



## 2SB1271/2SD1907

### High-Current Switching Applications

#### Applications

- Suitable for relay drivers, high-speed inverters, converters, and other general high-current switching applications.

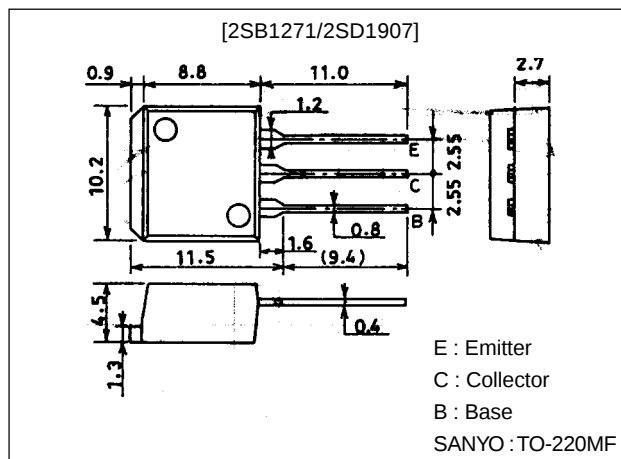
#### Features

- Suitable for sets whose height is restricted.
- Low collector to emitter saturation voltage.
- Large current capacity.

#### Package Dimensions

unit:mm

2049B



() : 2SB1271

#### Specifications

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

| Parameter                    | Symbol    | Conditions             | Ratings     | Unit             |
|------------------------------|-----------|------------------------|-------------|------------------|
| Collector-to-Base Voltage    | $V_{CBO}$ |                        | (-)90       | V                |
| Collector-to-Emitter Voltage | $V_{CEO}$ |                        | (-)80       | 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         | $^\circ\text{C}$ |
| Storage Temperature          | $T_{stg}$ |                        | -55 to +150 | $^\circ\text{C}$ |

##### Electrical Characteristics at $T_a = 25^\circ\text{C}$

| Parameter                               | Symbol        | Conditions                              | Ratings |     |        | Unit |
|-----------------------------------------|---------------|-----------------------------------------|---------|-----|--------|------|
|                                         |               |                                         | min     | typ | max    |      |
| Collector Cutoff Current                | $I_{CBO}$     | $V_{CB}=(-)80\text{V}, I_E=0$           |         |     | (-)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*   |      |
|                                         | $h_{FE2}$     | $V_{CE}=(-)2\text{V}, I_C=(-)4\text{A}$ | 30      |     |        |      |
| Gain-Bandwidth Product                  | $f_T$         | $V_{CE}=(-)5\text{V}, I_C=(-)1\text{A}$ |         | 20  |        | MHz  |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)4\text{A}, I_B=(-)0.4\text{A}$  |         |     | 0.4    | V    |
|                                         |               |                                         |         |     | (-0.5) | V    |

\* : The 2SB1271/2SD1907 are classified by 1A  $h_{FE}$  as follows :

