



2SB829/2SD1065

50V/15A Switching Applications

Applications

- Relay drivers, high-speed inverters, converters, and other general high-current switching applications.

Features

- Low-saturation collector-to-emitter voltage : $V_{CE(sat)} = -0.5V$ max.
- Wide ASO leading to high resistance to breakdown.

() : 2SB829

Specifications

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

| 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 | | (-15) | A |
| Collector Current (Pulse) | I_{CP} | | (-20) | A |
| Collector Dissipation | P_C | $T_c=25^\circ C$ | 90 | 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_{CB0} | $V_{CB} = (-)40V, I_E = 0$ | | | (-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} | $V_{CE} = (-)2V, I_C = (-)8A$ | 30 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE} = (-)5V, I_C = (-)1A$ | | 20 | | MHz |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = (-)8A, I_B = (-)0.4A$ | | (-0.26) | (-0.5) | V |
| | | | | 0.18 | 0.4 | V |

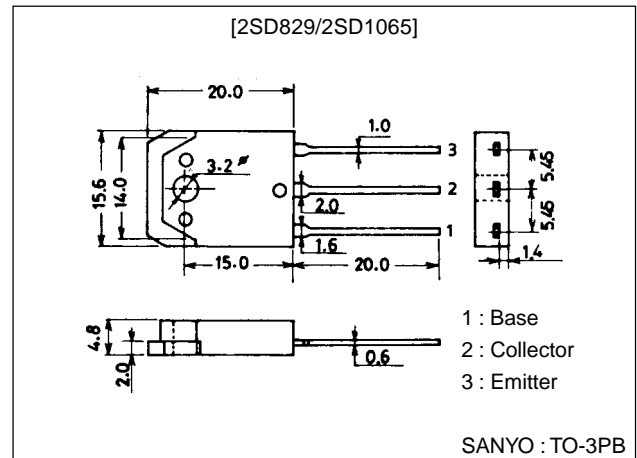
* : The 2SB829/2SD1065 are classified by 1A h_{FE} as follows :

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

Package Dimensions

unit:mm

2022A



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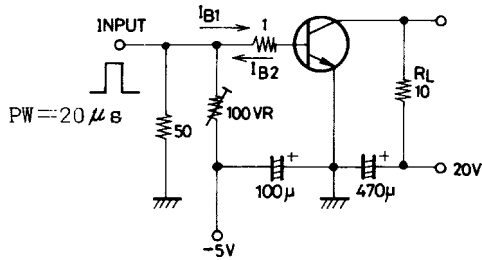
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2SB829/2SD1065

| 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 |
| Fall Time | t_f | See specified Test Circuit | | (0.5) | | μs |
| | | | | 1.0 | | μs |
| Storage Time | t_{stg} | See specified Test Circuit | | 0.1 | | μs |

