

# 2SB0942 (2SB942), 2SB0942A (2SB942A)

## Silicon PNP epitaxial planar type

For low-frequency power amplification

Complementary to 2SD1267, 2SD1267A

### ■ Features

- High forward current transfer ratio  $h_{FE}$  which has satisfactory linearity
- Large collector-emitter saturation voltage  $V_{CE(sat)}$
- Full-pack package which can be installed to the heat sink with one screw

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

| Parameter                                | Symbol                   | Rating      | Unit             |
|------------------------------------------|--------------------------|-------------|------------------|
| Collector-base voltage<br>(Emitter open) | 2SB0942                  | -60         | V                |
|                                          | 2SB0942A                 | -80         |                  |
| Collector-emitter voltage<br>(Base open) | 2SB0942                  | -60         | V                |
|                                          | 2SB0942A                 | -80         |                  |
| Emitter-base voltage (Collector open)    | $V_{EBO}$                | -5          | V                |
| Collector current                        | $I_C$                    | -4          | A                |
| Peak collector current                   | $I_{CP}$                 | -8          | A                |
| Collector power<br>dissipation           | $T_a = 25^\circ\text{C}$ | $P_C$       | 40               |
|                                          |                          |             | 2                |
| Junction temperature                     | $T_j$                    | 150         | $^\circ\text{C}$ |
| Storage temperature                      | $T_{stg}$                | -55 to +150 | $^\circ\text{C}$ |

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

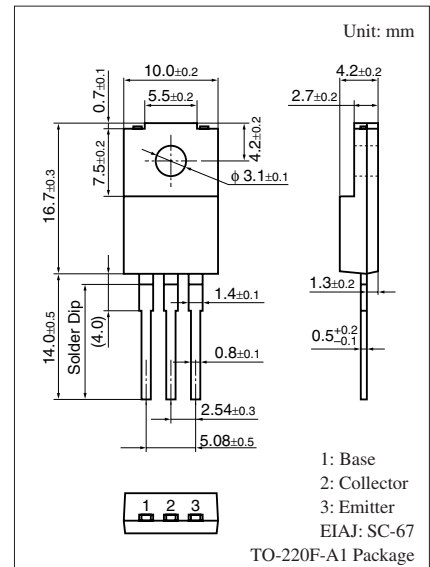
| Parameter                                       | Symbol        | Conditions                                                                                        | Min | Typ | Max  | Unit          |
|-------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------|-----|-----|------|---------------|
| Collector-emitter voltage<br>(Base open)        | 2SB0942       | $I_C = -30 \text{ mA}, I_B = 0$                                                                   | -60 |     |      | V             |
|                                                 | 2SB0942A      |                                                                                                   | -80 |     |      |               |
| Base-emitter voltage                            | $V_{BE}$      | $V_{CE} = -4 \text{ V}, I_C = -3 \text{ A}$                                                       |     |     | -2   | V             |
| Collector-emitter<br>cutoff current (E-B short) | 2SB0942       | $V_{CE} = -60 \text{ V}, V_{BE} = 0$                                                              |     |     | -400 | $\mu\text{A}$ |
|                                                 | 2SB0942A      |                                                                                                   |     |     | -400 |               |
| Collector-emitter cutoff current (Base open)    | $I_{CEO}$     | $V_{CE} = -30 \text{ V}, I_B = 0$                                                                 |     |     | -700 | $\mu\text{A}$ |
| Emitter-base cutoff current (Collector open)    | $I_{EBO}$     | $V_{EB} = -5 \text{ V}, I_C = 0$                                                                  |     |     | -1   | mA            |
| Forward current transfer ratio                  | $h_{FE1}^*$   | $V_{CE} = -4 \text{ V}, I_C = -1 \text{ A}$                                                       | 40  |     | 250  | —             |
|                                                 | $h_{FE2}$     |                                                                                                   | 15  |     |      |               |
| Collector-emitter saturation voltage            | $V_{CE(sat)}$ | $I_C = -4 \text{ A}, I_B = -0.4 \text{ A}$                                                        |     |     | -1.5 | V             |
| Transition frequency                            | $f_T$         | $V_{CE} = -10 \text{ V}, I_C = -0.1 \text{ A}, f = 10 \text{ MHz}$                                |     | 30  |      | MHz           |
| Turn-on time                                    | $t_{on}$      | $I_C = -4 \text{ A}, I_{B1} = -0.4 \text{ A}, I_{B2} = 0.4 \text{ A}$<br>$V_{CC} = -50 \text{ V}$ |     | 0.2 |      | $\mu\text{s}$ |
| Storage time                                    | $t_{stg}$     |                                                                                                   |     | 0.5 |      | $\mu\text{s}$ |
| Fall time                                       | $t_f$         |                                                                                                   |     | 0.2 |      | $\mu\text{s}$ |