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

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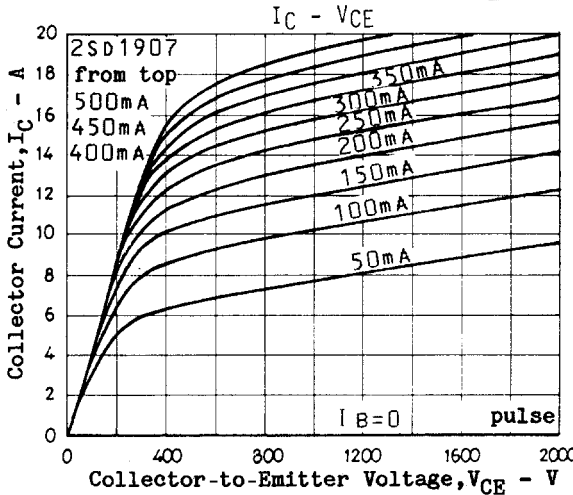
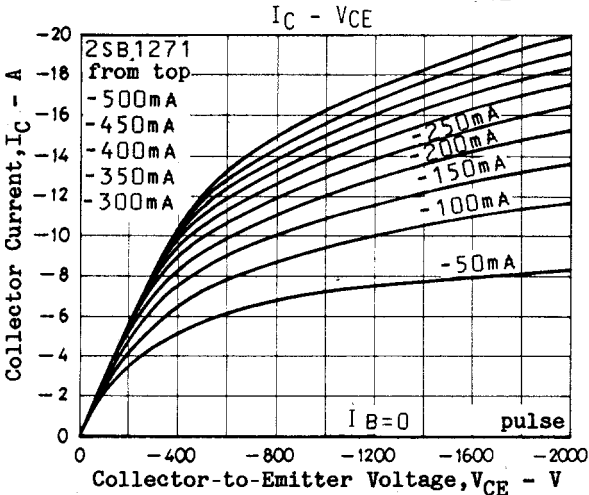
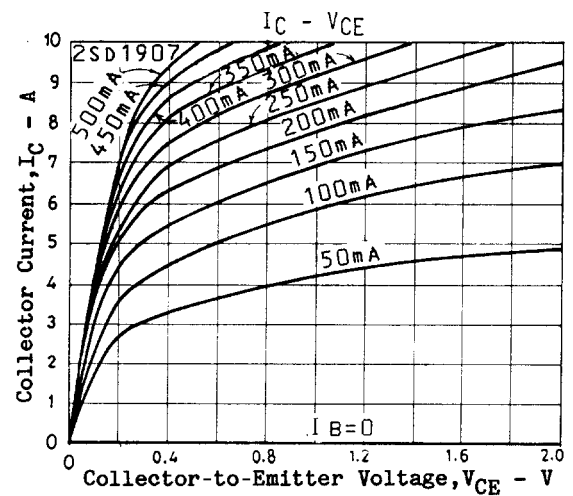
