

2SD1996

Silicon NPN epitaxial planar type

For low-voltage output amplification

For muting

For DC-DC converter

■ Features

- Low collector-emitter saturation voltage $V_{CE(sat)}$
- Low ON resistance R_{on}
- High forward current transfer ratio h_{FE}
- Allowing supply with radial taping

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

| Parameter | Symbol | Rating | Unit |
|---------------------------------------|-----------|-------------|------------------|
| Collector-base voltage (Emitter open) | V_{CBO} | 25 | V |
| Collector-emitter voltage (Base open) | V_{CEO} | 20 | V |
| Emitter-base voltage (Collector open) | V_{EBO} | 12 | V |
| Collector current | I_C | 0.5 | A |
| Peak collector current | I_{CP} | 1 | A |
| Collector power dissipation | P_C | 600 | mW |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

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

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|---------------|--|-----|------|------|---------------|
| Collector-base voltage (Emitter open) | V_{CBO} | $I_C = 10 \mu\text{A}, I_E = 0$ | 25 | | | V |
| Collector-emitter voltage (Base open) | V_{CEO} | $I_C = 1 \text{ mA}, I_B = 0$ | 20 | | | V |
| Emitter-base voltage (Collector open) | V_{EBO} | $I_E = 10 \mu\text{A}, I_C = 0$ | 12 | | | V |
| Collector-base cutoff current (Emitter open) | I_{CBO} | $V_{CB} = 25 \text{ V}, I_E = 0$ | | | 0.1 | μA |
| Forward current transfer ratio *1 | h_{FE1} *2 | $V_{CE} = 2 \text{ V}, I_C = 500 \text{ mA}$ | 200 | | 800 | — |
| | h_{FE2} | $V_{CE} = 2 \text{ V}, I_C = 1 \text{ A}$ | 60 | | | |
| Collector-emitter saturation voltage *1 | $V_{CE(sat)}$ | $I_C = 500 \text{ mA}, I_B = 20 \text{ mA}$ | | 0.13 | 0.40 | V |
| Base-emitter saturation voltage *1 | $V_{BE(sat)}$ | $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$ | | | 1.2 | V |
| Transition frequency | f_T | $V_{CB} = 10 \text{ V}, I_E = -50 \text{ mA}, f = 200 \text{ MHz}$ | | 200 | | MHz |
| Collector output capacitance (Common base, input open circuited) | C_{ob} | $V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$ | | 10 | | pF |
| ON resistance *3 | R_{on} | | | 1.0 | | Ω |

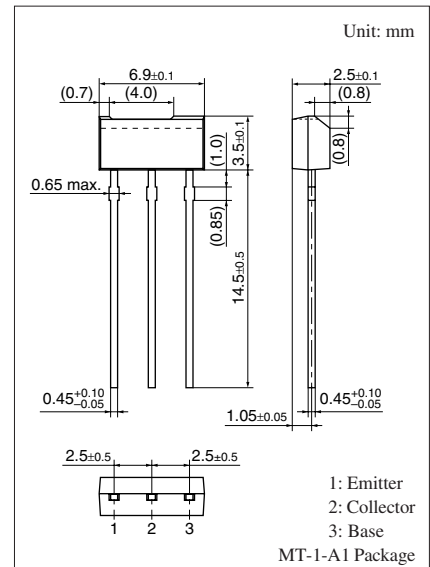
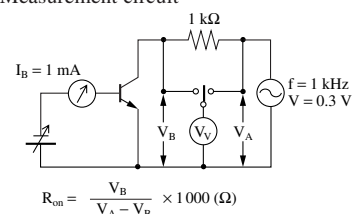
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

