



2SB1450/2SD2199

50V/7A Switching Applications

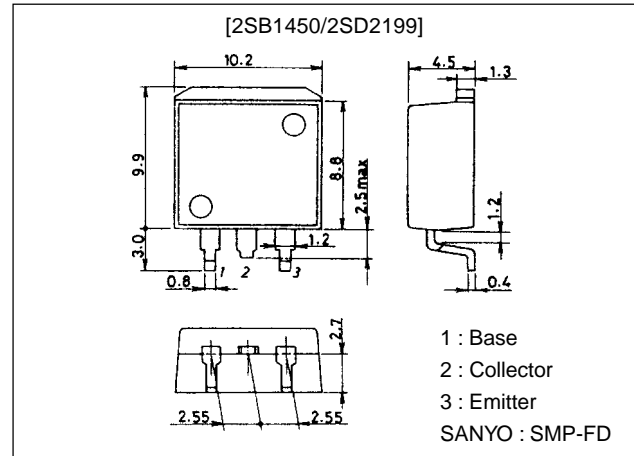
Features

- Surface mount type device making the following possible.
- Reduction in the number of manufacturing processes for 2SB1450/2SD2199-applied equipment.
- High density surface mount applications.
- Small size of 2SB1450/2SD2199-applied equipment.
- Low collector-to-emitter saturation voltage.
- Highly resistant to breakdown because of wide ASO.

Package Dimensions

unit:mm

2069B



() : 2SB1450

Specifications

Absolute Maximum Ratings at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|------------------------|-------------|------|
| Collector-to-Base Voltage | V_{CB0} | | (-)60 | V |
| Collector-to-Emitter Voltage | V_{CEO} | | (-)50 | V |
| Emitter-to-Base Voltage | V_{EBO} | | (-)6 | V |
| Collector Current | I_C | | (-)7 | A |
| Collector Current (Pulse) | I_{CP} | | (-)12 | A |
| Collector Dissipation | P_C | | 1.65 | W |
| | | $T_c=25^\circ\text{C}$ | 40 | W |
| Junction Temperature | T_J | | 150 | °C |
| Storage Temperature | T_{stg} | | -55 to +150 | °C |

Electrical Characteristics at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|-------------------------------------|---------|-----|--------|------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=-40\text{V}, I_E=0$ | | | (-)0.1 | mA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=-4\text{V}, I_C=0$ | | | (-)0.1 | mA |
| DC Current Gain | h_{FE1} | $V_{CE}=-2\text{V}, I_C=-1\text{A}$ | 70* | | 280* | |
| | h_{FE2} | $V_{CE}=-2\text{V}, I_C=-5\text{A}$ | 30 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE}=-5\text{V}, I_C=-1\text{A}$ | | 10 | | MHz |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=-4\text{A}, I_B=-0.4\text{A}$ | | | (-)0.4 | V |

* : The 2SB1450/2SD2199 are classified by 1A h_{FE} as follows :

| | | | | | | | | |
|----|---|-----|-----|---|-----|-----|---|-----|
| 70 | Q | 140 | 100 | R | 200 | 140 | S | 280 |
|----|---|-----|-----|---|-----|-----|---|-----|

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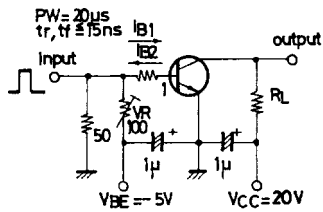
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O1598HA (KT)/7039MO, TS No.3150-1/4

2SB1450/2SD2199

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|---------------------------------|---------|-------|-----|---------|
| | | | min | typ | max | |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = (-)1mA, I_E = 0$ | (-)60 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = (-)1mA, R_{BE} = \infty$ | (-)50 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = (-)1mA, I_C = 0$ | (-)6 | | | V |
| Turn-ON Time | t_{on} | See specified test circuit. | | 0.2 | | μs |
| Storage Time | t_{stg} | See specified test circuit. | | (0.1) | | μs |
| | | | | 0.3 | | μs |
| Fall Time | t_f | See specified test circuit. | | (0.7) | | μs |
| | | | | 0.9 | | μs |

