# Low Frequency Transistor (–32V, –0.8A)

## 2SB1197K

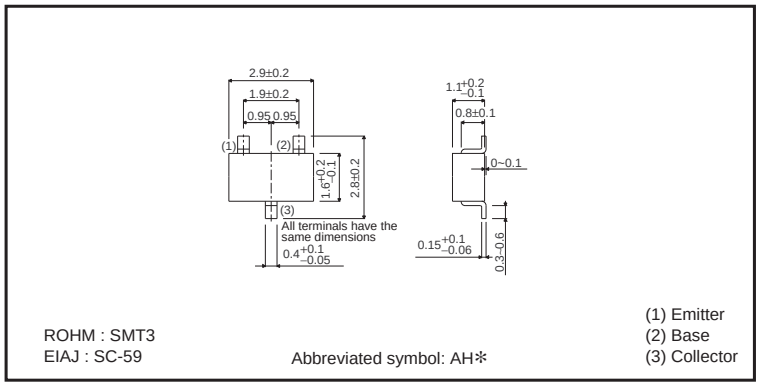
### ●Features

1) Low $V_{CE(sat)}$.
   $V_{CE(sat)} \leqq -0.5V$
   ($I_C$ / $I_B$= –0.5A / –50mA)
2) $I_C$ = –0.8A.
3) Complements the 2SD1781K.

### ●Structure

Epitaxial planar type
PNP silicon transistor

### ●External dimensions (Unit : mm)




* Denotes $h_{FE}$

### ●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 | $I_C$ | –0.8 | A |
| Collector power dissipation | $P_C$ | 0.2 | W |
| Junction temperature | Tj | 150 | °C |
| Storage temperature | Tstg | –55 to 150 | °C |

### ●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 | $I_{CBO}$ | – | – | –0.5 | µA | $V_{CB}$= –20V |
| Emitter cutoff current | $I_{EBO}$ | – | – | –0.5 | µA | $V_{EB}$= –4V |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | – | – | –0.5 | V | $I_C$/$I_B$= –0.5A/ –50mA |
| DC current transfer ratio | $h_{FE}$ | 120 | – | 390 | – | $V_{CE}$= –3V, $I_C$= –100mA |
| Transition frequency | $f_T$ | – | 200 | – | MHz | $V_{CE}$= –5V, $I_E$=50mA, f=100MHz |
| Output capacitance | Cob | – | 12 | 30 | pF | $V_{CB}$= –10V, $I_E$=0A, f=1MHz |

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

| Type | $h_{FE}$ | Package | Taping |
|---|---|---|---|
| | | Code | T146 |
| | | Basic ordering unit (pieces) | 3000 |
| 2SB1197K | QR | | ○ |

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

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

### ●Electrical characteristic curves

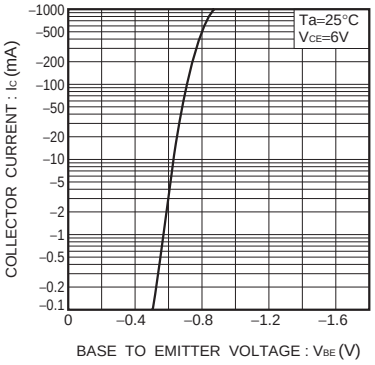



Fig.1 Grounded emitter propagation characteristics

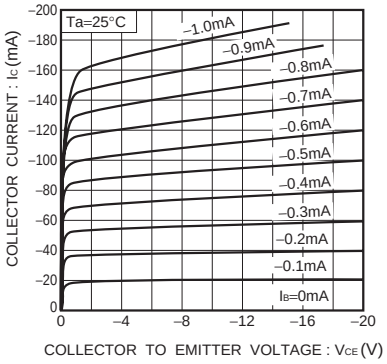



Fig.2 Grounded emitter output characteristics ( I )

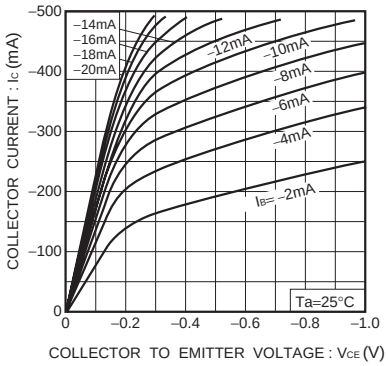



Fig.3 Grounded emitter output characteristics ( II )

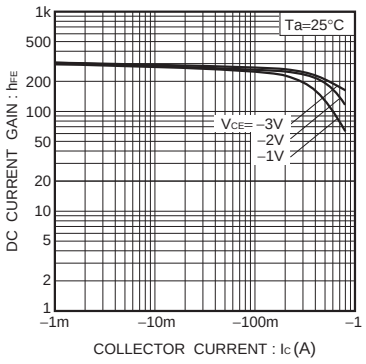



Fig.4 DC current gain vs. collector current

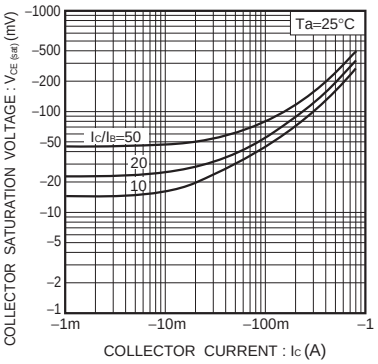



Fig.5 Collector-emitter saturation voltage vs. collector current

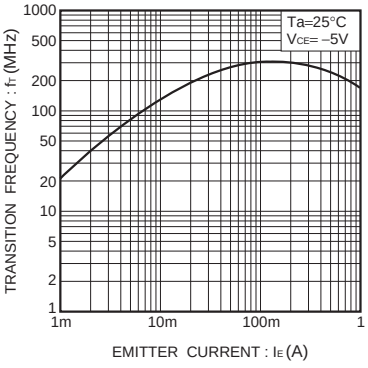



Fig.6 Gain bandwidth product vs. emitter current

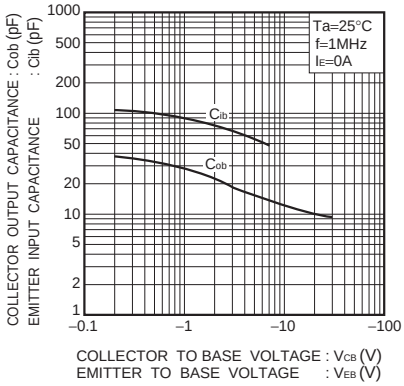



Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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