

# 2SB0949 (2SB949), 2SB0949A (2SB949A)

## Silicon PNP epitaxial planar type darlington

For power amplification and switching

Complementary to 2SD1275 and 2SD1275A

### ■ Features

- High forward current transfer ratio  $h_{FE}$
- High-speed switching
- Full-pack package which can be installed to the heat sink with one screw

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

| Parameter                                | Symbol                   | Rating      | Unit             |   |
|--|--------------------------|-------------|------------------|---|
| Collector-base voltage<br>(Emitter open) | 2SB0949                  | $V_{CBO}$   | -60              | V |
|  | 2SB0949A                 |             | -80              |   |
| Collector-emitter voltage<br>(Base open) | 2SB0949                  | $V_{CEO}$   | -60              | V |
|  | 2SB0949A                 |             | -80              |   |
| Emitter-base voltage (Collector open)    | $V_{EBO}$                | -5          | V                |   |
| Collector current                        | $I_C$                    | -2          | A                |   |
| Peak collector current                   | $I_{CP}$                 | -4          | A                |   |
| Collector power<br>dissipation           | $T_C = 25^\circ\text{C}$ | $P_C$       | 35               | W |
|  |                          |             | 2                |   |
| Junction temperature                     | $T_j$                    | 150         | $^\circ\text{C}$ |   |
| Storage temperature                      | $T_{stg}$                | -55 to +150 | $^\circ\text{C}$ |   |

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

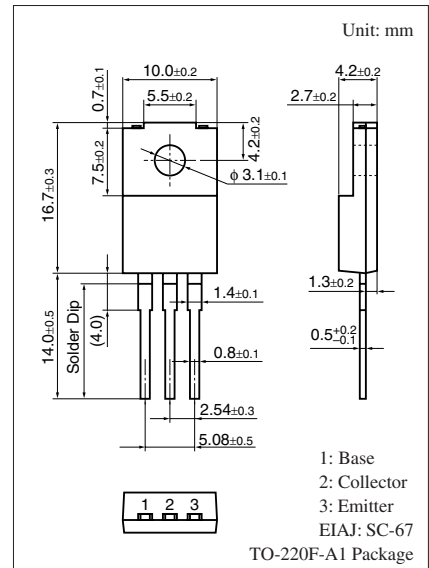
| Parameter                                       | Symbol        | Conditions   | Min  | Typ | Max   | Unit          |
|---|---------------|--|------|-----|-------|---------------|
| Collector-emitter voltage<br>(Base open)        | 2SB0949       | $I_C = -30\text{ mA}, I_B = 0$                                   | -60  |     |       | V             |
|   | 2SB0949A      |  | -80  |     |       |               |
| Base-emitter voltage                            | $V_{BE}$      | $V_{CE} = -4\text{ V}, I_C = -2\text{ A}$                        |      |     | -2.8  | V             |
| Collector-base cutoff<br>current (Emitter open) | 2SB0949       | $V_{CB} = -60\text{ V}, I_E = 0$                                 |      |     | -1    | mA            |
|   | 2SB0949A      | $V_{CB} = -80\text{ V}, I_E = 0$                                 |      |     | -1    |               |
| Collector-emitter cutoff<br>current (Base open) | 2SB0949       | $V_{CE} = -30\text{ V}, I_B = 0$                                 |      |     | -2    | mA            |
|   | 2SB0949A      | $V_{CE} = -40\text{ V}, I_B = 0$                                 |      |     | -2    |               |
| Emitter-base cutoff current (Collector open)    | $I_{EBO}$     | $V_{EB} = -5\text{ V}, I_C = 0$                                  |      |     | -2    | mA            |
| Forward current transfer ratio                  | $h_{FE1}$     | $V_{CE} = -4\text{ V}, I_C = -1\text{ A}$                        | 1000 |     |       | —             |
|   | $h_{FE2}^*$   | $V_{CE} = -4\text{ V}, I_C = -2\text{ A}$                        | 1000 |     | 10000 |               |
| Collector-emitter saturation voltage            | $V_{CE(sat)}$ | $I_C = -2\text{ A}, I_B = -8\text{ mA}$                          |      |     | -2.5  | V             |
| Transition frequency                            | $f_T$         | $V_{CE} = -10\text{ V}, I_C = -0.5\text{ A}, f = 1\text{ MHz}$   |      | 20  |       | MHz           |
| Turn-on time                                    | $t_{on}$      | $I_C = -2\text{ A}, I_{B1} = -8\text{ mA}, I_{B2} = 8\text{ mA}$ |      | 0.4 |       | $\mu\text{s}$ |
| Storage time                                    | $t_{stg}$     | $V_{CC} = -50\text{ V}$  |      | 1.5 |       | $\mu\text{s}$ |
| Fall time                                       | $t_f$         |  |      | 0.5 |       | $\mu\text{s}$ |

