

# DSA7003

## Silicon PNP epitaxial planar type

For low frequency amplification  
Complementary to DSC7003

### ■ 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: 4A

### ■ Packaging

DSA7003×0L Embossed type (Thermo-compression sealing): 1 000 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                     | $I_C$     | -1          | A                |
| Peak collector current                | $I_{CP}$  | -1.5        | A                |
| Collector power dissipation *1        | $P_C$     | 1           | W                |
| 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 | $^\circ\text{C}$ |

Note) \*1: Printed circuit board: Copper foil area of 1 cm<sup>2</sup> or more, and the board thickness of 1.7 mm for the collector portion  
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)                               | $V_{CBO}$     | $I_C = -10 \mu\text{A}$ , $I_E = 0$                        | -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  | $V_{CE} = -10 \text{ V}$ , $I_C = -500 \text{ mA}$         | 120 |      | 340  | —             |
|                                                                     | $h_{FE2}$     | $V_{CE} = -5 \text{ V}$ , $I_C = -1 \text{ A}$             | 50  |      |      |               |
| Collector-emitter saturation voltage *1                             | $V_{CE(sat)}$ | $I_C = -500 \text{ mA}$ , $I_B = -50 \text{ mA}$           |     |      | -0.4 | V             |
| Base-emitter saturation voltage *1                                  | $V_{BE(sat)}$ | $I_C = -500 \text{ mA}$ , $I_B = -50 \text{ mA}$           |     |      | -1.2 | V             |
| Transition frequency                                                | $f_T$         | $V_{CE} = -10 \text{ V}$ , $I_C = -50 \text{ mA}$          |     | 120  |      | MHz           |
| Collector output capacitance<br>(Common base, input open circuited) | $C_{ob}$      | $V_{CB} = -10 \text{ V}$ , $I_E = 0$ , $f = 1 \text{ MHz}$ |     | 14.5 | 30   | pF            |

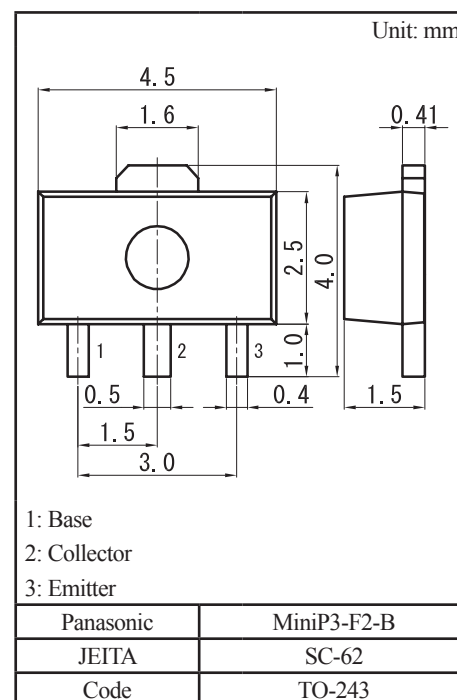
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

