

# DSC2002

## Silicon NPN epitaxial planar type

For general amplification  
Complementary to DSA2002

### ■ Features

- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- High forward current transfer ratio  $h_{FE}$  with excellent linearity
- Halogen-free / RoHS compliant  
(EU RoHS / UL-94 V-0 / MSL: Level 1 compliant)

### ■ Marking Symbol: C2

### ■ Packaging

DSC2002×0L Embossed type (Thermo-compression sealing): 3 000 pcs / reel (standard)

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| Parameter                             | Symbol    | Rating      | Unit             |
|---------------------------------------|-----------|-------------|------------------|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | 60          | V                |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | 50          | V                |
| Emitter-base voltage (Collector open) | $V_{EBO}$ | 5           | V                |
| Collector current                     | $I_C$     | 500         | mA               |
| Peak collector current                | $I_{CP}$  | 1           | A                |
| Collector power dissipation           | $P_C$     | 200         | mW               |
| Junction temperature                  | $T_j$     | 150         | $^\circ\text{C}$ |
| Operating ambient temperature         | $T_{opr}$ | -40 to +85  | $^\circ\text{C}$ |
| 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-base voltage (Emitter open)                               | $V_{CBO}$     | $I_C = 10 \mu\text{A}$ , $I_E = 0$                        | 60  |     |     | V             |
| Collector-emitter voltage (Base open)                               | $V_{CEO}$     | $I_C = 2 \text{ mA}$ , $I_B = 0$                          | 50  |     |     | V             |
| Emitter-base voltage (Collector open)                               | $V_{EBO}$     | $I_E = 10 \mu\text{A}$ , $I_C = 0$                        | 5   |     |     | V             |
| Collector-base cutoff current (Emitter open)                        | $I_{CBO}$     | $V_{CB} = 20 \text{ V}$ , $I_E = 0$                       |     |     | 0.1 | $\mu\text{A}$ |
| Forward current transfer ratio *1                                   | $h_{FE1}$ *2  | $V_{CE} = 10 \text{ V}$ , $I_C = 150 \text{ mA}$          | 120 |     | 340 | —             |
|                                                                     | $h_{FE2}$     | $V_{CE} = 10 \text{ V}$ , $I_C = 500 \text{ mA}$          | 40  |     |     |               |
| Collector-emitter saturation voltage *1                             | $V_{CE(sat)}$ | $I_C = 300 \text{ mA}$ , $I_B = 30 \text{ mA}$            |     | 0.1 | 0.6 | V             |
| Transition frequency                                                | $f_T$         | $V_{CE} = 10 \text{ V}$ , $I_C = 50 \text{ mA}$           |     | 160 |     | MHz           |
| Collector output capacitance<br>(Common base, input open circuited) | $C_{ob}$      | $V_{CB} = 10 \text{ V}$ , $I_E = 0$ , $f = 1 \text{ MHz}$ |     | 4.8 | 15  | pF            |

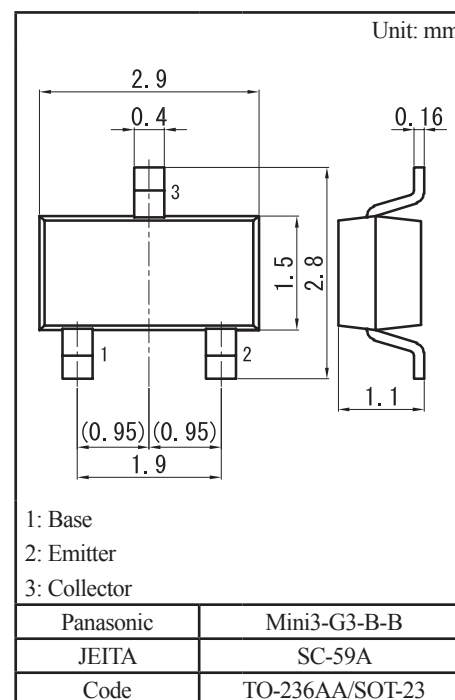
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

