

# 2SD0592 (2SD592)

## Silicon NPN epitaxial planar type

For low frequency amplification

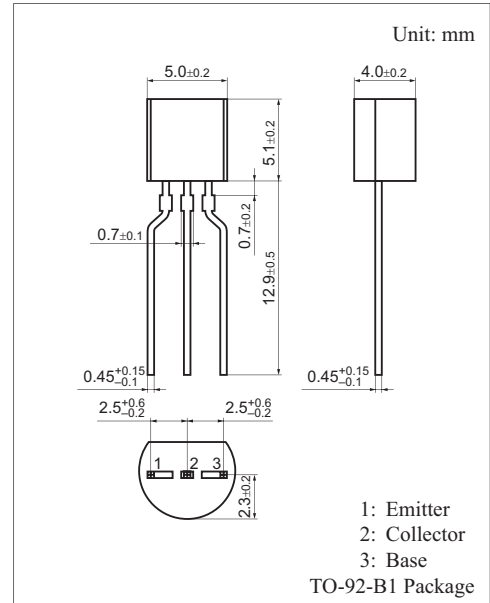
Complementary to 2SB0621 (2SB621)

### ■ Features

- Large collector power dissipation  $P_C$
- Low collector-emitter saturation voltage  $V_{CE(sat)}$

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

| Parameter                             | Symbol    | Rating      | Unit             |
|---------------------------------------|-----------|-------------|------------------|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | 30          | V                |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | 25          | 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           | $P_C$     | 750         | mW               |
| Junction temperature                  | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature                   | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |



