

2SD2276

Silicon NPN triple diffusion planar type Darlington

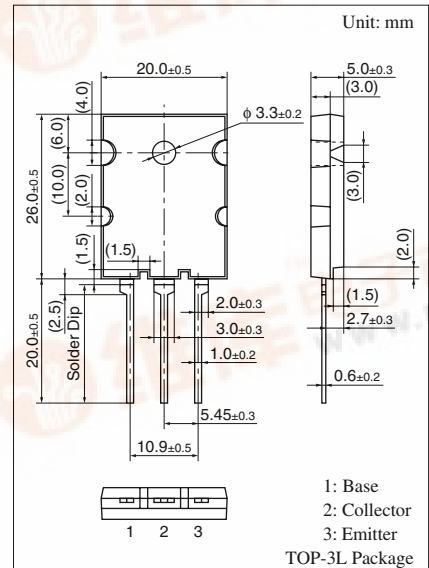
For power amplification
Complementary to 2SB1503

■ Features

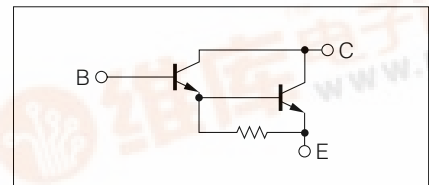
- Optimum for 110 W Hi-Fi output
- High forward current transfer ratio h_{FE} : 5 000 to 30 000
- Low collector to emitter saturation voltage $V_{CE(sat)}$: < 2.5 V

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

| Parameter | Symbol | Rating | Unit | |
|------------------------------|--|-------------|------------------|---|
| Collector to base voltage | V_{CBO} | 160 | V | |
| Collector to emitter voltage | V_{CEO} | 140 | V | |
| Emitter to base voltage | V_{EBO} | 5 | V | |
| Peak collector current | I_{CP} | 15 | A | |
| Collector current | I_C | 8 | A | |
| Collector power dissipation | $T_C = 25^\circ\text{C}$ $T_a = 25^\circ\text{C}$ | P_C | 120 | W |
| | | | 3.5 | |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ | |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ | |



Internal Connection



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

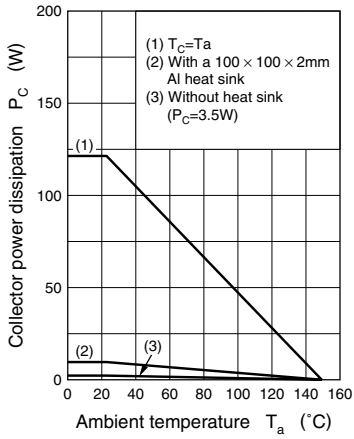
| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---------------|---|-------|-----|--------|---------------|
| Collector cutoff current | I_{CBO} | $V_{CB} = 160\text{ V}, I_E = 0$ | | | 100 | μA |
| | I_{CEO} | $V_{CE} = 140\text{ V}, I_B = 0$ | | | 100 | μA |
| Emitter cutoff current | I_{EBO} | $V_{EB} = 5\text{ V}, I_C = 0$ | | | 100 | μA |
| Collector to emitter voltage | V_{CEO} | $I_C = 30\text{ mA}, I_B = 0$ | 140 | | | V |
| Forward current transfer ratio | h_{FE1} | $V_{CE} = 5\text{ V}, I_C = 1\text{ A}$ | 2 000 | | | |
| | h_{FE2}^* | $V_{CE} = 5\text{ V}, I_C = 7\text{ A}$ | 5 000 | | 30 000 | |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 7\text{ A}, I_B = 7\text{ mA}$ | | | 2.5 | V |
| Base to emitter saturation voltage | $V_{BE(sat)}$ | $I_C = 7\text{ A}, I_B = 7\text{ mA}$ | | | 3.0 | 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} | $I_C = 7\text{ A}, I_{B1} = 7\text{ mA}, I_{B2} = -7\text{ mA}, V_{CC} = 50\text{ V}$ | | 2.0 | | μs |
| Storage time | t_{stg} | | | 6.0 | | μs |
| Fall time | t_f | | | 1.2 | | μs |

Note) *: Rank classification

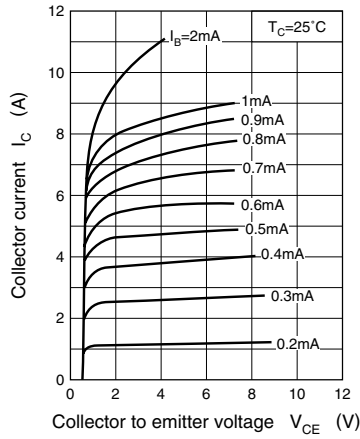
| Rank | Q | S | P |
|-----------|-----------------|-----------------|-----------------|
| h_{FE2} | 5 000 to 15 000 | 7 000 to 21 000 | 8 000 to 30 000 |



