# Medium power transistor (–32V, –2A)

## 2SB1182 / 2SB1240

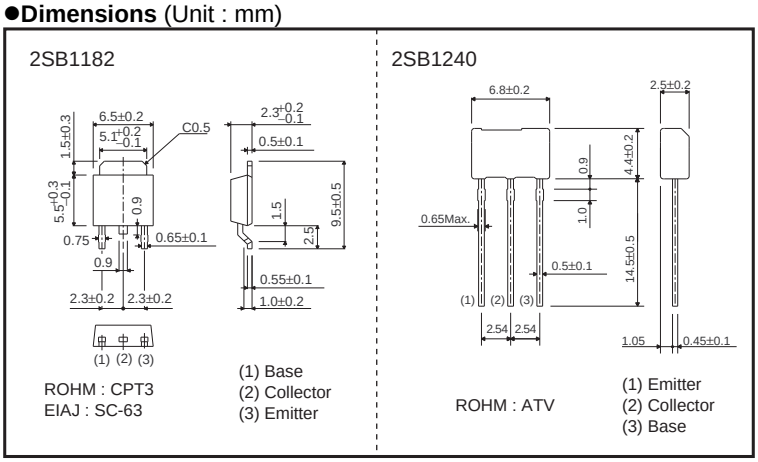
### ●Features

1) Low $V_{CE(sat)}$.
   $V_{CE(sat)}$ = –0.5V (Typ.)
   ($I_C/I_B$ = –2A / –0.2A)
2) Complements 2SD1758 / 2SD1862.

### ●Structure

Epitaxial planar type
PNP silicon transistor

### ●Dimensions (Unit : mm)




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

| Parameter | | Symbol | Limits | Unit |
|---|---|---|---|---|
| Collector-base voltage | | $V_{CBO}$ | –40 | V |
| Collector-emitter voltage | | $V_{CEO}$ | –32 | V |
| Emitter-base voltage | | $V_{EBO}$ | –5 | V |
| Collector current | | $I_C$ | –2 | A(DC) |
| | | | –3 | A (Pulse) ✻1 |
| Collector power dissipation | 2SB1182 | $P_C$ | 10 | W (Tc=25°C) |
| | 2SB1240 | | 1 | W ✻2 |
| Junction temperature | | Tj | 150 | °C |
| Storage temperature | | Tstg | –55 to 150 | °C |

✻1 Single pulse, Pw=100ms
✻2 Printed circuit board, 1.7mm thick, collector copper plating 100mm² or larger.

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $BV_{CBO}$ | –40 | – | – | V | $I_C$= –50μA |
| Collector-emitter breakdown voltage | $BV_{CEO}$ | –32 | – | – | V | $I_C$= –1mA |
| Emitter-base breakdown voltage | $BV_{EBO}$ | –5 | – | – | V | $I_E$= –50μA |
| Collector cutoff current | $I_{CBO}$ | – | – | –1 | μA | $V_{CB}$= –20V |
| Emitter cutoff current | $I_{EBO}$ | – | – | –1 | μA | $V_{EB}$= –4V |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | – | –0.5 | –0.8 | V | $I_C/I_B$= –2A/ –0.2A ✻ |
| DC current transfer ratio | $h_{FE}$ | 120 | – | 390 | – | $V_{CE}$= –3V, $I_C$= –0.5A ✻ |
| Transition frequency | $f_T$ | – | 100 | – | MHz | $V_{CE}$= –5V, $I_E$=0.5A, f=100MHz |
| Output capacitance | Cob | – | 50 | – | pF | $V_{CB}$= –10V, $I_E$=0A, f=1MHz |

✻ Measured using pulse current.

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

| Type | $h_{FE}$ | Package | Taping | |
|---|---|---|---|---|
| | | Code | TL | TV2 |
| | | Basic ordering unit (pieces) | 2500 | 2500 |
| 2SB1182 | QR | | ○ | – |
| 2SB1240 | QR | | – | ○ |

$h_{FE}$ values are classified as follows :

