

2SB1176

Silicon PNP epitaxial planar type

For voltage switching

Complementary to 2SD1746

■ Features

- Low collector-emitter saturation voltage $V_{CE(sat)}$
- Satisfactory linearity of forward current transfer ratio h_{FE}
- Large collector current I_C
- I type package enabling direct soldering of the radiating fin to the printed circuit board, etc. of small electronic equipment

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

| Parameter | Symbol | Rating | Unit |
|---------------------------------------|-----------|--------------------------|------------------|
| Collector-base voltage (Emitter open) | V_{CBO} | -130 | V |
| Collector-emitter voltage (Base open) | V_{CEO} | -80 | V |
| Emitter-base voltage (Collector open) | V_{EBO} | -7 | V |
| Collector current | I_C | -5 | A |
| Peak collector current | I_{CP} | -10 | A |
| Collector power dissipation | P_C | 15 | W |
| | | $T_a = 25^\circ\text{C}$ | |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

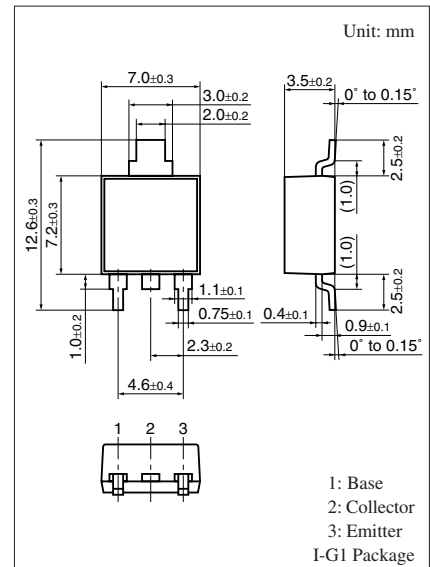
■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|---------------|---|-----|------|------|---------------|
| Collector-emitter voltage (Base open) | V_{CEO} | $I_C = -10 \text{ mA}, I_B = 0$ | -80 | | | V |
| Collector-base cutoff current (Emitter open) | I_{CBO} | $V_{CB} = -100 \text{ V}, I_E = 0$ | | | -10 | μA |
| Emitter-base cutoff current (Collector open) | I_{EBO} | $V_{EB} = -5 \text{ V}, I_C = 0$ | | | -50 | μA |
| Forward current transfer ratio | h_{FE1} | $V_{CE} = -2 \text{ V}, I_C = -0.1 \text{ A}$ | 45 | | | — |
| | h_{FE2}^* | $V_{CE} = -2 \text{ V}, I_C = -2 \text{ A}$ | 90 | | 260 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -4 \text{ A}, I_B = -0.2 \text{ A}$ | | | -0.5 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C = -4 \text{ A}, I_B = -0.2 \text{ A}$ | | | -1.5 | V |
| Transition frequency | f_T | $V_{CE} = -10 \text{ V}, I_C = -0.5 \text{ A}, f = 10 \text{ MHz}$ | | 30 | | MHz |
| Turn-on time | t_{on} | $I_C = -2 \text{ A}, I_{B1} = -0.2 \text{ A}, I_{B2} = 0.2 \text{ A}$ | | 0.13 | | μs |
| Storage time | t_{stg} | $V_{CC} = -50 \text{ V}$ | | 0.5 | | μs |
| Fall time | t_f | | | 0.13 | | μs |

