

General purpose amplification (–30V, –1A)

2SB1694

●Application

Low frequency amplifier
Driver

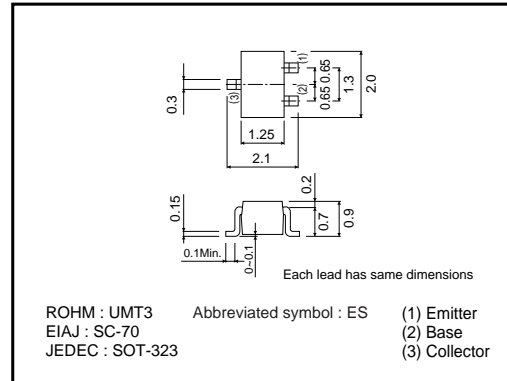
●Features

- 1) A collector current is large.
- 2) Collector saturation voltage is low.

$$V_{CE(sat)} \leq -380\text{mV}$$

$$\text{At } I_C = -500\text{mA} / I_B = -25\text{mA}$$

●Dimensions (Units : mm)



●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|------------------------------|-----------|----------|------|
| Collector-base voltage | V_{CB0} | -30 | V |
| Collector-emitter voltage | V_{CE0} | -30 | V |
| Emitter-base voltage | V_{EB0} | -6 | V |
| Collector current | I_C | -1 | A |
| | I_{CP} | -2 | A* |
| Power dissipation | P_C | 200 | mW |
| Junction temperature | T_j | 150 | °C |
| Range of storage temperature | T_{stg} | -55~+150 | °C |

*Single pulse, $P_w=1\text{ms}$

●Packaging specifications

| Type | Package | Taping |
|---------|------------------------------|--------|
| | Code | T106 |
| | Basic ordering unit (pieces) | 3000 |
| 2SB1694 | | ○ |

●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|---------------|------|------|------|------|---|
| Collector-base breakdown voltage | BV_{CB0} | -30 | - | - | V | $I_C = -10\mu\text{A}$ |
| Collector-emitter breakdown voltage | BV_{CE0} | -30 | - | - | V | $I_C = -1\text{mA}$ |
| Emitter-base breakdown voltage | BV_{EB0} | -6 | - | - | V | $I_E = -10\mu\text{A}$ |
| Collector cutoff current | I_{CB0} | - | - | -100 | nA | $V_{CB} = -30\text{V}$ |
| Emitter cutoff current | I_{EB0} | - | - | -100 | nA | $V_{EB} = -30\text{V}$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | - | -180 | -380 | mV | $I_C = -500\text{mA}, I_B = -25\text{mA}$ |
| DC current gain | h_{FE} | 270 | - | 680 | - | $V_{CE} = -2\text{V}, I_C = -100\text{mA}^{*1}$ |
| Transition frequency | f_T | - | 320 | - | MHz | $V_{CE} = -2\text{V}, I_E = 100\text{mA}, f = 100\text{MHz}^{*1}$ |
| Corrector output capacitance | C_{ob} | - | 7 | - | pF | $V_{CB} = -10\text{V}, I_E = 0\text{A}, f = 1\text{MHz}$ |

*1 Pulsed

Transistors

●Electrical characteristic curves

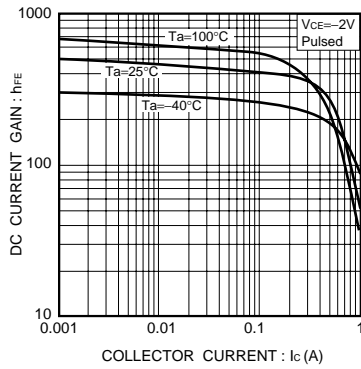


Fig.1 DC current gain vs. collector current

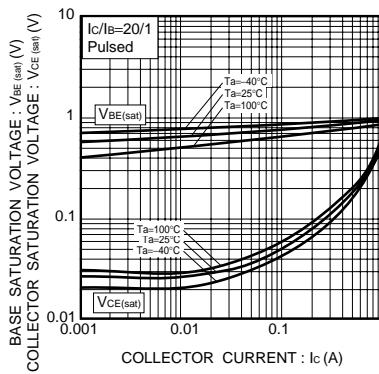


Fig.2 Collector-emitter saturation voltage vs. collector current

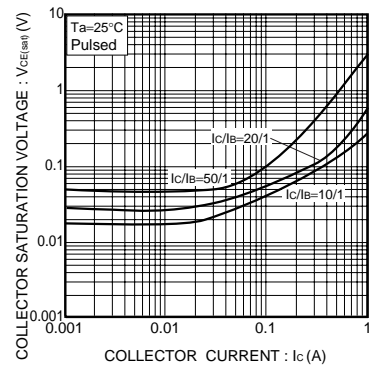


Fig.3 Collector-emitter saturation voltage vs. collector current

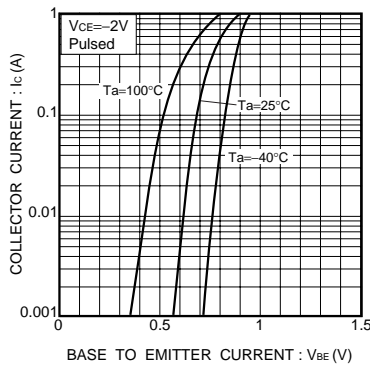


Fig.4 Grounded emitter propagation characteristics

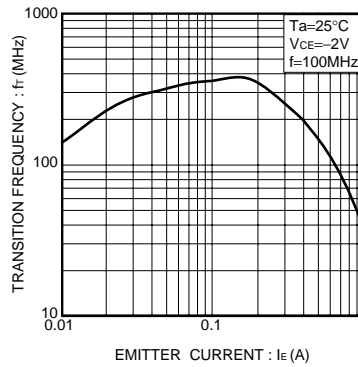


Fig.5 Gain bandwidth product vs. emitter current

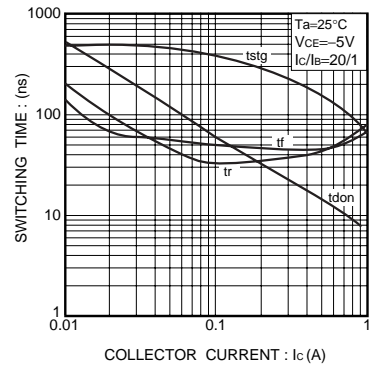


Fig.6 Switching time

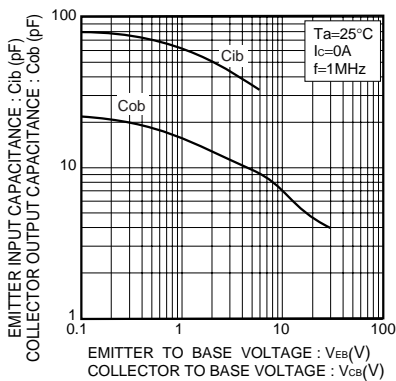


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

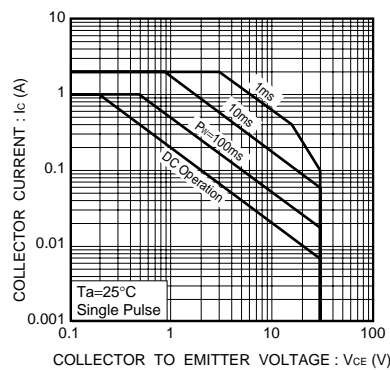


Fig.8 Safe Operating Area

Notes

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