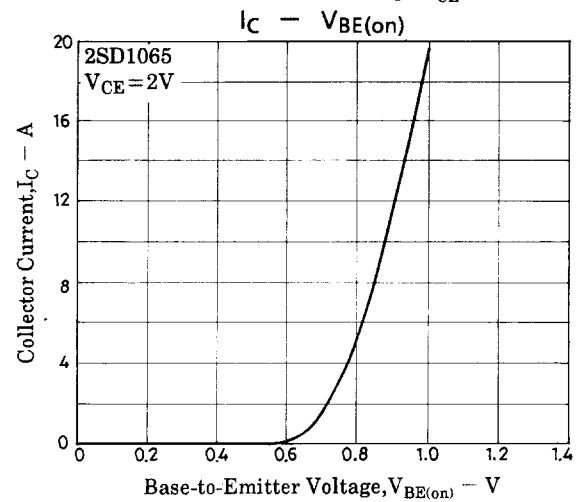
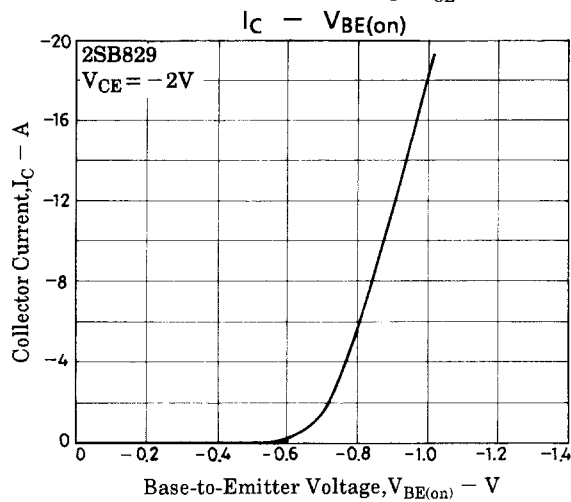
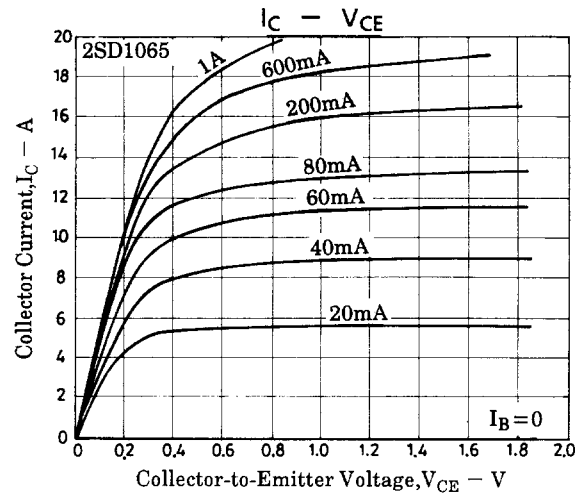
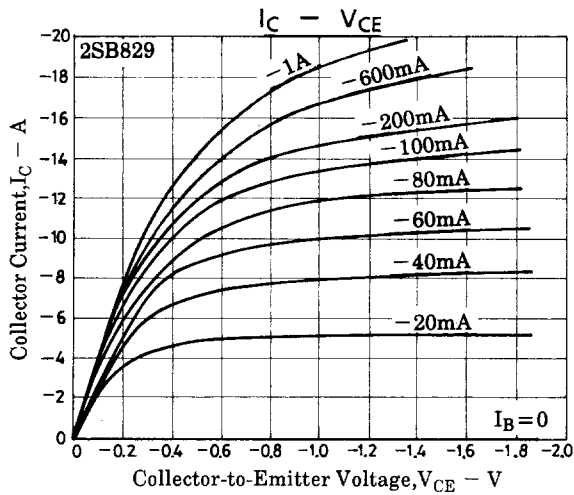
Switching Time Test Circuit



