



2SB1507/2SD2280

50V/7A High-Current Switching Applications

Applications

- Relay drivers, high-speed inverters, converters.

Features

- Low collector-to-emitter saturation voltage :
 $V_{CE(sat)} = (-)0.4V$ max.
- Wide ASO and highly resistant to breakdown.
- Micaless package facilitating easy mounting.

() : 2SB1507

Specifications

Absolute Maximum Ratings at $T_a = 25^\circ C$

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|--------------------|-------------|------------|
| Collector-to-Base Voltage | V_{CBO} | | (-)-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} | | (-)-20 | A |
| Collector Dissipation | P_C | | 3.0 | W |
| | | $T_c = 25^\circ C$ | 40 | W |
| Junction Temperature | T_J | | 150 | $^\circ C$ |
| Storage Temperature | T_{stg} | | -55 to +150 | $^\circ C$ |

Electrical Characteristics at $T_a = 25^\circ C$

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

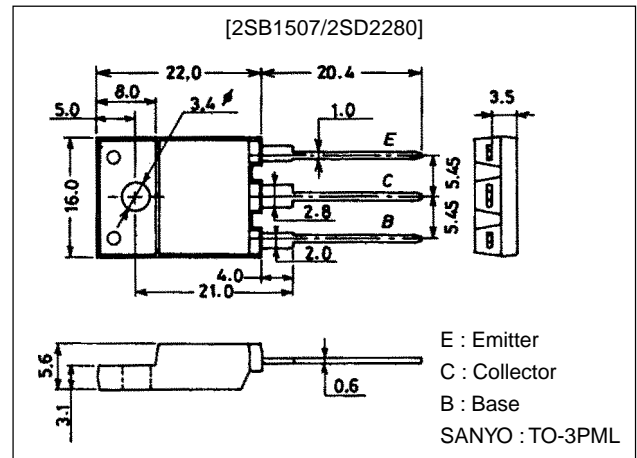
* : The 2SB1507/2SD2280 are classified by 1A h_{FE} as follows :

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

Package Dimensions

unit:mm

2039A



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SANYO Electric Co., Ltd. Semiconductor Business Headquarters

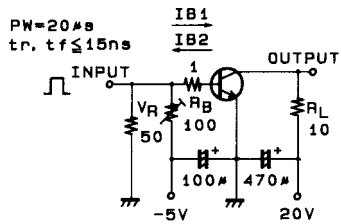
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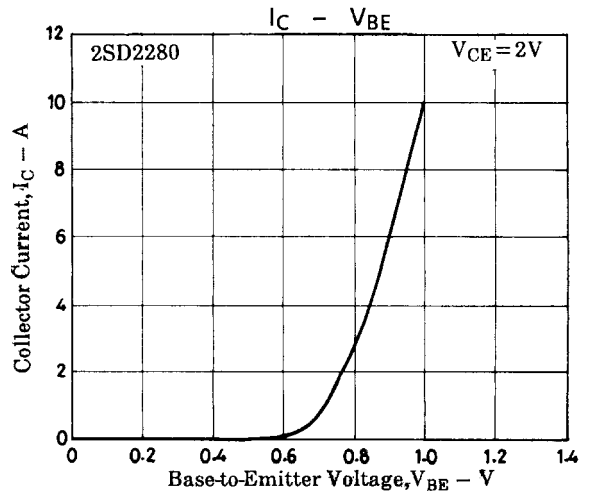
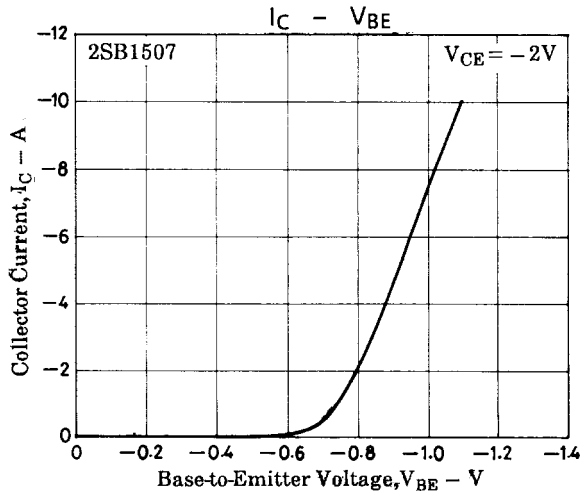
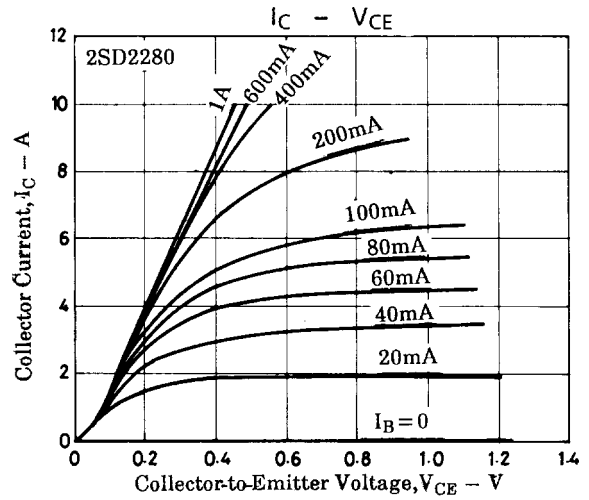
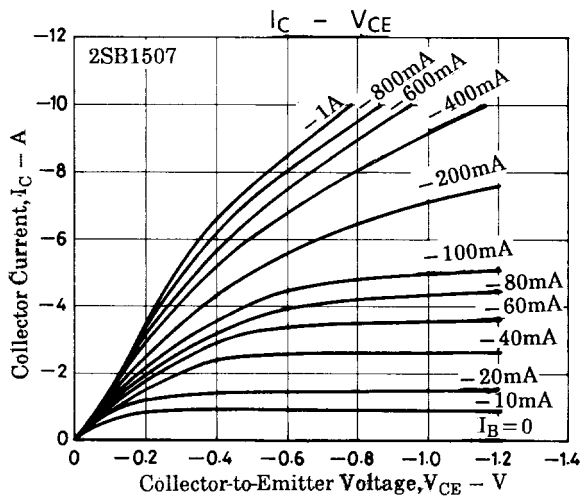
2SB1507/2SD2280

