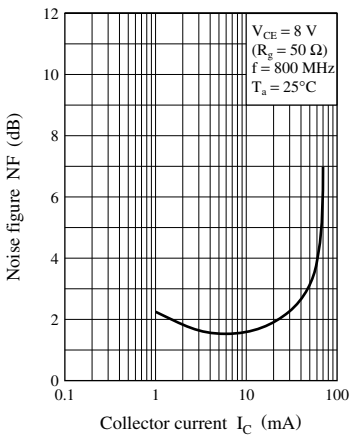

$C_{ob}$ — $V_{CB}$




$G_{UM}$ — $I_C$




NF — $I_C$



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