

2SB1504

Silicon PNP epitaxial planar type darlington

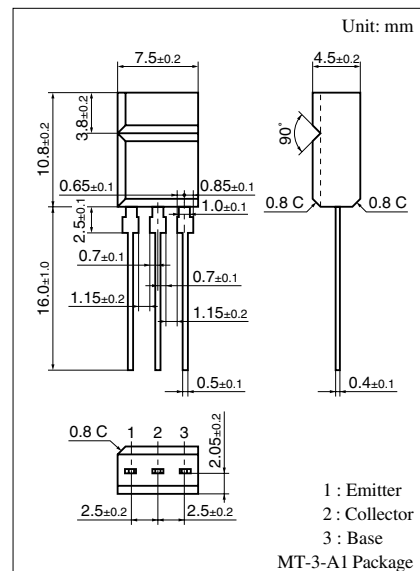
For power switching

■ Features

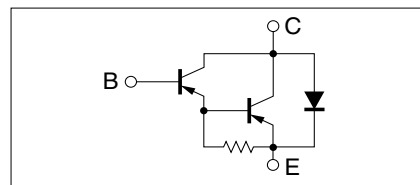
- High forward current transfer ratio h_{FE}
- High-speed switching
- Allowing automatic insertion with radial taping

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

| Parameter | Symbol | Rating | Unit |
|------------------------------|-----------|-------------|------------------|
| Collector to base voltage | V_{CBO} | -50 | V |
| Collector to emitter voltage | V_{CEO} | -50 | 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 | 1.5 | W |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |



Internal Connection

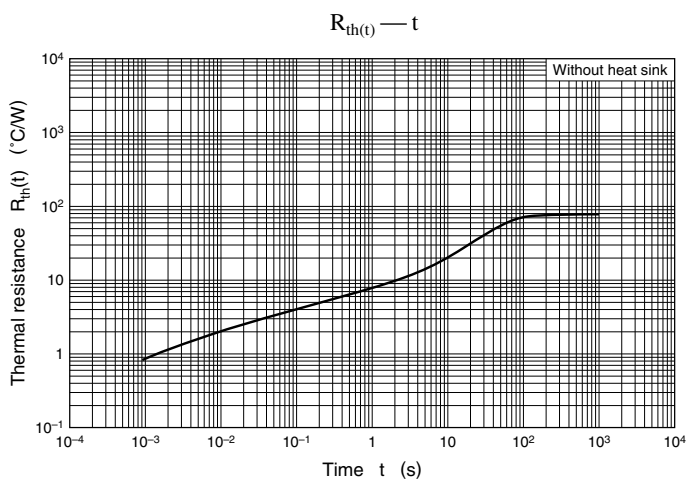
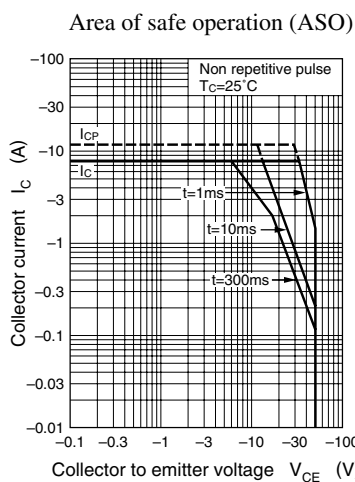
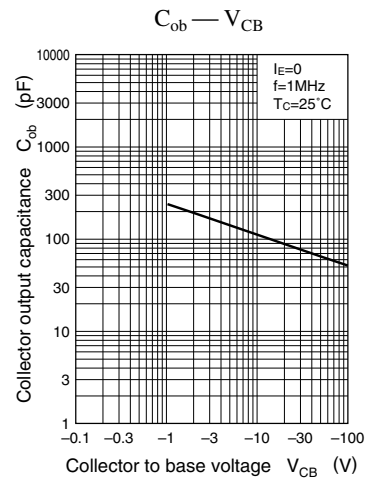
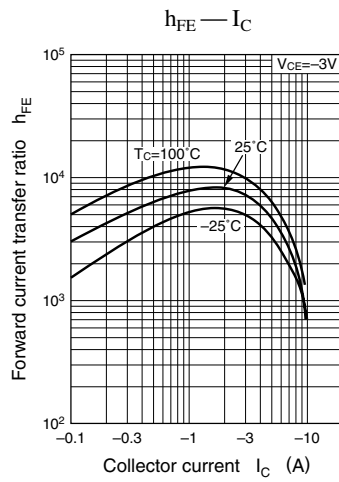
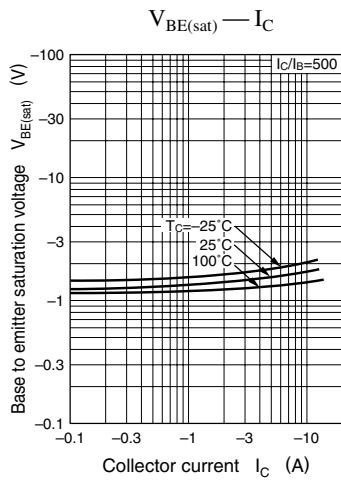
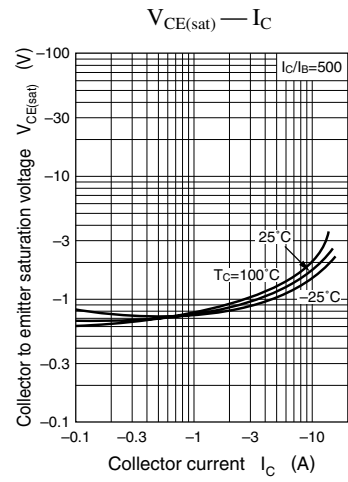
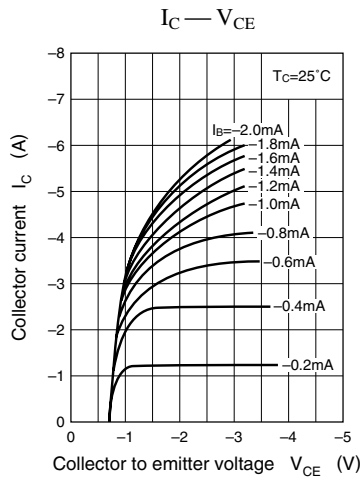
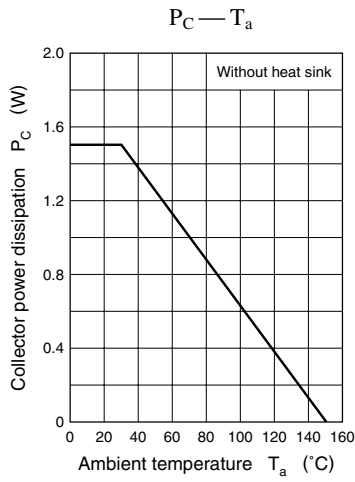


