

2SC4420

Silicon NPN triple diffusion planar type

For high breakdown voltage high-speed switching

■ Features

- High-speed switching
- High collector-base voltage (Emitter open) V_{CBO}
- Wide safe operation area
- Satisfactory linearity of forward current transfer ratio h_{FE}
- Full-pack package which can be installed to the heat sink with one screw

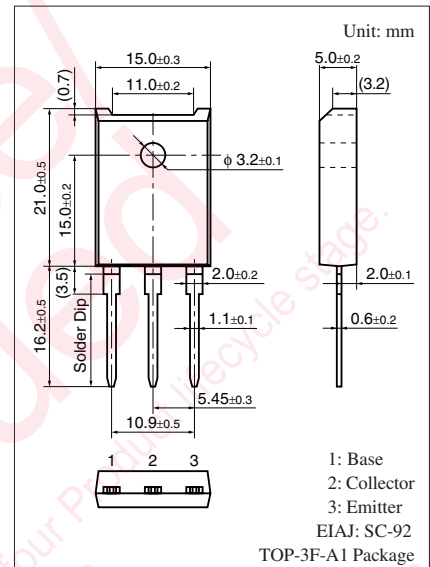
■ Absolute Maximum Ratings $T_C = 25^\circ\text{C}$

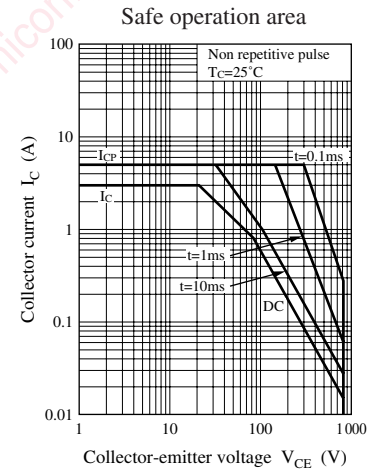
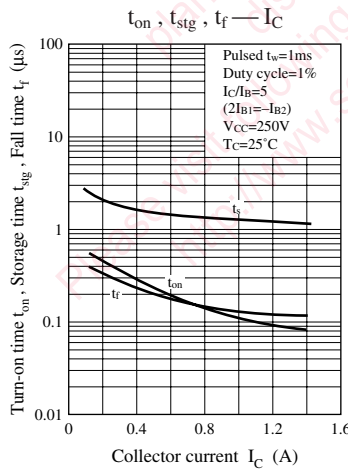
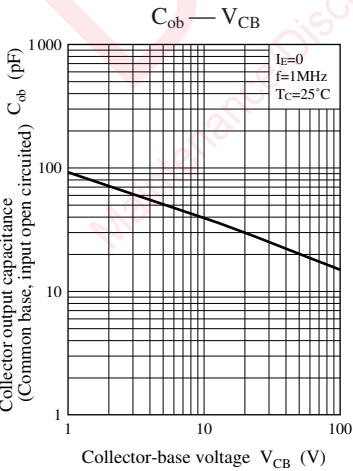
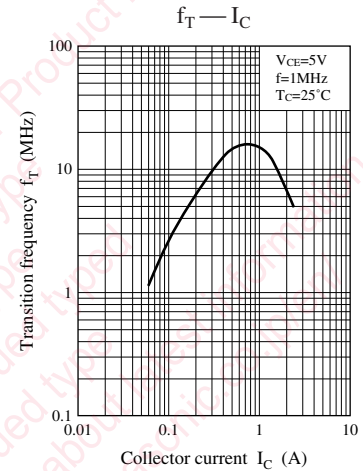
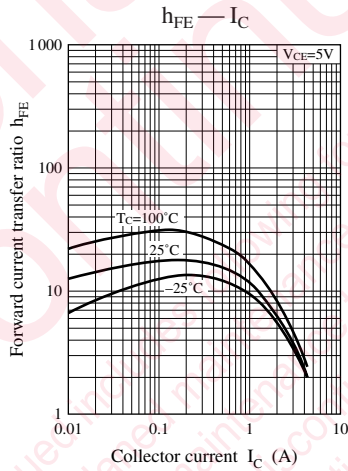
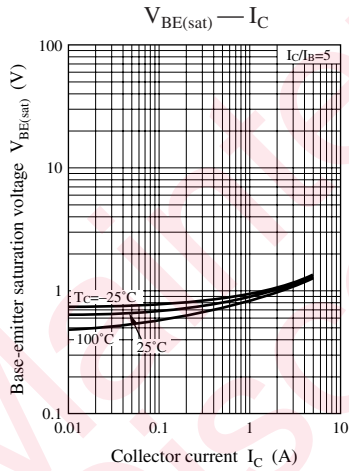
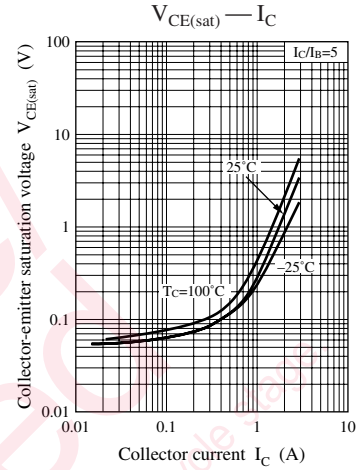
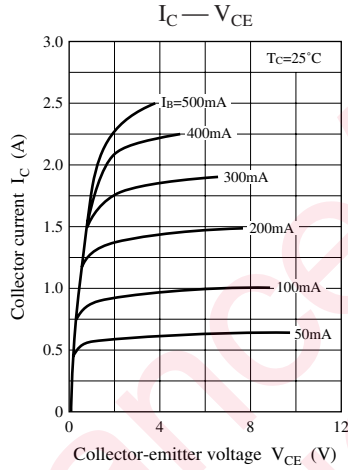
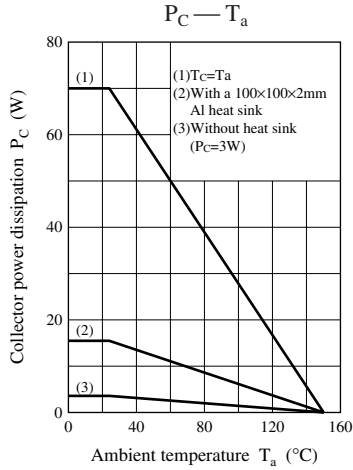
| Parameter | Symbol | Rating | Unit |
|---------------------------------------|--------------------------|-------------|------------------|
| Collector-base voltage (Emitter open) | V_{CBO} | 900 | V |
| Collector-emitter voltage (E-B short) | V_{CES} | 900 | V |
| Collector-emitter voltage (Base open) | V_{CEO} | 800 | V |
| Emitter-base voltage (Collector open) | V_{EBO} | 7 | V |
| Base current | I_B | 1 | A |
| Collector current | I_C | 3 | A |
| Peak collector current | I_{CP} | 5 | A |
| Collector power dissipation | P_C | 70 | W |
| | $T_a = 25^\circ\text{C}$ | 3.0 | |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

