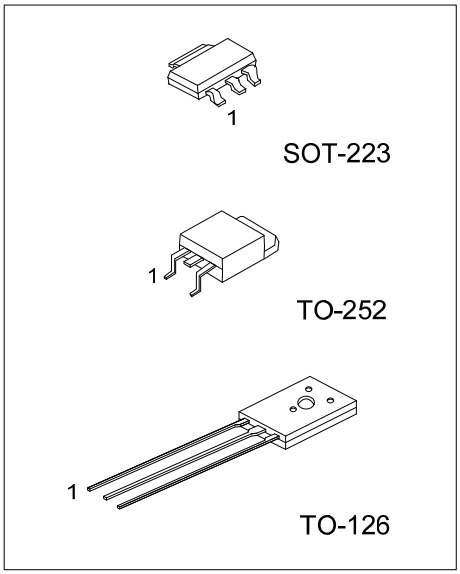
# 2SB1151

**PNP SILICON TRANSISTOR**

## LOW COLLECTOR SATURATION VOLTAGE LARGE CURRENT




## ■ FEATURES

*High Power Dissipation
*Complementary to 2SD1691

## ■ ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|---|---|---|---|---|---|---|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| - | 2SB1151G-x-AA3-R | SOT-223 | E | C | B | Tape Reel |
| 2SB1151L-x-T60-K | 2SB1151G-x-T60-K | TO-126 | E | C | B | Bulk |
| 2SB1151L-x-TN3-R | 2SB1151G-x-TN3-R | TO-252 | B | C | E | Tape Reel |

Note: Pin Assignment: E: Emitter C: Collector B: Base

| | |
|---|---|
| 2SB1511G-x-AA3-R<br>(1)Packing Type<br>(2)Package Type<br>(3)Rank<br>(4)Green Package | (1) K: Bulk, R: Tape Reel<br>(2) AA3: SOT-223, T60: TO-126, TN3: TO-252<br>(3) x: refer to Classification of $h_{FE2}$<br>(4) G: Halogen Free and Lead Free, L: Lead Free |

## ■ MARKING

| PACKAGE | MARKING |
|---|---|
| SOT-223 | 2SB1151G □□□□ Data Code<br>1 |
| TO-126 | UTC □□□□<br>2SB1151□ Data Code<br>L: Lead Free<br>G: Halogen Free<br>1 |
| TO-252 | UTC<br>2SB1151□<br>□□□□□□ L: Lead Free<br>G: Halogen Free<br>Lot Code Data Code<br>1 |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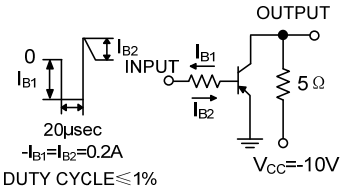
## ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|---|---|---|---|---|
| Collector-Base Voltage | | $V_{CBO}$ | -60 | V |
| Collector-Emitter Voltage | | $V_{CEO}$ | -60 | V |
| Emitter-Base Voltage | | $V_{EBO}$ | -7 | V |
| Collector Current | DC | $I_C$ | -5 | A |
| | Pulse(Note 2) | $I_{CP}$ | -8 | A |
| Base Current | | $I_B$ | -1 | A |
| Power Dissipation (Ta=25°C) | SOT-223 | $P_D$ | 1 | W |
| | TO-126 | | 1.5 | W |
| | TO-252 | | 2 | W |
| Junction Temperature | | $T_J$ | +150 | °C |
| Storage Temperature | | $T_{STG}$ | -55 ~ +150 | °C |

Note 1.Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2.PW≤10ms, Duty Cycle≤50%

