

# Medium Power Transistor (-32V, -1A)

2SB1132 / 2SA1515S / 2SB1237

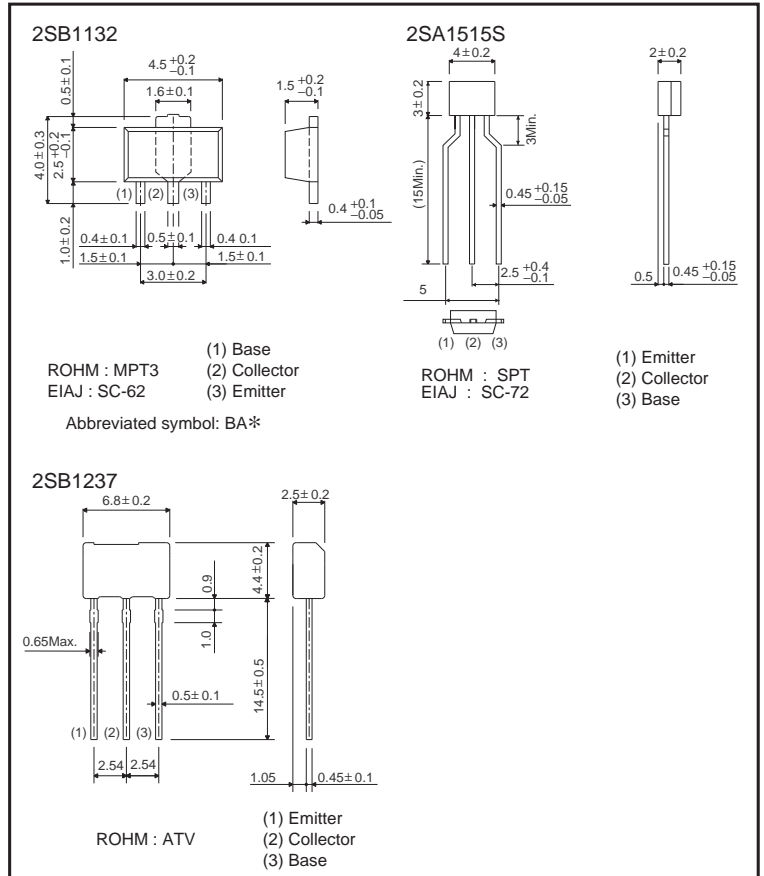
●Features

- 1) Low  $V_{CE(sat)}$ .  
 $V_{CE(sat)} = -0.2V(Typ.)$   
( $I_C / I_B = -500mA / -50mA$ )
- 2) Compliments 2SD1664 /  
2SD1858

●Structure

Epitaxial planar type  
PNP silicon transistor

●Dimensions (Unit : mm)



\* Denotes  $h_{FE}$

## ●Absolute maximum ratings (Ta=25°C)

| Parameter                   | Symbol           | Limits      | Unit        |
|-----------------------------|------------------|-------------|-------------|
| Collector-base voltage      | V <sub>CB0</sub> | -40         | V           |
| Collector-emitter voltage   | V <sub>CE0</sub> | -32         | V           |
| Emitter-base voltage        | V <sub>EB0</sub> | -5          | V           |
| Collector current           | I <sub>c</sub>   | -1          | A(DC)       |
|                             |                  | -2          | A(Pulse) *1 |
| Collector power dissipation | P <sub>c</sub>   | 0.5         | W *2        |
|                             |                  | 2           |             |
|                             |                  | 0.3         |             |
|                             | 2SB1237          | 1           | *3          |
| Junction temperature        | T <sub>j</sub>   | 150         | °C          |
| Storage temperature         | T <sub>stg</sub> | -55 to +150 | °C          |

\*1 Single pulse, P<sub>w</sub>=100ms

\*2 When mounted on a 40×40×0.7 mm ceramic board.

\*3 Printed circuit board, 1.7 mm thick, collector copper plating 100mm<sup>2</sup> or larger.

