

Power Transistor (80V, 1A)

2SD1898 / 2SD1733 / 2SD1768S / 2SD1863

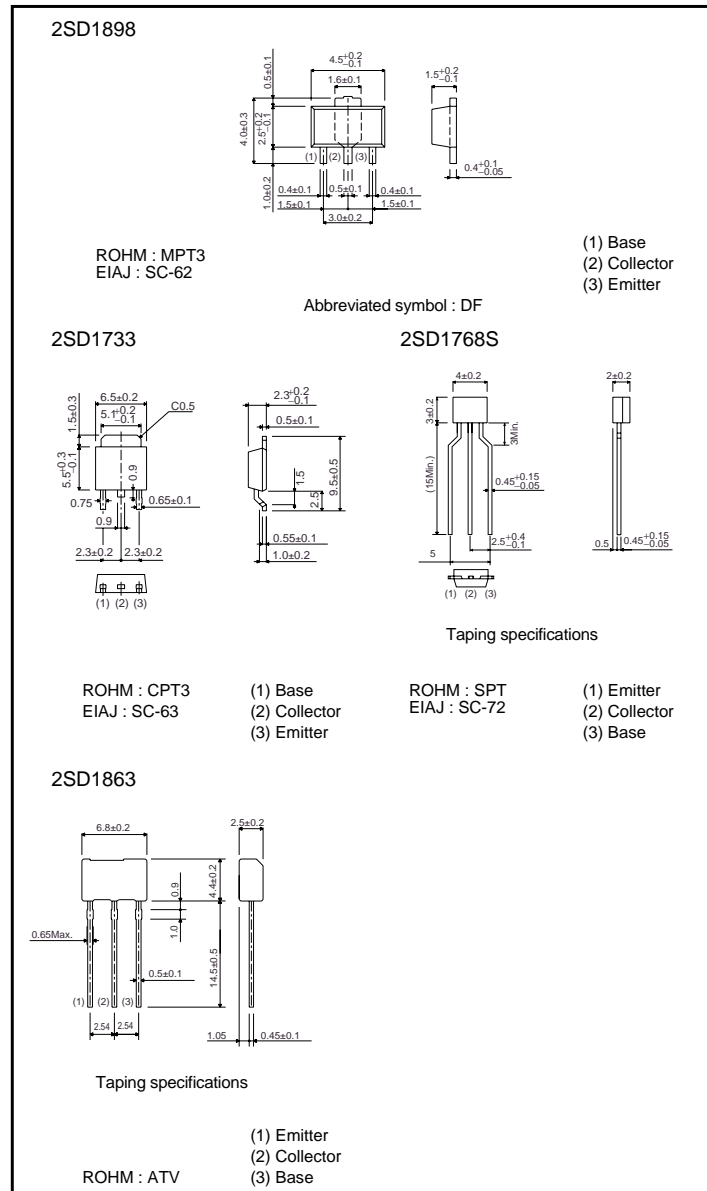
●Features

- 1) High V_{CE0} , $V_{CE0}=80V$
- 2) High I_c , $I_c=1A$ (DC)
- 3) Good h_{FE} linearity
- 4) Low V_{CE} (sat)
- 5) Complements the 2SB1260 / 2SB1241 / 2SB1181

●Structure

Epitaxial planer type
NPN silicon transistor

●External dimensions (Unit : mm)



2SD1898 / 2SD1733 / 2SD1768S / 2SD1863

Transistors

●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 *3 |
| | 2SD1733 | | 1 | W |
| | | | 10 | W (T _c =25°C) |
| | | | 0.3 | W |
| 2SD1863 | 1 | W *2 | | |
| Junction temperature | | T _j | 150 | °C |
| Storage temperature | | T _{stg} | -55 to +150 | °C |

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

*2 Printed circuit board 1.7mm thick, collector copper plating 1cm² or larger.

*3 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} | - | - | 1 | μA | V _{EB} =4V |
| DC current transfer ratio | 2SD1863 | h _{FE} | 120 | - | 390 | - | V _{CE} =3V, I _c =0.5A * |
| | 2SD1733, 2SD1898 | | 82 | - | 390 | - | |
| | 2SD1768S | | 120 | - | 390 | - | |
| Collector-emitter saturation voltage | | V _{CE(sat)} | - | 0.15 | 0.4 | V | I _c /I _E =500mA/20mA |
| Transition frequency | | f _r | - | 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

