



2SB1229/2SD1835

Driver Applications

An ON Semiconductor Company

Applications

- Voltage regulators, relay drivers, lamp drivers, electrical equipment.

Features

- Adoption of FBET, MBIT processes.
- Large current capacity.
- Low collector-to-emitter saturation voltage.
- Fast switching time.

() : 2SB1229

Specifications

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

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|------------|-------------|------------------|
| Collector-to-Base Voltage | V_{CB0} | | (-)-60 | V |
| Collector-to-Emitter Voltage | V_{CE0} | | (-)-50 | V |
| Emitter-to-Base Voltage | V_{EBO} | | (-)-6 | V |
| Collector Current | I_C | | (-)-2 | A |
| Collector Current (Pulse) | I_{CP} | | (-)-3 | A |
| Collector Dissipation | P_C | | 0.75 | 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} | $V_{CB} = (-)50\text{V}, I_E = 0$ | | | (-)-100 | nA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = (-)4\text{V}, I_C = 0$ | | | (-)-100 | nA |
| DC Current Gain | h_{FE1} | $V_{CE} = (-)2\text{V}, I_C = (-)100\text{mA}$ | 100* | | 560* | |
| | h_{FE2} | $V_{CE} = (-)2\text{V}, I_C = (-)1.5\text{A}$ | 40 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE} = (-)10\text{V}, I_C = (-)50\text{mA}$ | | 150 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB} = (-)10\text{V}, f = 1\text{MHz}$ | | 12(22) | | pF |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = (-)1\text{A}, I_B = (-)50\text{mA}$ | | 0.15 | 0.4 | V |
| | | | | (-)-0.3 | (-)-0.7 | V |

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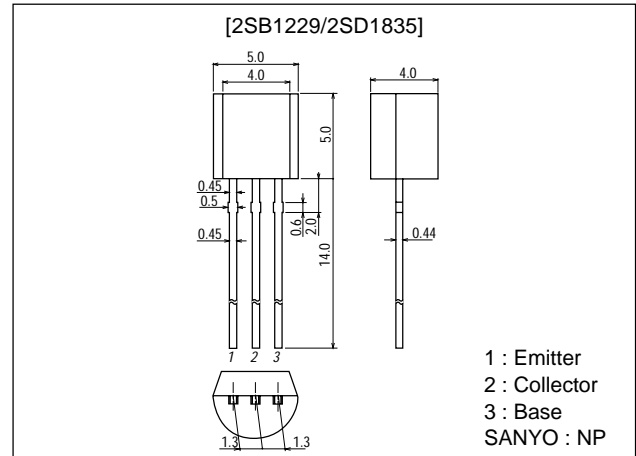
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Package Dimensions

unit:mm

2003B



2SB1229/2SD1835

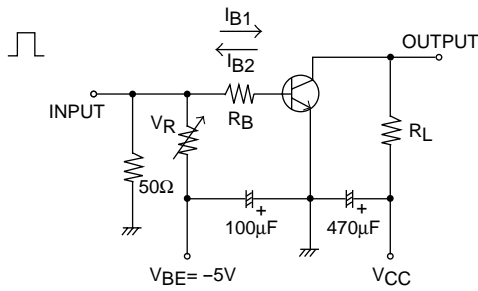
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|-----------------------------|---------|--------|--------|------|
| | | | min | typ | max | |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=(-)1A, I_B=(-)50mA$ | | (-0.9) | (-1.2) | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=(-)10\mu A, I_E=0$ | (-60) | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=(-)1mA, R_{BE}=\infty$ | (-50) | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=(-)10\mu A, I_C=0$ | (-6) | | | V |
| Turn-ON Time | t_{on} | See specified Test Circuit | | 60(60) | | ns |
| Storage Time | t_{stg} | See specified Test Circuit | | 550 | | ns |
| | | | | (450) | | ns |
| Fall Time | t_f | See specified Test Circuit | | 30 | | ns |
| | | | | 30 | | ns |