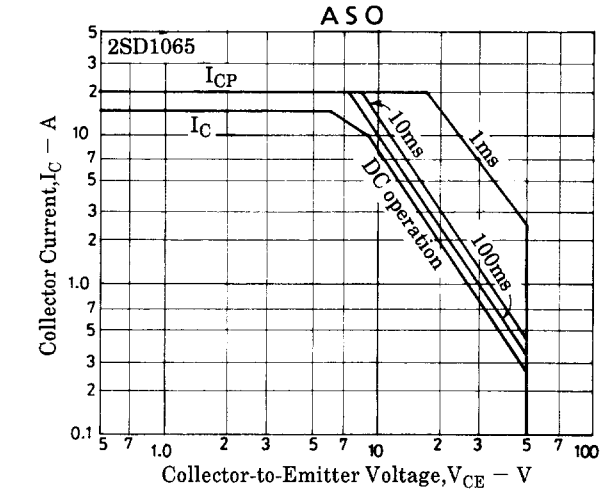
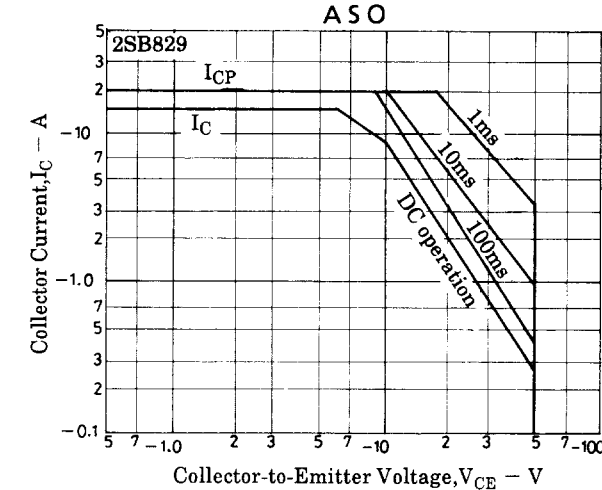
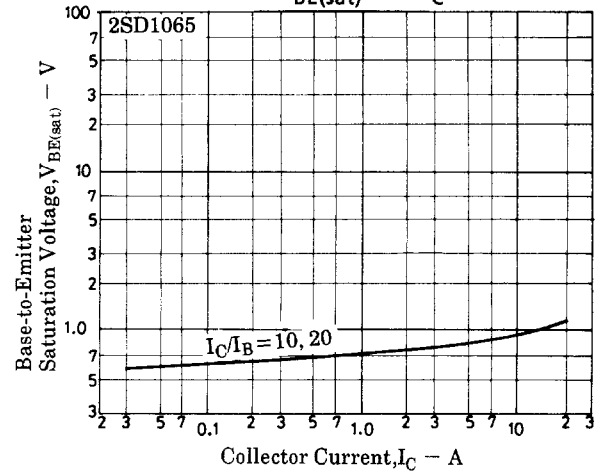
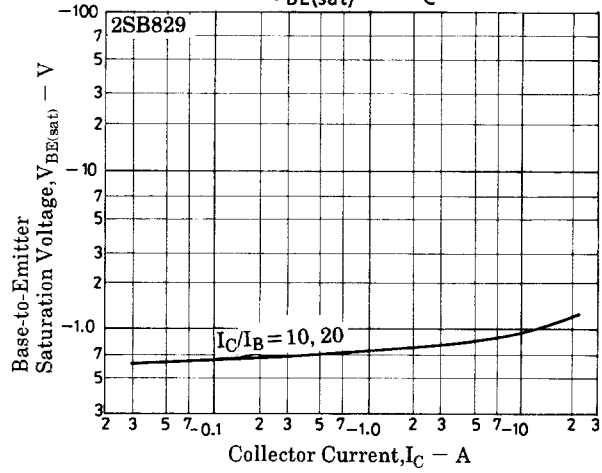
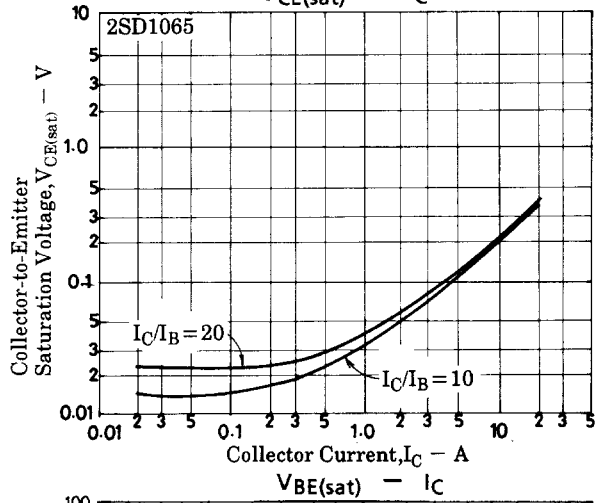
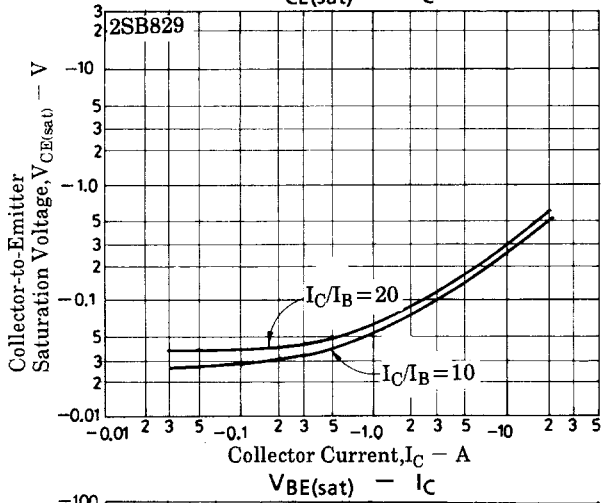
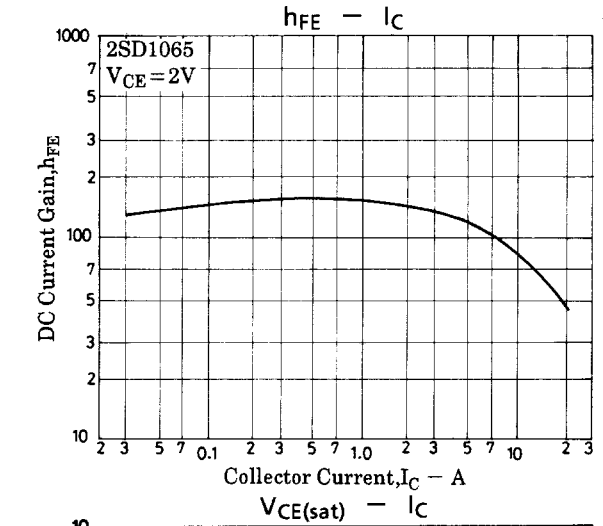