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

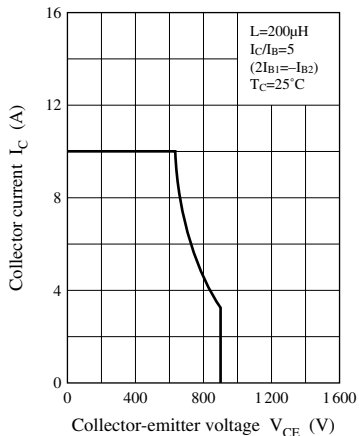
| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|---------------|---|-----|-----|-----|---------------|
| Collector-emitter voltage (Base open) | V_{CEO} | $I_C = 10 \text{ mA}, I_B = 0$ | 800 | | | V |
| Collector-base cutoff current (Emitter open) | I_{CBO} | $V_{CB} = 900 \text{ V}, I_E = 0$ | | | 50 | μA |
| Emitter-base cutoff current (Collector open) | I_{EBO} | $V_{EB} = 7 \text{ V}, I_C = 0$ | | | 50 | μA |
| Forward current transfer ratio | h_{FE1} | $V_{CE} = 5 \text{ V}, I_C = 0.1 \text{ A}$ | 8 | | | — |
| | h_{FE2} | $V_{CE} = 5 \text{ V}, I_C = 0.8 \text{ A}$ | 6 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 0.8 \text{ A}, I_B = 0.16 \text{ A}$ | | | 1.5 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C = 0.8 \text{ A}, I_B = 0.16 \text{ A}$ | | | 1.5 | V |
| Transition frequency | f_T | $V_{CE} = 5 \text{ V}, I_C = 0.15 \text{ A}, f = 1 \text{ MHz}$ | | 10 | | MHz |
| Turn-on time | t_{on} | $I_C = 0.8 \text{ A}$ | | | 0.7 | μs |
| Storage time | t_{stg} | $I_{B1} = 0.16 \text{ A}, I_{B2} = -0.32 \text{ A}$ | | | 2.5 | μs |
| Fall time | t_f | $V_{CC} = 250 \text{ V}$ | | | 0.3 | μs |

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

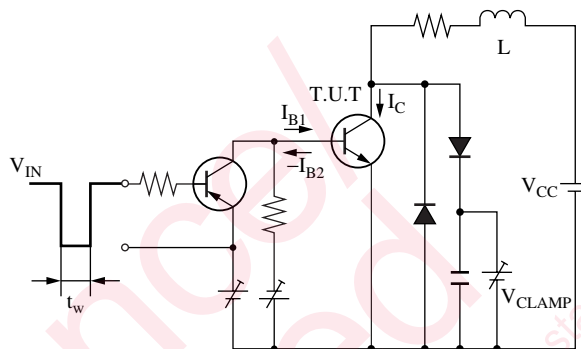




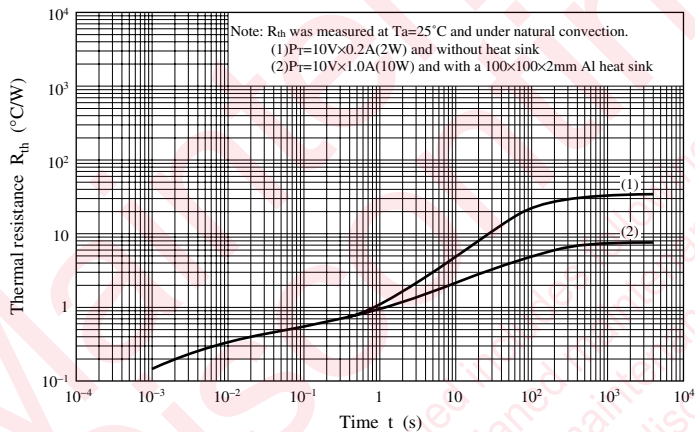
Safe operation area (Reverse bias)



Safe operation area (Reverse bias) measurement circuit



$R_{th} - t$



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