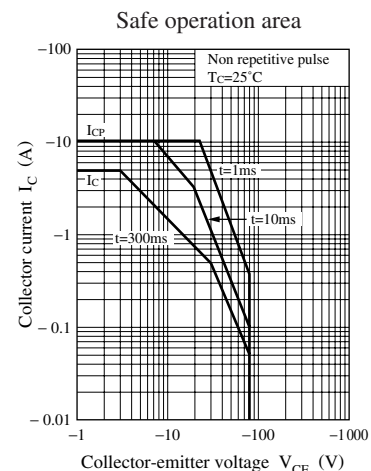
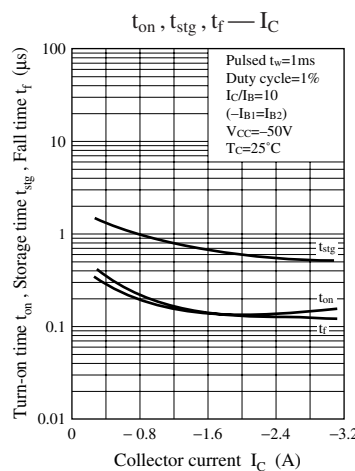
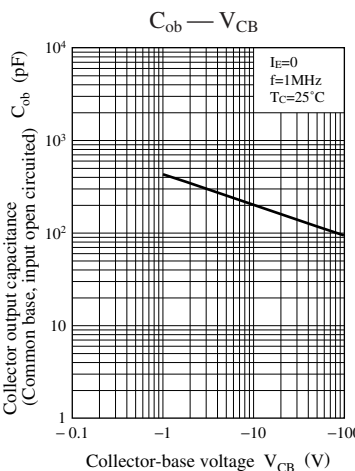
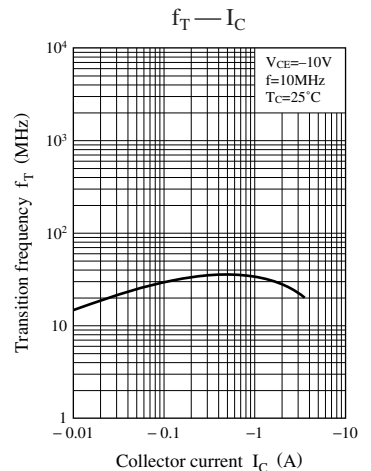
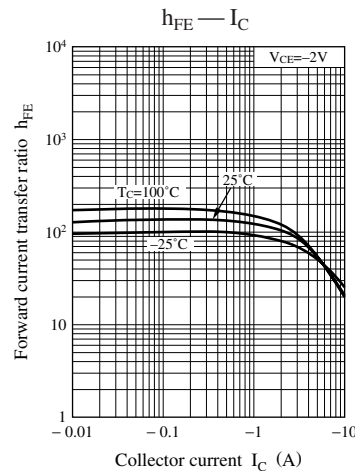
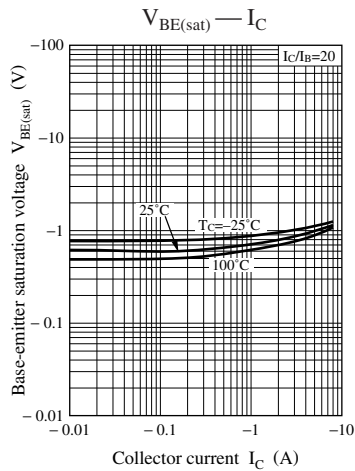
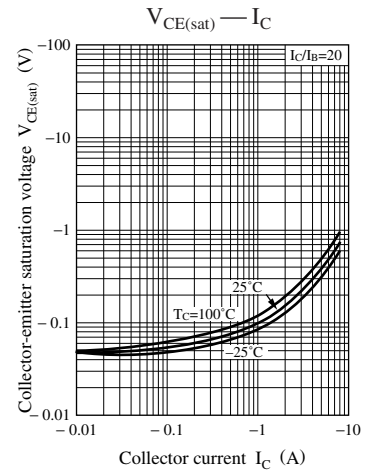
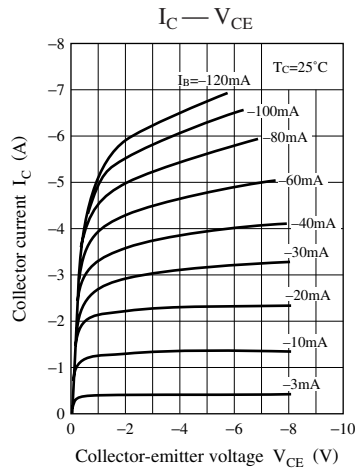
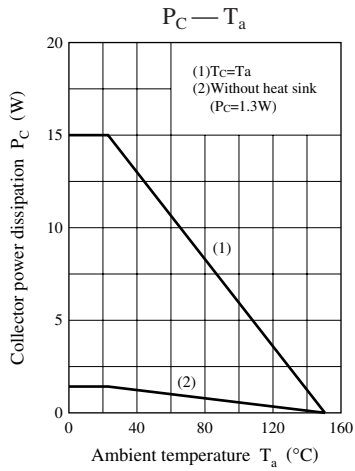
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

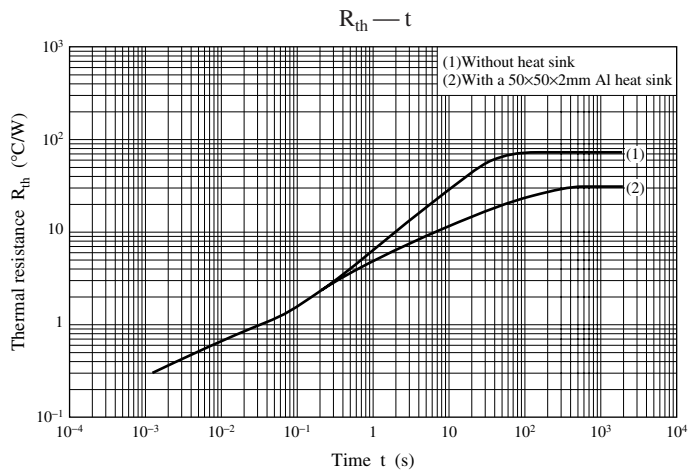
2. *: Rank classification

| Rank | Q | P |
|-----------|-----------|------------|
| h_{FE2} | 90 to 180 | 130 to 260 |



Note) Self-supported type package is also prepared.





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