# Low frequency amplifier

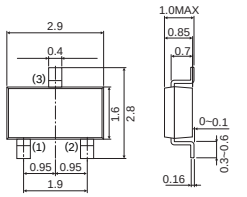
## 2SB1695

### ●Application
Low frequency amplifier
Driver

### ●Features
1) A collector current is large.
2) $V_{CE(sat)} \leq -370mV$
at $I_C = -1A / I_B = -50mA$

### ●External dimensions (Unit : mm)

**TSMT3**




(1) Base
(2) Emitter
(3) Collector

Each lead has same dimensions

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

| Parameter | Symbol | Limits | Unit |
|---|---|---|---|
| Collector-base voltage | $V_{CBO}$ | –30 | V |
| Collector-emitter voltage | $V_{CEO}$ | –30 | V |
| Emitter-base voltage | $V_{EBO}$ | –6 | V |
| Collector current | $I_C$ | –1.5 | A |
| | $I_{CP}$ | –3 | A * |
| Power dissipation | $P_C$ | 500 | mW |
| Junction temperature | Tj | 150 | °C |
| Range of storage temperature | Tstg | –55~+150 | °C |

*Single pulse, $P_W$=1ms

### ●Packaging specifications

| | | |
|---|---|---|
| Type | Package | Taping |
| | Code | TL |
| | Basic ordering unit (pieces) | 3000 |
| 2SB1695 | | ○ |

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $BV_{CBO}$ | –30 | – | – | V | $I_C$=–10μA |
| Collector-emitter breakdown voltage | $BV_{CEO}$ | –30 | – | – | V | $I_C$=–1mA |
| Emitter-base breakdown voltage | $BV_{EBO}$ | –6 | – | – | V | $I_E$=–10μA |
| Collector cutoff current | $I_{CBO}$ | – | – | –100 | nA | $V_{CB}$=–30V |
| Emitter cutoff current | $I_{EBO}$ | – | – | –100 | nA | $V_{EB}$=–6V |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | – | –200 | –370 | mV | $I_C$=–1A, $I_B$=–50mA |
| DC current gain | $h_{FE}$ | 270 | – | 680 | – | $V_{CE}$=–2V, $I_C$=–100mA * |
| Transition frequency | $f_T$ | – | 280 | – | MHz | $V_{CE}$=–2V, $I_E$=100mA, f=100MHz * |
| Corrector output capacitance | Cob | – | 13 | – | pF | $V_{CB}$=–10V, $I_E$=0A, f=1MHz |

* Pulsed

## ●Electrical characteristic curves

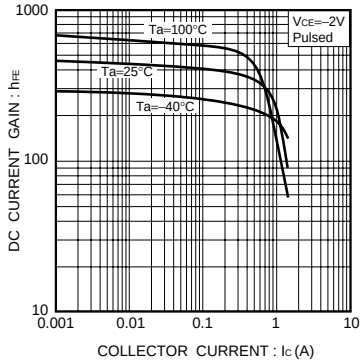



Fig.1 DC current gain vs. collector current

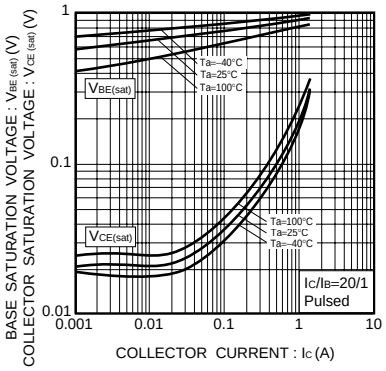



Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

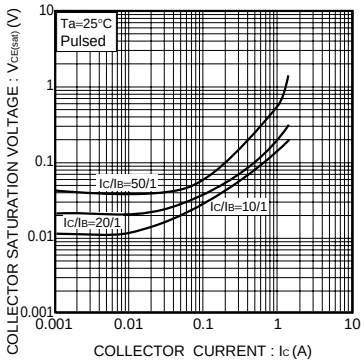



Fig.3 Collector-emitter saturation voltage vs. collector current

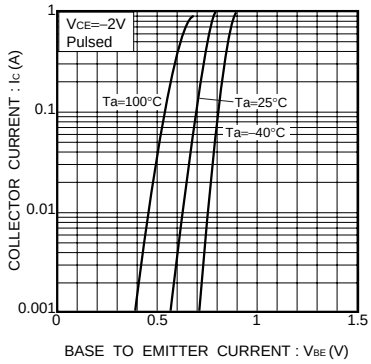



Fig.4 Grounded emitter propagation characteristics

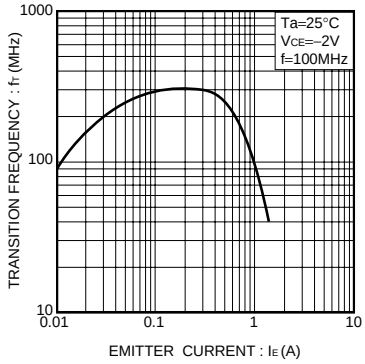



Fig.5 Gain bandwidth product vs. emitter current

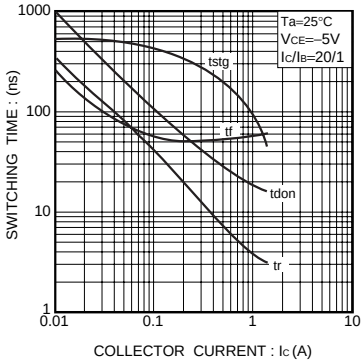



Fig.6 Switching time

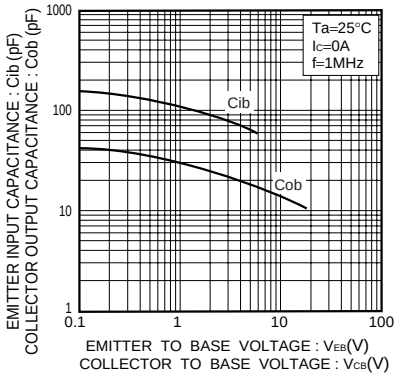



Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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