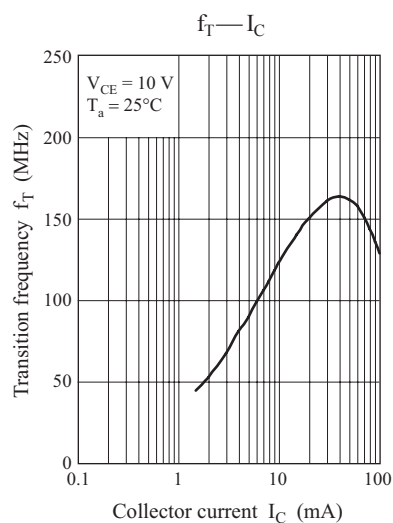
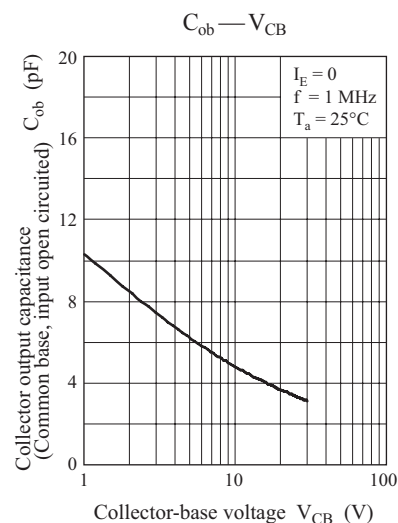
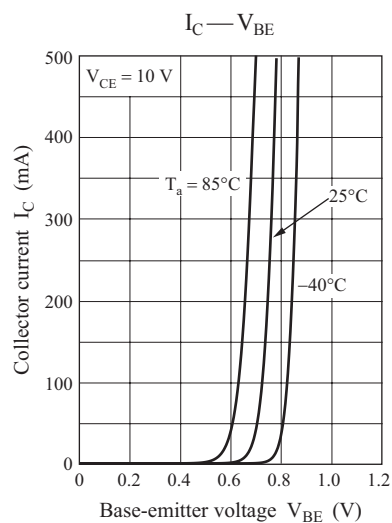
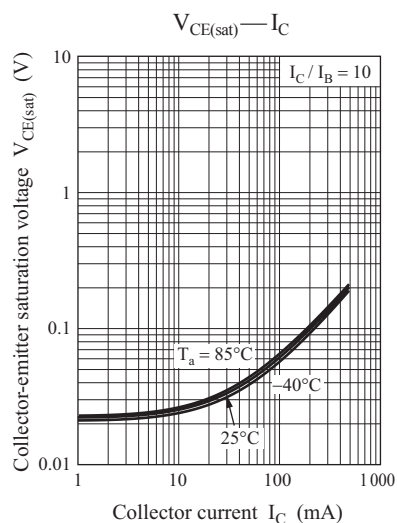
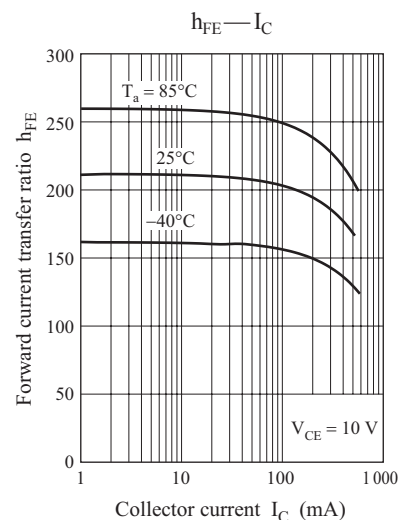
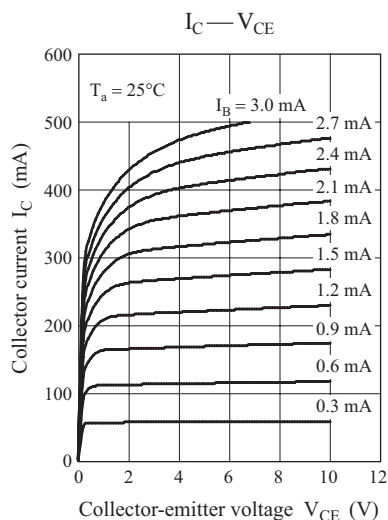
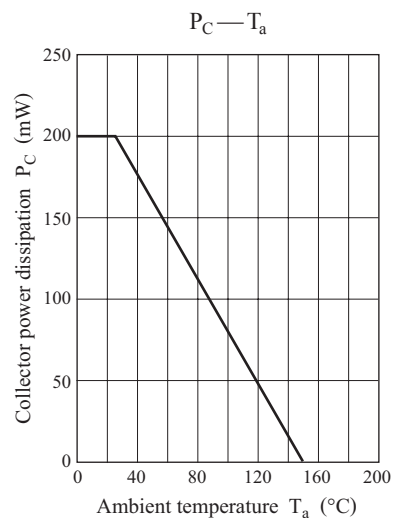
2. \*1: Pulse measurement

