

2SC4953

Silicon NPN triple diffusion planar type

For high breakdown voltage high-speed switching

■ Features

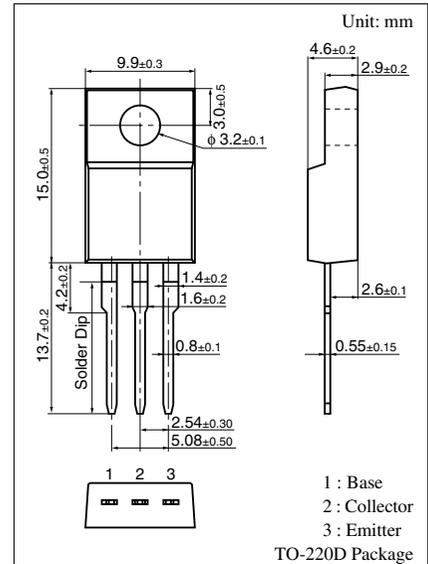
- High-speed switching
- High collector to base voltage V_{CBO}
- Wide area of safe operation (ASO)
- Satisfactory linearity of forward current transfer ratio h_{FE}
- Dielectric breakdown voltage of the package: > 5 kV

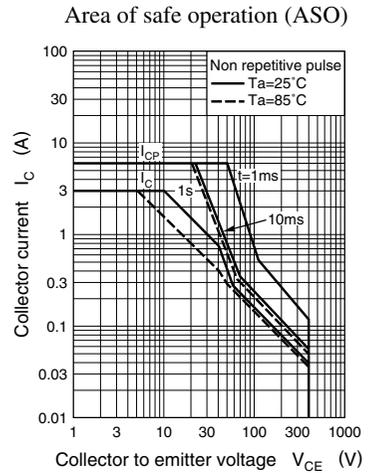
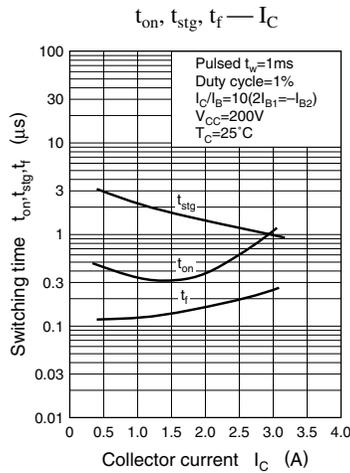
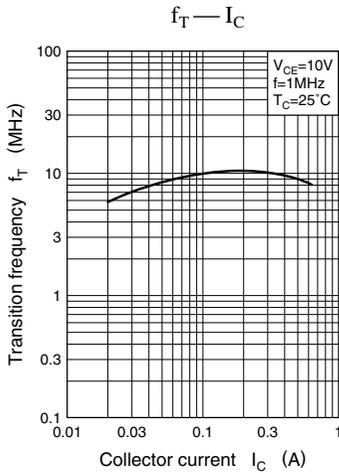
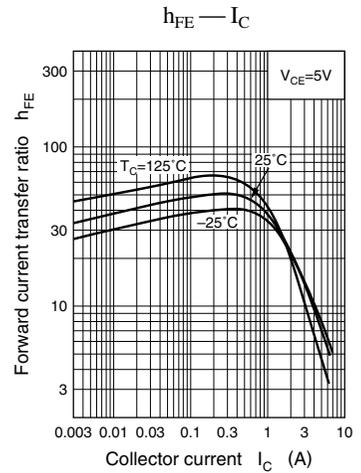
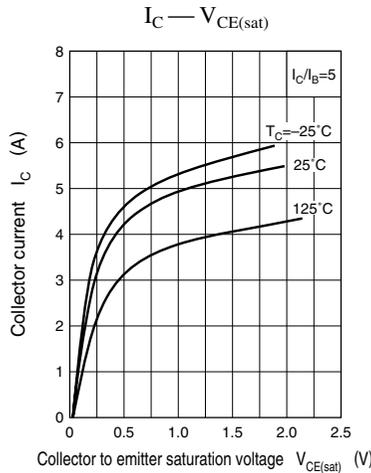
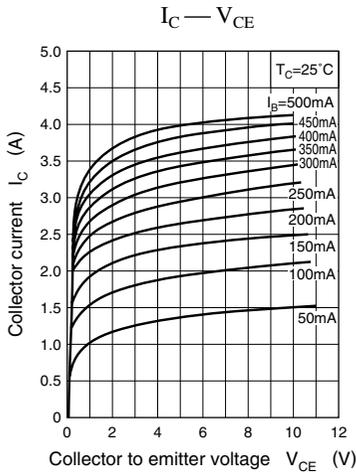
■ Absolute Maximum Ratings $T_C = 25^\circ\text{C}$

| Parameter | Symbol | Rating | Unit | |
|------------------------------|--------------------------|-------------|------------------|---|
| Collector to base voltage | V_{CBO} | 500 | V | |
| Collector to emitter voltage | V_{CES} | 500 | V | |
| | V_{CEO} | 400 | V | |
| Emitter to base voltage | V_{EBO} | 7 | V | |
| Peak collector current | I_{CP} | 6 | A | |
| Collector current | I_C | 3 | A | |
| Base current | I_B | 1.2 | A | |
| Collector power dissipation | $T_C = 25^\circ\text{C}$ | P_C | 30 | W |
| | $T_a = 25^\circ\text{C}$ | | 2.0 | |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ | |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ | |

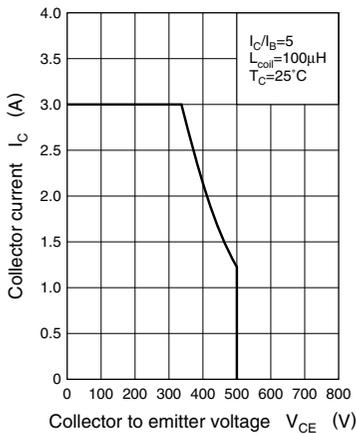
■ Electrical Characteristics $T_C = 25^\circ\text{C}$

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---------------|---|-----|-----|-----|---------------|
| Collector cutoff current | I_{CBO} | $V_{CB} = 500\text{ V}, I_E = 0$ | | | 100 | μA |
| Emitter cutoff current | I_{EBO} | $V_{EB} = 5\text{ V}, I_C = 0$ | | | 100 | μA |
| Collector to emitter voltage | V_{CEO} | $I_C = 10\text{ mA}, I_B = 0$ | 400 | | | V |
| Forward current transfer ratio | h_{FE1} | $V_{CE} = 5\text{ V}, I_C = 0.1\text{ A}$ | 10 | | | |
| | h_{FE2} | $V_{CE} = 2\text{ V}, I_C = 1.2\text{ A}$ | 8 | | 40 | |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 1.5\text{ A}, I_B = 0.3\text{ A}$ | | | 1.0 | V |
| Base to emitter saturation voltage | $V_{BE(sat)}$ | $I_C = 1.5\text{ A}, I_B = 0.3\text{ A}$ | | | 1.5 | V |
| Transition frequency | f_T | $V_{CE} = 10\text{ V}, I_C = 0.2\text{ A}, f = 1\text{ MHz}$ | | 10 | | MHz |
| Turn-on time | t_{on} | $I_C = 1.5\text{ A}, I_{B1} = 0.15\text{ A}, I_{B2} = -0.3\text{ A}, V_{CC} = 200\text{ V}$ | | | 1.0 | μs |
| Storage time | t_{stg} | | | | 3.0 | μs |
| Fall time | t_f | | | | 0.3 | μs |





Area of safe operation, reverse bias ASO



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