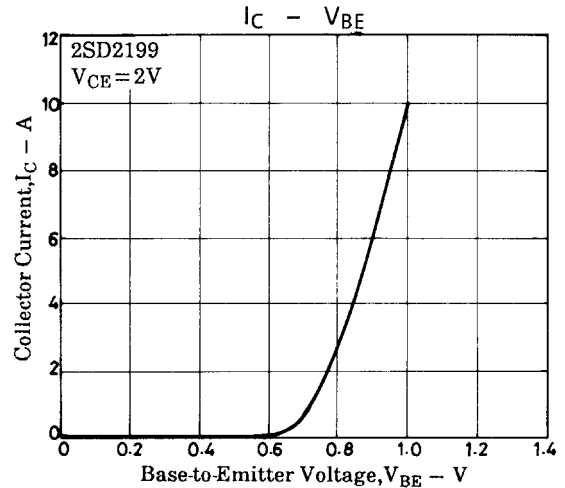
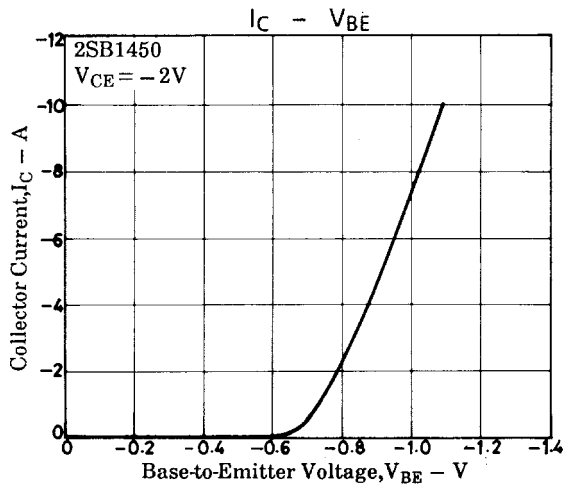
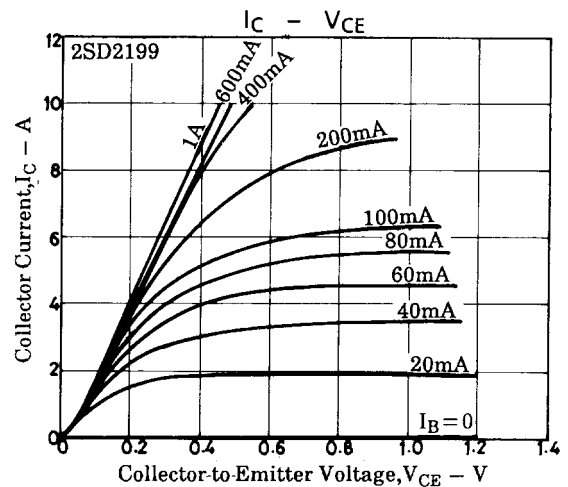
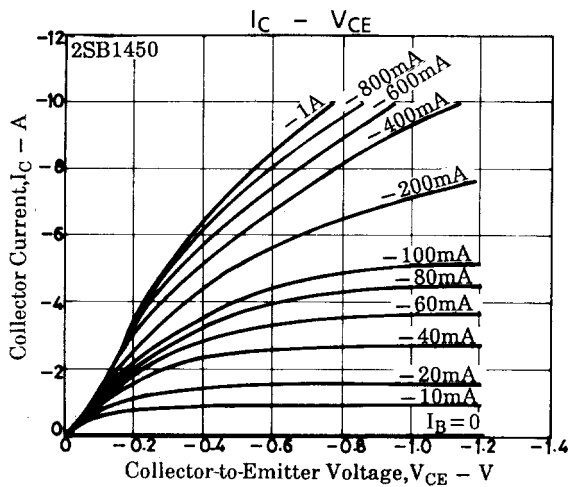
Switching Time Test Circuit