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

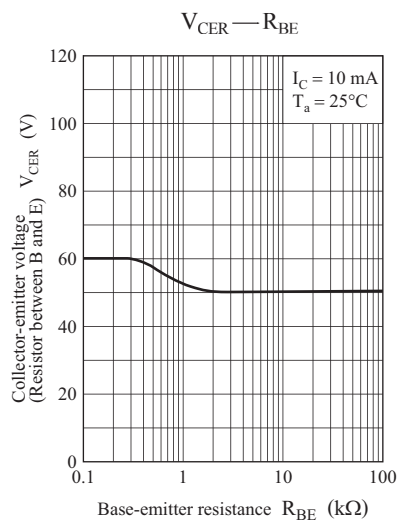
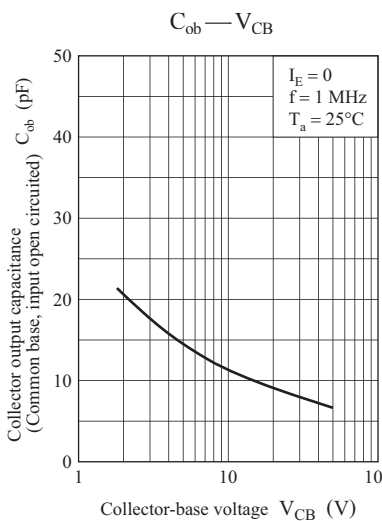
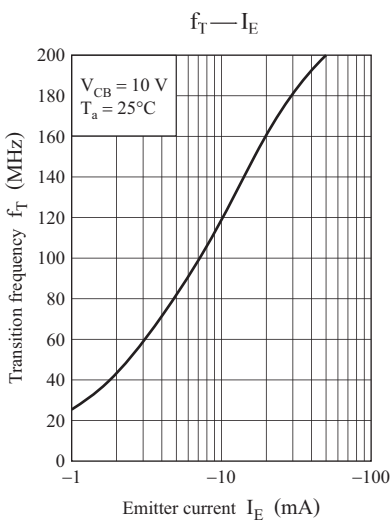
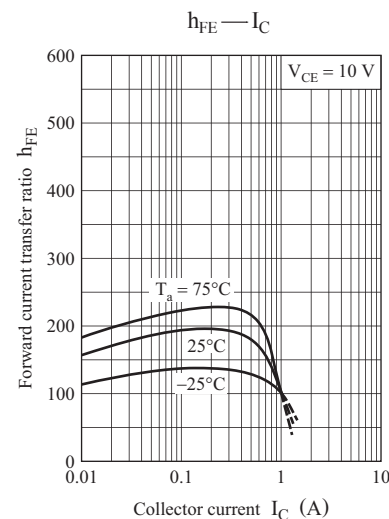
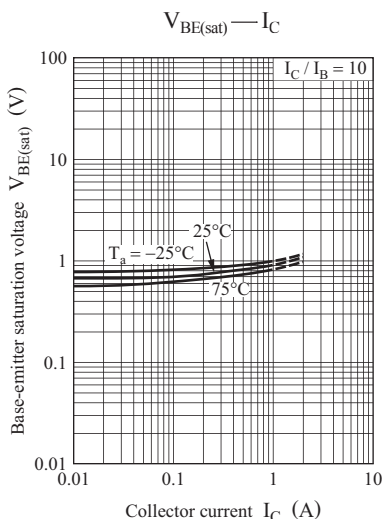
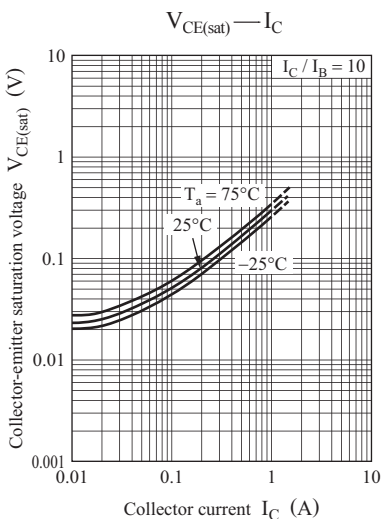
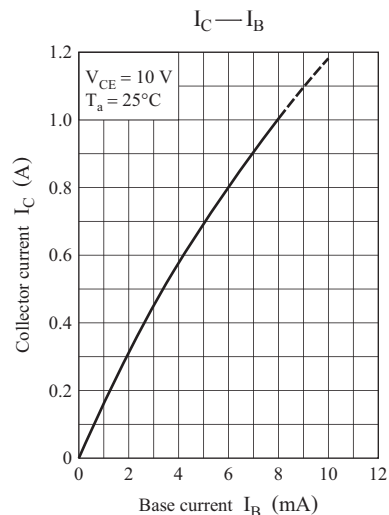
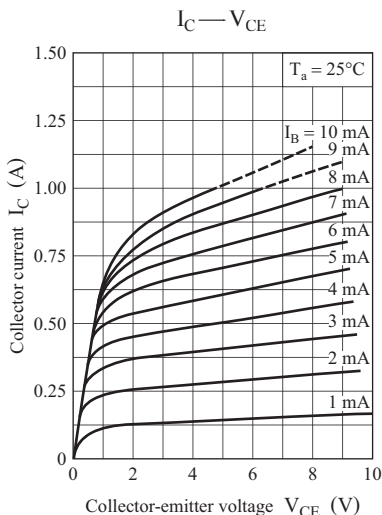
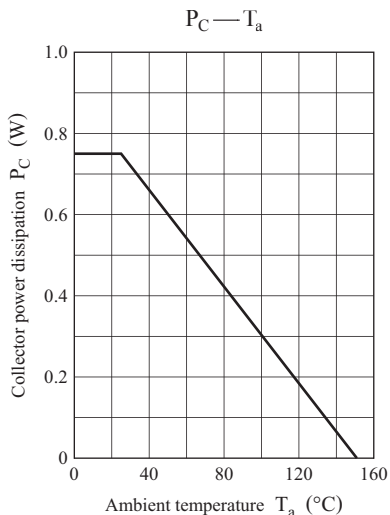
| Parameter   | Symbol        | Conditions   | Min | Typ  | Max | Unit          |
|---|---------------|--|-----|------|-----|---------------|
| Collector-base voltage (Emitter open)                               | $V_{CBO}$     | $I_C = 10 \mu\text{A}, I_E = 0$                                    | 30  |      |     | V             |
| Collector-emitter voltage (Base open)                               | $V_{CEO}$     | $I_C = 2 \text{ mA}, I_B = 0$                                      | 25  |      |     | 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                                      | $h_{FE1}^*$   | $V_{CE} = 10 \text{ V}, I_C = 500 \text{ mA}$                      | 85  |      | 340 | —             |
|   | $h_{FE2}$     | $V_{CE} = 5 \text{ V}, I_C = 1 \text{ A}$                          | 50  |      |     | —             |
| Collector-emitter saturation voltage                                | $V_{CE(sat)}$ | $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$                        |     | 0.2  | 0.4 | V             |
| Base-emitter saturation voltage                                     | $V_{BE(sat)}$ | $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$                        |     | 0.85 | 1.2 | V             |
| Collector output capacitance<br>(Common base, input open circuited) | $C_{ob}$      | $V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$                |     |      | 20  | pF            |
| Transition frequency  | $f_T$         | $V_{CB} = 10 \text{ V}, I_E = -50 \text{ mA}, f = 200 \text{ MHz}$ |     | 200  |     | MHz           |

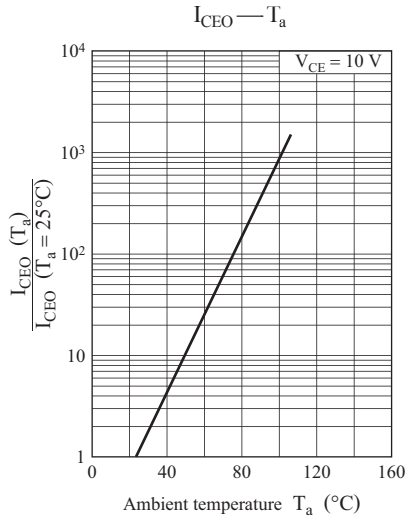
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \* : Rank classification

| Rank      | Q         | R          | S          |
|-----------|-----------|------------|------------|
| $h_{FE1}$ | 85 to 170 | 120 to 240 | 170 to 340 |

Note) The part number in the parenthesis shows conventional part number.





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