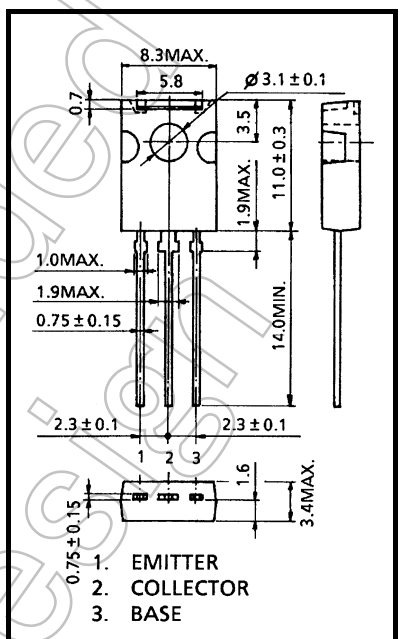
TOSHIBA Transistor Silicon PNP Epitaxial Type (Darlington Power Transistor)

# 2SB1067

Industrial Applications

Micro-Moter Drive, Hammer Drive Applications
Switching Applications
Power Amplifier Applications

Unit: mm




| | |
|---|---|
| JEDEC | — |
| JEITA | — |
| TOSHIBA | 2-8H1A |

Weight: 0.82 g (typ.)

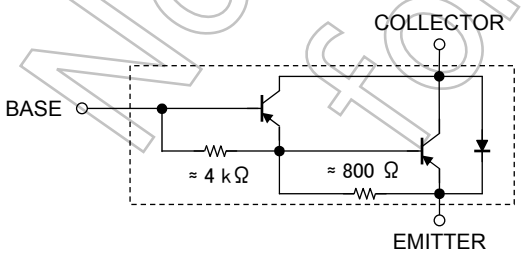
- High DC current gain: $h_{FE}$ = 2000 (min) ($V_{CE}$ = −2 V, $I_C$ = −1 A)
- Low saturation voltage: $V_{CE\ (sat)}$ = −1.5 V (max)
  ($I_C$ = −1 A, $I_B$ = −1 mA)

## Absolute Maximum Ratings (Ta = 25°C)

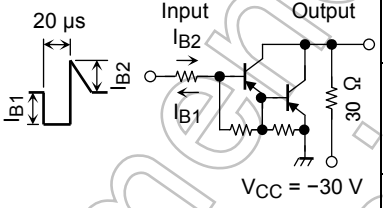
| Characteristics | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Collector-base voltage | | $V_{CBO}$ | −80 | V |
| Collector-emitter voltage | | $V_{CEO}$ | −80 | V |
| Emitter-base voltage | | $V_{EBO}$ | −8 | V |
| Collector current | | $I_C$ | −2 | A |
| Base current | | $I_B$ | −0.5 | A |
| Collector power dissipation | Ta = 25°C | $P_C$ | 1.5 | W |
| | Tc = 25°C | | 10 | |
| Junction temperature | | $T_j$ | 150 | °C |
| Storage temperature range | | $T_{stg}$ | −55 to 150 | °C |

Note1: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook (“Handling Precautions”/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

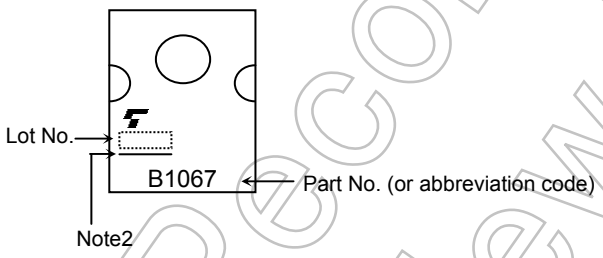
## Equivalent Circuit



## Electrical Characteristics (Ta = 25°C)

| Characteristics | | Symbol | Test Condition | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|---|
| Collector cut-off current | | $I_{CBO}$ | $V_{CB}$ = −80 V, $I_E$ = 0 | — | — | −10 | μA |
| Emitter cut-off current | | $I_{EBO}$ | $V_{EB}$ = −8 V, $I_C$ = 0 | — | — | −4 | mA |
| Collector-emitte breakdown voltage | | $V_{(BR)\ CEO}$ | $I_C$ = −10 mA, $I_B$ = 0 | −80 | — | — | V |
| DC current gain | | $h_{FE}$ | $V_{CE}$ = −2 V, $I_C$ = −1 A | 2000 | — | — | |
| Collector-emitter saturation voltage | | $V_{CE\ (sat)}$ | $I_C$ = −1 A, $I_B$ = −1 mA | — | — | −1.5 | V |
| Base-emitter saturation voltage | | $V_{BE\ (sat)}$ | $I_C$ = −1 A, $I_B$ = −1 mA | — | — | −2.0 | V |
| Transition frequency | | $f_T$ | $V_{CE}$ = −2 V, $I_C$ = −0.5 A | — | 50 | — | MHz |
| Collector output capacitance | | $C_{ob}$ | $V_{CB}$ = −10 V, $I_E$ = 0, f = 1 MHz | — | 30 | — | pF |
| Switching time | Turn-on time | $t_{on}$ |  $I_{B1}$ = 1 mA, $I_{B2}$ = 1 mA<br>duty cycle ≤ 1% | — | 0.4 | — | μs |
| | Storage time | $t_{stg}$ | | — | 2.0 | — | |
| | Fall time | $t_f$ | | — | 0.4 | — | |