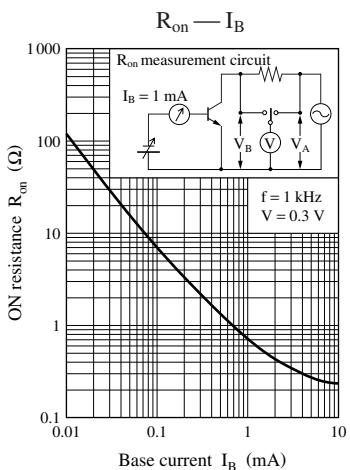
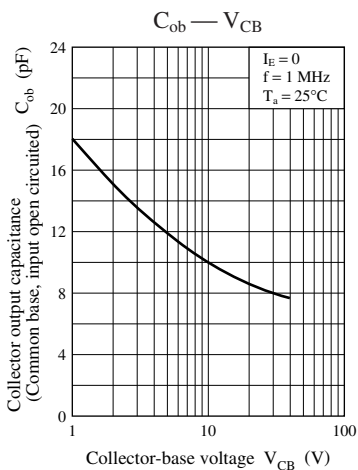
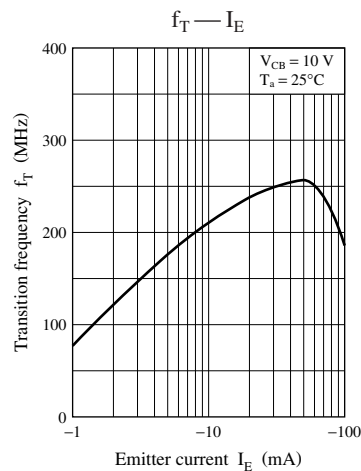
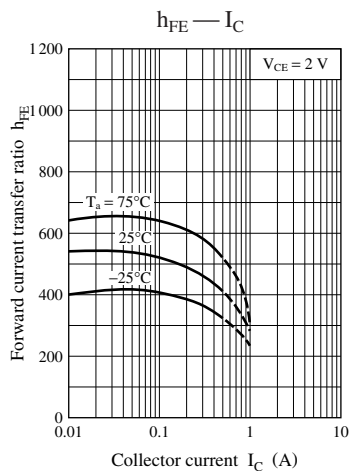
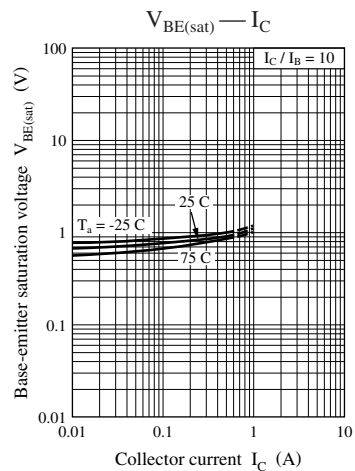
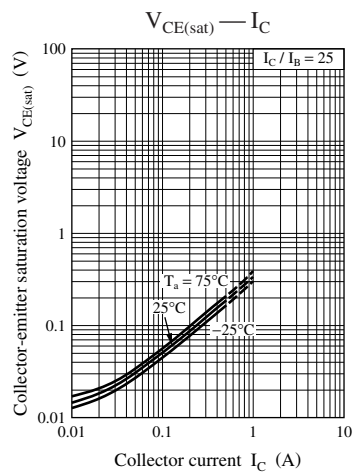
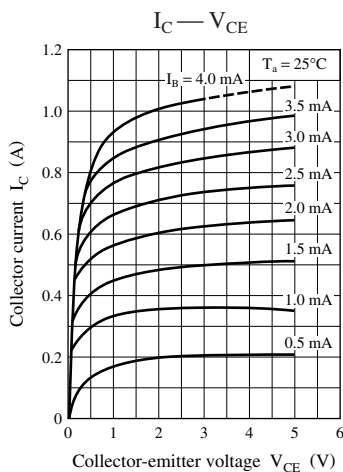
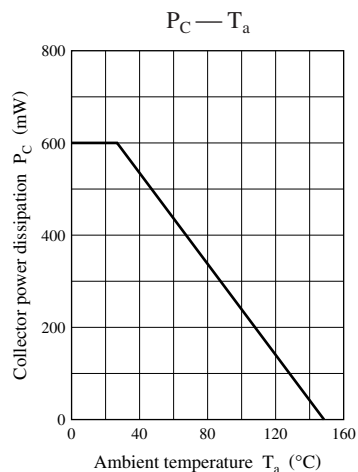
2. *1: Pulse measurement

*2: Rank classification

| Rank | R | S | T |
|-----------|------------|------------|------------|
| h_{FE1} | 200 to 350 | 300 to 500 | 400 to 800 |

*3: R_{on} Measurement circuit





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