

2SD1271A

Silicon NPN epitaxial planar type

For power switching

■ Features

- Low collector-emitter saturation voltage $V_{CE(sat)}$
- Satisfactory linearity of forward current transfer ratio h_{FE}
- Large collector current I_C
- 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} | 150 | V |
| Collector-emitter voltage (Base open) | V_{CEO} | 100 | V |
| Emitter-base voltage (Collector open) | V_{EBO} | 7 | V |
| Collector current | I_C | 7 | A |
| Peak collector current | I_{CP} | 15 | A |
| Collector power dissipation | P_C | 40 | W |
| | $T_a = 25^\circ\text{C}$ | 2.0 | |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

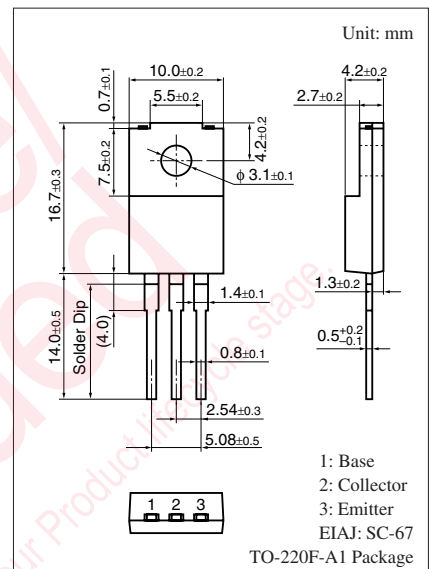
■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

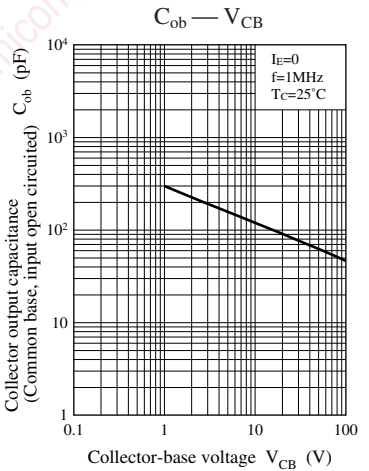
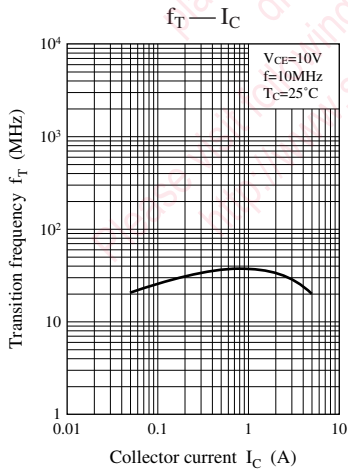
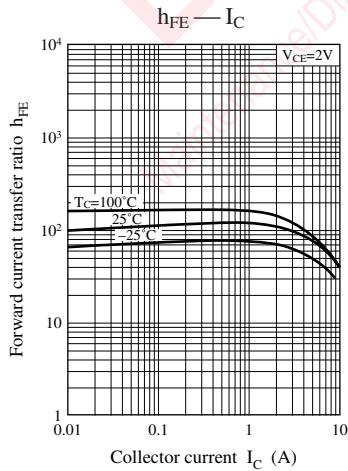
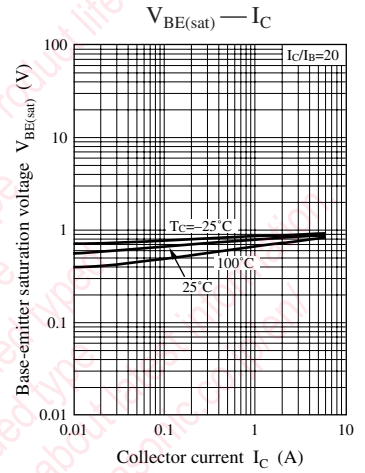
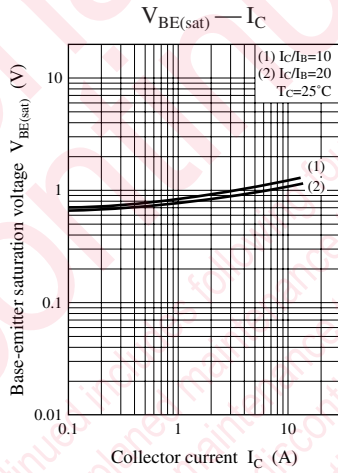
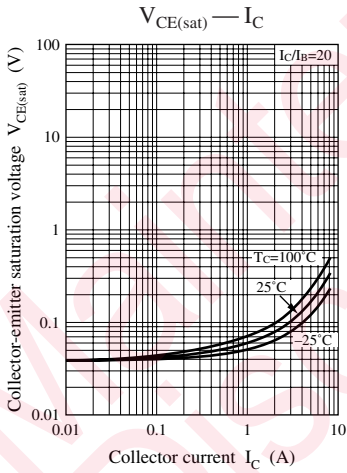
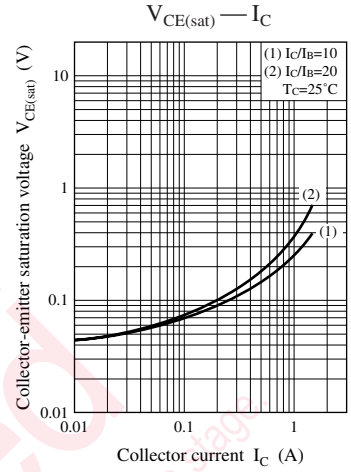
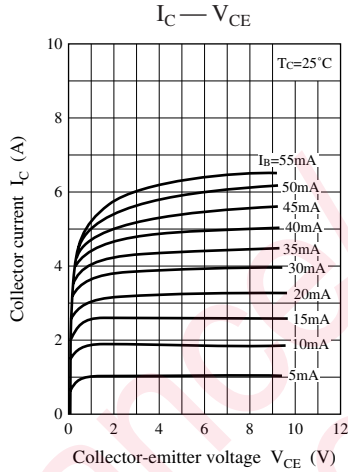
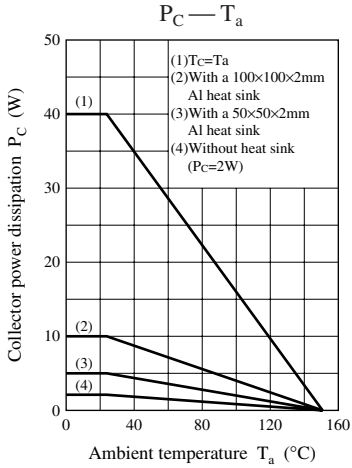
| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|---------------|---|-----|-----|-----|---------------|
| Collector-emitter voltage (Base open) | V_{CEO} | $I_C = 10\text{ mA}, I_B = 0$ | 100 | | | V |
| Collector-base cutoff current (Emitter open) | I_{CBO} | $V_{CB} = 100\text{ V}, I_E = 0$ | | | 10 | μA |
| Emitter-base cutoff current (Collector open) | I_{EBO} | $V_{EB} = 5\text{ V}, I_C = 0$ | | | 50 | μA |
| Forward current transfer ratio | h_{FE1} | $V_{CE} = 2\text{ V}, I_C = 0.1\text{ A}$ | 45 | | | — |
| | h_{FE2}^* | $V_{CE} = 2\text{ V}, I_C = 3\text{ A}$ | 60 | | 260 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 5\text{ A}, I_B = 0.25\text{ A}$ | | | 0.5 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C = 5\text{ A}, I_B = 0.25\text{ A}$ | | | 1.5 | V |
| Transition frequency | f_T | $V_{CE} = 10\text{ V}, I_C = 0.5\text{ A}, f = 10\text{ MHz}$ | | 30 | | MHz |
| Turn-on time | t_{on} | $I_C = 1\text{ A}, I_{B1} = 0.1\text{ A}, I_{B2} = -0.1\text{ A}$ | | 0.5 | | μs |
| Storage time | t_{stg} | $V_{CC} = 50\text{ V}$ | | 2.5 | | μs |
| Fall time | t_f | | | 0.4 | | μs |

