

2SB1180, 2SB1180A

Silicon PNP epitaxial planar type darlington

For medium-speed voltage switching

Complementary to 2SD1750, 2SD1750A

■ Features

- High forward current transfer ratio h_{FE}
- 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) | 2SB1180 | V_{CBO} | -60 | V |
| | 2SB1180A | | -80 | |
| Collector-emitter voltage (Base open) | 2SB1180 | V_{CEO} | -60 | V |
| | 2SB1180A | | -80 | |
| Emitter-base voltage (Collector open) | V_{EBO} | -7 | V | |
| Collector current | I_C | -8 | A | |
| Peak collector current | I_{CP} | -12 | A | |
| Collector power dissipation | P_C | | 15 | W |
| | | $T_a = 25^\circ\text{C}$ | 1.3 | |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ | |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ | |

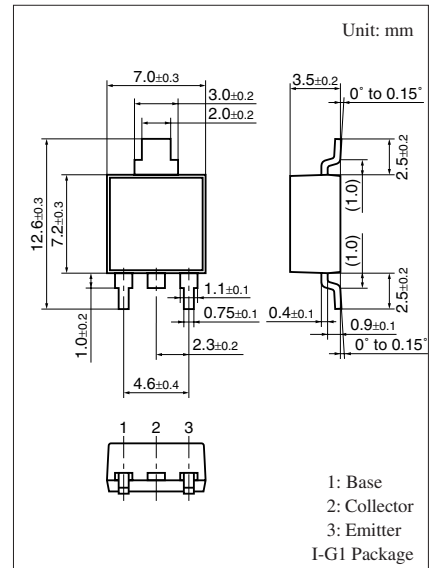
■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---------------|---|------|-----|-------|---------------|
| Collector-emitter voltage (Base open) | 2SB1180 | $I_C = -30 \text{ mA}, I_B = 0$ | -60 | | | V |
| | 2SB1180A | | -80 | | | |
| Collector-base cutoff current (Emitter open) | 2SB1180 | $V_{CB} = -60 \text{ V}, I_E = 0$ | | | -100 | μA |
| | 2SB1180A | $V_{CB} = -80 \text{ V}, I_E = 0$ | | | -100 | |
| Emitter-base cutoff current (Collector open) | I_{EBO} | $V_{EB} = -7 \text{ V}, I_C = 0$ | | | -2 | mA |
| Forward current transfer ratio | h_{FE1}^* | $V_{CE} = -3 \text{ V}, I_C = -4 \text{ A}$ | 2000 | | 10000 | — |
| | h_{FE2} | $V_{CE} = -3 \text{ V}, I_C = -8 \text{ A}$ | 500 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -4 \text{ A}, I_B = -8 \text{ mA}$ | | | -1.5 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C = -4 \text{ A}, I_B = -8 \text{ mA}$ | | | -2 | V |
| Transition frequency | f_T | $V_{CE} = -3 \text{ V}, I_C = -1 \text{ A}, f = 1 \text{ MHz}$ | | 20 | | MHz |
| Turn-on time | t_{on} | $I_C = -4 \text{ A}, I_{B1} = -8 \text{ mA}, I_{B2} = 8 \text{ mA}$ | | 0.5 | | μs |
| Storage time | t_{stg} | $V_{CC} = -50 \text{ V}$ | | 2.0 | | μs |
| Fall time | t_f | | | 1.0 | | μs |