| 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. | | (0.7) | | μs |
| | | | | 0.9 | | μs |
| Fall Time | t_f | See specified test circuit. | | (0.1) | | μs |
| | | | | 0.3 | | μs |

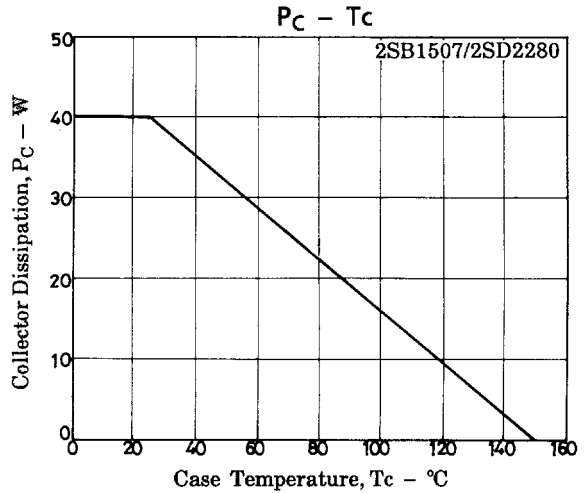
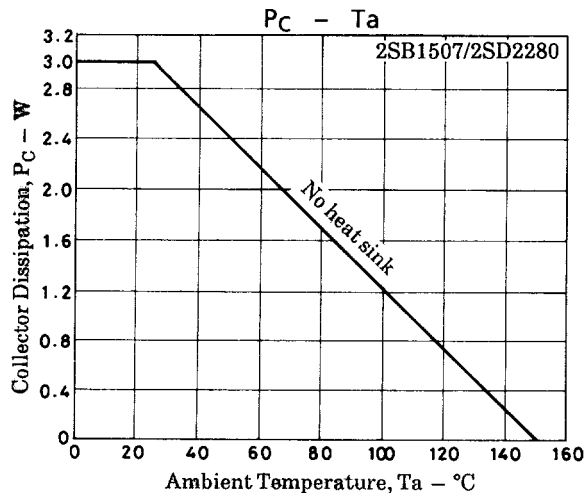
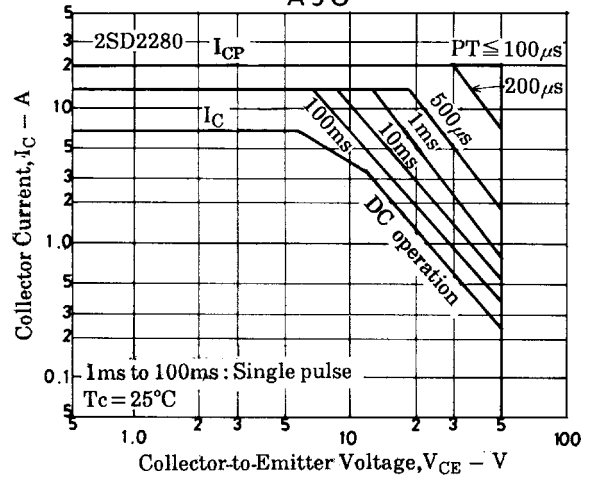
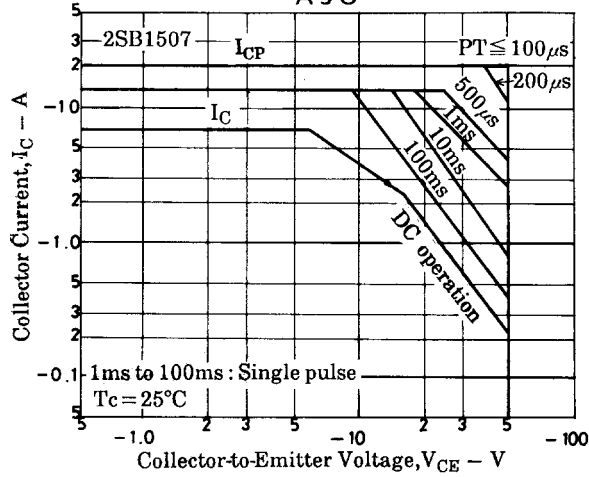
