

# 2SD1820A

## Silicon NPN epitaxial planar type

For general amplification

Complementary to 2SB1219A

### ■ Features

- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- S-Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing.

### ■ 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                     | $I_C$     | 500         | mA               |
| Peak collector current                | $I_{CP}$  | 1           | A                |
| Collector power dissipation           | $P_C$     | 150         | mW               |
| Junction temperature                  | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature                   | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

### ■ Package

- Code  
SMini3-G1

### • Pin Name

1. Base
2. Emitter
3. Collector

### ■ Marking Symbol: X

### ■ 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  | $V_{CE} = 10\ \text{V}$ , $I_C = 150\ \text{mA}$                         | 85  |      | 340  | —             |
|                                                                     | $h_{FE2}$     | $V_{CE} = 10\ \text{V}$ , $I_C = 500\ \text{mA}$                         | 40  |      |      |               |
| Collector-emitter saturation voltage *1                             | $V_{CE(sat)}$ | $I_C = 300\ \text{mA}$ , $I_B = 30\ \text{mA}$                           |     | 0.35 | 0.60 | V             |
| Transition frequency                                                | $f_T$         | $V_{CB} = 10\ \text{V}$ , $I_E = -50\ \text{mA}$ , $f = 200\ \text{MHz}$ |     | 200  |      | 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    | 15   | pF            |