| Item | Q | R |
|---|---|---|
| $h_{FE}$ | 120 to 270 | 180 to 390 |

## ●Electrical characteristic curves

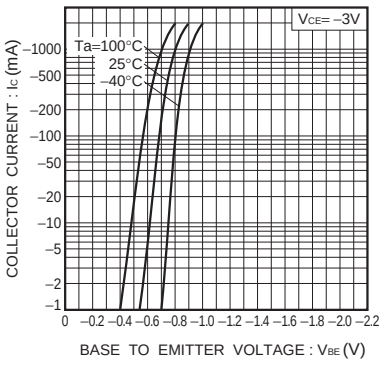



Fig.1 Grounded emitter propagation characteristics

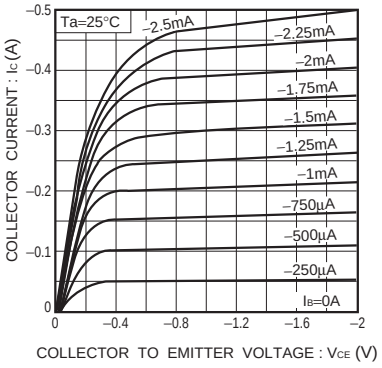



Fig.2 Grounded emitter output characteristics

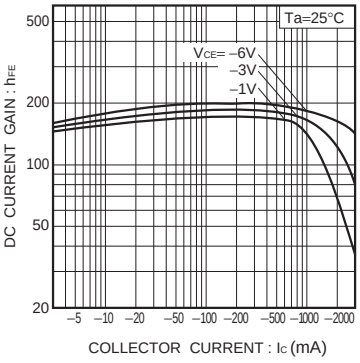



Fig.3 DC current gain vs. collector curren ( I )

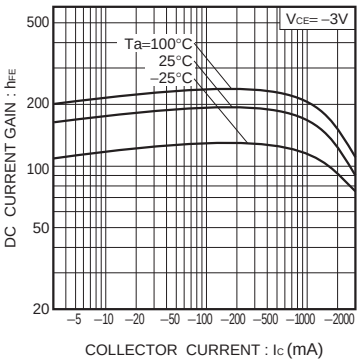



Fig.4 DC current gain vs. collector current (II)

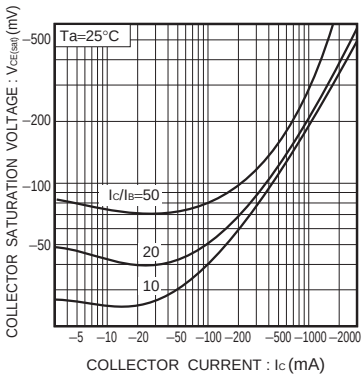



Fig.5 Collector-emitter saturation voltage vs. collector current ( I )

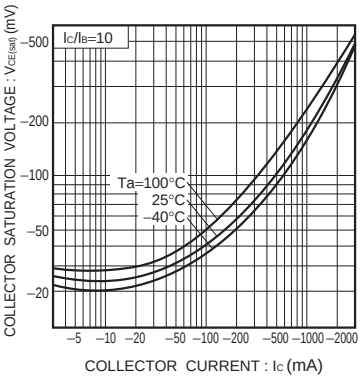



Fig.6 Collector-emitter saturation voltage vs. collector current (II)

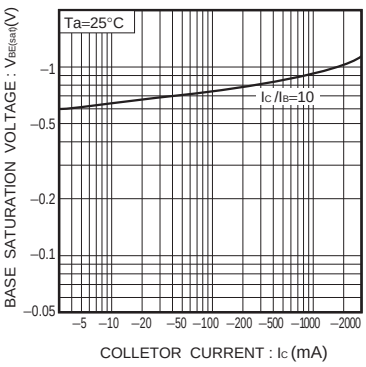



Fig.7 Base-emitter saturation voltage vs. collector current

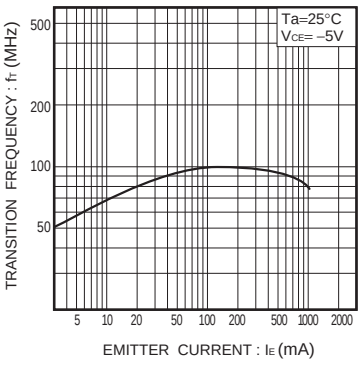



Fig.8 Gain bandwidth product vs. emitter current

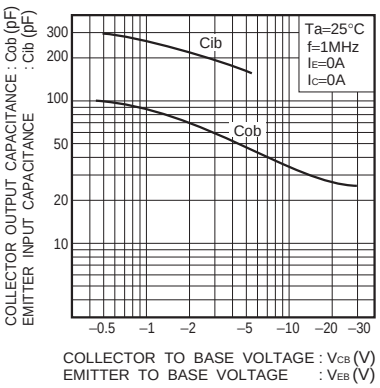



Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

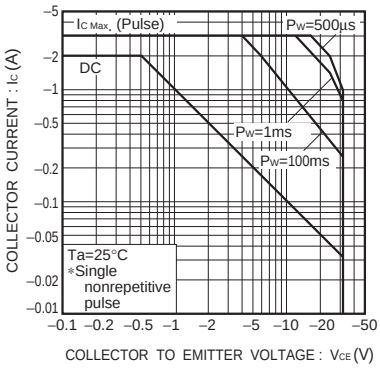



Fig.10 Safe operation area
(2SB1182)

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