

# DSC5501

## Silicon NPN epitaxial planar type

For low frequency amplification  
DSC5501 in SMini3 type package

### ■ Features

- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- Halogen-free / RoHS compliant  
(EU RoHS / UL-94 V-0 / MSL: Level 1 compliant)

### ■ Marking Symbol: E3

### ■ Packaging

DSC5501×0L 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) | $V_{CBO}$ | 25          | V                |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | 20          | V                |
| Emitter-base voltage (Collector open) | $V_{EBO}$ | 12          | V                |
| Collector current                     | $I_C$     | 0.5         | A                |
| Peak collector current                | $I_{CP}$  | 1           | A                |
| Collector power dissipation           | $P_C$     | 150         | mW               |
| Junction temperature                  | $T_j$     | 150         | $^\circ\text{C}$ |
| Operating ambient temperature         | $T_{opr}$ | -40 to +85  | $^\circ\text{C}$ |
| Storage temperature                   | $T_{slg}$ | -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)                               | $V_{CBO}$     | $I_C = 10 \mu\text{A}$ , $I_E = 0$                        | 25  |      |      | V        |
| Collector-emitter voltage (Base open)                               | $V_{CEO}$     | $I_C = 1 \text{ mA}$ , $I_B = 0$                          | 20  |      |      | V        |
| Emitter-base voltage (Collector open)                               | $V_{EBO}$     | $I_E = 10 \mu\text{A}$ , $I_C = 0$                        | 12  |      |      | V        |
| Collector-base cutoff current (Emitter open)                        | $I_{CBO}$     | $V_{CB} = 25 \text{ V}$ , $I_E = 0$                       |     |      | 100  | nA       |
| Forward current transfer ratio *2                                   | $h_{FE}$      | $V_{CE} = 2 \text{ V}$ , $I_C = 0.5 \text{ A}$            | 200 |      | 800  | —        |
| Collector-emitter saturation voltage *1                             | $V_{CE(sat)}$ | $I_C = 0.5 \text{ A}$ , $I_B = 20 \text{ mA}$             |     | 0.18 | 0.40 | V        |
| Base-emitter saturation voltage *1                                  | $V_{BE(sat)}$ | $I_C = 0.5 \text{ A}$ , $I_B = 50 \text{ mA}$             |     |      | 1.2  | V        |
| Transition frequency  | $f_T$         | $V_{CE} = 10 \text{ V}$ , $I_C = 50 \text{ mA}$           |     | 150  |      | MHz      |
| Collector output capacitance<br>(Common base, input open circuited) | $C_{ob}$      | $V_{CB} = 10 \text{ V}$ , $I_E = 0$ , $f = 1 \text{ MHz}$ |     | 6    |      | pF       |
| ON resistance *3  | $R_{on}$      |   |     | 1.0  |      | $\Omega$ |

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

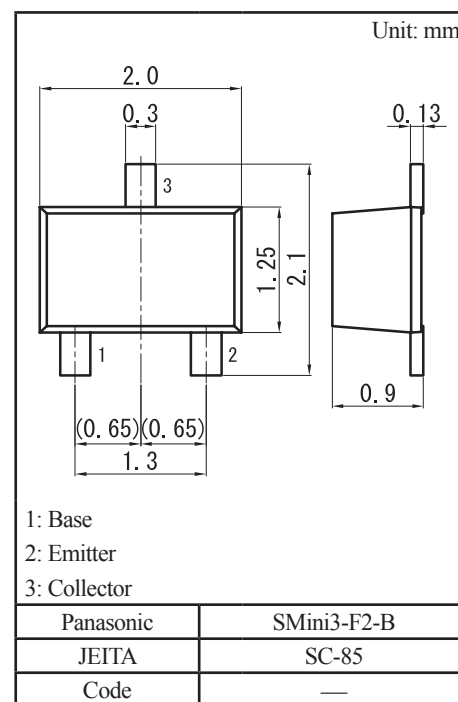
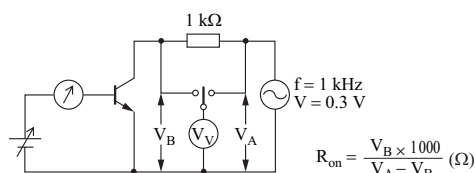
2. \*1: Pulse measurement

