

# 2SC3935G

## Silicon NPN epitaxial planar type

For high-frequency amplification/oscillation/mixing

### ■ Features

- High transition frequency  $f_T$
- Small collector output capacitance (Common base, input open circuited)  $C_{ob}$  and reverse transfer capacitance (Common base)  $C_{rb}$
- S-Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing

### ■ Package

- Code  
SMini3-F2
- Marking Symbol: 1S
- Pin Name
  1. Base
  2. Emitter
  3. Collector

### ■ 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) | $V_{EBO}$ | 3           | V                |
| Collector current                     | $I_C$     | 50          | mA               |
| Collector power dissipation           | $P_C$     | 150         | mW               |
| Junction temperature                  | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature                   | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

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

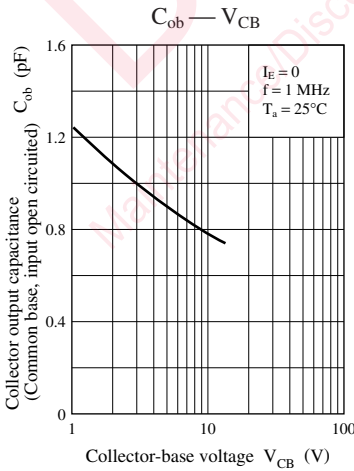
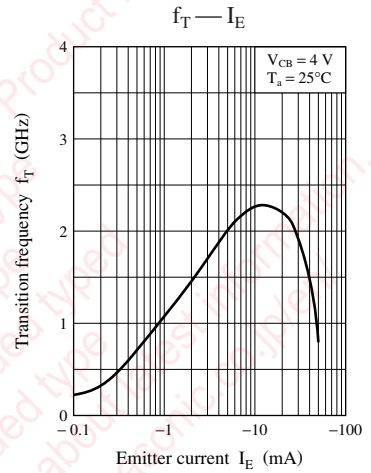
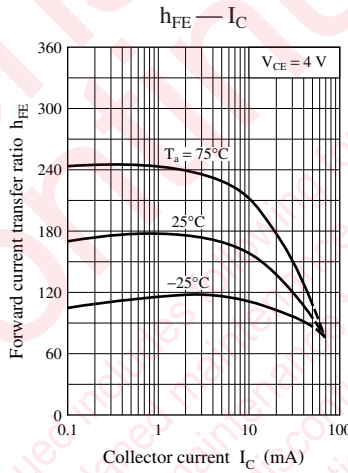
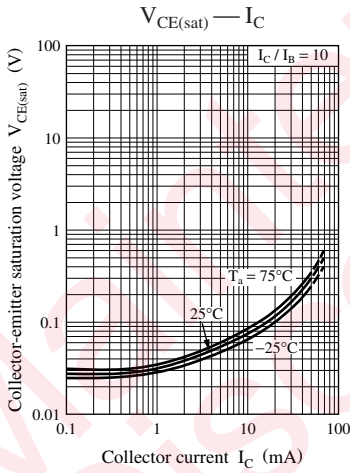
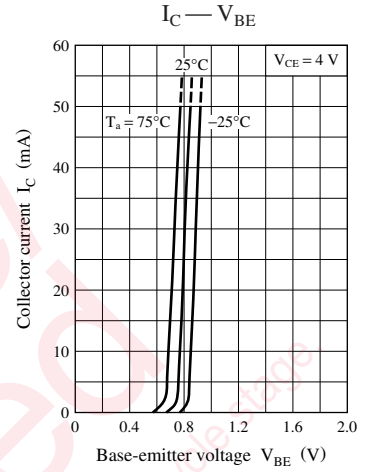
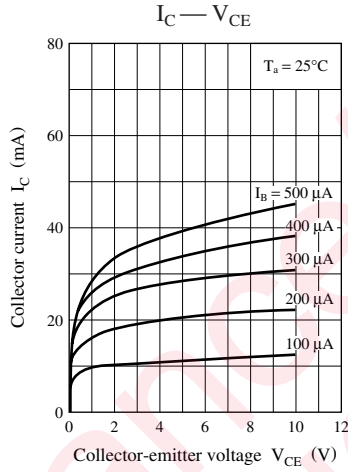
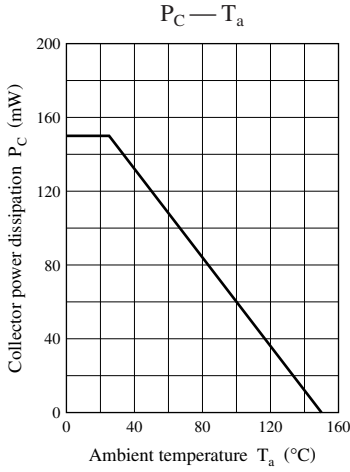
| Parameter   | Symbol               | Conditions  | Min  | Typ  | Max  | Unit          |
|---|----------------------|---|------|------|------|---------------|
| Collector-emitter voltage (Base open)                               | $V_{CEO}$            | $I_C = 2 \text{ mA}, I_B = 0$   | 10   |      |      | V             |
| Emitter-base voltage (Collector open)                               | $V_{EBO}$            | $I_E = 10 \mu\text{A}, I_C = 0$   | 3    |      |      | V             |
| Collector-base cutoff current (Emitter open)                        | $I_{CBO}$            | $V_{CB} = 10 \text{ V}, I_E = 0$  |      |      | 1    | $\mu\text{A}$ |
| Collector-emitter cutoff current (Base open)                        | $I_{CEO}$            | $V_{CE} = 10 \text{ V}, I_B = 0$  |      |      | 10   | $\mu\text{A}$ |
| Forward current transfer ratio                                      | $h_{FE1}^{*1}$       | $V_{CE} = 2.4 \text{ V}, I_C = 7.2 \text{ mA}$  | 75   |      | 220  | —             |
|   | $h_{FE2}$            | $V_{CE} = 2.4 \text{ V}, I_C = 100 \mu\text{A}$   | 75   |      |      |               |
| $h_{FE}$ ratio  | $\Delta h_{FE}^{*2}$ | $h_{FE2}: V_{CE} = 2.4 \text{ V}, I_C = 100 \mu\text{A}$<br>$h_{FE1}: V_{CE} = 2.4 \text{ V}, I_C = 7.2 \text{ mA}$ | 0.75 |      | 1.60 | —             |
| Collector-emitter saturation voltage                                | $V_{CE(sat)}$        | $I_C = 20 \text{ mA}, I_B = 4 \text{ mA}$   |      |      | 0.5  | V             |
| Transition frequency  | $f_T$                | $V_{CB} = 2.4 \text{ V}, I_E = -7.2 \text{ mA}, f = 200 \text{ MHz}$  | 1.4  | 1.9  | 2.5  | GHz           |
| Collector output capacitance<br>(Common base, input open circuited) | $C_{ob}$             | $V_{CB} = 4 \text{ V}, I_E = 0, f = 1 \text{ MHz}$  |      | 0.9  | 1.1  | pF            |
| Reverse transfer capacitance<br>(Common base)                       | $C_{rb}$             | $V_{CB} = 4 \text{ V}, I_E = 0, f = 1 \text{ MHz}$  |      | 0.25 | 0.35 | pF            |
| Collector-base parameter  | $r_{bb}' \cdot C_C$  | $V_{CB} = 4 \text{ V}, I_E = -5 \text{ mA}, f = 31.9 \text{ MHz}$   |      | 11.8 | 13.5 | ps            |