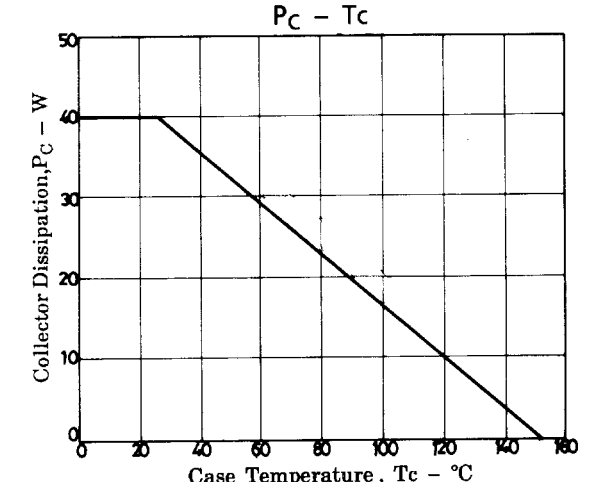
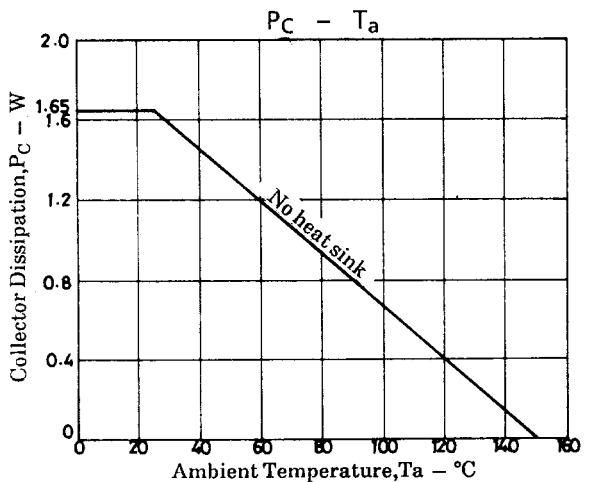
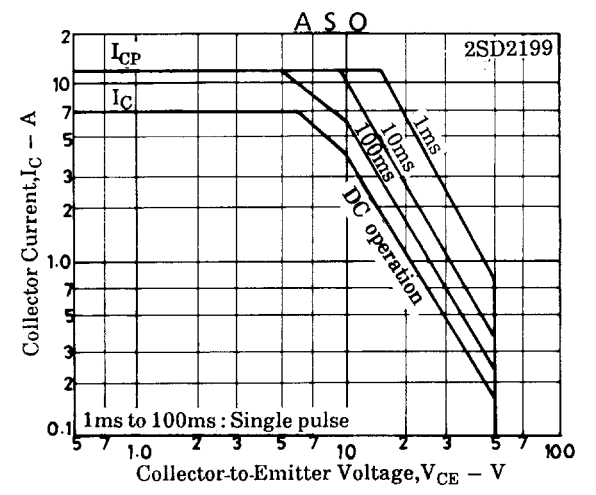
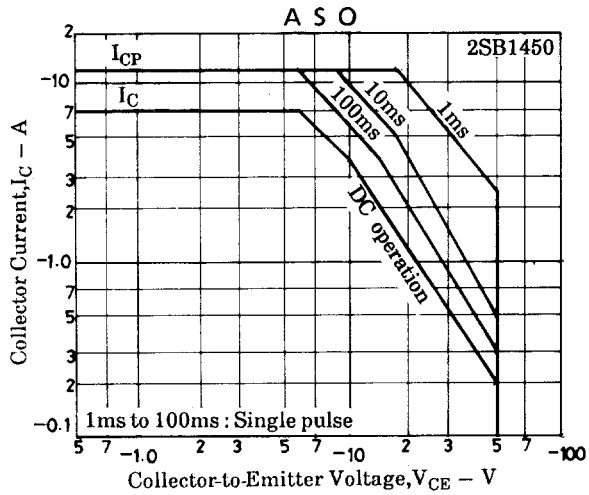
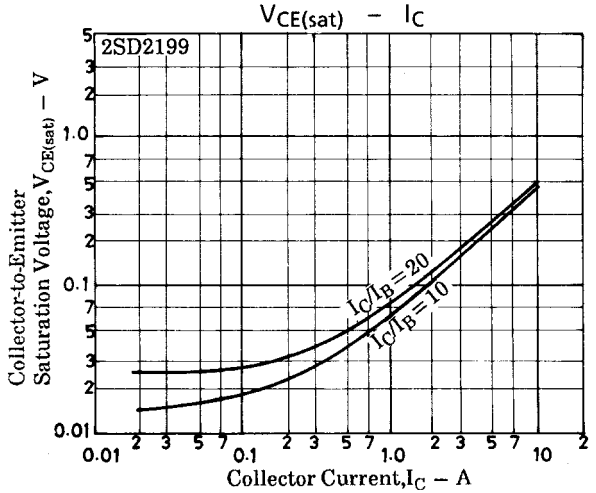
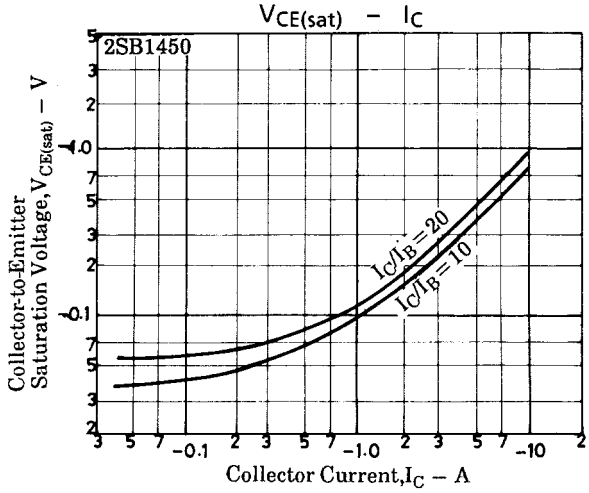