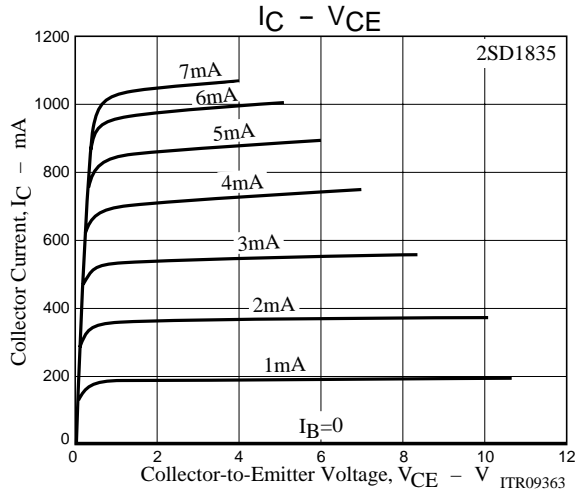
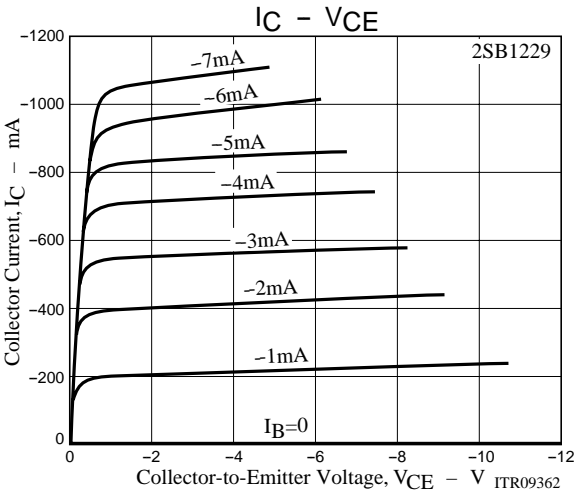
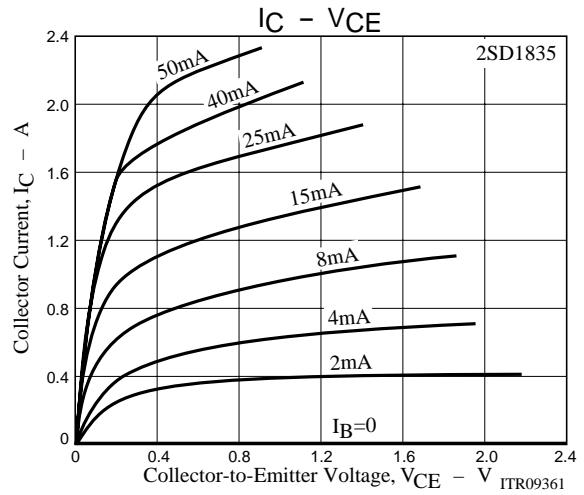
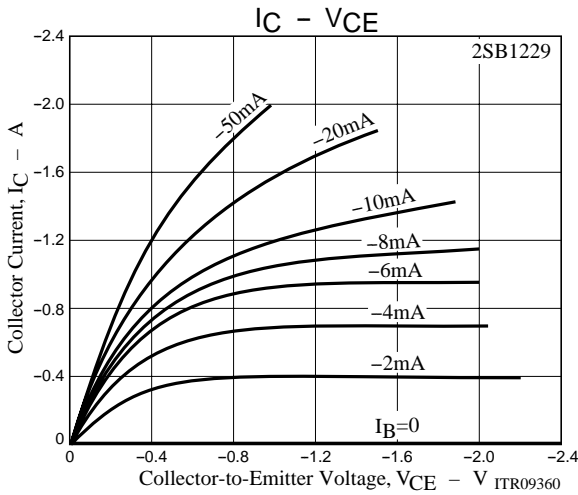
* : The 2SB1229/2SD1835 are classified by 100mA h_{FE} as follows :

| Rank | R | S | T | U |
|----------|------------|------------|------------|------------|
| h_{FE} | 100 to 200 | 140 to 280 | 200 to 400 | 280 to 560 |