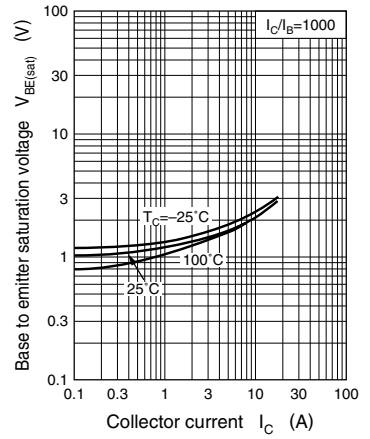
$P_C - T_a$



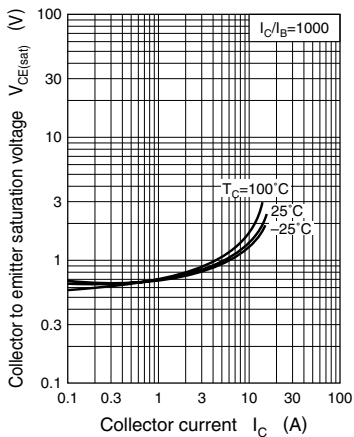
$I_C - V_{CE}$



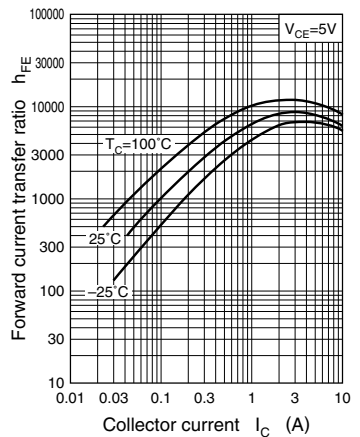
$V_{BE(sat)} - I_C$



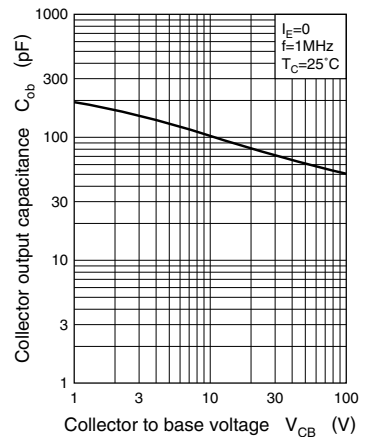
$V_{CE(sat)} - I_C$



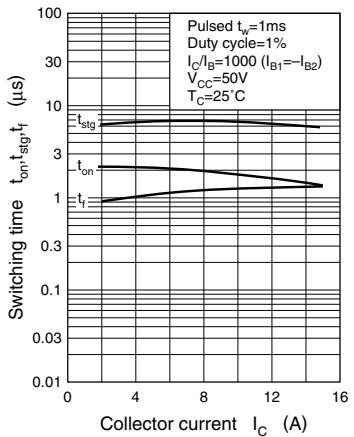
$h_{FE} - I_C$



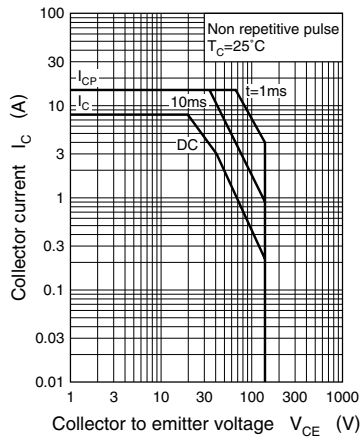
$C_{ob} - V_{CB}$

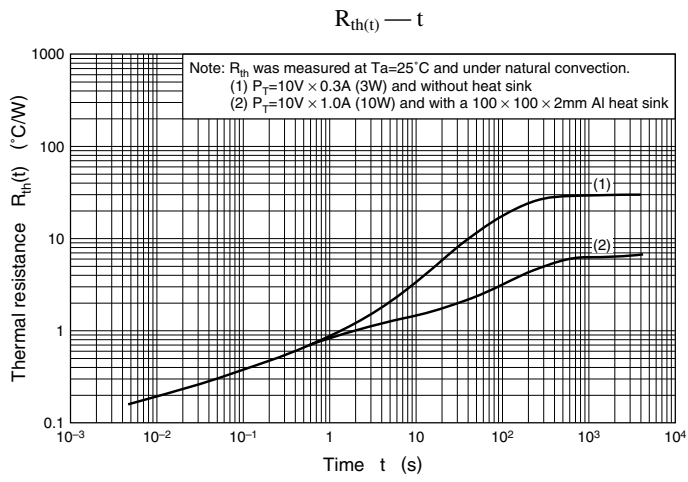


$t_{on}, t_{stg}, t_f - I_C$



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