# Medium power transistor (80V, 0.7A)

## 2SD1767 / 2SD1859

### ●Features

1) High breakdown voltage, $BV_{CEO}$=80V, and high current, $I_C$=0.7A.
2) Complements the 2SB1189 / 2SB1238.

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

| Parameter | | Symbol | Limits | Unit |
|---|---|---|---|---|
| Collector-base voltage | | $V_{CBO}$ | 80 | V |
| Collector-emitter voltage | | $V_{CEO}$ | 80 | V |
| Emitter-base voltage | | $V_{EBO}$ | 5 | V |
| Collector current | | $I_C$ | 0.7 | A(DC) |
| | | $I_{CP}$ | 1 | A(Pulse) *1 |
| Collector power dissipation | 2SD1767 | $P_C$ | 0.5 | W |
| | | | 2 *2 | |
| | 2SD1859 | | 1 *3 | |
| Junction temperature | | Tj | 150 | °C |
| Storage temperature | | Tstg | −55 to +150 | °C |

*1 Pw=10ms, duty=1/2
*2 When mounted on a 40×40×0.7 mm ceramic board.
*3 Printed circuit board 1.7 mm thick, collector plating 1cm² or larger.

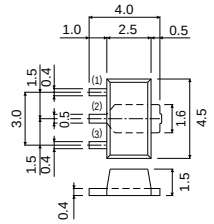
### ●Packaging specifications and $h_{FE}$

| Type | 2SD1767 | 2SD1859 |
|---|---|---|
| Package | MPT3 | ATV |
| $h_{FE}$ | PQR | QR |
| Marking | DC* | – |
| Code | T100 | TV2 |
| Basic ordering unit (pieces) | 1000 | 2500 |

*Denotes $h_{FE}$

### ●External dimensions (Unit : mm)

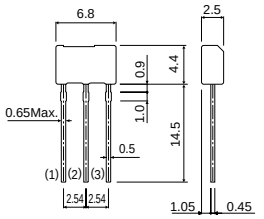
2SD1767




ROHM : MPT3
EIAJ : SC-62

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

2SD1859




Taping specifications

ROHM : ATV

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

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $BV_{CBO}$ | 80 | – | – | V | $I_C$=50μA |
| Collector-emitter breakdown voltage | $BV_{CEO}$ | 80 | – | – | V | $I_C$=2mA |
| Emitter-base breakdown voltage | $BV_{EBO}$ | 5 | – | – | V | $I_E$=50μA |
| Collector cutoff current | $I_{CBO}$ | – | – | 0.5 | μA | $V_{CB}$=50V |
| Emitter cutoff current | $I_{EBO}$ | – | – | 0.5 | μA | $V_{EB}$=4V |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | – | 0.2 | 0.4 | V | $I_C/I_B$=500mA/50mA |
| DC current transfer ratio | $h_{FE}$ | 120 | – | 390 | – | $V_{CE}/I_C$=3V/0.1A |
| Transition frequency | $f_T$ | – | 120 | – | MHz | $V_{CE}$=10V, $I_E$=−50mA, f=100MHz |
| Output capacitance | Cob | – | 10 | – | pF | $V_{CB}$=10V, $I_E$=0A, f=1MHz |