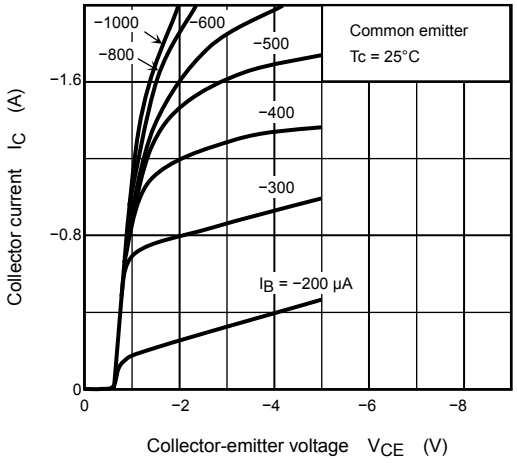
## Marking



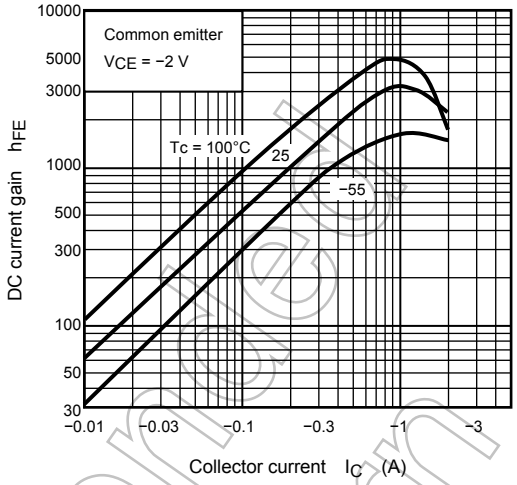

Note2: A line under a Lot No. identifies the indication of product Labels.
Not underlined: [[Pb]]/INCLUDES > MCV
Underlined: [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

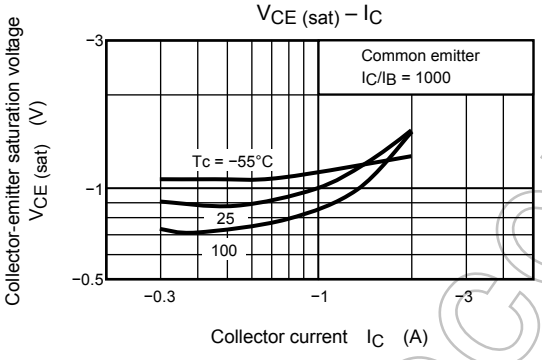
$I_C - V_{CE}$



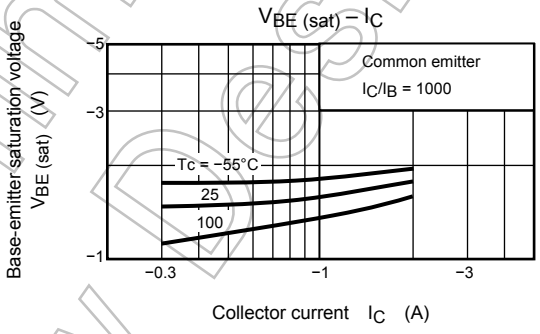

$h_{FE} - I_C$



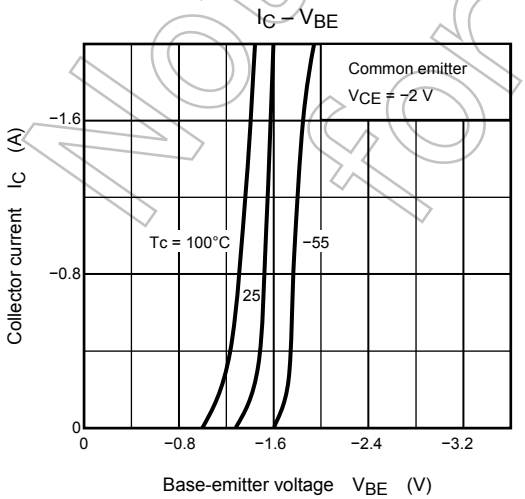

$V_{CE\ (sat)} - I_C$



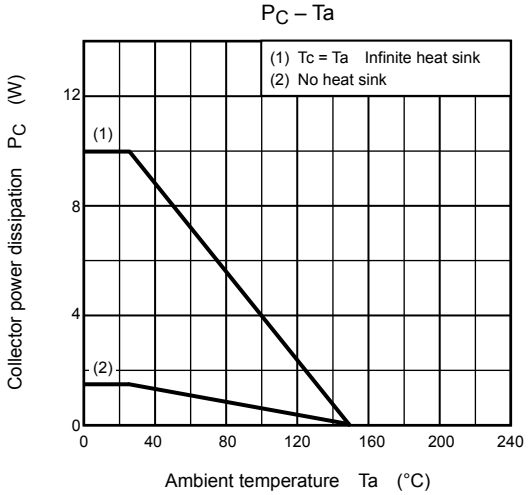

$V_{BE\ (sat)} - I_C$



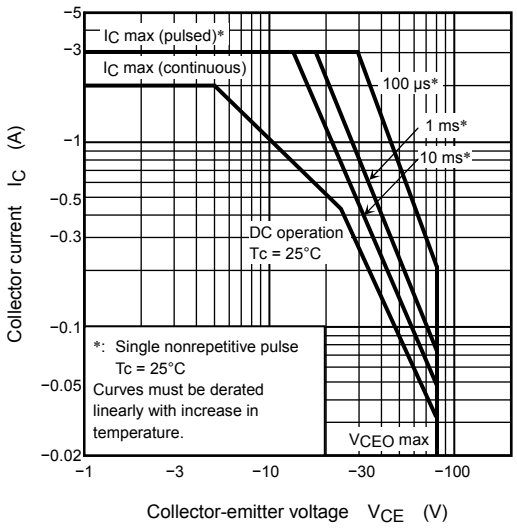

$I_C - V_{BE}$




$P_C - Ta$



Safe Operating Area



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