

Power Transistor (80V, 1A)

2SD1898 / 2SD1733

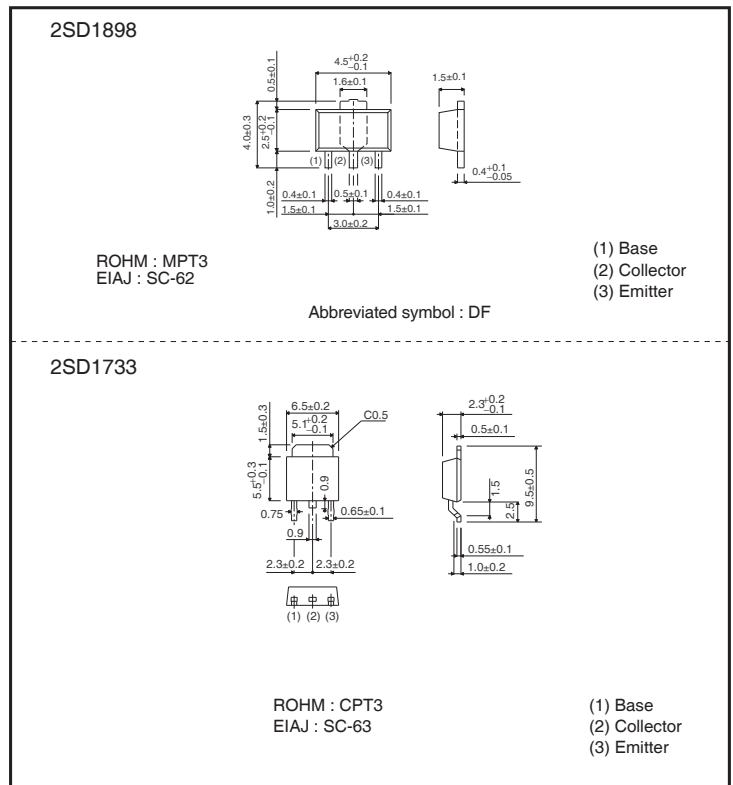
●Features

- 1) High V_{CEO}, V_{CEO}=80V
- 2) High I_C, I_C=1A (DC)
- 3) Good h_{FE} linearity
- 4) Low V_{CE} (sat)
- 5) Complements the 2SB1260 / 2SB1181

●Structure

Epitaxial planer type
NPN silicon transistor

●Dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|------------------|-------------|--------------------------|
| Collector-base voltage | V _{CBO} | 120 | V |
| Collector-emitter voltage | V _{CEO} | 80 | V |
| Emitter-base voltage | V _{EBO} | 5 | V |
| Collector current | I _C | 1 | A (DC) |
| | | 2 | A (Pulse) *1 |
| Collector power dissipation | P _C | 0.5 | W |
| | | 2 | W *2 |
| | | 1 | W |
| | | 10 | W (T _C =25°C) |
| Junction temperature | T _J | 150 | °C |
| Storage temperature | T _{stg} | -55 to +150 | °C |

*1 P_w=20ms, duty=1 / 2

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

●Absolute maximum ratings (Ta=25°C)

| Parameter | | Symbol | Limits | Unit |
|-----------------------------|---------|------------------|-------------|--------------------------|
| Collector-base voltage | | V _{CB0} | 120 | V |
| Collector-emitter voltage | | V _{CEO} | 80 | V |
| Emitter-base voltage | | V _{EBO} | 5 | V |
| Collector current | | I _c | 1 | A (DC) |
| | | | 2 | A (Pulse) *1 |
| Collector power dissipation | 2SD1898 | P _c | 0.5 | W |
| | | | 2 | W *2 |
| | 2SD1733 | | 1 | W |
| | | | 10 | W (T _c =25°C) |
| Junction temperature | | T _j | 150 | °C |
| Storage temperature | | T _{stg} | -55 to +150 | °C |

*1 P_w=20ms, duty=1 / 2

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

●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|----------------------|------|------|------|------|---|
| Collector-base breakdown voltage | BV _{CB0} | 120 | – | – | V | I _c =50μA |
| Collector-emitter breakdown voltage | BV _{CEO} | 80 | – | – | V | I _c =1mA |
| Emitter-base breakdown voltage | BV _{EBO} | 5 | – | – | V | I _E =50μA |
| Collector cutoff current | I _{CB0} | – | – | 1 | μA | V _{CB} =100V |
| Emitter cutoff current | I _{EBO} | – | – | 0.5 | μA | V _{EB} =4V |
| DC current transfer ratio | h _{FE} * | 120 | – | 390 | – | V _{CE} =3V, I _c =0.5A |
| Collector-emitter saturation voltage | V _{CE(sat)} | – | 0.15 | 0.4 | V | I _c /I _B =500mA/50mA |
| Transition frequency | f _T | – | 100 | – | MHz | V _{CE} =10V, I _E =-50mA, f=100MHz |
| Output capacitance | C _{ob} | – | 20 | – | pF | V _{CB} =10V, I _E =0A, f=1MHz |

