

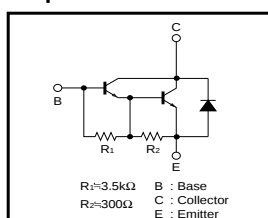
# Power Transistor (100V, 2A)

## 2SD2195 / 2SD1980 / 2SD1867

### ●Features

- 1) Darlington connection for high DC current gain.
- 2) Built-in resistor between base and emitter.
- 3) Built-in damper diode.
- 4) Complements the 2SB1580 / 2SB1316.

### ●Equivalent circuit



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

| Parameter                   |         | Symbol | Limits      | Unit       |
|-----------------------------|---------|--------|-------------|------------|
| Collector-base voltage      |         | VCBO   | 100         | V          |
| Collector-emitter voltage   |         | VCEO   | 100         | V          |
| Emitter-base voltage        |         | VEBO   | 6           | V          |
| Collector current           |         | IC     | 2           | A(DC)      |
|                             |         |        | 3 *1        | A(Pulse)   |
| Collector power dissipation | 2SD2195 | PC     | 0.5         | W          |
|                             |         |        | 2 *2        |            |
|                             | 2SD1980 |        | 1           | W(Tc=25°C) |
|                             |         |        | 10          |            |
|                             | 2SD1867 |        | 1 *3        | W          |
| Junction temperature        |         | Tj     | 150         | °C         |
| Storage temperature         |         | Tstg   | -55 to +150 | °C         |

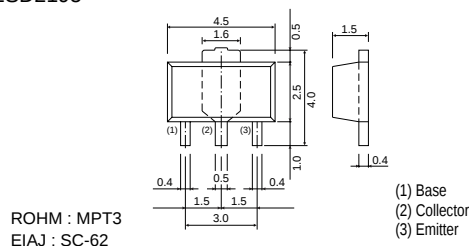
\*1 Single pulse Pw=100ms

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

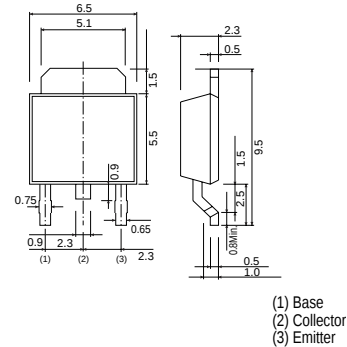
\*3 Printed circuit board, 1.7mm thick, collector plating 100mm<sup>2</sup> or larger.

### ●External dimensions (Unit : mm)

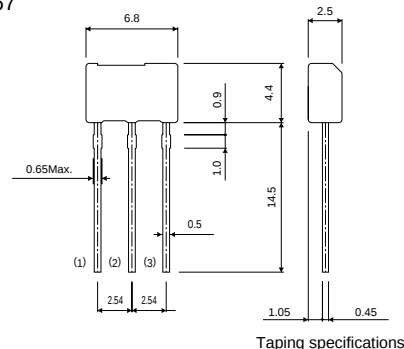
#### 2SD2195



#### 2SD1980



#### 2SD1867



ROHM : ATV

## Transistors

●Packaging specifications and  $h_{FE}$ 

| Type                         | 2SD2195   | 2SD1980   | 2SD1867   |
|------------------------------|-----------|-----------|-----------|
| Package                      | MPT3      | CPT3      | ATV       |
| $h_{FE}$                     | 1k to 10k | 1k to 10k | 1k to 10k |
| Marking                      | DP        | —         | —         |
| Code                         | T100      | TL        | TV2       |
| Basic ordering unit (pieces) | 1000      | 2500      | 2500      |

\* Denotes  $h_{FE}$ ●Electrical characteristics ( $T_a=25^\circ\text{C}$ )

| Parameter                            | Symbol        | Min. | Typ. | Max.  | Unit          | Conditions                                                       |
|--------------------------------------|---------------|------|------|-------|---------------|------------------------------------------------------------------|
| Collector-base breakdown voltage     | $BV_{CBO}$    | 100  | —    | —     | V             | $I_C = 50\mu\text{A}$                                            |
| Collector-emitter breakdown voltage  | $BV_{CEO}$    | 100  | —    | —     | V             | $I_C = 5\text{mA}$                                               |
| Emitter-base breakdown voltage       | $BV_{EBO}$    | 6    | —    | —     | V             | $I_E = 5\text{mA}$                                               |
| Collector cutoff current             | $I_{CBO}$     | —    | —    | 10    | $\mu\text{A}$ | $V_{CB} = 100\text{V}$                                           |
| Emitter cutoff current               | $I_{EBO}$     | —    | —    | 3     | mA            | $V_{EB} = 5\text{V}$                                             |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | —    | —    | 1.5   | V             | $I_C = 1\text{A}$ , $I_B = 1\text{mA}$ *                         |
| Base-Emitter saturation voltage      | $V_{BE(sat)}$ | —    | —    | 2.0   | V             | $I_C/I_B = 1\text{A}/1\text{mA}$                                 |
| DC current transfer ratio            | $h_{FE}$      | 1000 | —    | 10000 | —             | $V_{CE} = 2\text{V}$ , $I_C = 1\text{A}$ *                       |
| Transition frequency                 | $f_T$         | —    | 80   | —     | MHz           | $V_{CE} = 5\text{V}$ , $I_E = -0.1\text{A}$ , $f = 30\text{MHz}$ |
| Output capacitance                   | $C_{ob}$      | —    | 25   | —     | pF            | $V_{CB} = 10\text{V}$ , $I_E = 0\text{A}$ , $f = 1\text{MHz}$    |

\* Measured using pulse current.