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*1: Rank classification

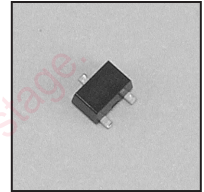
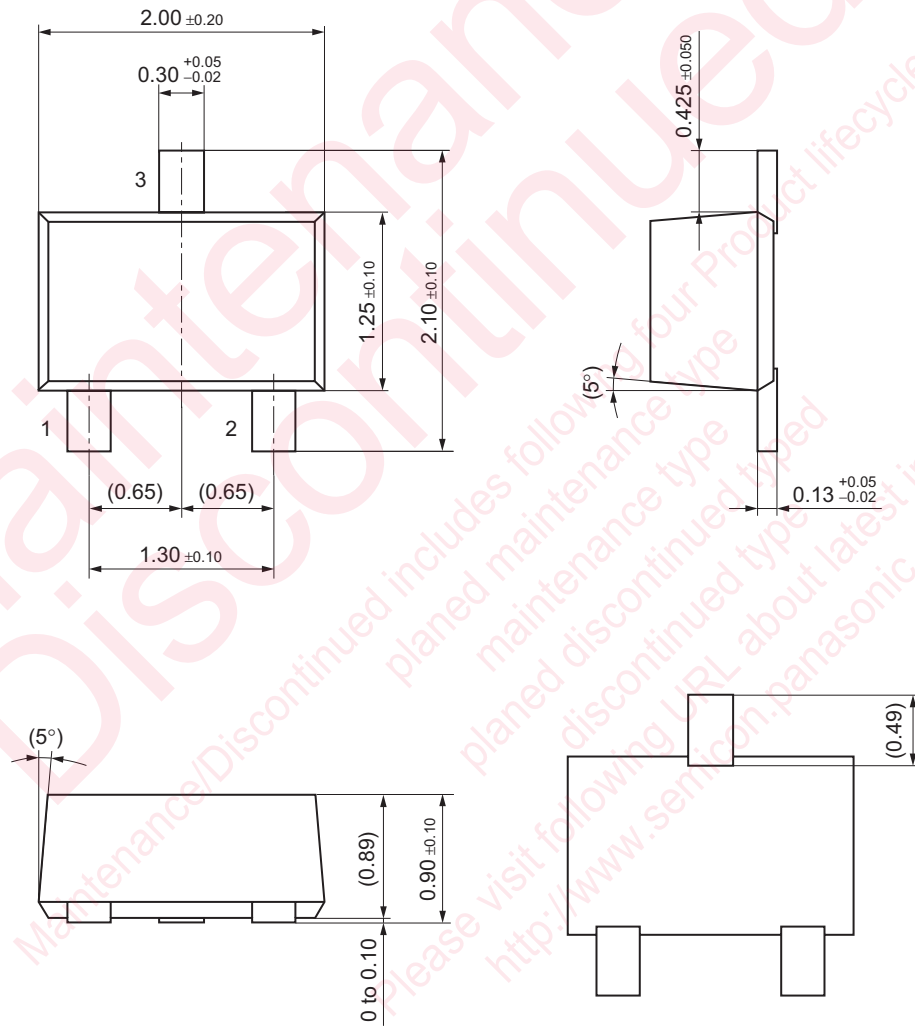
| Rank     | P         | Q          |
|----------|-----------|------------|
| $h_{FE}$ | 75 to 130 | 110 to 220 |

\*2:  $\Delta h_{FE} = h_{FE2} / h_{FE1}$



SMini3-F2

Unit: mm



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