■ Electrical Characteristics $T_C = 25^\circ\text{C}$

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---------------|--|-------|-----|--------|---------------|
| Collector cutoff current | I_{CBO} | $V_{CB} = -50\text{ V}, I_E = 0$ | | | -100 | μA |
| Emitter cutoff current | I_{EBO} | $V_{EB} = -7\text{ V}, I_C = 0$ | | | -2 | mA |
| Collector to emitter voltage | V_{CEO} | $I_C = -30\text{ mA}, I_B = 0$ | -50 | | | V |
| Forward current transfer ratio | h_{FE1}^* | $V_{CE} = -3\text{ V}, I_C = -4\text{ A}$ | 1 000 | | 10 000 | |
| | h_{FE2} | $V_{CE} = -3\text{ V}, I_C = -8\text{ A}$ | 500 | | | |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -4\text{ A}, I_B = -8\text{ mA}$ | | | -1.5 | V |
| Base to emitter saturation voltage | $V_{BE(sat)}$ | $I_C = -4\text{ A}, I_B = -8\text{ mA}$ | | | -2.0 | 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} | $I_C = -4\text{ A}, I_{B1} = -8\text{ mA}, I_{B2} = 8\text{ mA}$ | | 0.5 | | μs |
| Storage time | t_{stg} | $V_{CC} = -50\text{ V}$ | | 2.0 | | μs |
| Fall time | t_f | | | 1.0 | | μs |

Note) *: Rank classification

| Rank | P | Q | R |
|-----------|----------------|----------------|-----------------|
| h_{FE1} | 1 000 to 2 500 | 2 000 to 5 000 | 4 000 to 10 000 |



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