

2SB1438

Silicon PNP epitaxial planar type

For low-frequency power amplification

■ Features

- Low collector-emitter saturation voltage $V_{CE(sat)}$
- Large collector-emitter voltage (Base open) V_{CEO}
- 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} | -100 | V |
| Collector-emitter voltage (Base open) | V_{CEO} | -100 | V |
| Emitter-base voltage (Collector open) | V_{EBO} | -5 | V |
| Collector current | I_C | -2 | A |
| Peak collector current | I_{CP} | -3 | 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) *: Print circuit board: Copper foil area of 1 cm^2 or more, and the board thickness of 1.7 mm for the collector portion

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

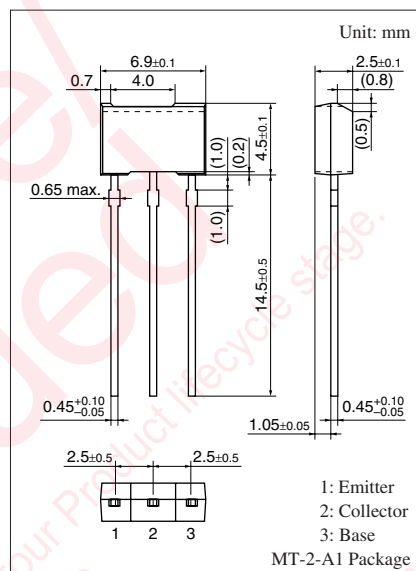
| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|---------------|--|------|-------|-------|---------------|
| Collector-base voltage (Emitter open) | V_{CBO} | $I_C = -10\ \mu\text{A}$, $I_E = 0$ | -100 | | | V |
| Collector-emitter voltage (Base open) | V_{CEO} | $I_C = -1\ \text{mA}$, $I_B = 0$ | -100 | | | 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} | $V_{CB} = -50\ \text{V}$, $I_E = 0$ | | | -0.1 | μA |
| Forward current transfer ratio | h_{FE1} *2 | $V_{CE} = -2\ \text{V}$, $I_C = -200\ \text{mA}$ | 120 | | 340 | — |
| | h_{FE2} *1 | $V_{CE} = -2\ \text{V}$, $I_C = -1\ \text{A}$ | 60 | | | |
| Collector-emitter saturation voltage *1 | $V_{CE(sat)}$ | $I_C = -1\ \text{A}$, $I_B = -50\ \text{mA}$ | | -0.17 | -0.30 | V |
| Base-emitter saturation voltage *1 | $V_{BE(sat)}$ | $I_C = -1\ \text{A}$, $I_B = -50\ \text{mA}$ | | -0.85 | -1.20 | 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} | $V_{CB} = -10\ \text{V}$, $I_E = 0$, $f = 1\ \text{MHz}$ | | 70 | 90 | pF |

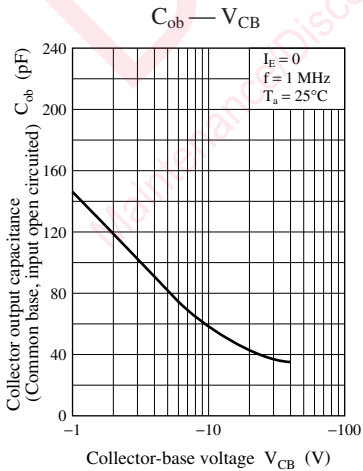
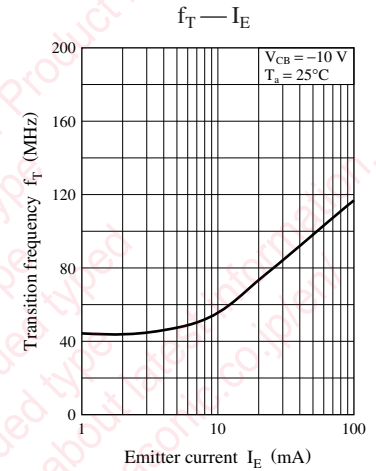
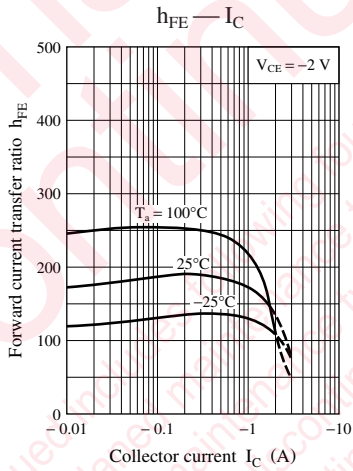
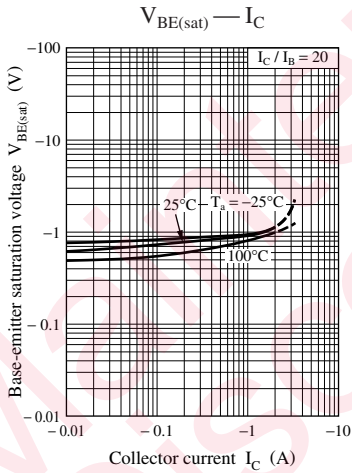
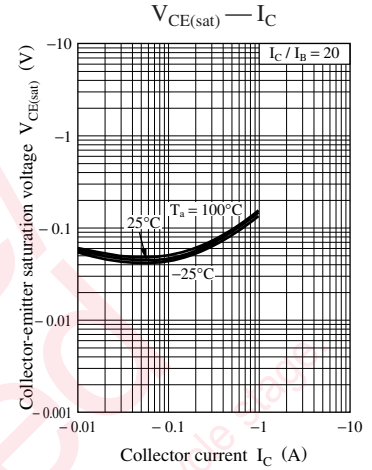
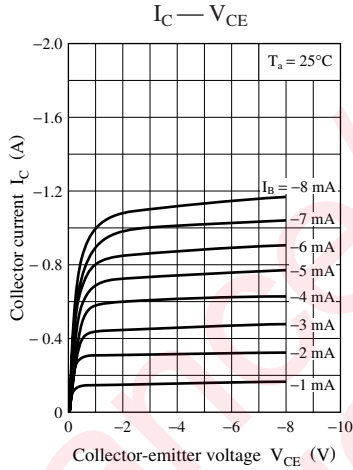
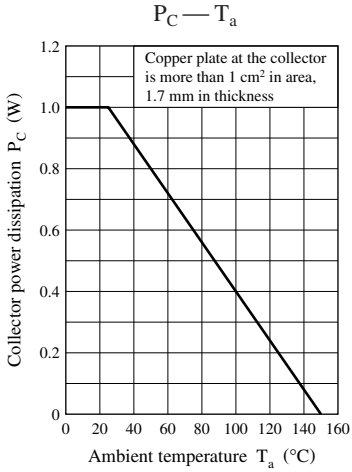
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *1: Pulse measurement

*2: Rank classification

| Rank | P | Q |
|-----------|------------|------------|
| h_{FE1} | 120 to 240 | 170 to 340 |





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