* Measured using pulse current

●Packaging specifications and h_{FE}

| Type | h _{FE} | Package | Taping | |
|---------|-----------------|------------------------------|--------|------|
| | | Code | T100 | TL |
| | | Basic ordering unit (pieces) | 1000 | 2500 |
| 2SD1898 | QR | | ○ | – |
| 2SD1733 | QR | | – | ○ |

h_{FE} values are classified as follows :

| Item | Q | R |
|-----------------|------------|------------|
| h _{FE} | 120 to 270 | 180 to 390 |

●Electrical characteristic curves

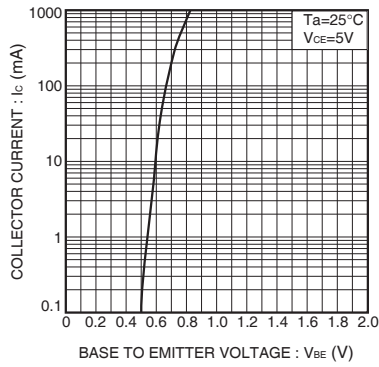


Fig.1 Grounded emitter propagation characteristics

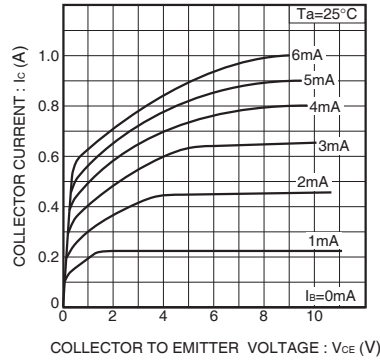


Fig.2 Grounded emitter output characteristics

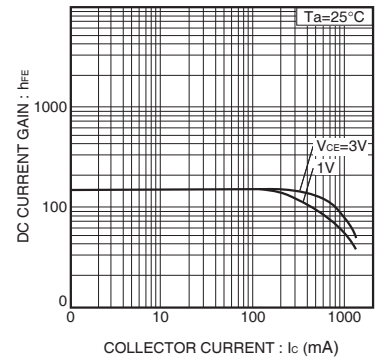


Fig.3 DC current gain vs. collector current

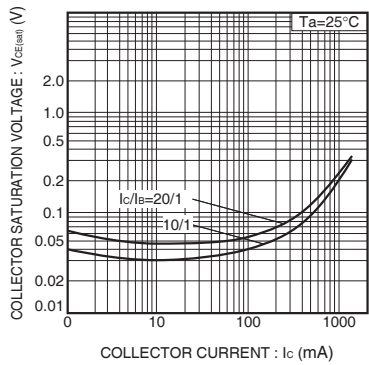


Fig.4 Collector-emitter saturation voltage vs. collector current

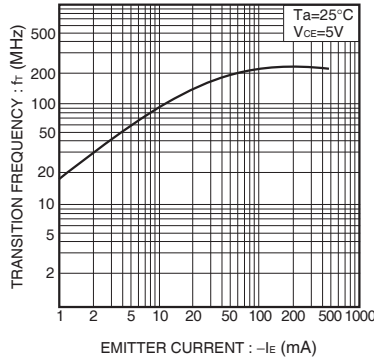


Fig.5 Gain bandwidth product vs. emitter current

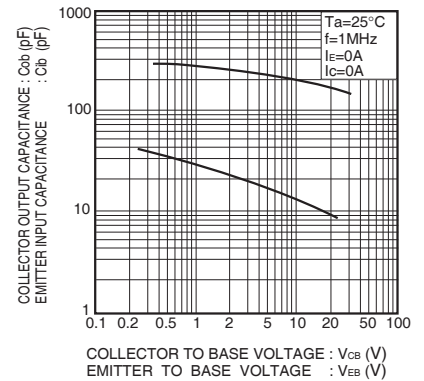


Fig.6 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

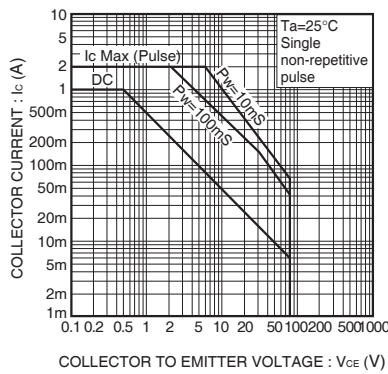


Fig.7 Safe operating area (2SD1898)

Notes

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