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

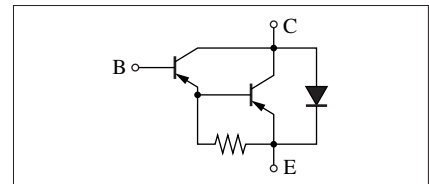
2. \*: Rank classification

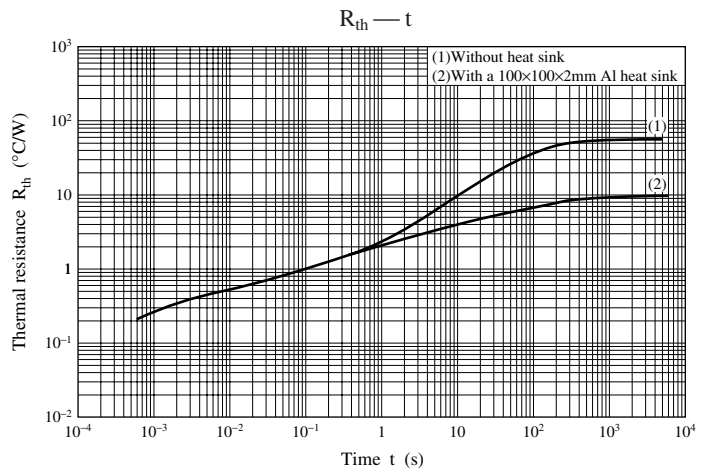
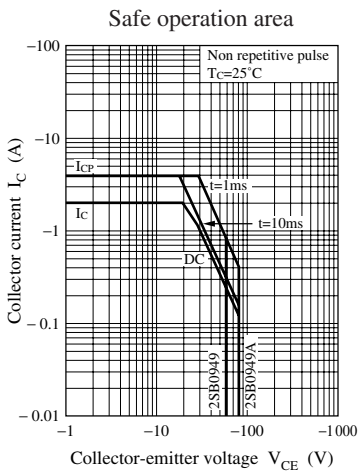
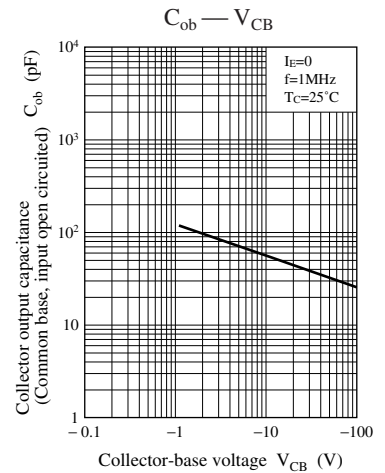
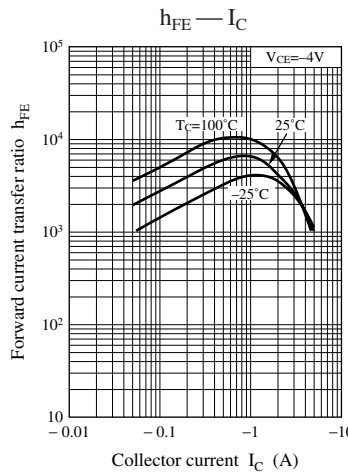
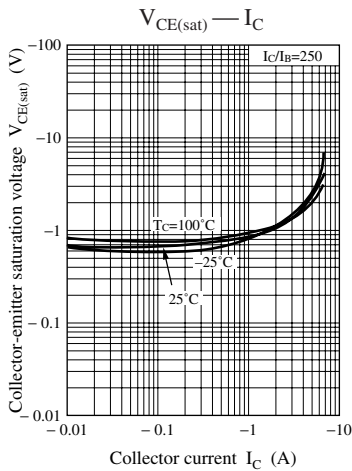
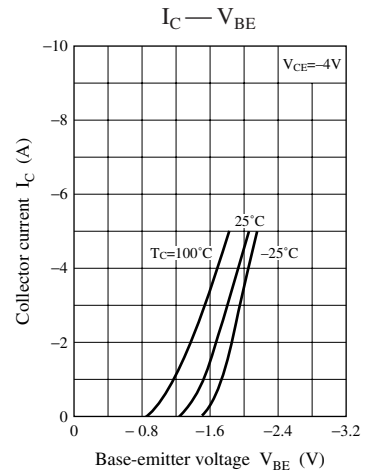
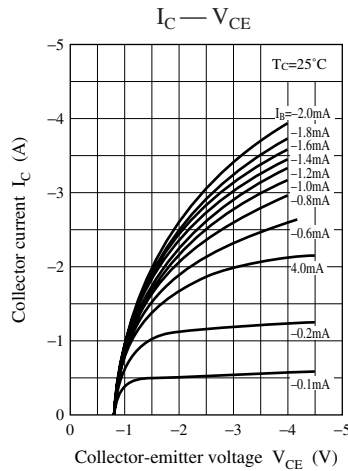
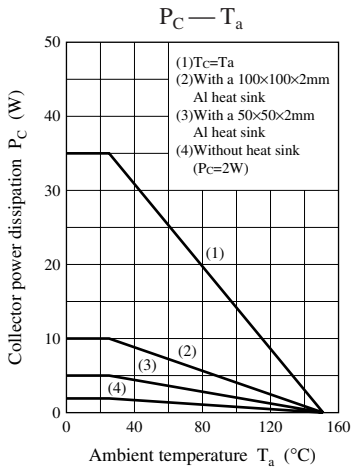
| Rank      | R              | Q              | P               |
|-----------|----------------|----------------|-----------------|
| $h_{FE2}$ | 1 000 to 2 500 | 2 000 to 5 000 | 4 000 to 10 000 |

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



### Internal Connection





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