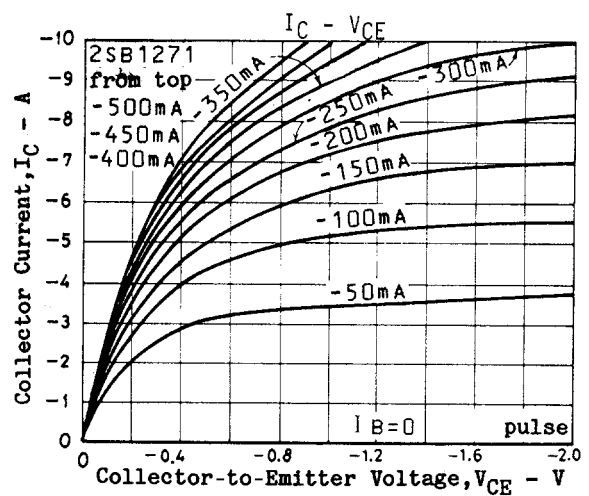
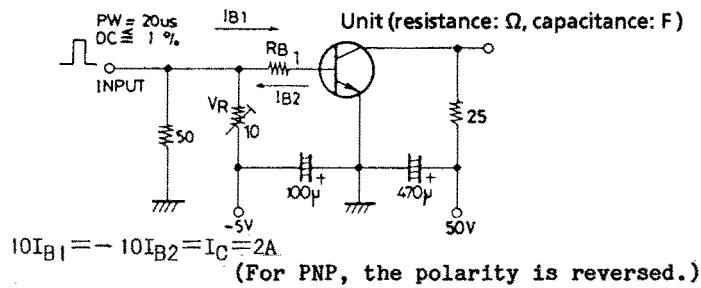
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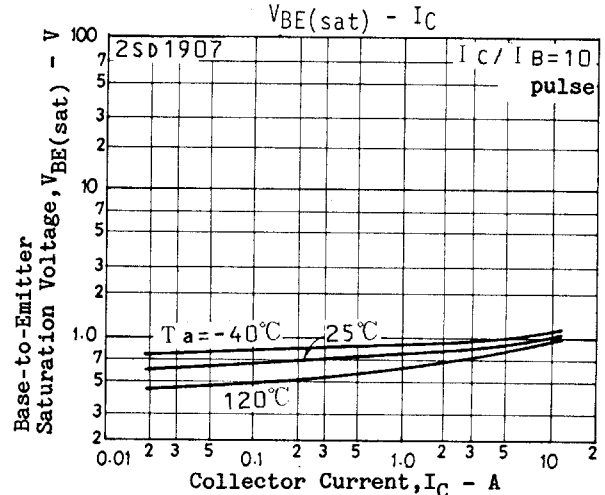
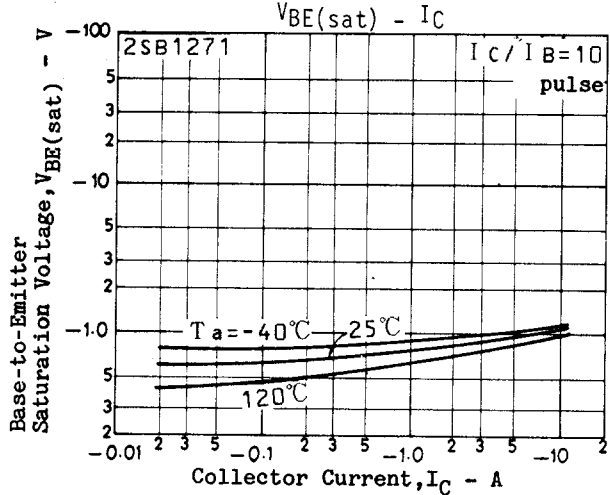
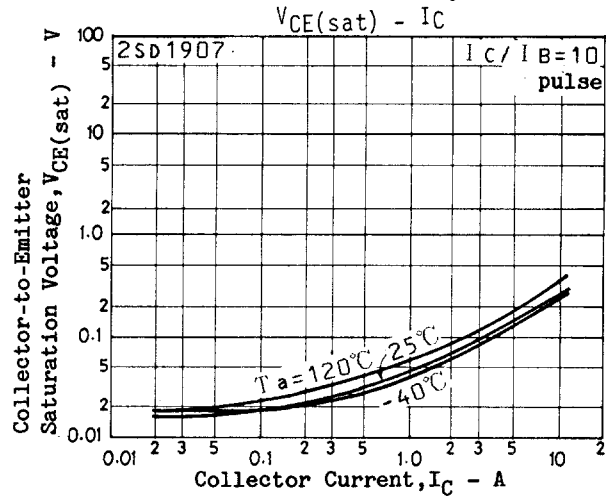