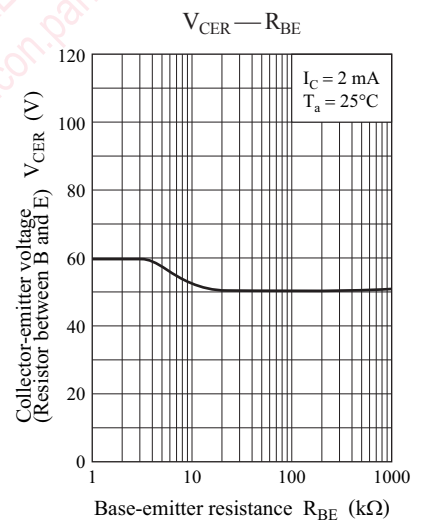
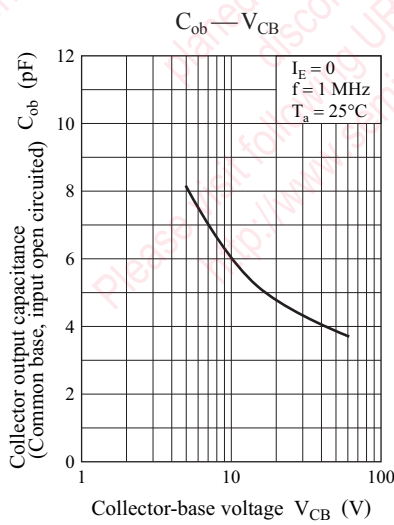
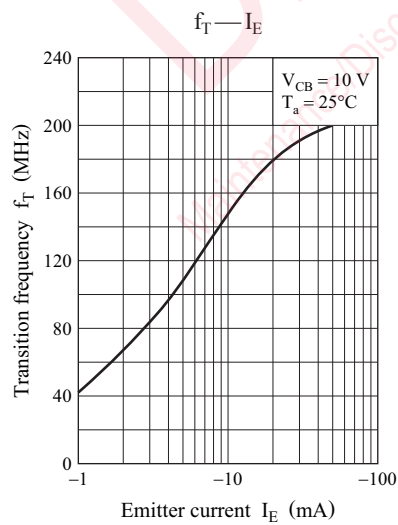
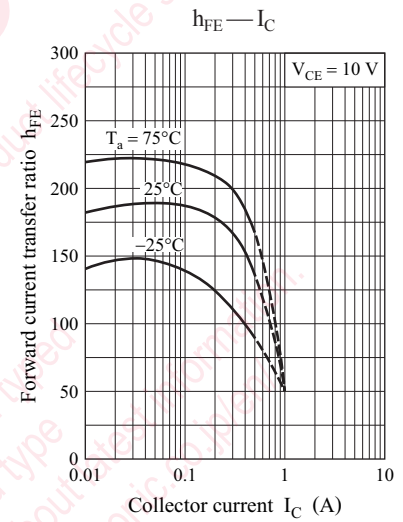
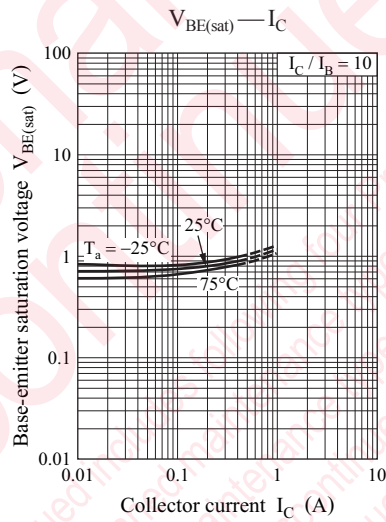
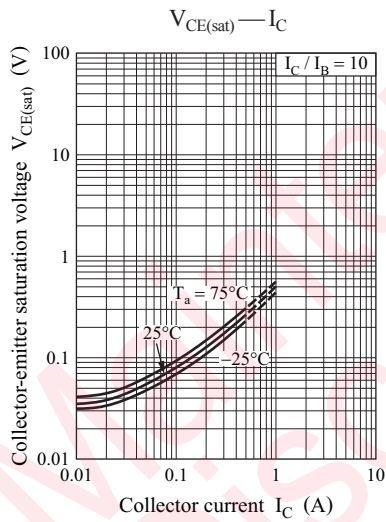
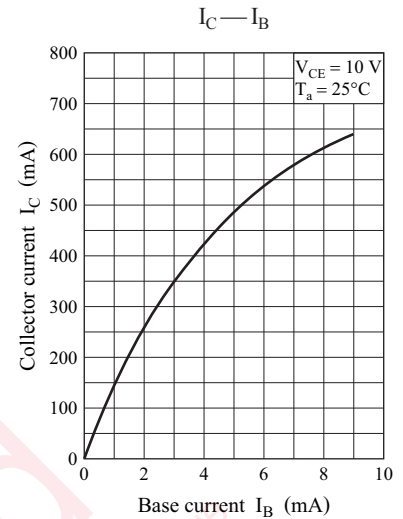
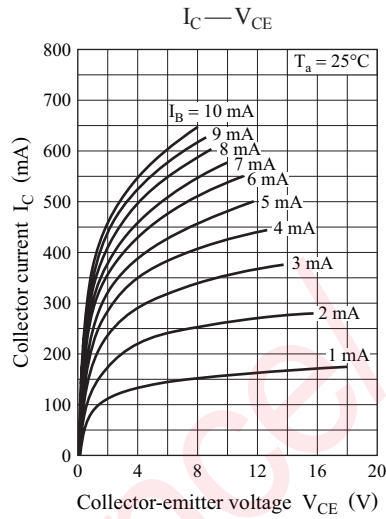
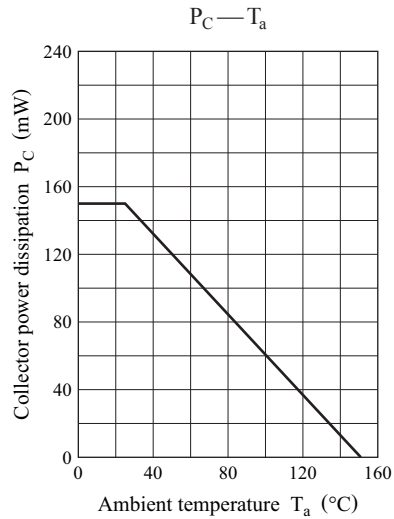
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*1: Pulse measurement