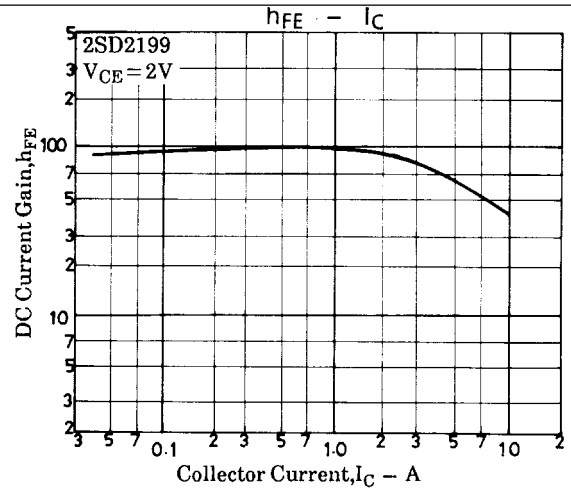
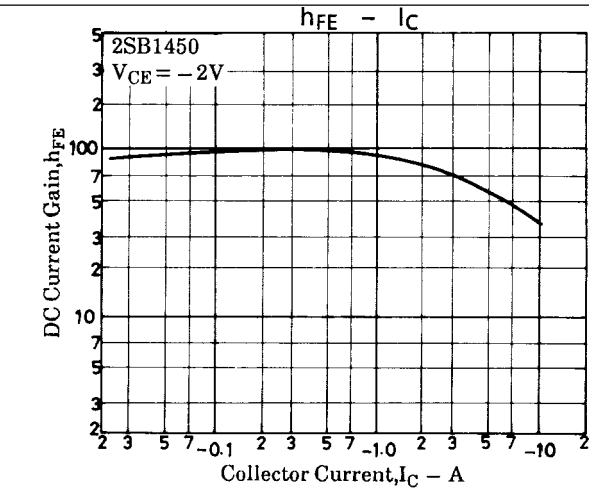
$$10 I_{B1} = -10 I_{B2} = I_C = 2A$$

For PNP, the polarity is reversed.

Unit (resistance : Ω , capacitance : F)



2SB1450/2SD2199



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