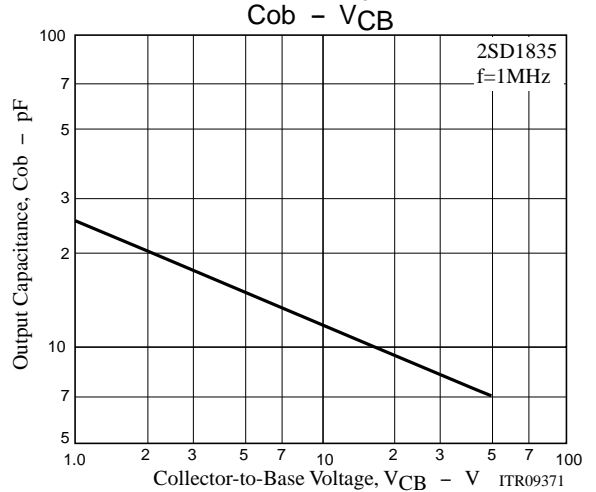
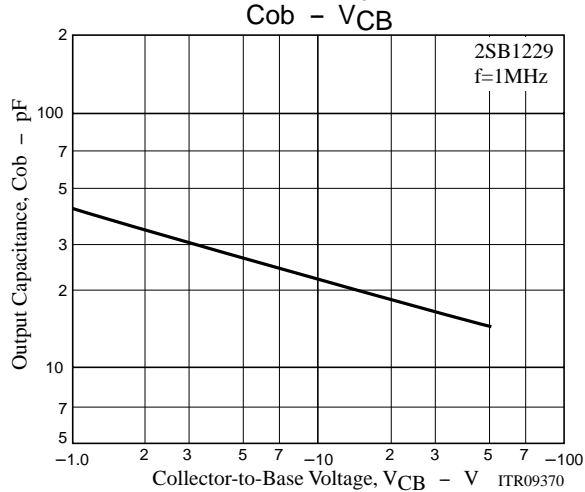
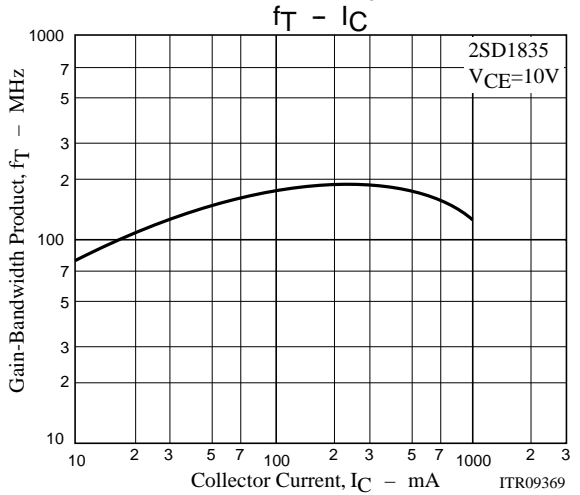
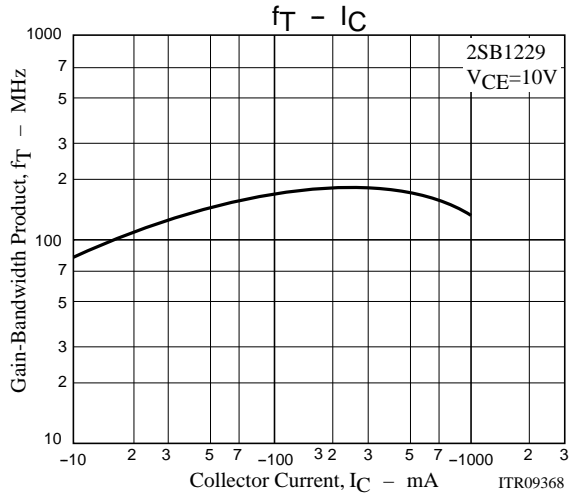