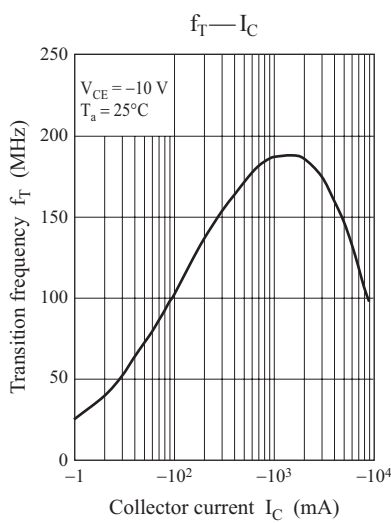
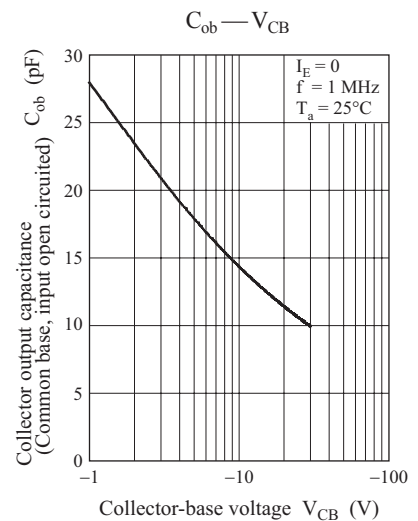
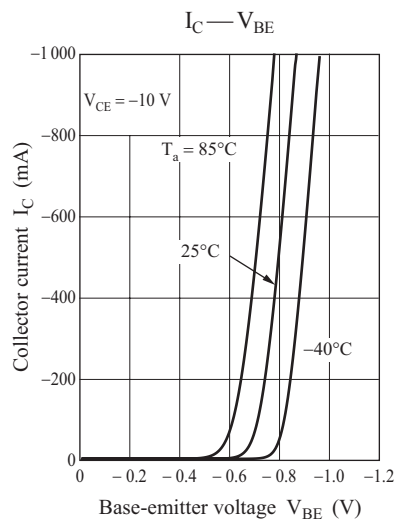
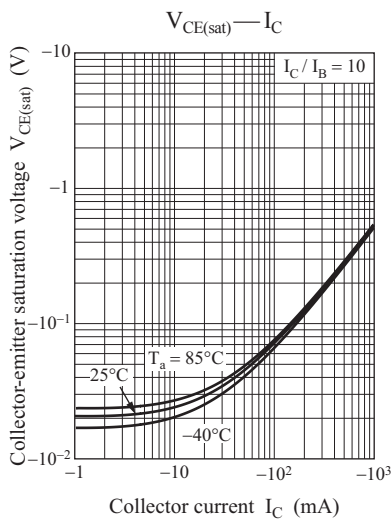
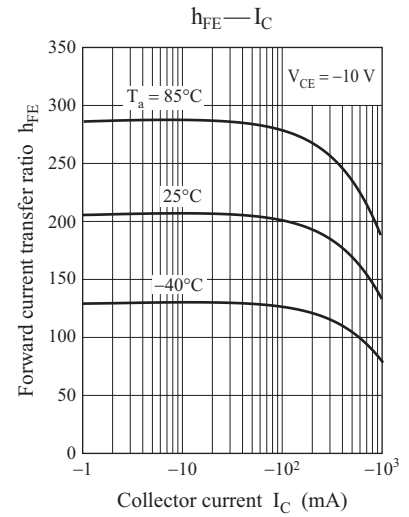
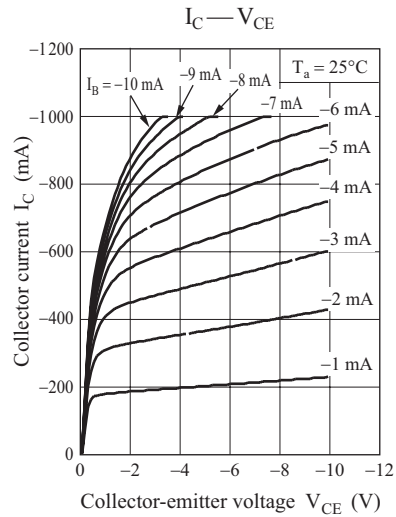
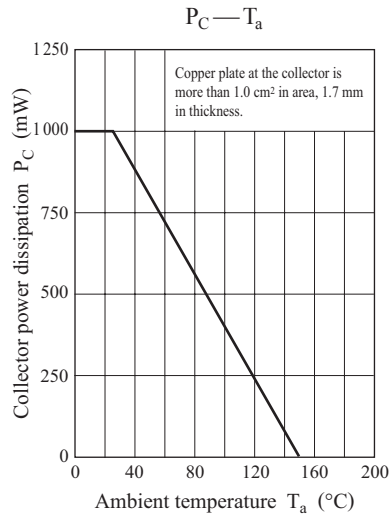
2. \*1: Pulse measurement

\*2: Rank classification

|                |            |            |            |
|----------------|------------|------------|------------|
| Code           | R          | S          | 0          |
| Rank           | R          | S          | No-rank    |
| $h_{FE1}$      | 120 to 240 | 170 to 340 | 120 to 340 |
| Marking Symbol | 4AR        | 4AS        | 4A         |