## ●Electrical characteristics (Ta=25°C)

| Parameter                            | Symbol               | Min.            | Typ. | Max. | Unit | Conditions   |   |
|--------------------------------------|----------------------|-----------------|------|------|------|--|---|
| Collector-base breakdown voltage     | BV <sub>CB0</sub>    | -40             | -    | -    | V    | I <sub>c</sub> = -50μA                               |   |
| Collector-emitter breakdown voltage  | BV <sub>CE0</sub>    | -32             | -    | -    | V    | I <sub>c</sub> = -1mA                                |   |
| Emitter-base breakdown voltage       | BV <sub>EB0</sub>    | -5              | -    | -    | V    | I <sub>E</sub> = -50μA                               |   |
| Collector cutoff current             | I <sub>CB0</sub>     | -               | -    | -0.5 | μA   | V <sub>CB</sub> = -20V                               |   |
| Emitter cutoff current               | I <sub>EB0</sub>     | -               | -    | -0.5 | μA   | V <sub>EB</sub> = -4V                                |   |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | -               | -0.2 | -0.5 | V    | I <sub>c</sub> /I <sub>B</sub> = -500mA/-50mA *      |   |
| DC current transfer ratio            | 2SB1132, 2SB1237     | h <sub>FE</sub> | 120  | -    | 390  | -  | V <sub>CE</sub> = -3V, I <sub>c</sub> = -0.1A * |
|                                      | 2SA1515S             |                 | 120  | -    | 390  | -  |   |
| Transition frequency                 | f <sub>t</sub>       | -               | 150  | -    | MHz  | V <sub>CE</sub> = -5V, I <sub>E</sub> =50mA, f=30MHz |   |
| Output capacitance                   | C <sub>ob</sub>      | -               | 20   | 30   | pF   | V <sub>CB</sub> = -10V, I <sub>E</sub> =0A, f=1MHz   |   |

\* Measured using pulse current.

●Packaging specifications and h<sub>FE</sub>

| Type     | h <sub>FE</sub> | Package                      | Taping |      |      |
|----------|-----------------|------------------------------|--------|------|------|
|          |                 | Code                         | T100   | TP   | TU2  |
|          |                 | Basic ordering unit (pieces) | 1000   | 5000 | 2500 |
| 2SB1132  | QR              |                              | ○      | -    | -    |
| 2SA1515S | QR              |                              | -      | ○    | -    |
| 2SB1237  | QR              |                              | -      | -    | ○    |

h<sub>FE</sub> values are classified as follows :

| Item            | Q          | R          |
|-----------------|------------|------------|
| h <sub>FE</sub> | 120 to 270 | 180 to 390 |

●Electrical characteristics curves

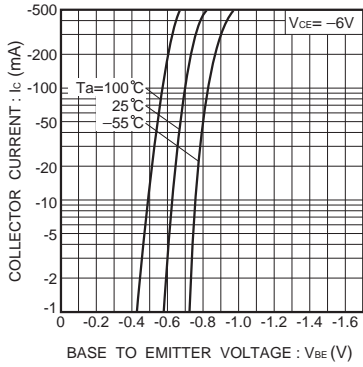


Fig.1 Grounded emitter propagation characteristics

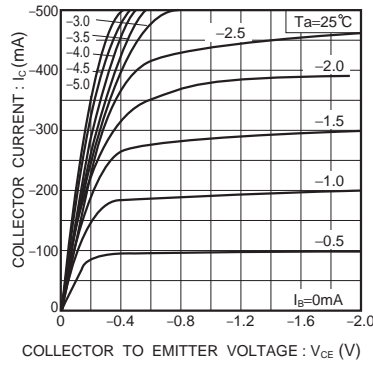


Fig.2 Grounded emitter output characteristics

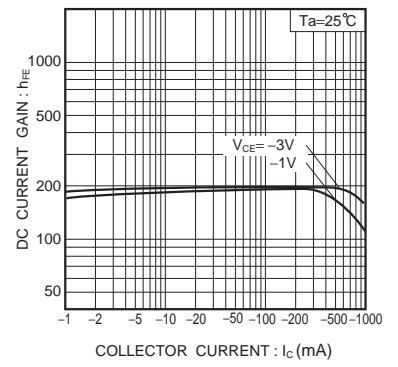


Fig.3 DC current gain vs. collector current(I)

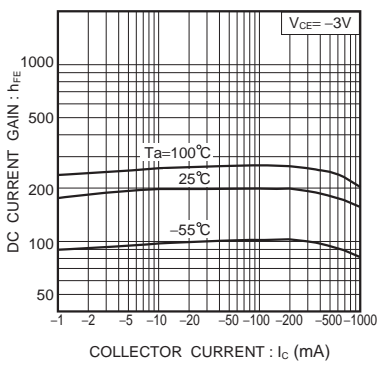


Fig.4 DC current gain vs. collector current(II)