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●Packaging specifications and h_{FE}

| Type | h _{FE} | Package | Taping | | | |
|----------|-----------------|------------------------------|--------|------|------|------|
| | | Code | T100 | TL | TP | TV2 |
| | | Basic ordering unit (pieces) | 1000 | 2500 | 5000 | 2500 |
| 2SD1898 | PQR | | ○ | - | - | - |
| 2SD1733 | PQR | | - | ○ | - | - |
| 2SD1768S | QR | | - | - | ○ | - |
| 2SD1863 | R | | - | - | - | ○ |

h_{FE} values are classified as follows :

| Item | P | Q | R |
|-----------------|--------|---------|---------|
| h _{FE} | 82~180 | 120~270 | 180~390 |

●Electrical characteristic curves

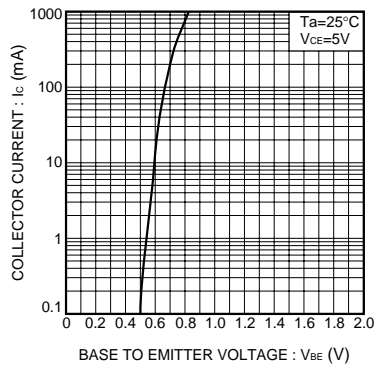


Fig.1 Grounded emitter propagation characteristics

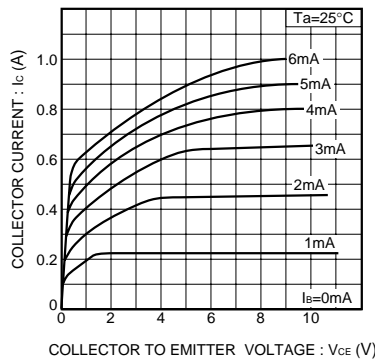


Fig.2 Grounded emitter output characteristics

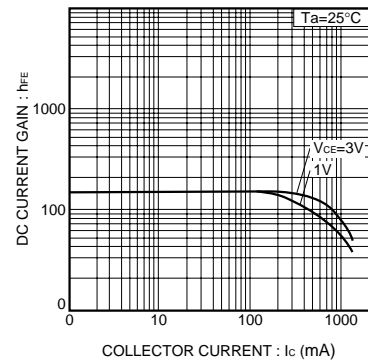


Fig.3 DC current gain vs. collector current

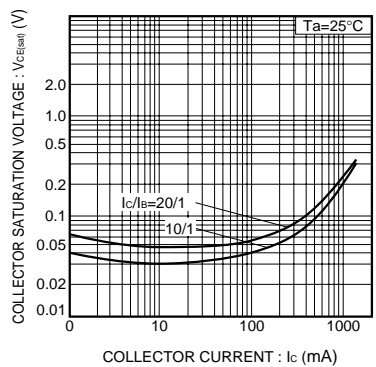


Fig.4 Collector-emitter saturation voltage vs. collector current

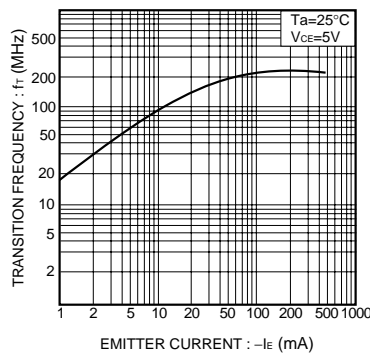


Fig.5 Gain bandwidth product vs. emitter current

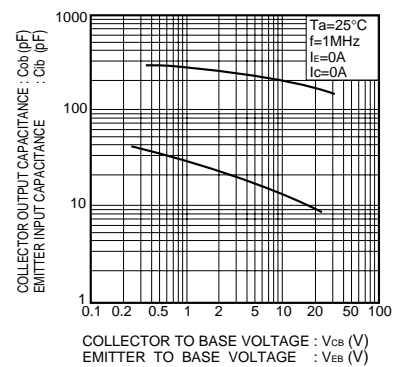


Fig.6 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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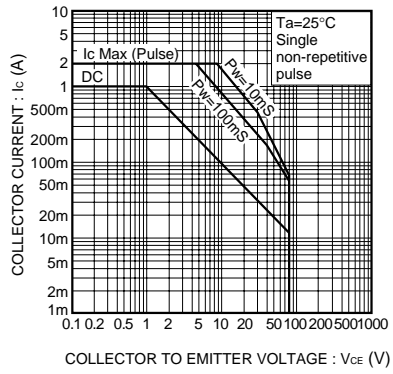


Fig.7 Safe operating area (2SD1863)

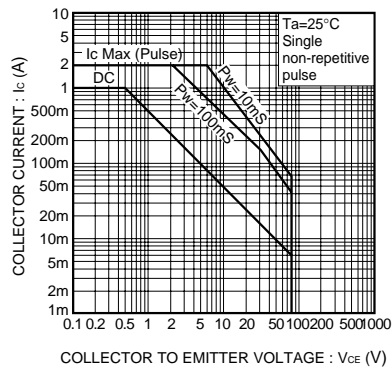


Fig.8 Safe operating area (2SD1898)

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