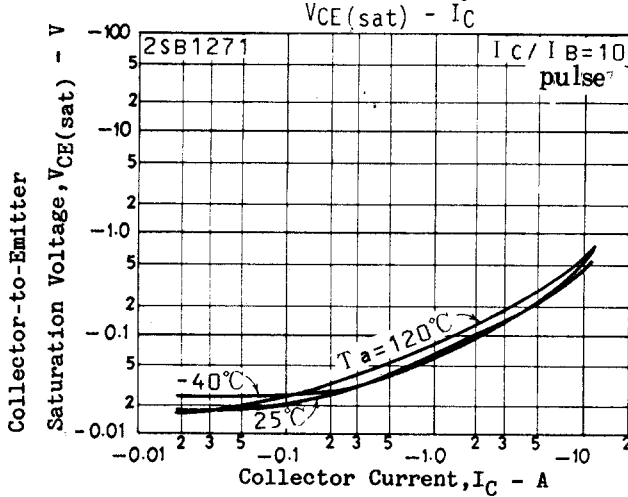
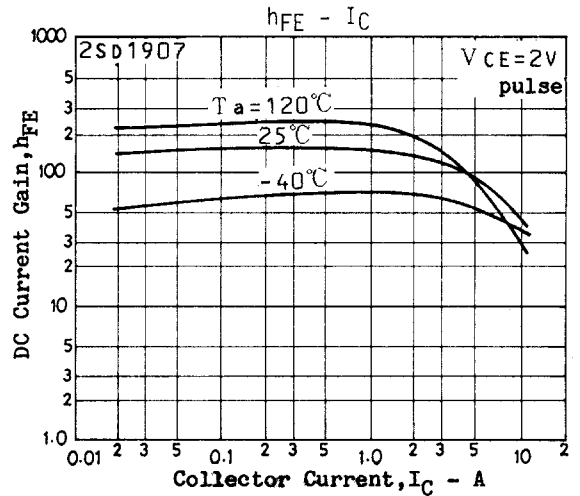
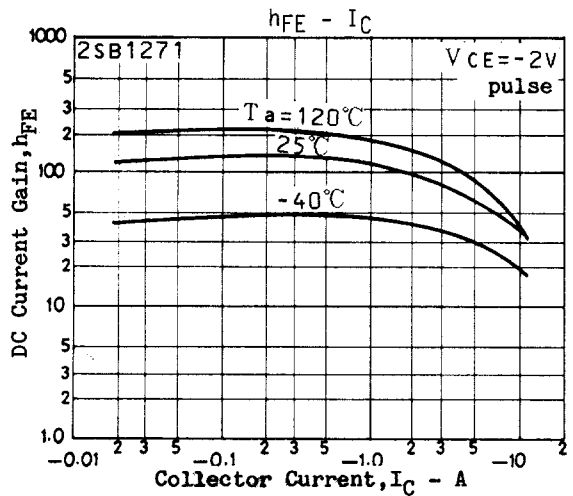
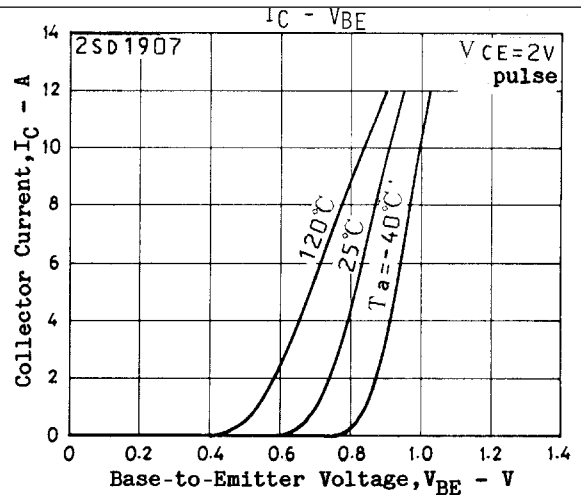
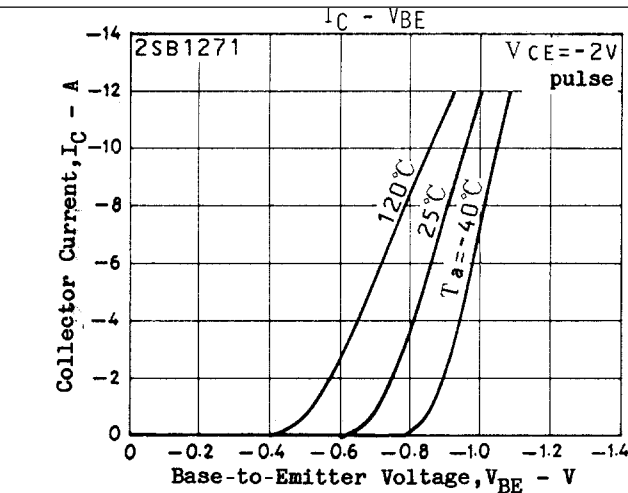
# 2SB1271/2SD1907

