

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 | Pc | 0.5 | W |
| | | 2 *2 | |
| | | 1 *3 | |
| Junction temperature | Tj | 150 | °C |
| Storage temperature | Tstg | -55 to +150 | °C |

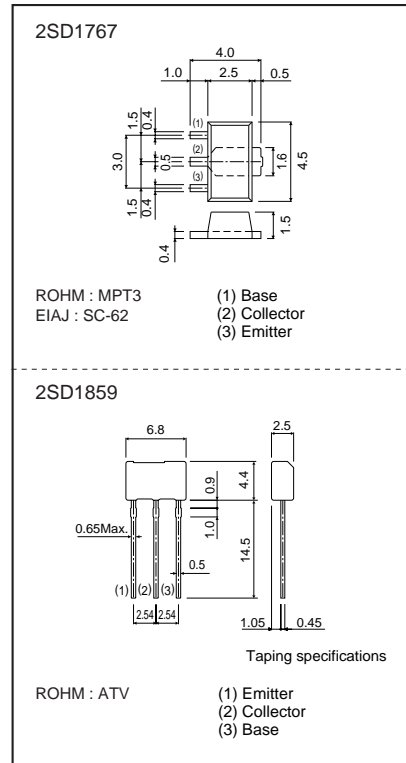
*1 $P_w=10ms$, duty=1/2
 *2 When mounted on a 40×40×0.7 mm ceramic board.
 *3 Printed circuit board 1.7 mm thick, collector plating 1cm² or larger.

●Packaging specifications and hFE

| Type | 2SD1767 | 2SD1859 |
|------------------------------|---------|---------|
| Package | MPT3 | ATV |
| hFE | PQR | QR |
| Marking | DC* | - |
| Code | T100 | TV2 |
| Basic ordering unit (pieces) | 1000 | 2500 |

*Denotes hFE

●External dimensions (Unit : mm)



●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|---------------|------|------|------|---------|----------------------------------|
| Collector-base breakdown voltage | BV_{CBO} | 80 | - | - | V | $I_c=50\mu A$ |
| Collector-emitter breakdown voltage | BV_{CEO} | 80 | - | - | V | $I_c=2mA$ |
| Emitter-base breakdown voltage | BV_{EBO} | 5 | - | - | V | $I_E=50\mu A$ |
| 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 | $I_c/I_E=500mA/50mA$ |
| DC current transfer ratio | hFE | 120 | - | 390 | - | $V_{CE}/I_c=3V/0.1A$ |
| Transition frequency | fr | - | 120 | - | MHz | $V_{CE}=10V, I_E=50mA, f=100MHz$ |
| Output capacitance | Cob | - | 10 | - | pF | $V_{CB}=10V, I_E=0A, f=1MHz$ |

Transistors

●Electrical characteristics curves

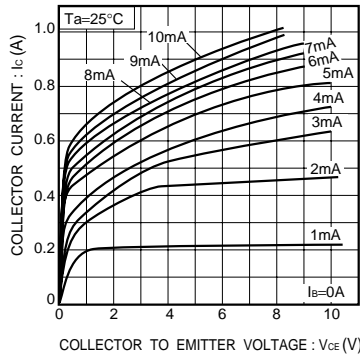


Fig.1 Ground emitter output characteristics

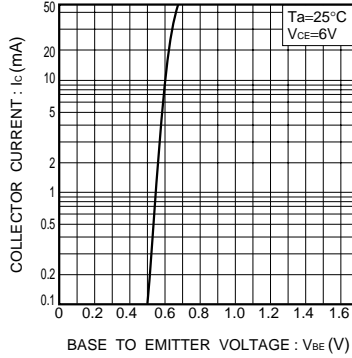


Fig.2 Ground emitter propagation characteristics

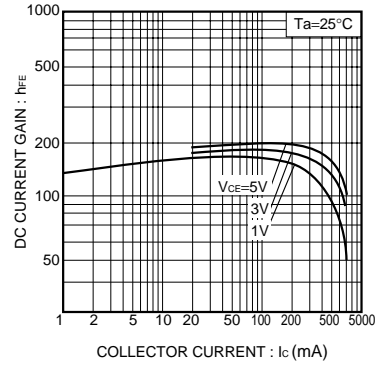


Fig.3 DC current gain vs. collector current

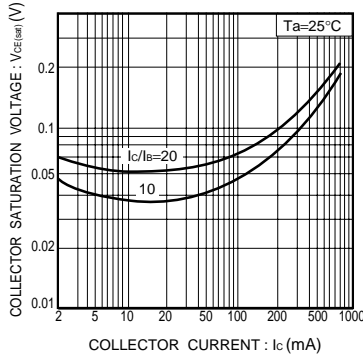


Fig.4 Collector-emitter saturation voltage vs. collector current

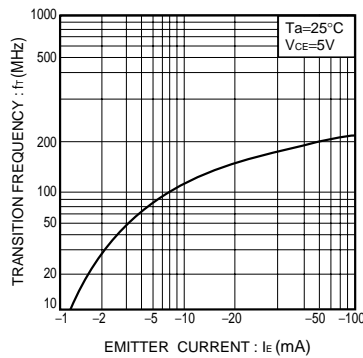


Fig.5 Resistance ratio vs. emitter current

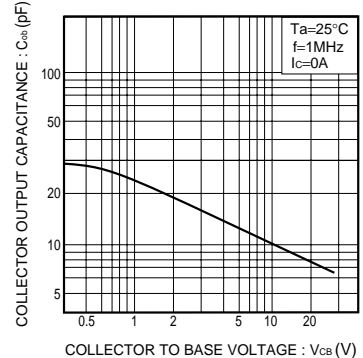


Fig.6 Collector output capacitance vs. collector-base voltage

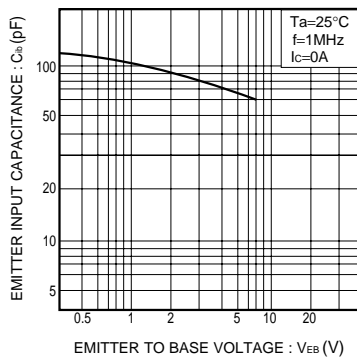


Fig.7 Emitter input capacitance vs. emitter-base voltage

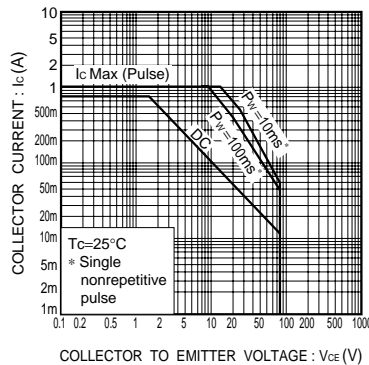


Fig.8 Safe operating area (2SD1859)

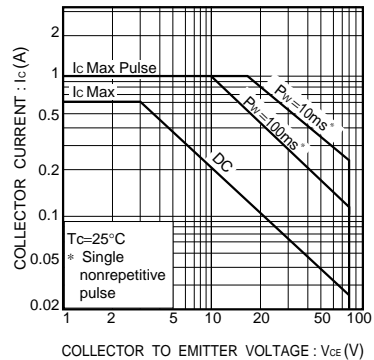


Fig.9 Safe operating area (2SD1767)

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