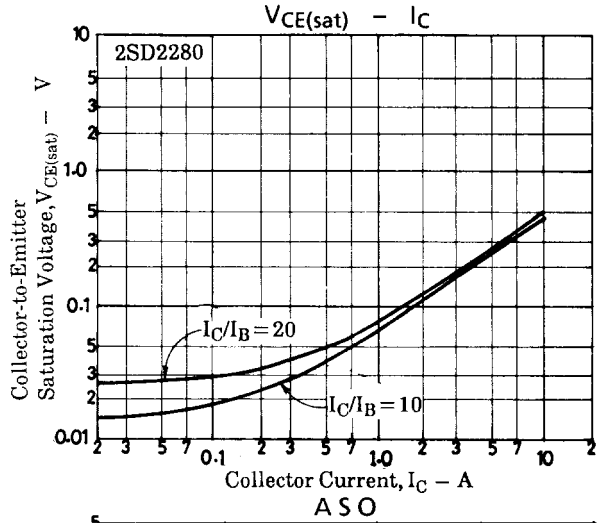
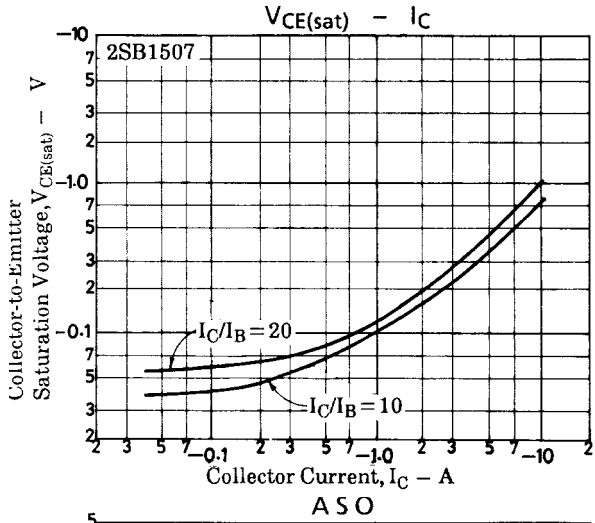
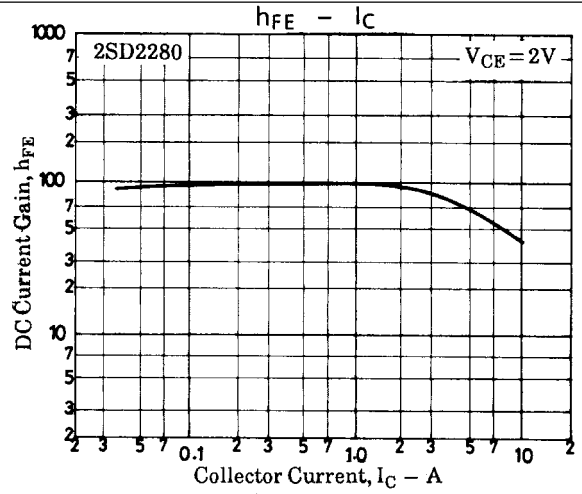
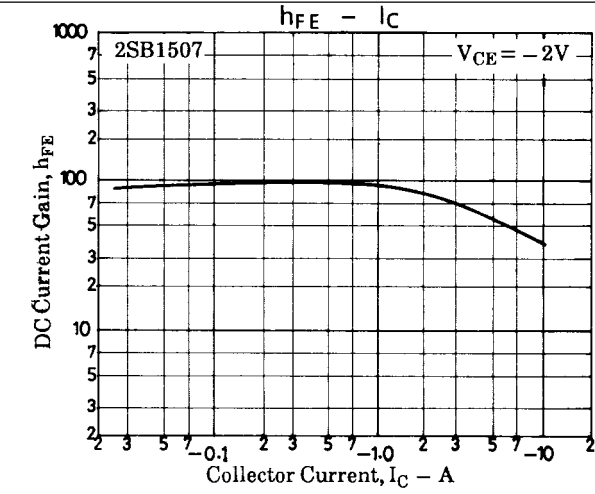
Switching Time Test Circuit



$10I_{B1} = -10I_{B2} = I_C = 2A$
 (For PNP, the polarity is reversed.)
 Unit (resistance : Ω , capacitance : F)



2SB1507/2SD2280



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