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

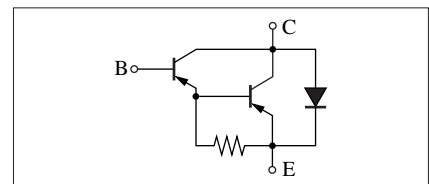
2. *: Rank classification

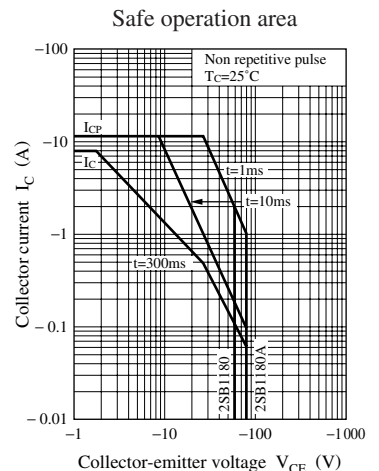
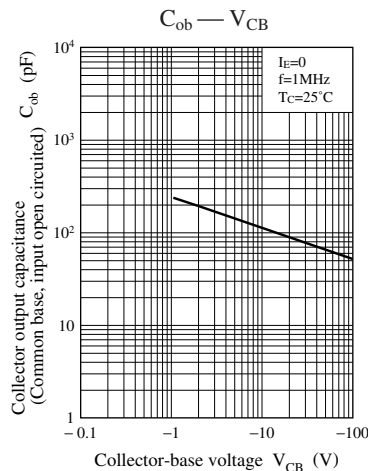
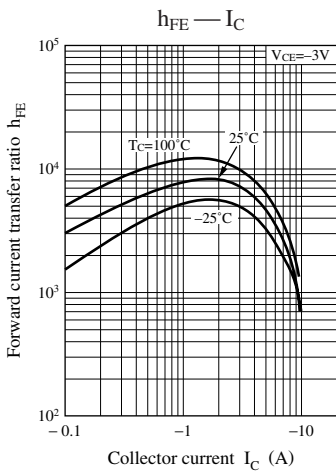
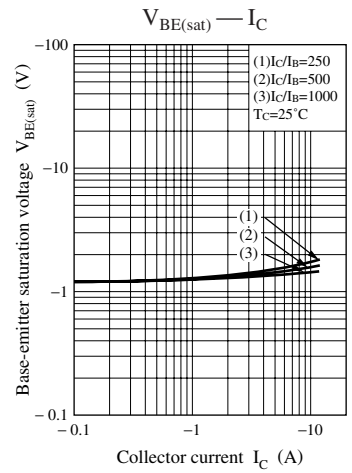
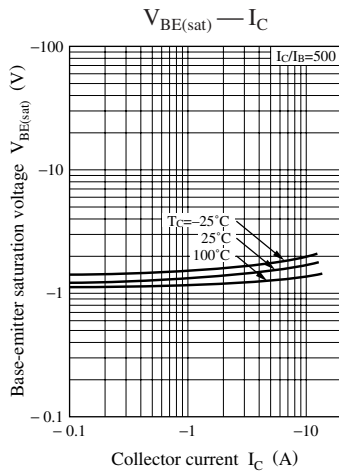
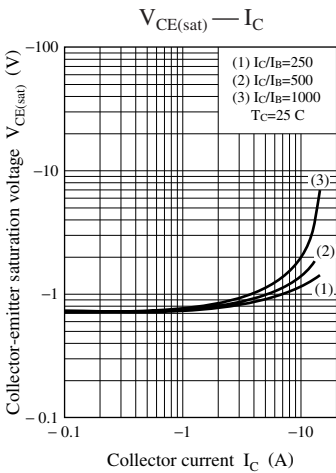
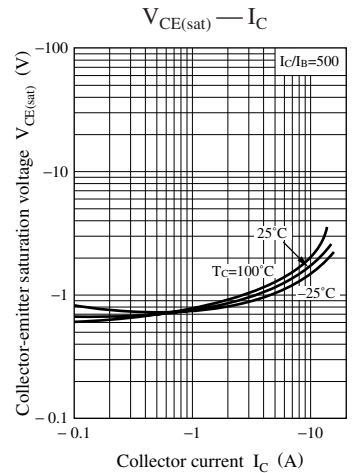
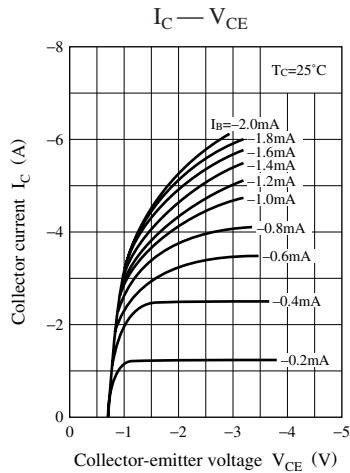
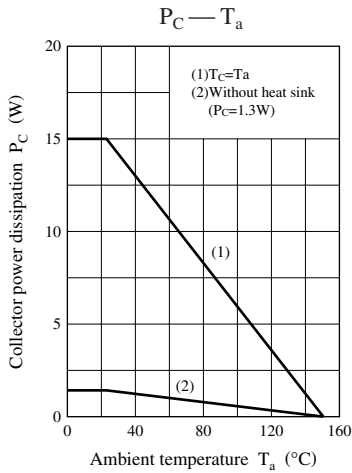
| Rank | Q | P |
|-----------|--------------|---------------|
| h_{FE1} | 2000 to 5000 | 4000 to 10000 |

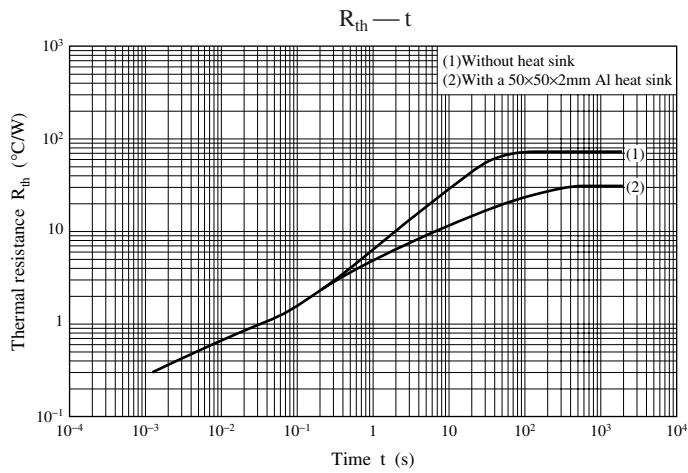


Note) Self-supported type package is also prepared.

Internal Connection







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