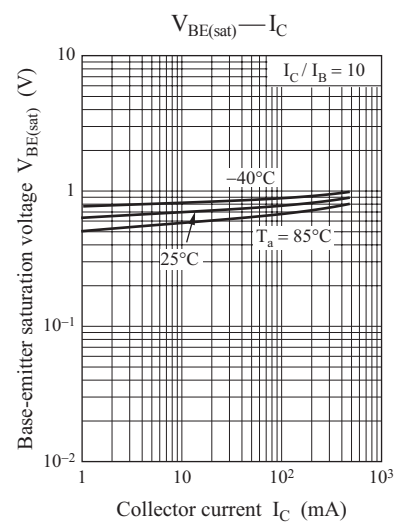
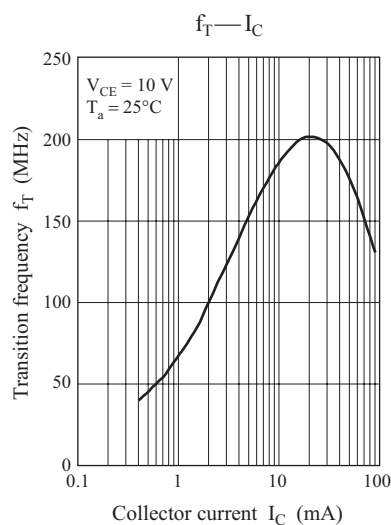
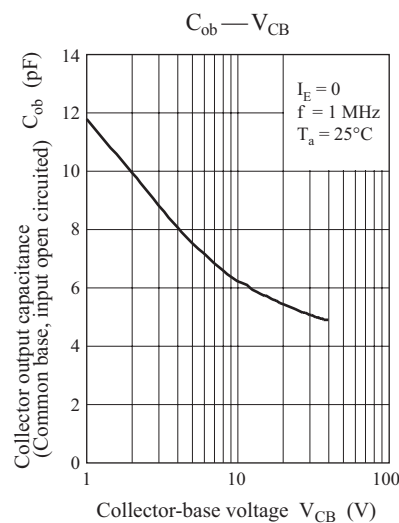
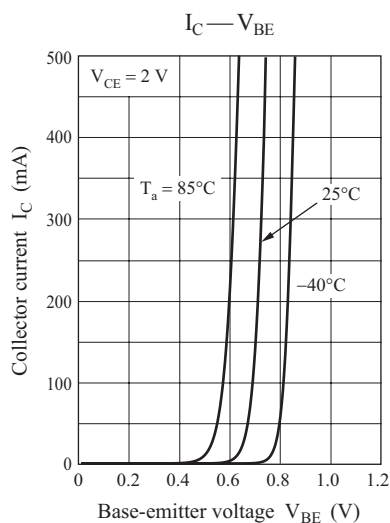
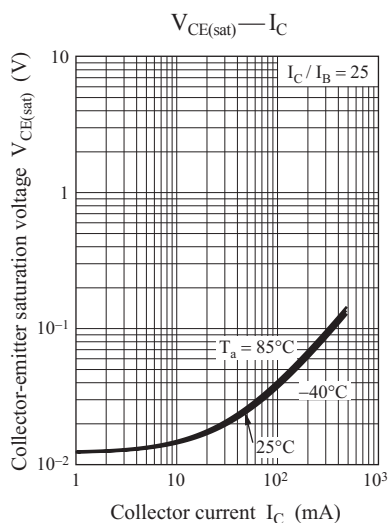
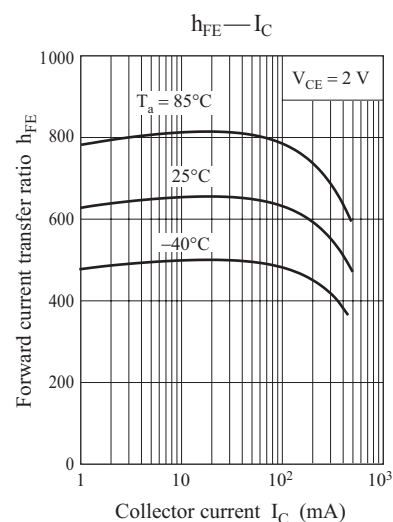
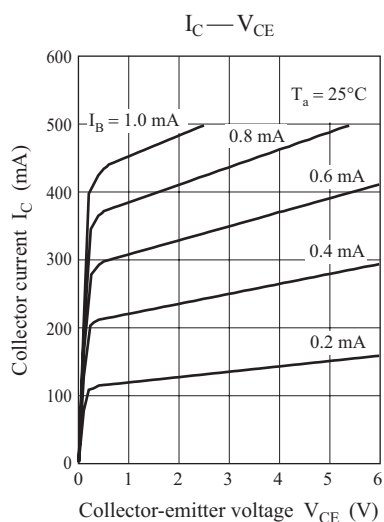
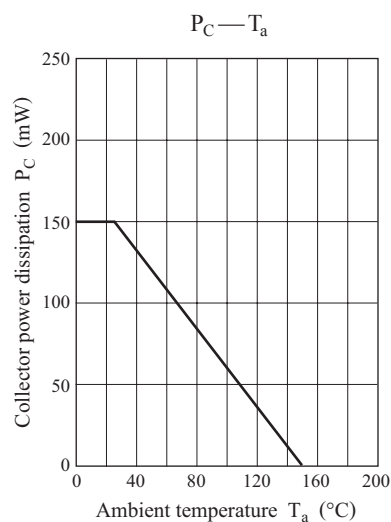
\*2: Rank classification

| Code           | R          | S          | T          | 0          |
|----------------|------------|------------|------------|------------|
| Rank           | R          | S          | T          | No-rank    |
| $h_{FE}$       | 200 to 350 | 300 to 500 | 400 to 800 | 200 to 800 |
| Marking Symbol | E3R        | E3S        | E3T        | E3         |