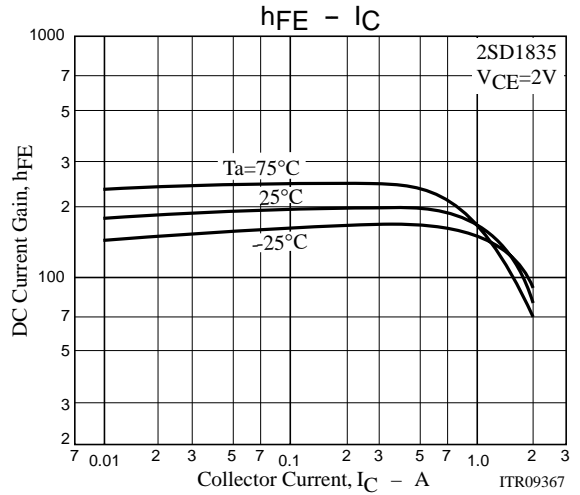
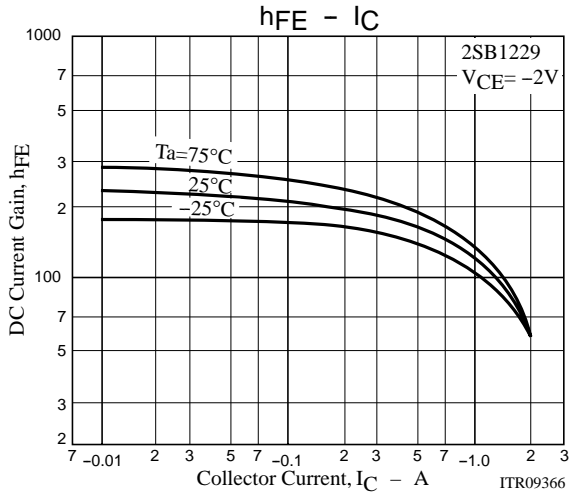
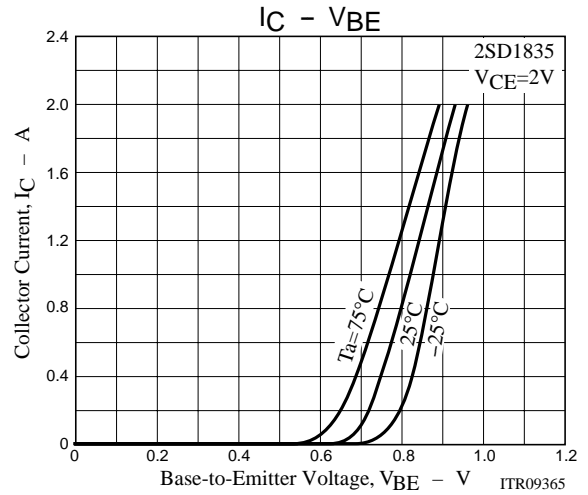
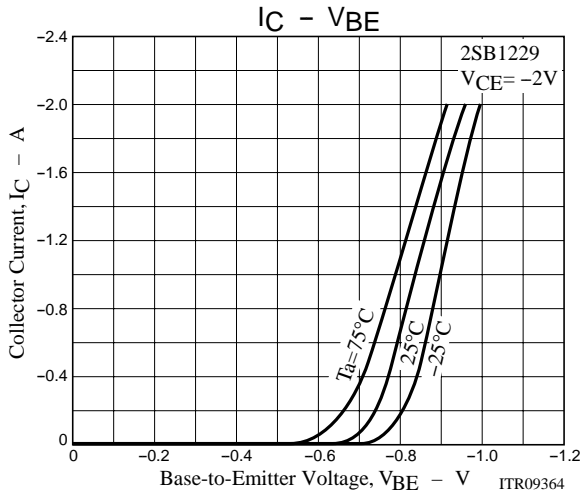
Switching Time Test Circuit