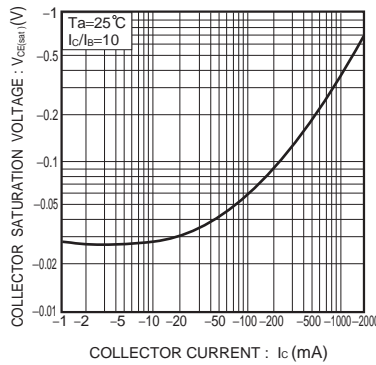


Fig.5 Collector-emitter saturation voltage vs. collector current

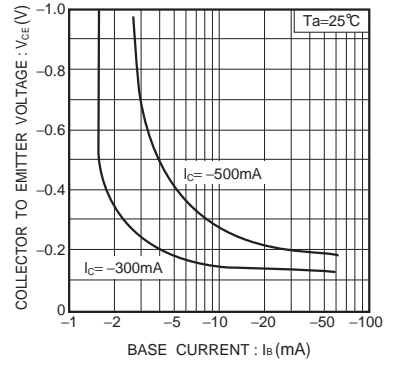


Fig.6 Collector-emitter saturation voltage vs. base current

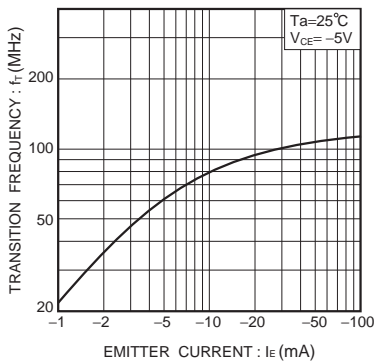


Fig.7 Gain bandwidth product vs. emitter current

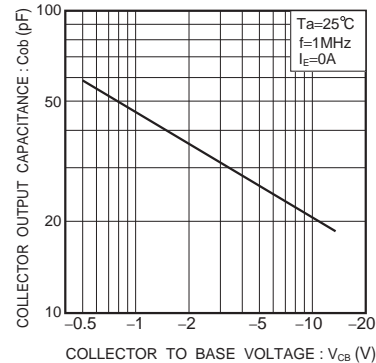


Fig.8 Collector output capacitance vs. collector-base voltage

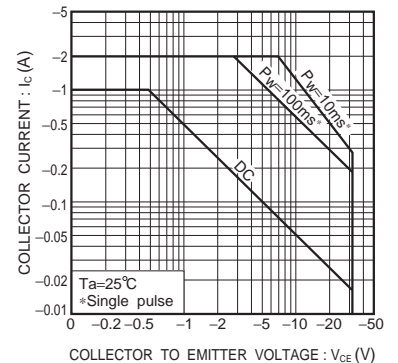


Fig.9 Safe operation area (2SB1132)

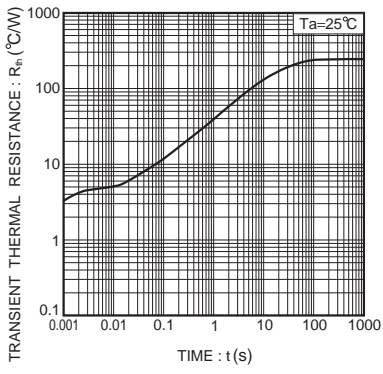


Fig.10 Transient thermal resistance (2SB1132)

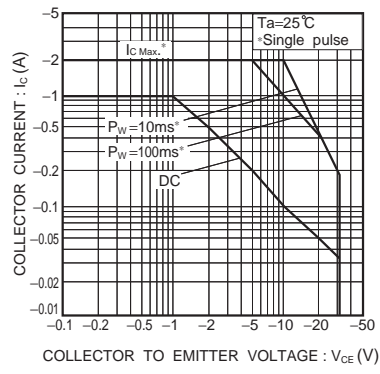


Fig.11 Safe operation area (2SB1237)

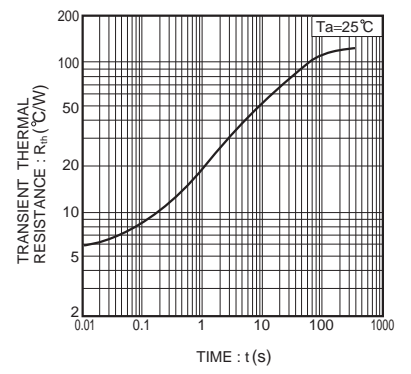


Fig.12 Transient thermal resistance (2SB1237)

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