## ■ ELECTRICAL CHARACTERISTICS (Ta=25℃, unless otherwise specified)

| PARAMETER | | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| Collector-Base Voltage | | $BV_{CBO}$ | $I_C$=-100uA, $I_E$=0 | -60 | | | V |
| Collector-Emitter Voltage | | $BV_{CEO}$ | $I_C$=-1mA, $I_B$=0 | -60 | | | V |
| Emitter-Base Voltage | | $BV_{EBO}$ | $I_E$=-100uA, Ic=0 | -7 | | | V |
| Collector Cut-off Current | | $I_{CBO}$ | $V_{CB}$=-50V, $I_E$=0 | | | -10 | μA |
| Emitter Cut-off Current | | $I_{EBO}$ | $V_{EB}$=-7V, $I_C$=0 | | | -10 | μA |
| Collector-Emitter Saturation Voltage | | $V_{CE(SAT)}$ | $I_C$=-2A, $I_B$=-0.2A | | -0.14 | -0.3 | V |
| Base-Emitter Saturation Voltage | | $V_{BE(SAT)}$ | $I_C$=-2A, $I_B$=-0.2A | | -0.9 | -1.2 | V |
| DC Current Gain | | $h_{FE\ 1}$ | $V_{CE}$=-1V, $I_C$=-0.1A | 60 | | | |
| | | $h_{FE\ 2}$ | $V_{CE}$=-1V, $I_C$=-2A | 160 | | 400 | |
| | | $h_{FE\ 3}$ | $V_{CE}$=-2V, $I_C$=-5A | 50 | | | |
| Switching Time | Turn On Time | $t_{ON}$ |  | | 0.15 | 1 | μS |
| | Storage Time | $t_{STG}$ | | | 0.78 | 2.5 | μS |
| | Fall Time | $t_F$ | | | 0.18 | 1 | μS |



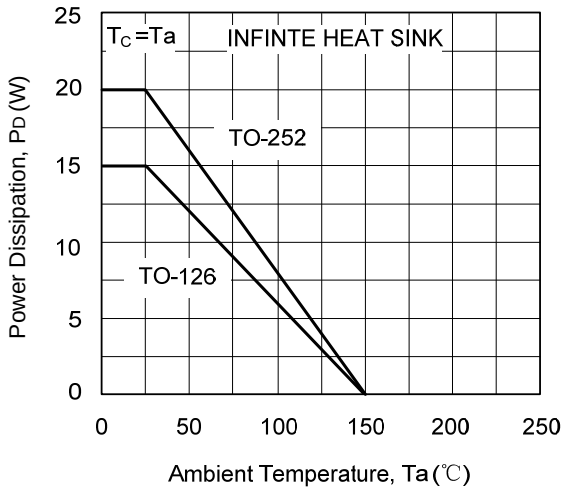
Pulse test : PW≤350 μS, Duty Cycle≤2% Pulse

## ■ CLASSIFICATION OF $h_{FE2}$

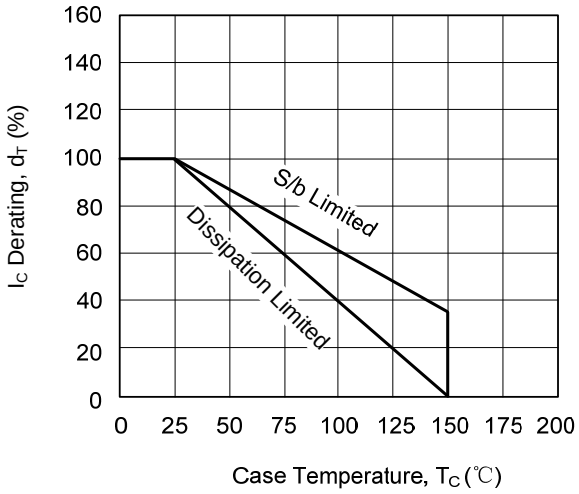
| RANK | O | Y |
|---|---|---|
| RANGE | 160 ~ 320 | 200 ~ 400 |

## ■ TYPICAL CHARACTERISTICS

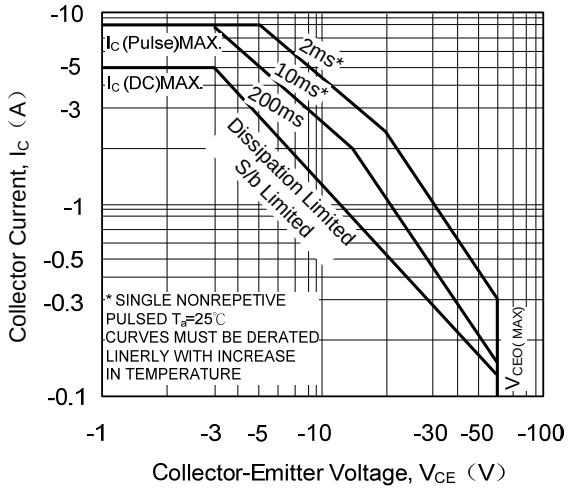
Power Dissipation vs. Ambient Temperature