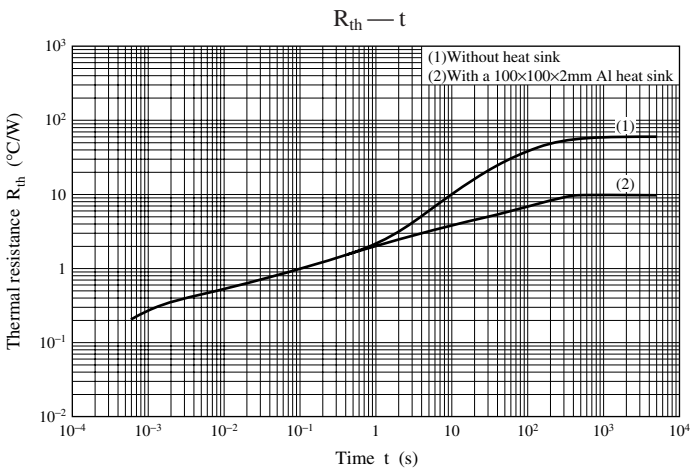
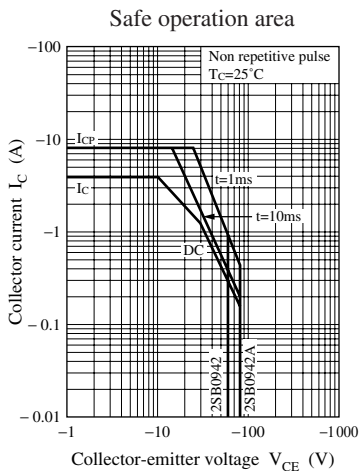
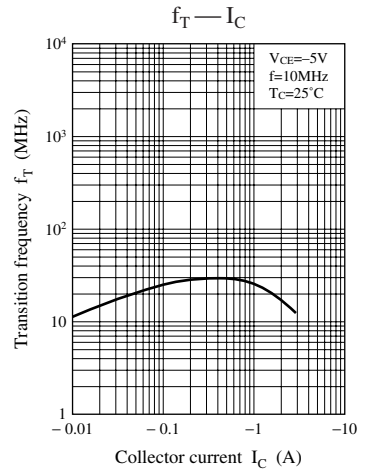
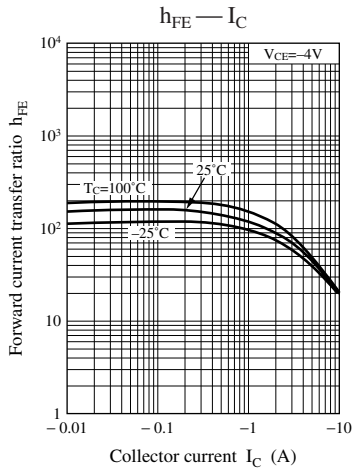
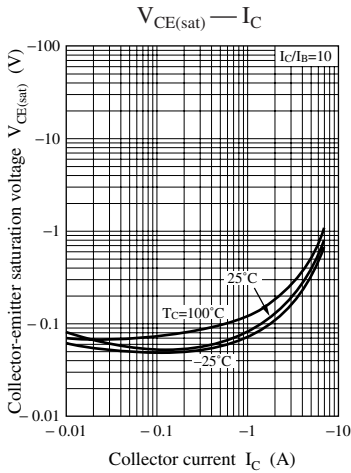
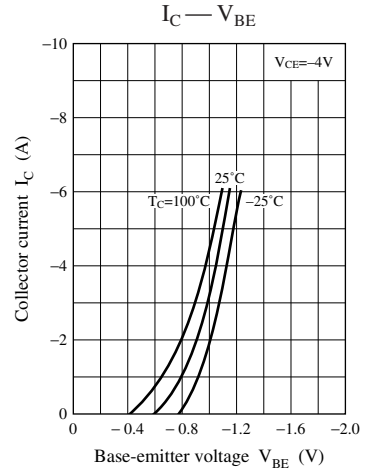
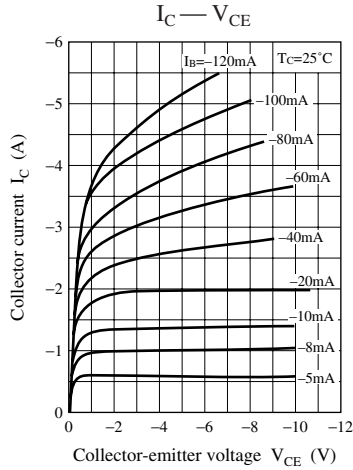
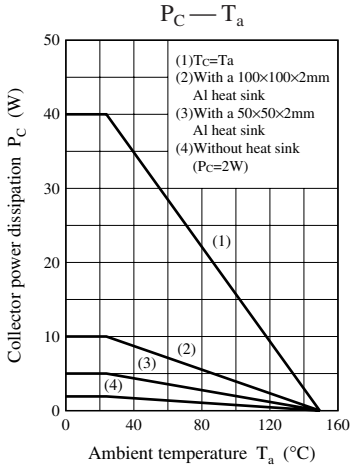
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*: Rank classification

| Rank      | R        | Q         | P          |
|-----------|----------|-----------|------------|
| $h_{FE1}$ | 40 to 90 | 70 to 150 | 120 to 250 |

Note) The part numbers in the parenthesis show conventional part number.





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