## ●Electrical characteristics curves

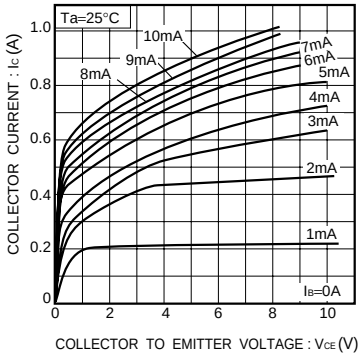



Fig.1 Ground emitter output characteristics

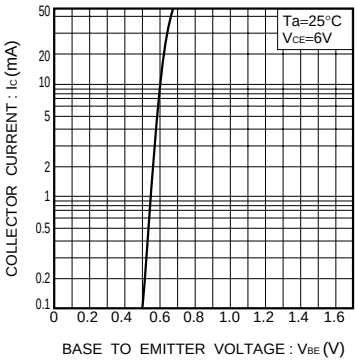



Fig.2 Ground emitter propagetion characteristics

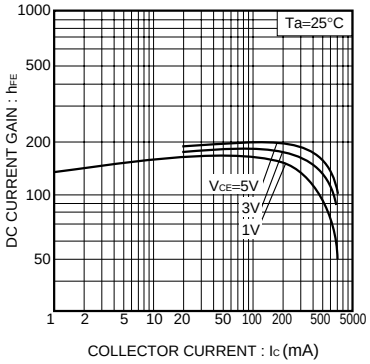



Fig.3 DC current gain vs. collector current

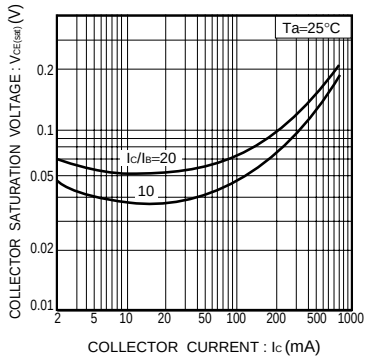



Fig.4 Collector-emitter saturation voltage vs. collector current

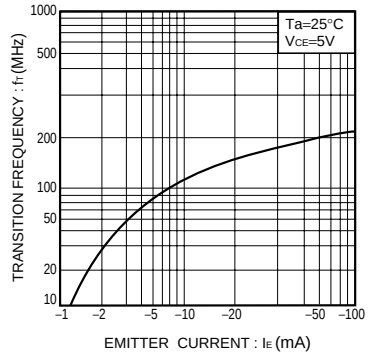



Fig.5 Resistance raito vs. emitter current

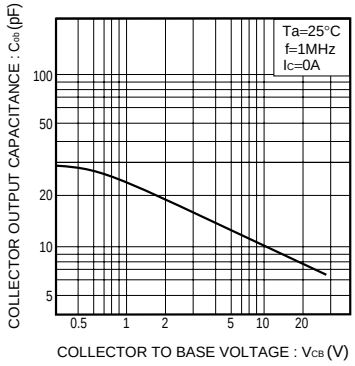



Fig.6 Collector output capacitance vs. collector-base voltage

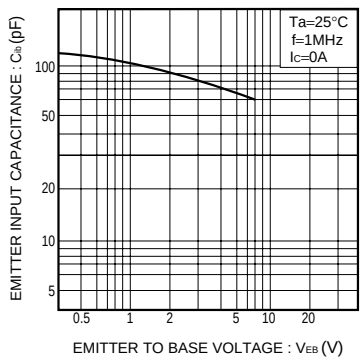



Fig.7 Emitter input capacitance vs. emitter-base voltage

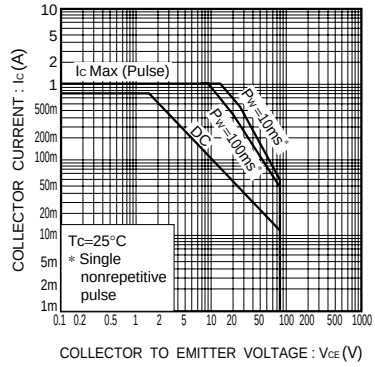



Fig.8 Safe operating area (2SD1859)

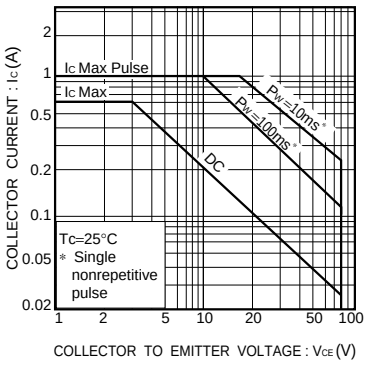



Fig.9 Safe operating area (2SD1767)

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