

# 2SD2184

## Silicon NPN epitaxial planar type

For low-frequency output amplification

### ■ Features

- High collector-emitter voltage (Base open)  $V_{CEO}$
- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- Allowing supply with the radial taping

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

| Parameter                             | Symbol    | Rating      | Unit             |
|---------------------------------------|-----------|-------------|------------------|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | 150         | V                |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | 150         | 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

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

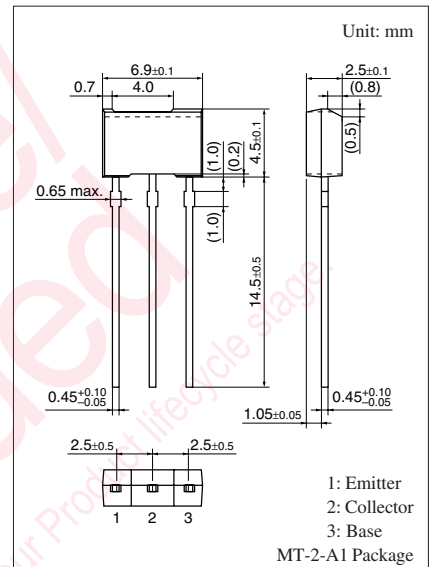
| Parameter  | Symbol         | Conditions   | Min | Typ  | Max  | Unit          |
|--|----------------|--|-----|------|------|---------------|
| Collector-base voltage (Emitter open)                            | $V_{CBO}$      | $I_C = 10 \mu\text{A}, I_E = 0$                                    | 150 |      |      | V             |
| Collector-emitter voltage (Base open)                            | $V_{CEO}$      | $I_C = 1 \text{ mA}, I_B = 0$                                      | 150 |      |      | 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)                     | $I_{CBO}$      | $V_{CB} = 75 \text{ V}, I_E = 0$                                   |     |      | 0.1  | $\mu\text{A}$ |
| Forward current transfer ratio                                   | $h_{FE1}^{*2}$ | $V_{CE} = 2 \text{ V}, I_C = 100 \text{ mA}$                       | 120 |      | 340  | —             |
|  | $h_{FE2}^{*1}$ | $V_{CE} = 2 \text{ V}, I_C = 500 \text{ mA}$                       | 40  |      |      |               |
| Collector-emitter saturation voltage <sup>*1</sup>               | $V_{CE(sat)}$  | $I_C = 500 \text{ mA}, I_B = 25 \text{ mA}$                        |     | 0.11 | 0.30 | V             |
| Base-emitter saturation voltage <sup>*1</sup>                    | $V_{BE(sat)}$  | $I_C = 500 \text{ mA}, I_B = 25 \text{ mA}$                        |     | 0.8  | 1.2  | V             |
| Transition frequency   | $f_T$          | $V_{CB} = 10 \text{ V}, I_E = -50 \text{ mA}, f = 200 \text{ MHz}$ |     | 90   |      | MHz           |
| Collector output capacitance (Common base, input open circuited) | $C_{ob}$       | $V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$                |     | 12   | 20   | pF            |

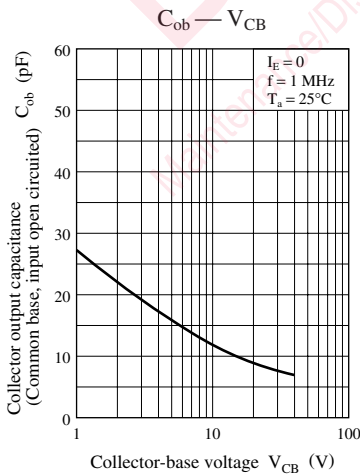
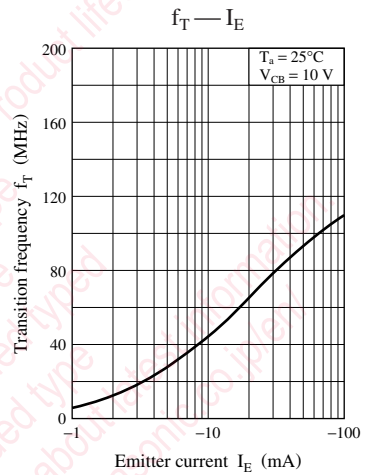
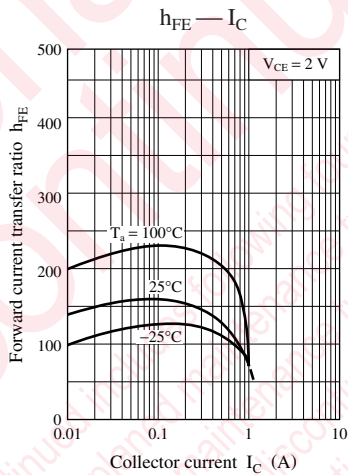
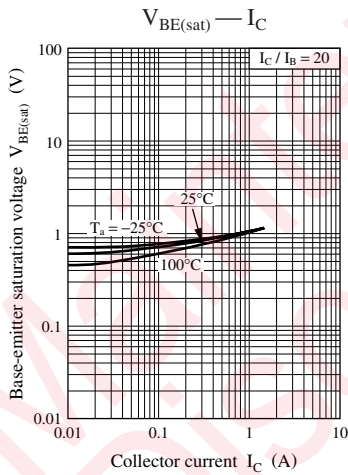
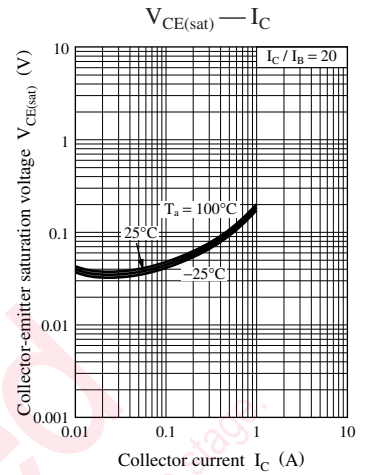
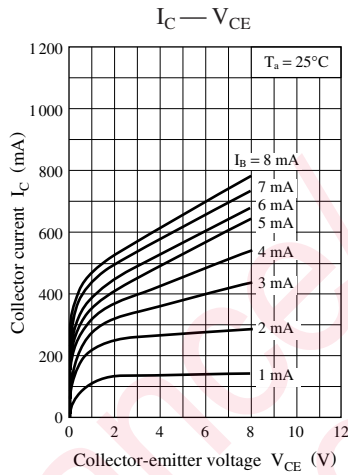
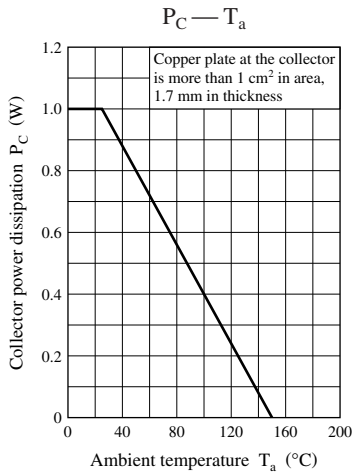
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*1: Pulse measurement

\*2: Rank classification

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





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