

# DSC7003

## Silicon NPN epitaxial planar type

For low frequency output amplification  
Complementary to DSA7003  
DSC8003 in MiniP3 type package

### ■ Features

- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- Contributes to miniaturization of sets, reduction of component count.
- Eco-friendly Halogen-free package

### ■ Packaging

DSC7003×0L Embossed type (Thermo-compression sealing): 1000 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           | $P_C$     | 1           | W                |
| Junction temperature                  | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature                   | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

Note) 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                             | $V_{CE(sat)}$ | $I_C = 500\ \text{mA}$ , $I_B = 50\ \text{mA}$            |     | 0.15 | 0.4 | V             |
| Base-emitter saturation voltage *1                                  | $V_{BE(sat)}$ | $I_C = 500\ \text{mA}$ , $I_B = 50\ \text{mA}$            |     | 0.9  | 1.2 | V             |
| Transition frequency                                                | $f_T$         | $V_{CE} = 10\ \text{V}$ , $I_C = 50\ \text{mA}$           |     | 170  |     | MHz           |
| Collector output capacitance<br>(Common base, input open circuited) | $C_{ob}$      | $V_{CB} = 10\ \text{V}$ , $I_E = 0$ , $f = 1\ \text{MHz}$ |     | 10   | 20  | 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 | 5AR        | 5AS        | 5A         |

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

### ■ Package

#### • Code

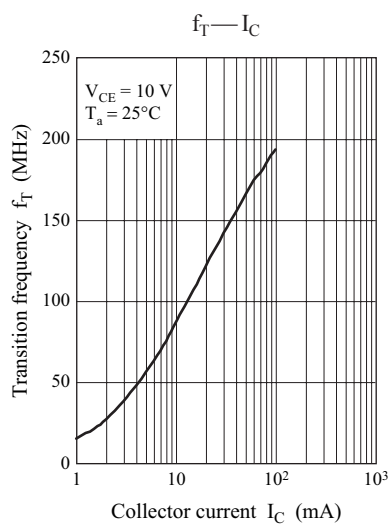
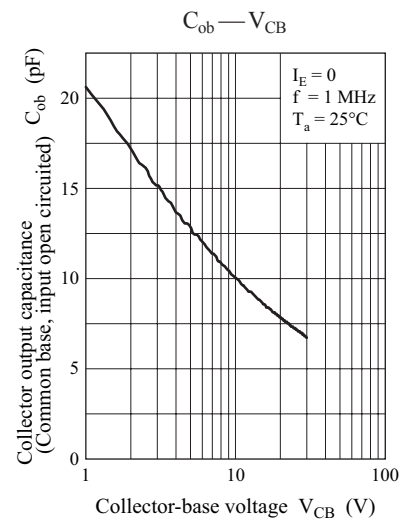
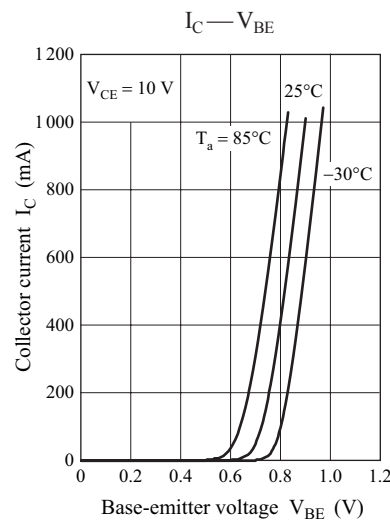
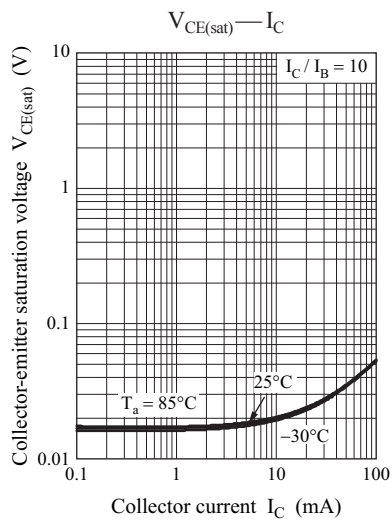
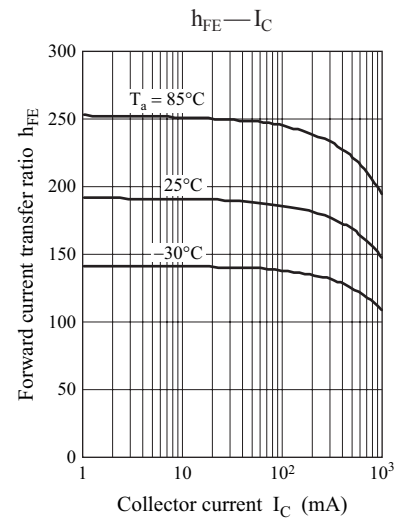
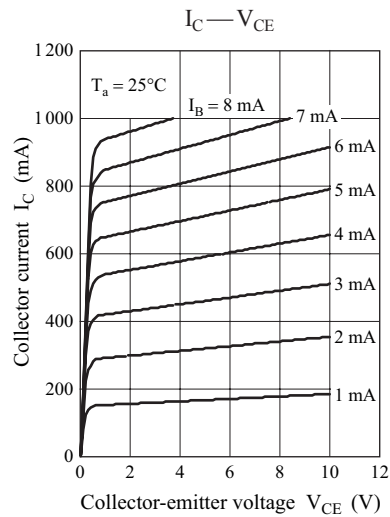
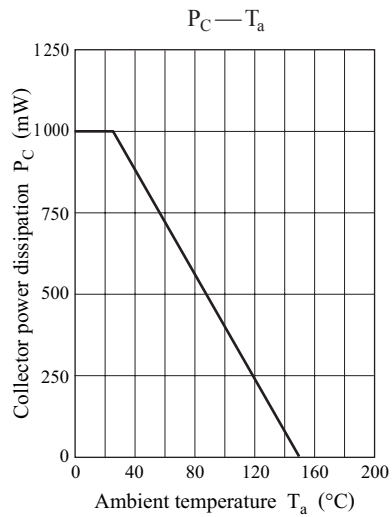
MiniP3-F2-B

Package dimension clicks here.→

#### • Pin Name

1. Base
2. Collector
3. Emitter

### ■ Marking Symbol: 5A



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