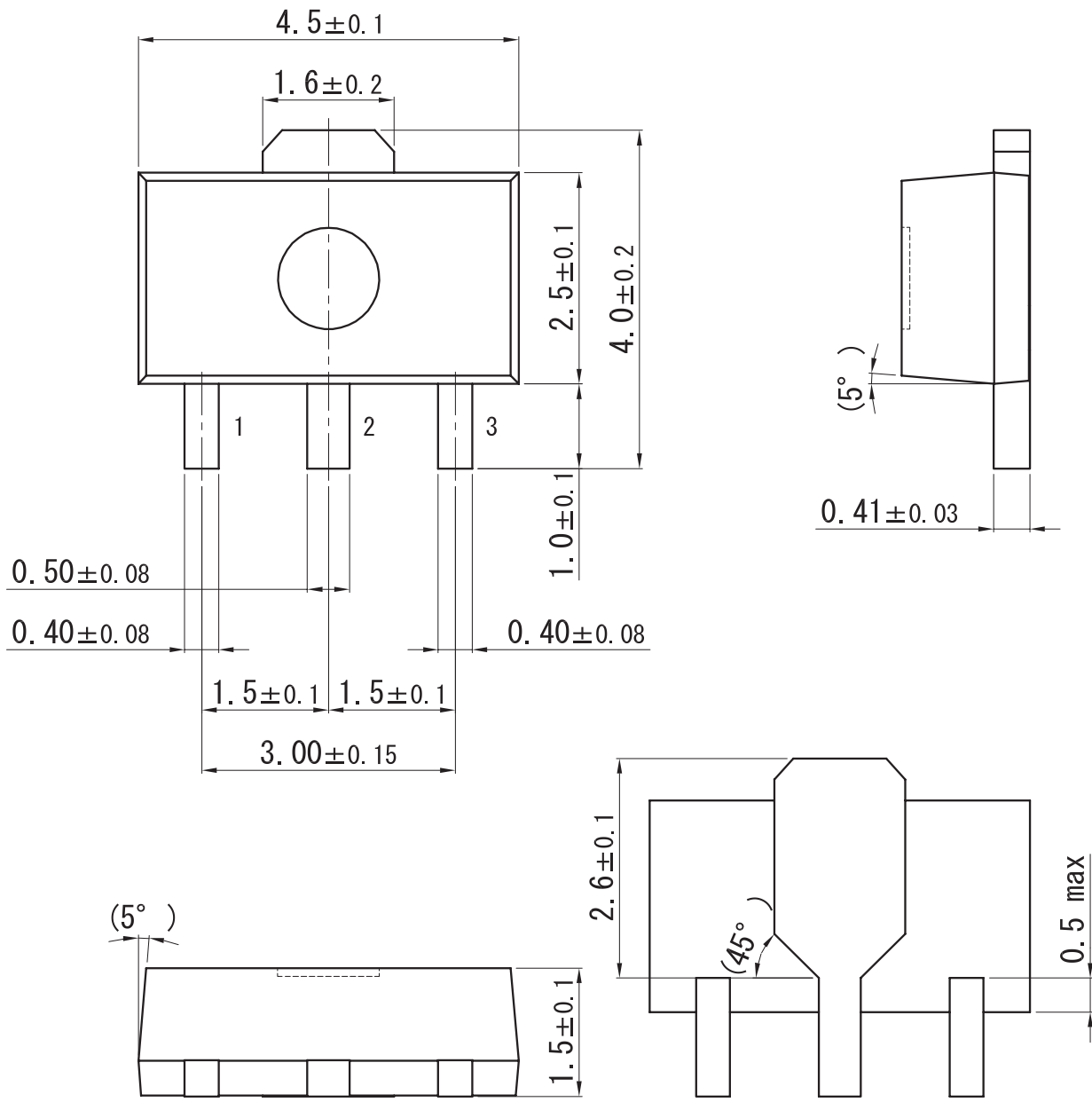
Product of no-rank is not classified and have no marking symbol for rank.



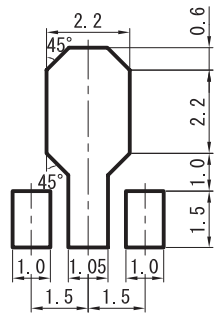


MiniP3-F2-B

Unit: mm



■ Land Pattern (Reference) (Unit: mm)



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