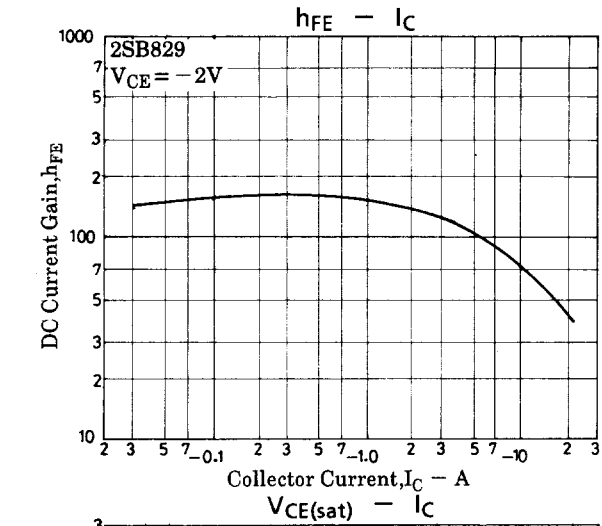
$$10I_{B1} = -10I_{B2} = I_C = 2A$$

(For PNP, the polarity is reversed.)

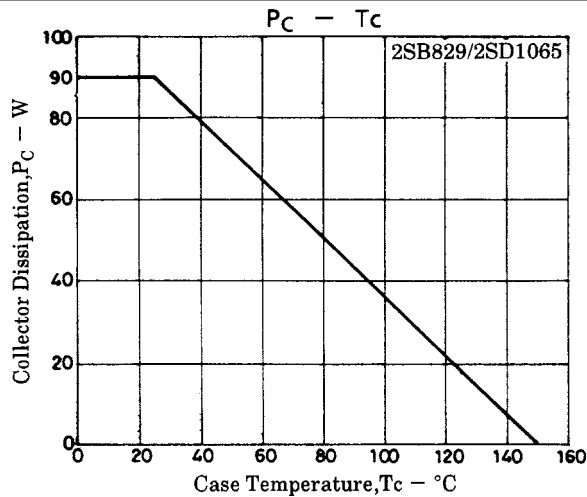
Unit (resistance : Ω , capacitance: F)



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