## ●Electrical characteristic curves

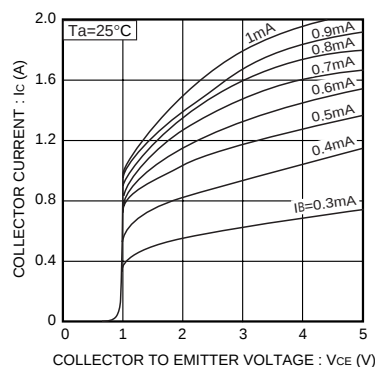


Fig.1 Grounded emitter output characteristics

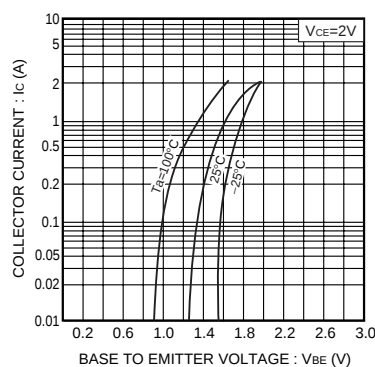


Fig.2 Grounded emitter propagation characteristics

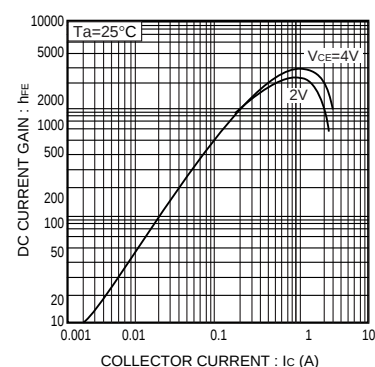


Fig.3 DC current gain vs. collector current

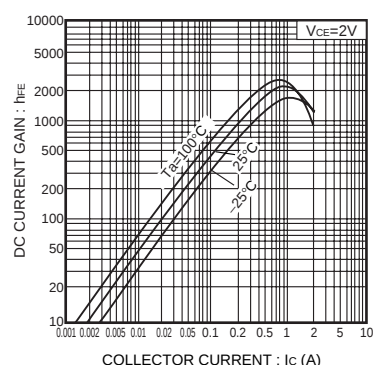


Fig.4 DC current gain vs. collector current

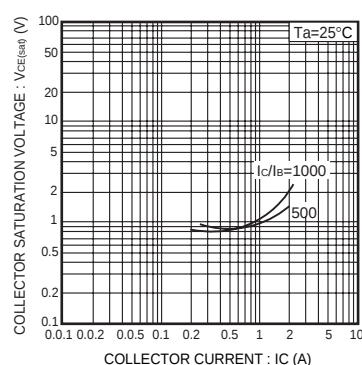


Fig.5 Collector-emitter saturation voltage vs. collector current

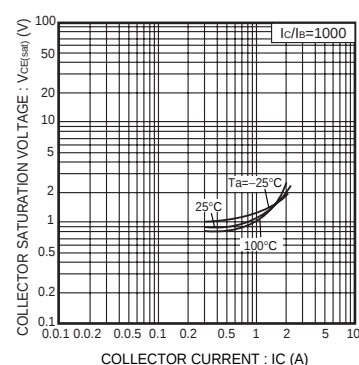


Fig.6 Collector-emitter saturation voltage vs. collector current

Transistors

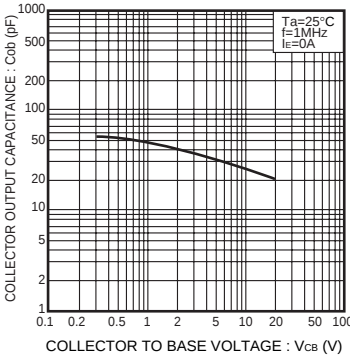


Fig.7 Collector output capacitance vs. collector-base voltage

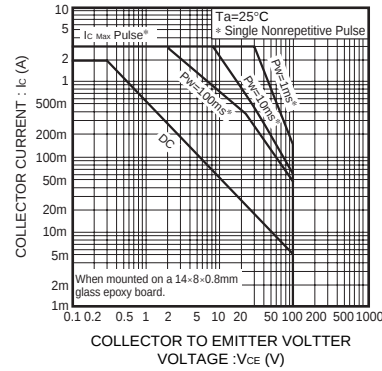


Fig.8 Safe operating area (2SD2195)

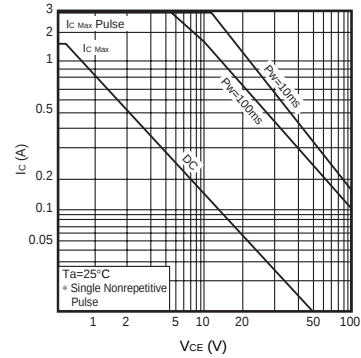


Fig.9 Safe operating area(2SD1867)

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