

General purpose amplification (12V, 1.5A)

2SD2702

●Application

Low frequency amplifier

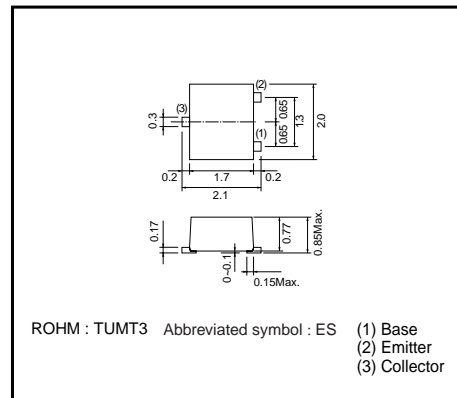
●Features

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

$$V_{CE(sat)} \leq 200\text{mV}$$

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

●External dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|------------------------------|-----------|-------------|------|
| Collector-base voltage | V_{CBO} | 15 | V |
| Collector-emitter voltage | V_{CEO} | 12 | V |
| Emitter-base voltage | V_{EBO} | 6 | V |
| Collector current | I_C | 1.5 | A |
| | I_{CP} | 3 | A*1 |
| Power dissipation | P_C | 0.4 | W |
| | | 0.8*2 | |
| Junction temperature | T_j | 150 | °C |
| Range of storage temperature | T_{stg} | -55 to +150 | °C |

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

*2 Mounted on a $25 \times 25 \times 1.0$ mm Ceramic substrate

●Packaging specifications

| Type | Package | Taping |
|---------|------------------------------|--------|
| | Code | TL |
| | Basic ordering unit (pieces) | 3000 |
| 2SD2702 | | ○ |

●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|---------------|------|------|------|------|--|
| Collector-base breakdown voltage | BV_{CBO} | 15 | — | — | V | $I_C=10\mu\text{A}$ |
| Collector-emitter breakdown voltage | BV_{CEO} | 12 | — | — | V | $I_C=1\text{mA}$ |
| Emitter-base breakdown voltage | BV_{EBO} | 6 | — | — | V | $I_E=10\mu\text{A}$ |
| Collector cutoff current | I_{CBO} | — | — | 100 | nA | $V_{CB}=15\text{V}$ |
| Emitter cutoff current | I_{EBO} | — | — | 100 | nA | $V_{EB}=6\text{V}$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | — | 85 | 200 | mV | $I_C/I_B=500\text{mA}/25\text{mA}$ |
| DC current gain | h_{FE} | 270 | — | 680 | — | $V_{CE}/I_C=2\text{V}/200\text{mA}$ * |
| Transition frequency | f_T | — | 400 | — | MHz | $V_{CE}=2\text{V}, I_E=-200\text{mA}, f=100\text{MHz}$ * |
| Collector output capacitance | C_{ob} | — | 12 | — | pF | $V_{CB}=10\text{V}, I_E=0\text{A}, f=1\text{MHz}$ |

* Pulsed

Transistors

●Electrical characteristic curves

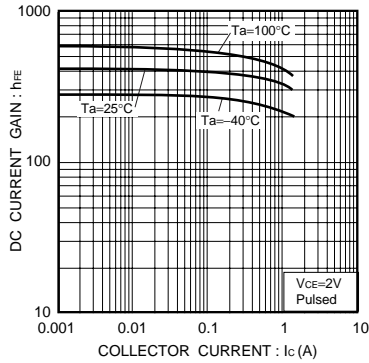


Fig.1 DC current gain vs. collector current

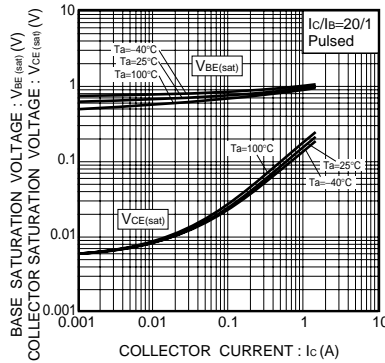


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

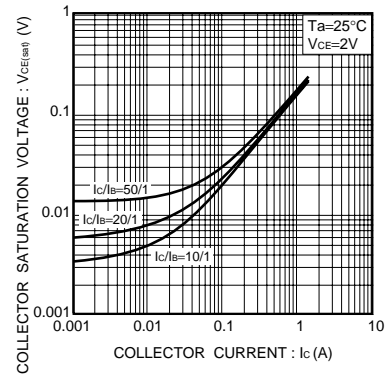


Fig.3 Collector-emitter saturation voltage vs. collector current

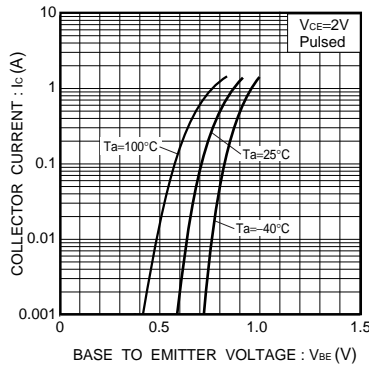


Fig.4 Grounded emitter propagation characteristics

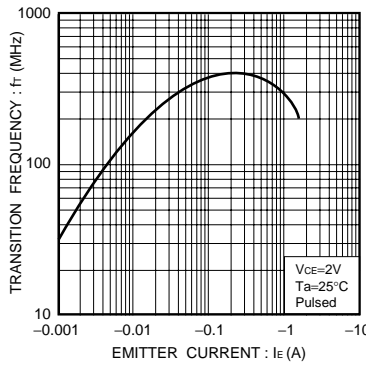


Fig.5 Gain bandwidth product vs. emitter current

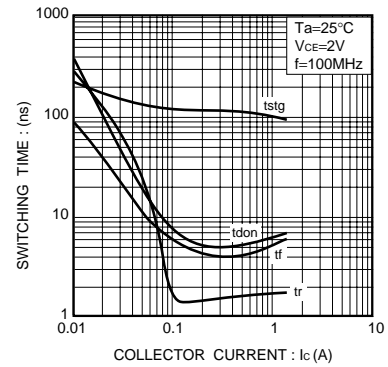


Fig.6 Switching time

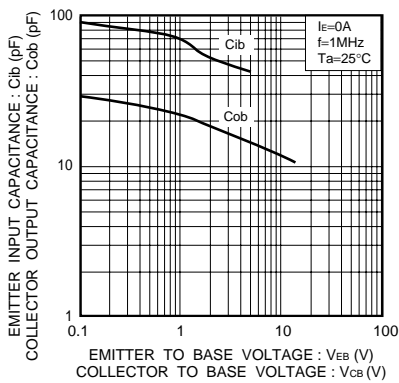


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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