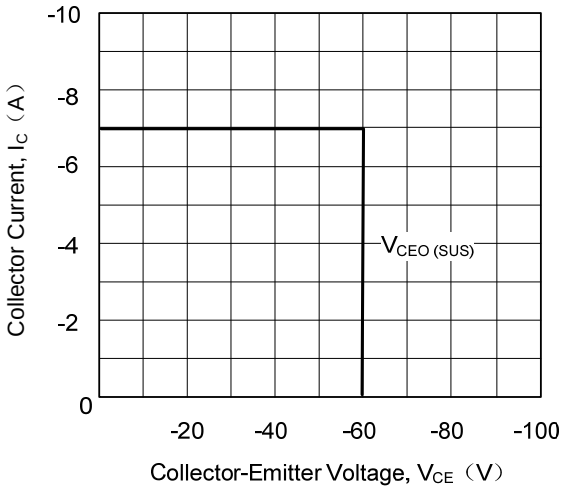

$I_C$ Derating vs. Case Temperature



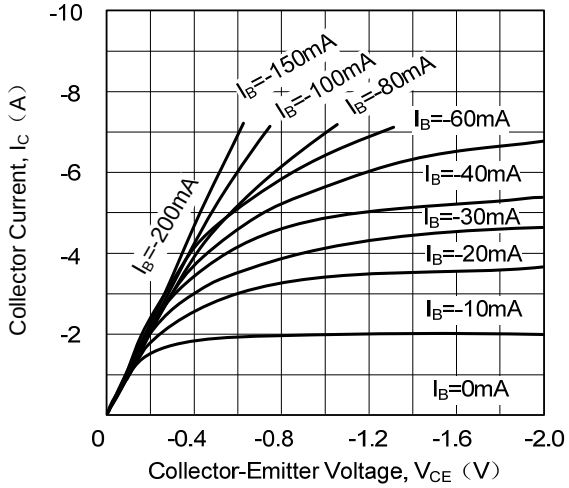

Safe Oerating Area



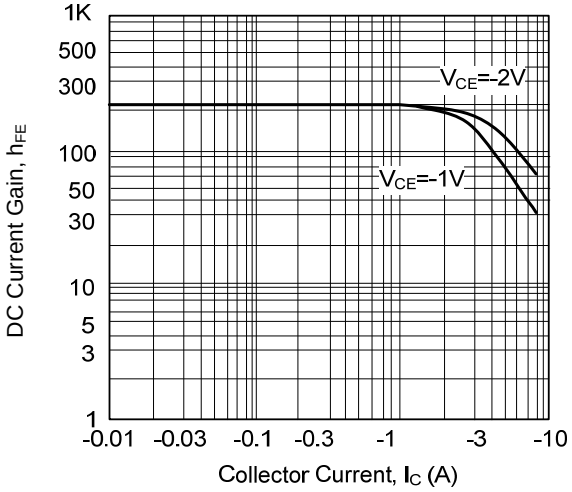

Reverse Bias Safe Operating Area




Collector Current vs. Collector-Emitter Voltage




DC Current Gain vs. Collector Current



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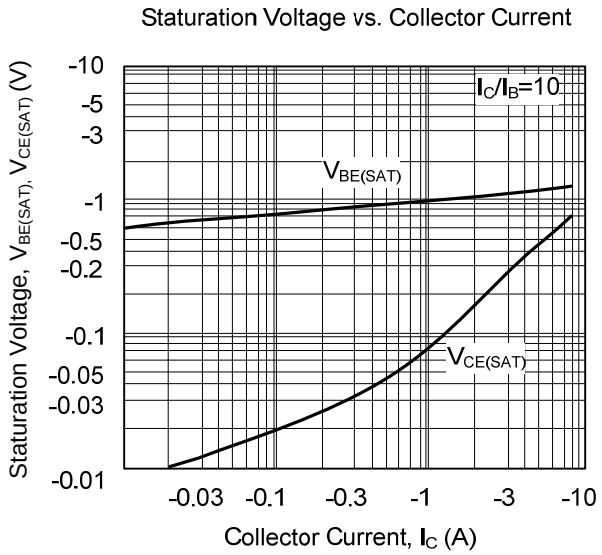


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