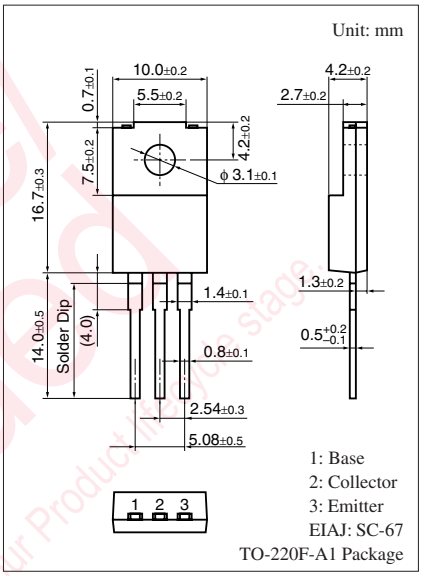
# 2SB0942 (2SB942), 2SB0942A (2SB942A)

## 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 $T_C = 25°C$

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Collector-base voltage (Emitter open) | 2SB0942 | $V_{CBO}$ | −60 | V |
| | 2SB0942A | | −80 | |
| Collector-emitter voltage (Base open) | 2SB0942 | $V_{CEO}$ | −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 dissipation | | $P_C$ | 40 | W |
| | $T_a = 25°C$ | | 2 | |
| Junction temperature | | $T_j$ | 150 | °C |
| Storage temperature | | $T_{stg}$ | −55 to +150 | °C |

### ■ Electrical Characteristics $T_C = 25°C \pm 3°C$

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

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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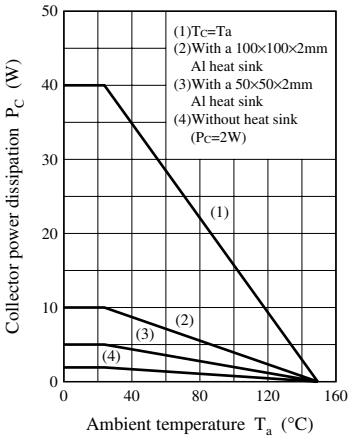
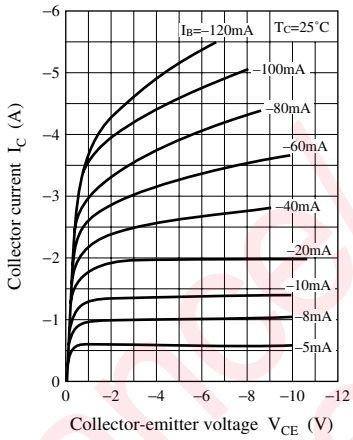
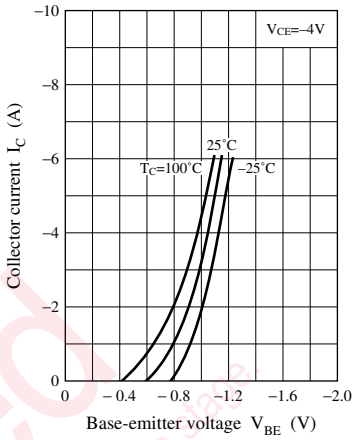
$P_C$ — $T_a$



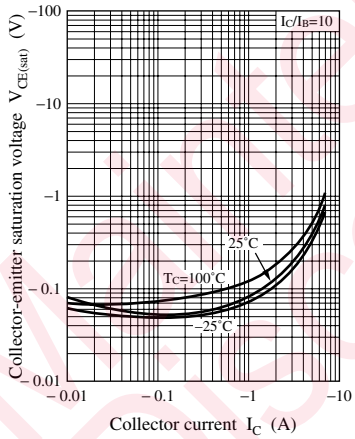

$I_C$ — $V_{CE}$



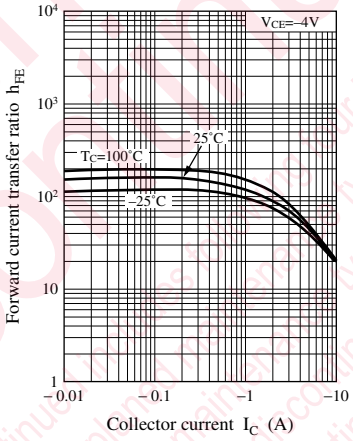

$I_C$ — $V_{BE}$



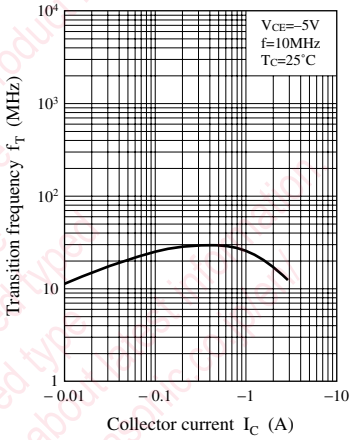

$V_{CE(sat)}$ — $I_C$



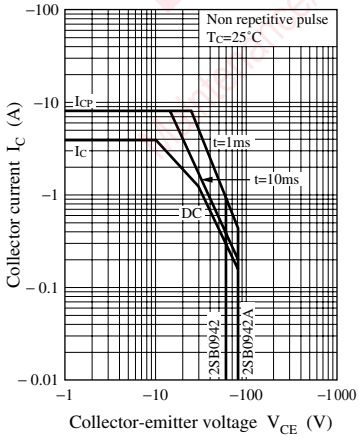

$h_{FE}$ — $I_C$



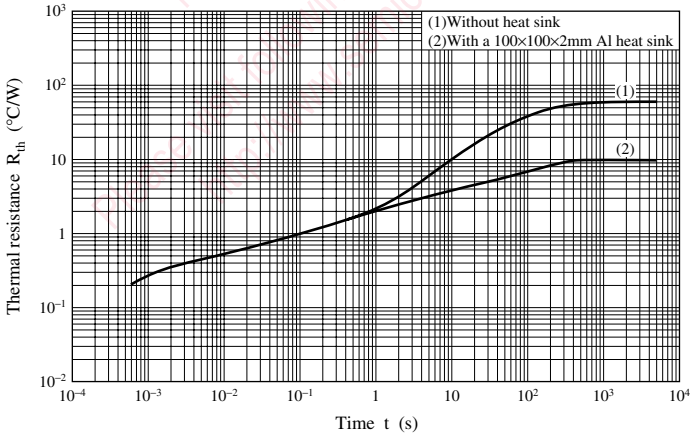

$f_T$ — $I_C$




Safe operation area




$R_{th}$ — t

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