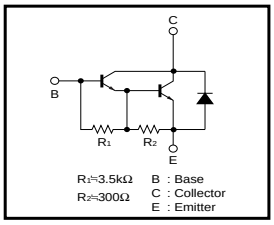
# Power Transistor (100V, 2A)
## 2SD2195 / 2SD1980 / 2SD1867

### ●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



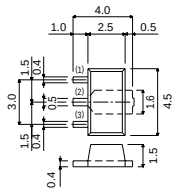

### ●Absolute maximum ratings (Ta=25°C)

| 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 100mm² or larger.

### ●External dimensions (Unit : mm)

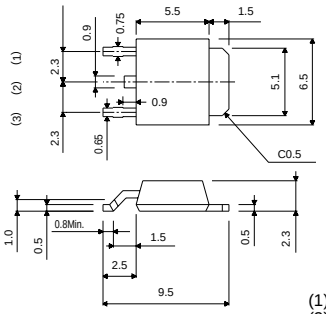
2SD2195




ROHM : MPT3
EIAJ : SC-62

(1) Base
(2) Collector
(3) Emitter

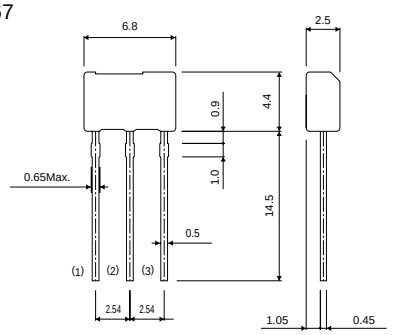
2SD1980




ROHM : CPT3
EIAJ : SC-63

(1) Base
(2) Collector
(3) Emitter

2SD1867




Taping specifications

ROHM : ATV

(1) Emitter
(2) Collector
(3) Base

## ●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 (Ta=25°C)

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

∗Measured using pulse current.

## ●Electrical characteristic curves

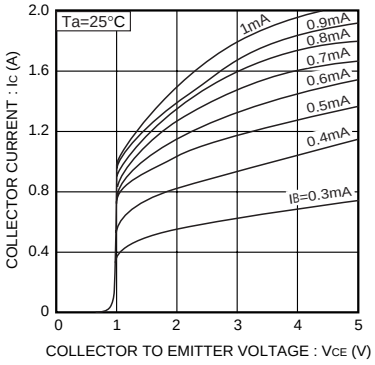



Fig.1 Grounded emitter output characteristics

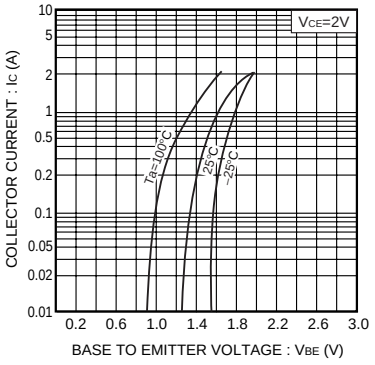



Fig.2 Grounded emitter propagation characteristics

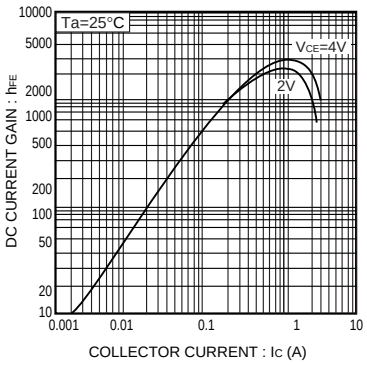



Fig.3 DC current gain vs. collector current

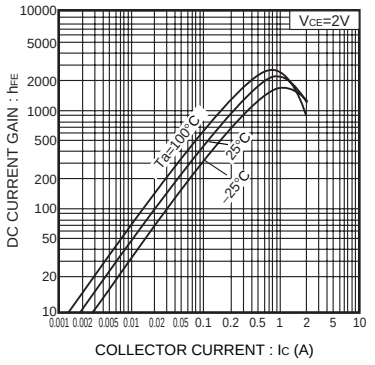



Fig.4 DC current gain vs. collector current

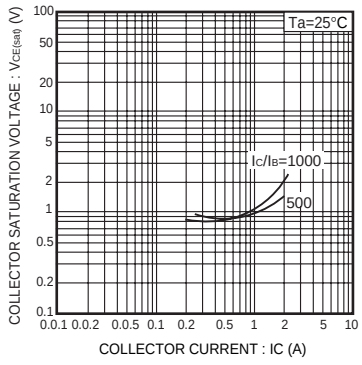



Fig.5 Collector-emitter saturation voltage vs.collector current

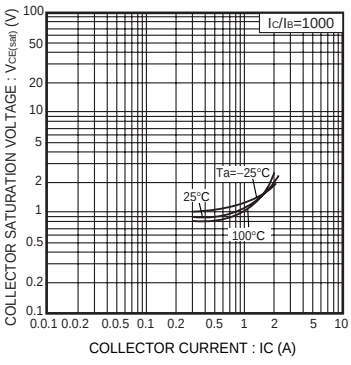



Fig.6 Collector-emitter saturation voltage vs.collector current

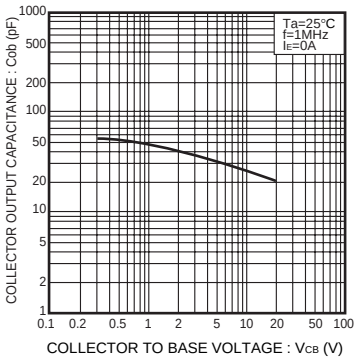



Fig.7 Collector output capacitance vs. collector-base voltage

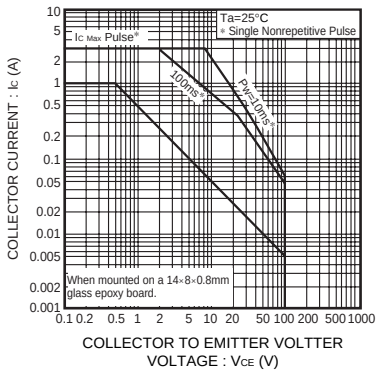



Fig.8 Safe operating area(2SD2195)

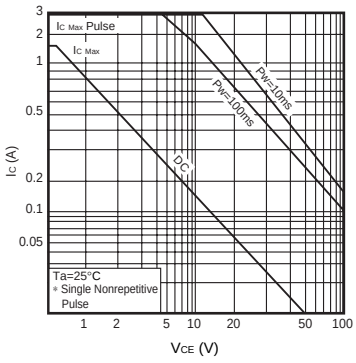



Fig.9 Safe operating area(2SD1867)

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