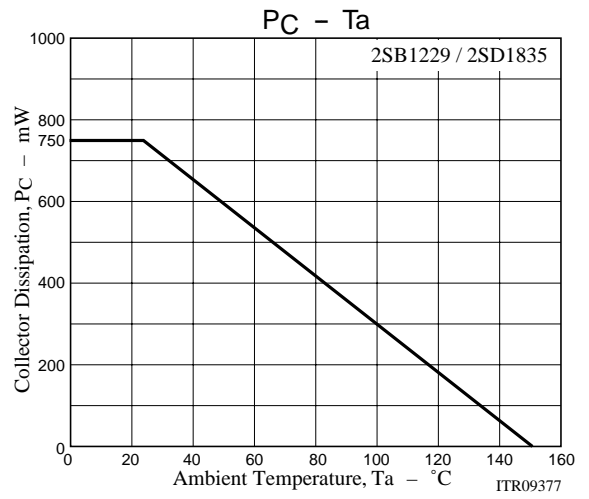
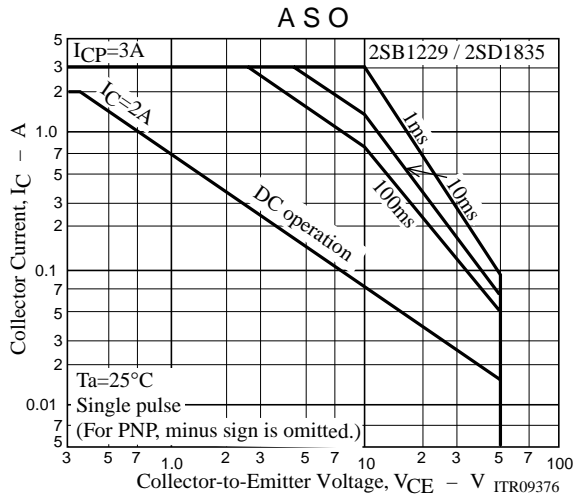
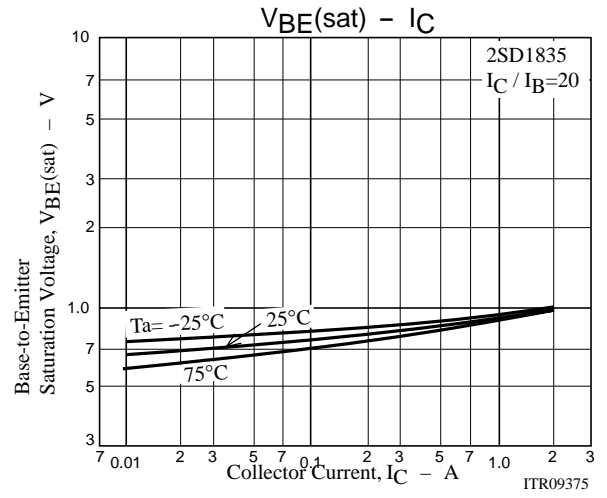
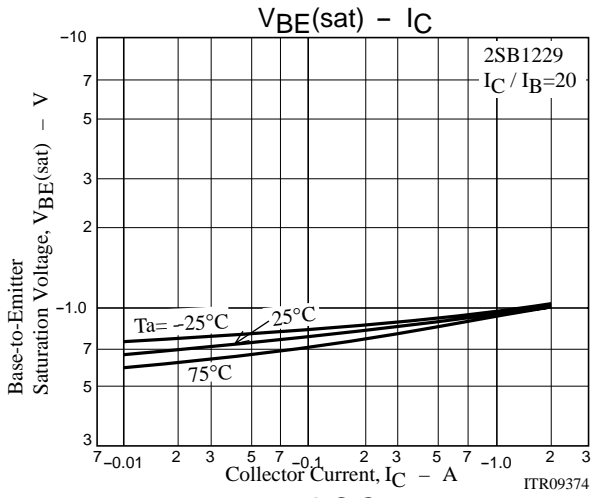
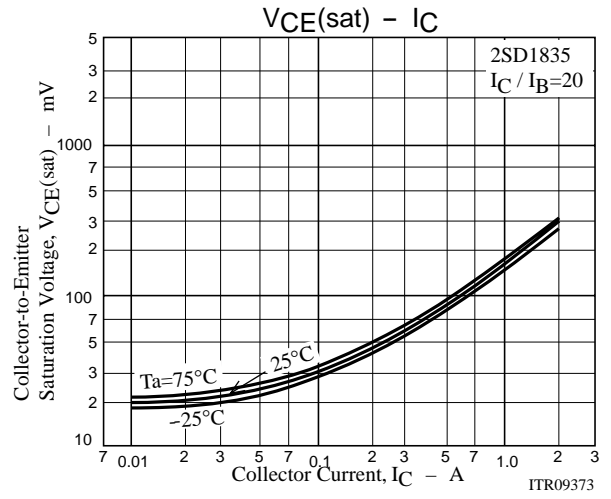
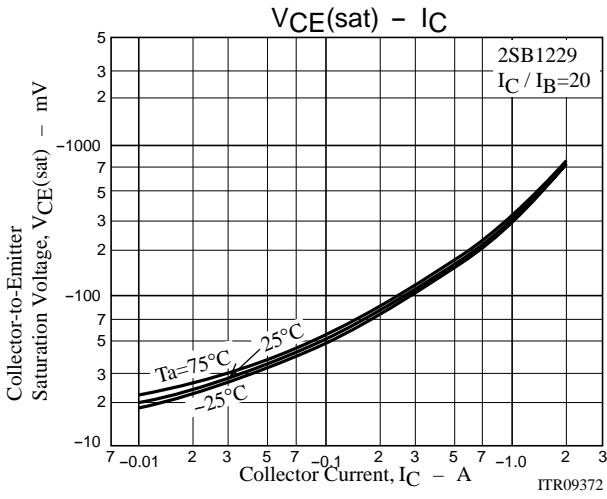
$I_C=10I_{B1} = -10I_{B2}=500mA, V_{CC}=25V$
(For PNP, the polarity is reversed.)



2SB1229/2SD1835



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