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

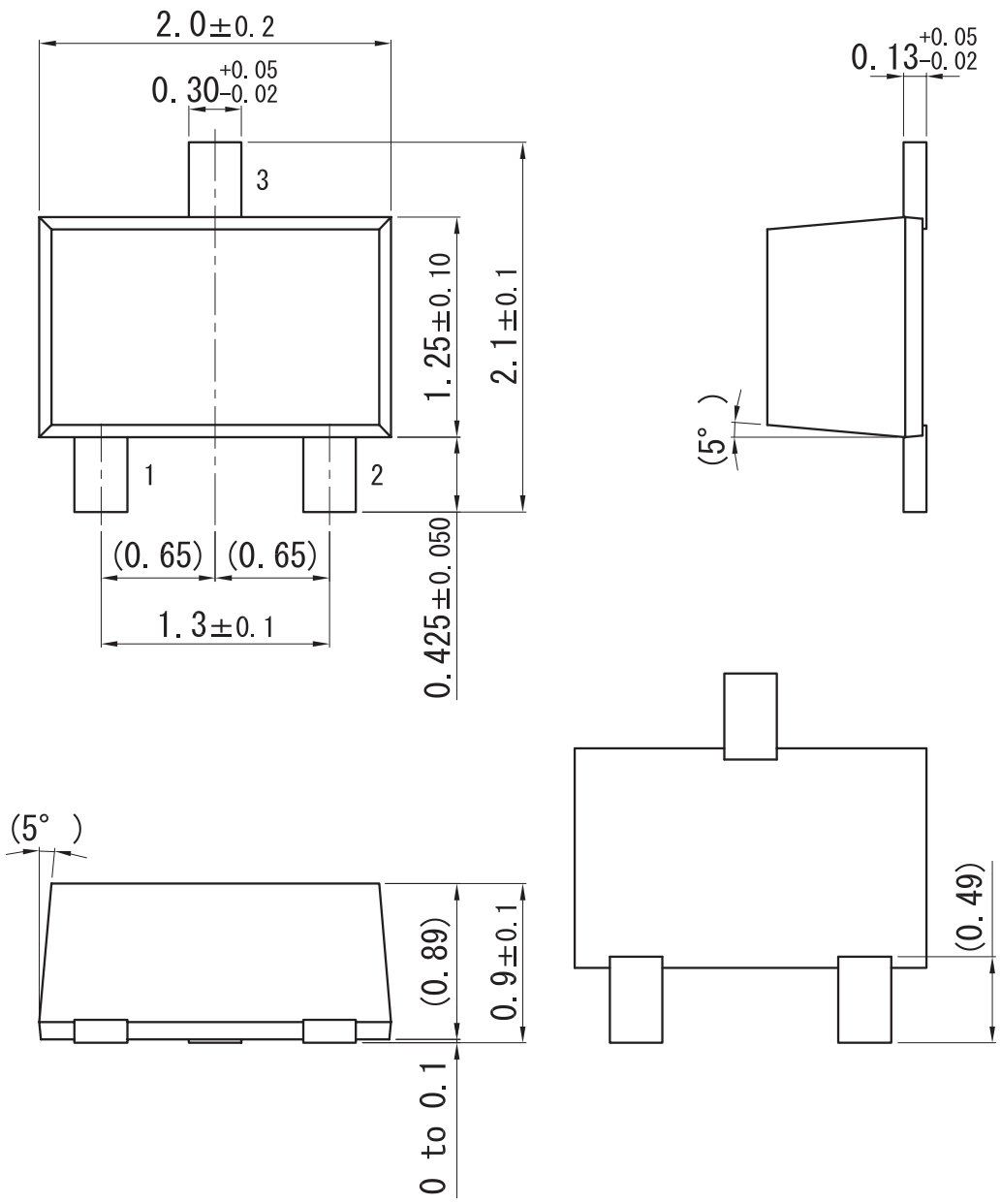
\*3:  $R_{on}$  measurement circuit



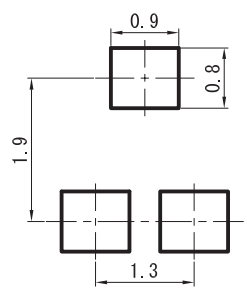


SMini3-F2-B

Unit: mm



■ Land Pattern (Reference) (Unit: mm)



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