\*2: Rank classification

|                |            |            |            |
|----------------|------------|------------|------------|
| Code           | R          | S          | 0          |
| Rank           | R          | S          | No-rank    |
| $h_{FE}$       | 120 to 240 | 170 to 340 | 120 to 340 |
| Marking Symbol | C2R        | C2S        | C2         |

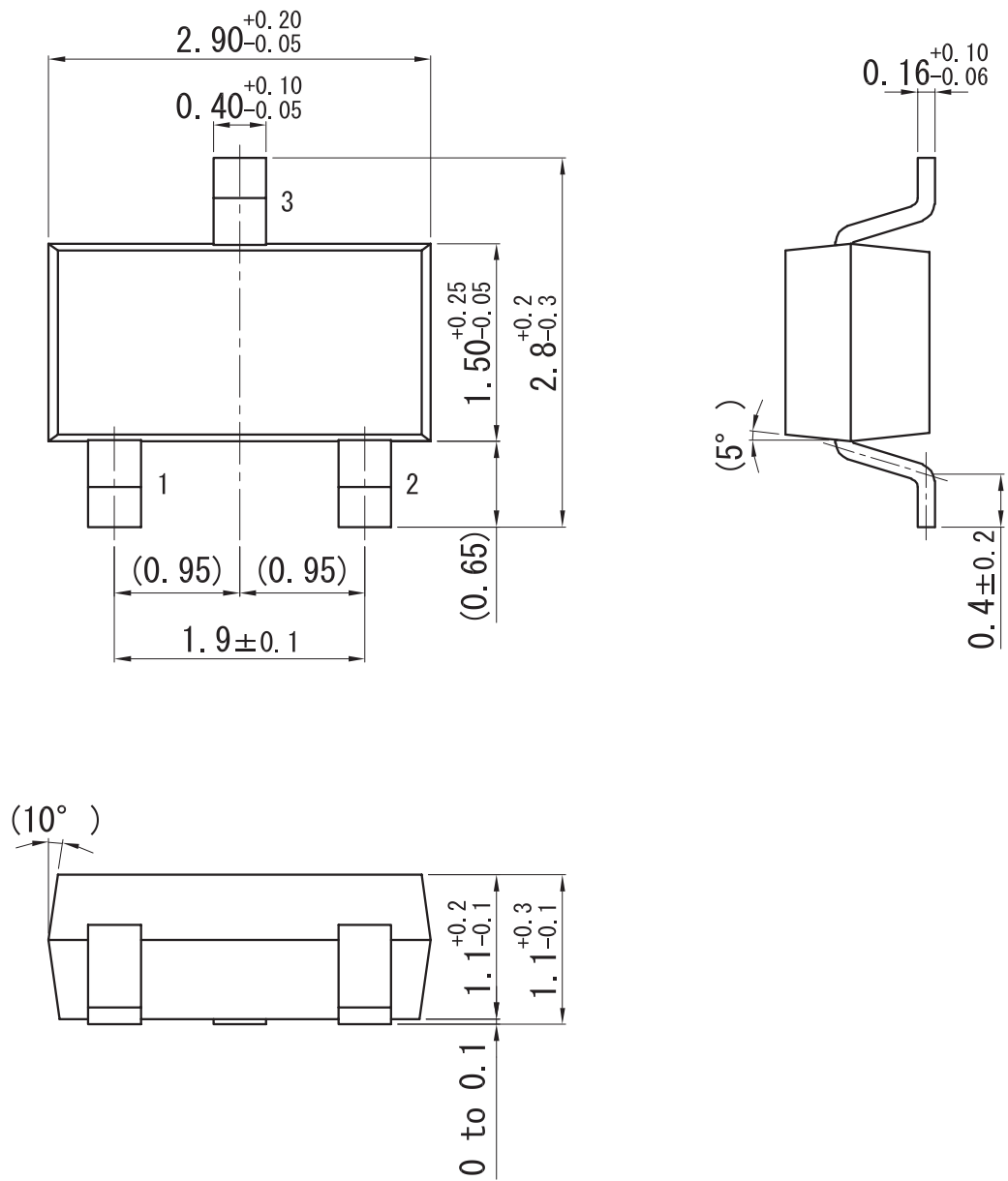
Product of no-rank is not classified and have no marking symbol for rank.



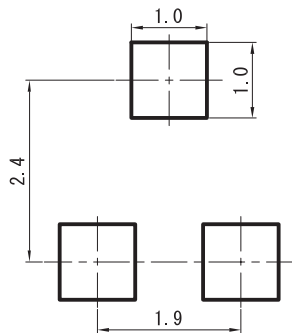


Mini3-G3-B-B

Unit: mm



■ Land Pattern (Reference) (Unit: mm)



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### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

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