\*2: Rank classification

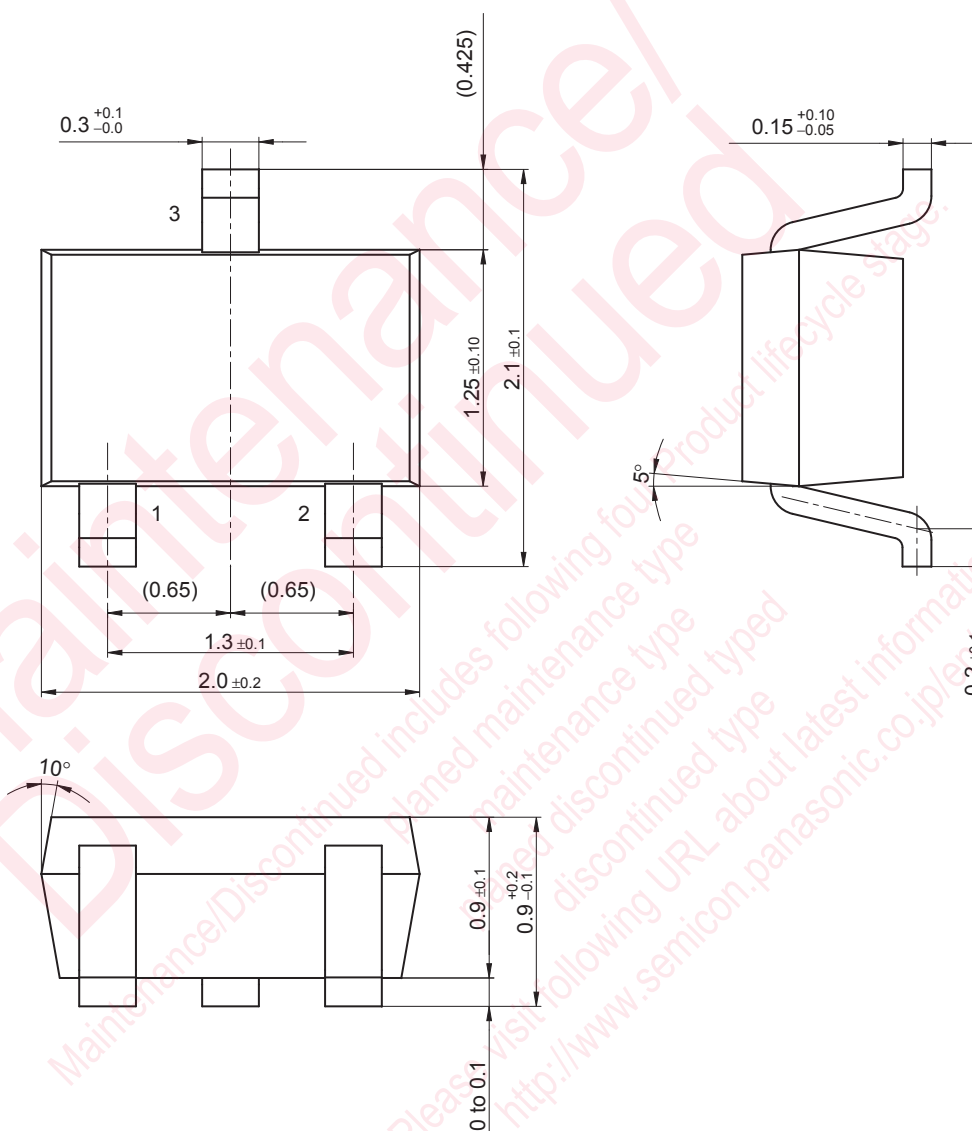
| Rank           | Q         | R          | S          | No-rank   |
|----------------|-----------|------------|------------|-----------|
| $h_{FE1}$      | 85 to 170 | 120 to 240 | 170 to 340 | 85 to 340 |
| Marking symbol | XQ        | XR         | XS         | X         |

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



## SMini3-G1

Unit: mm



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