

2SD1750, 2SD1750A

Silicon NPN triple diffusion planar type Darlington

For medium speed power switching

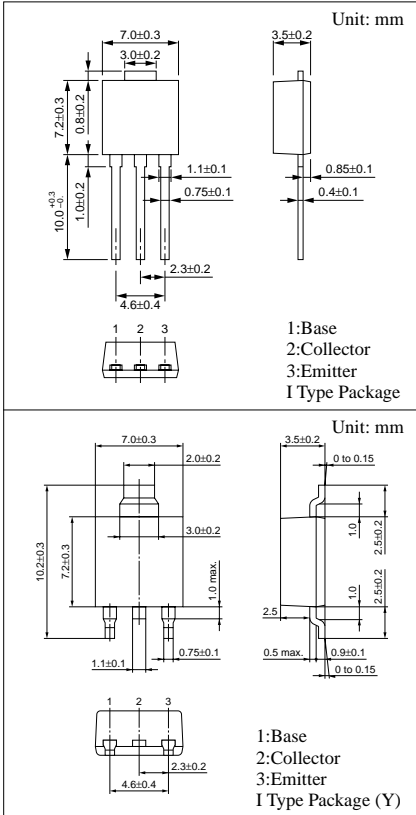
Complementary to 2SB1180 and 2SB1180A

Features

- High forward current transfer ratio h_{FE}
- High-speed switching
- 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 | Ratings | Unit |
|------------------------------|-----------|-------------|------------------|
| Collector to base voltage | V_{CBO} | 60 | V |
| Collector to emitter voltage | V_{CEO} | 80 | V |
| Emitter to base voltage | V_{EBO} | 7 | V |
| Peak collector current | I_{CP} | 12 | A |
| Collector current | I_C | 8 | A |
| Collector power dissipation | P_C | 15 | W |
| | | 1.3 | W |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |



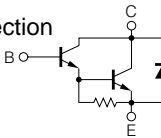
Electrical Characteristics ($T_C=25^\circ\text{C}$)