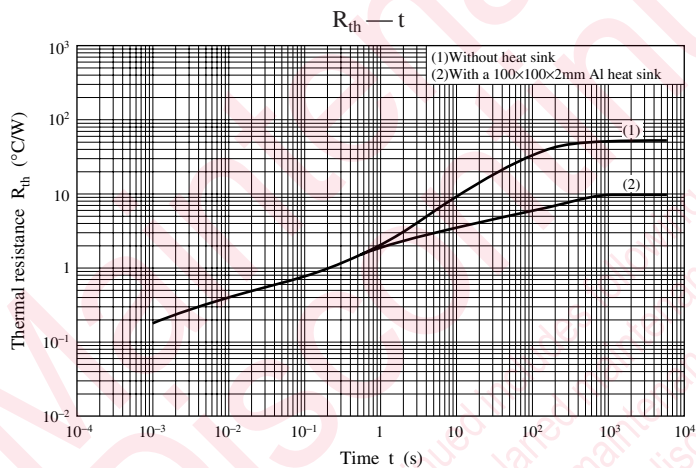
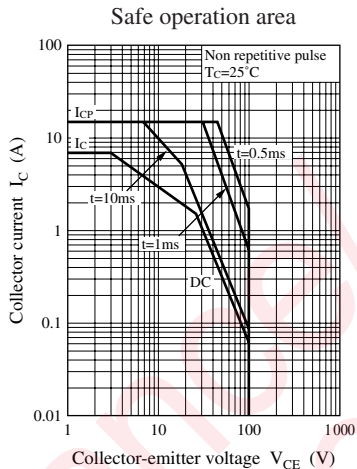
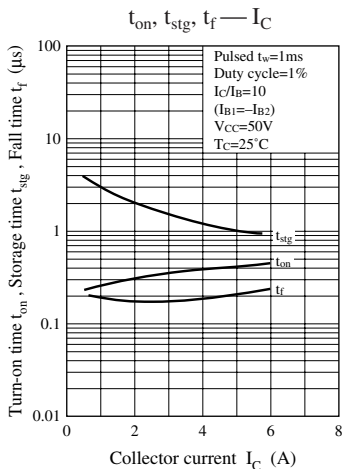
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *: Rank classification

| Rank | R | Q | P |
|-----------|-----------|-----------|------------|
| h_{FE2} | 60 to 120 | 90 to 180 | 130 to 260 |







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