| Parameter                              | Symbol        | Conditions                  | Ratings |       |     | Unit    |
|----------------------------------------|---------------|-----------------------------|---------|-------|-----|---------|
|                                        |               |                             | min     | typ   | max |         |
| Collector-to-Base Breakdown Voltage    | $V_{(BR)CBO}$ | $I_C=(-)1mA, I_E=0$         | (-)90   |       |     | V       |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=(-)1mA, R_{BE}=\infty$ | (-)80   |       |     | 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) |     | $\mu s$ |
|                                        |               |                             |         | 0.1   |     | $\mu s$ |
| Storage Time                           | $t_{stg}$     | See specified test circuit. |         | (0.7) |     | $\mu s$ |
|                                        |               |                             |         | 1.6   |     | $\mu s$ |
| Fall Time                              | $t_f$         | See specified test circuit. |         | (0.2) |     | $\mu s$ |
|                                        |               |                             |         | 0.4   |     | $\mu s$ |

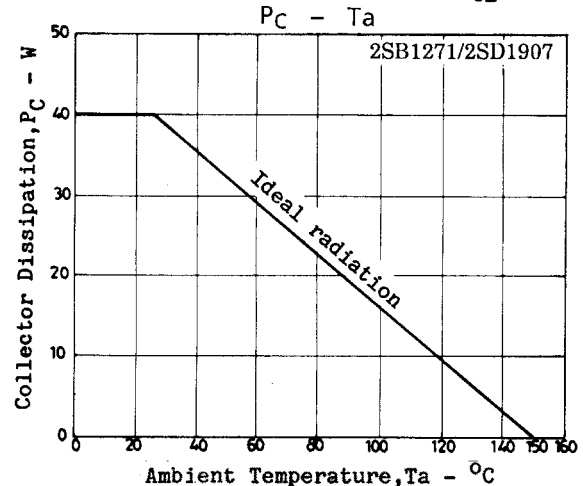
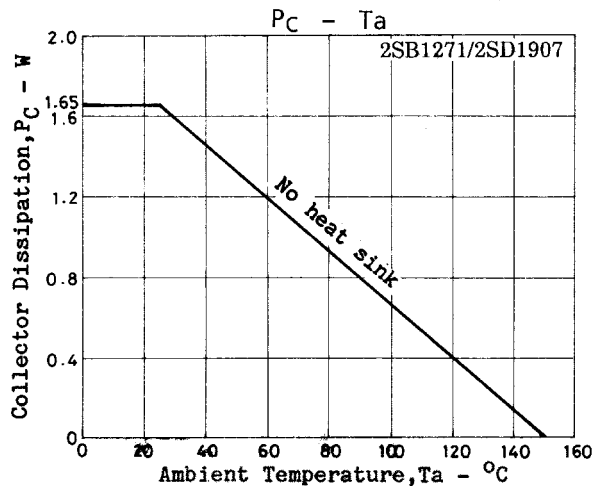
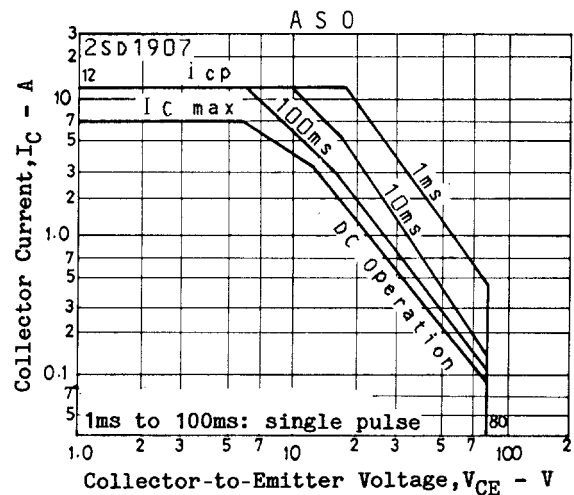
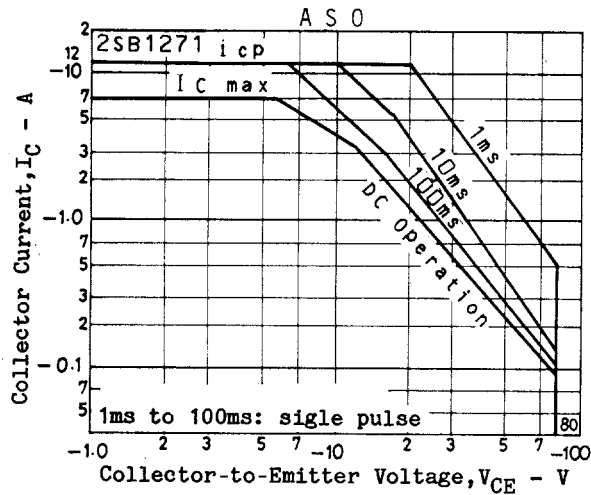
## Switching Time Test Circuit



# 2SB1271/2SD1907



## 2SB1271/2SD1907



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