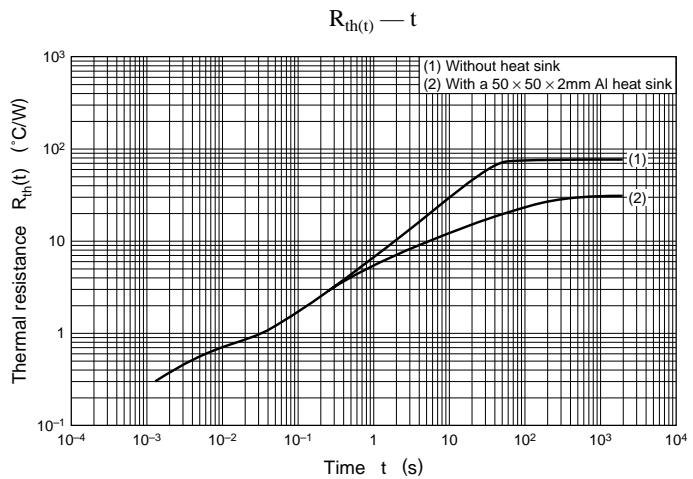
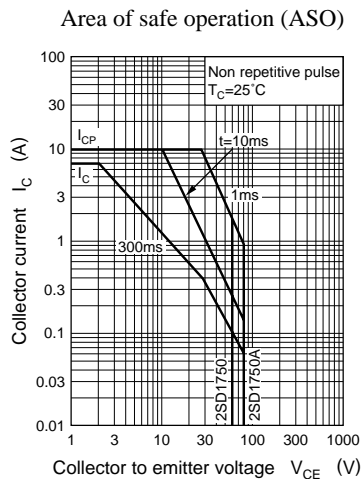
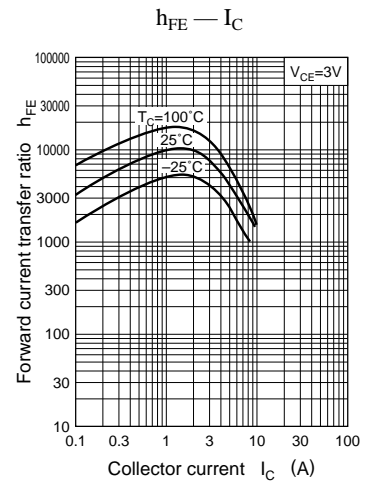
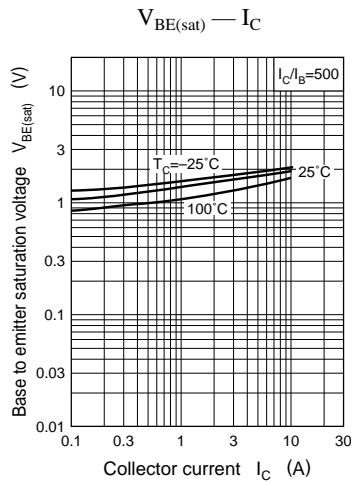
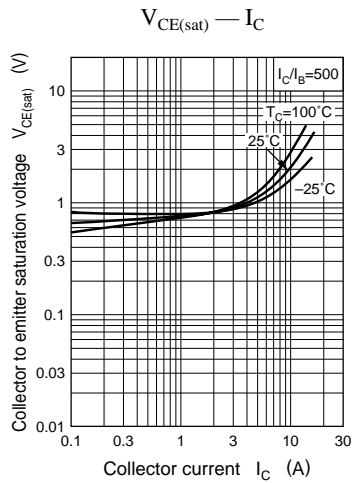
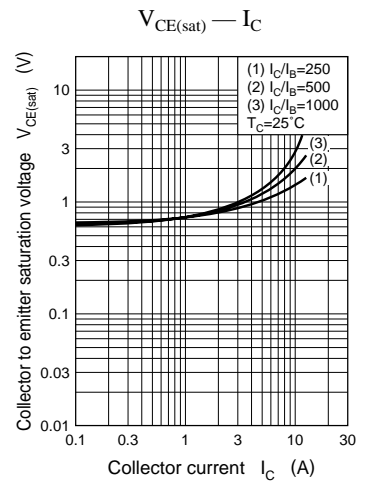
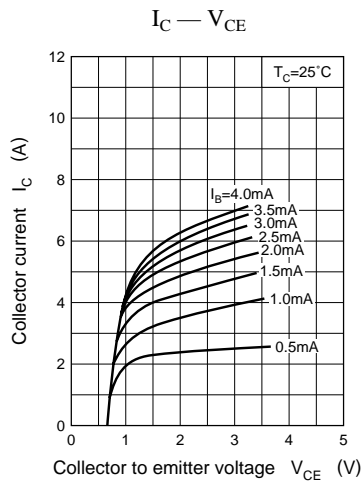
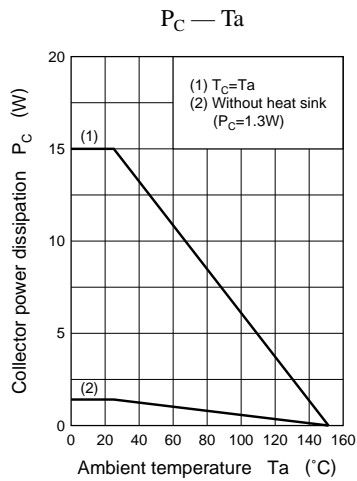
| Parameter | Symbol | Conditions | min | typ | max | Unit |
|---|---------------|---|------|-----|-------|---------------|
| Collector cutoff current | I_{CBO} | $V_{CB} = 60V, I_E = 0$ | | | 100 | μA |
| Emitter cutoff current | I_{EBO} | $V_{EB} = 7V, I_C = 0$ | | | 2 | mA |
| Collector to emitter voltage | V_{CEO} | $I_C = 30\text{mA}, I_B = 0$ | 60 | | | V |
| | | | 80 | | | |
| Forward current transfer ratio | h_{FE1}^* | $V_{CE} = 3V, I_C = 4A$ | 2000 | | 10000 | |
| | h_{FE2} | $V_{CE} = 3V, I_C = 8A$ | 500 | | | |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 4V, I_B = 8\text{mA}$ | | | 1.5 | V |
| Base to emitter saturation voltage | $V_{BE(sat)}$ | $I_C = 4V, I_B = 8\text{mA}$ | | | 2 | V |
| Transition frequency | f_T | $V_{CE} = 10V, I_C = 0.5A, f = 1\text{MHz}$ | | 20 | | MHz |
| Turn-on time | t_{on} | $I_C = 4A, I_{B1} = 8\text{mA}, I_{B2} = -8\text{mA}$ | | 0.5 | | μs |
| Storage time | t_{stg} | | | 4 | | μs |
| Fall time | t_f | | | 1 | | μs |

* h_{FE1} Rank classification

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

Internal Connection





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