

Transistors

# General purpose amplification (30V, 1A)

## 2SD2703

●Application

Low frequency amplifier

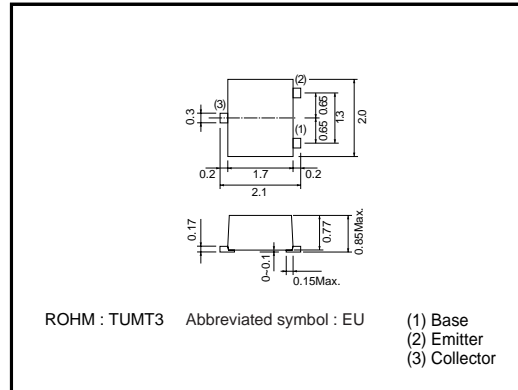
●Features

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

$$V_{CE(sat)} \leq 350mV$$

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

●External dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

| Parameter                    | Symbol           | Limits      | Unit |
|------------------------------|------------------|-------------|------|
| Collector-base voltage       | V <sub>CB0</sub> | 30          | V    |
| Collector-emitter voltage    | V <sub>CEO</sub> | 30          | V    |
| Emitter-base voltage         | V <sub>EBO</sub> | 6           | V    |
| Collector current            | I <sub>c</sub>   | 1           | A    |
|                              | I <sub>CP</sub>  | 2           | A *1 |
| Power dissipation            | P <sub>c</sub>   | 0.4         | W    |
|                              |                  | 0.8 *2      |      |
| Junction temperature         | T <sub>j</sub>   | 150         | °C   |
| Range of storage temperature | T <sub>stg</sub> | -55 to +150 | °C   |

\*1 Single pulse, P<sub>w</sub>=1ms

\*2 Mounted on a 25×25×1.0mm Ceramic substrate

●Packaging specifications

| Type    | Package                      | Taping |
|---------|------------------------------|--------|
|         | Code                         | TL     |
|         | Basic ordering unit (pieces) | 3000   |
| 2SD2703 |                              | ○      |

●Electrical characteristics (Ta=25°C)

| Parameter                            | Symbol               | Min. | Typ. | Max. | Unit | Conditions  |
|--------------------------------------|----------------------|------|------|------|------|---|
| Collector-base breakdown voltage     | BV <sub>CB0</sub>    | 30   | -    | -    | V    | I <sub>c</sub> =10μA                                    |
| Collector-emitter breakdown voltage  | BV <sub>CEO</sub>    | 30   | -    | -    | V    | I <sub>c</sub> =1mA                                     |
| Emitter-base breakdown voltage       | BV <sub>EBO</sub>    | 6    | -    | -    | V    | I <sub>E</sub> =10μA                                    |
| Collector cutoff current             | I <sub>cBO</sub>     | -    | -    | 100  | nA   | V <sub>CB</sub> =30V                                    |
| Emitter cutoff current               | I <sub>EBO</sub>     | -    | -    | 100  | nA   | V <sub>EB</sub> =6V                                     |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | -    | 120  | 350  | mV   | I <sub>c</sub> /I <sub>B</sub> =500mA/25mA              |
| DC current gain                      | h <sub>FE</sub>      | 270  | -    | 680  | -    | V <sub>CE</sub> /I <sub>c</sub> =2V/100mA *             |
| Transition frequency                 | f <sub>T</sub>       | -    | 320  | -    | MHz  | V <sub>CE</sub> =2V, I <sub>E</sub> =-100mA, f=100MHz * |
| Corrector output capacitance         | C <sub>ob</sub>      | -    | 7    | -    | pF   | V <sub>CB</sub> =10V, I <sub>E</sub> =0A, f=1MHz        |

\* Pulsed

Transistors

●Electrical characteristic curves

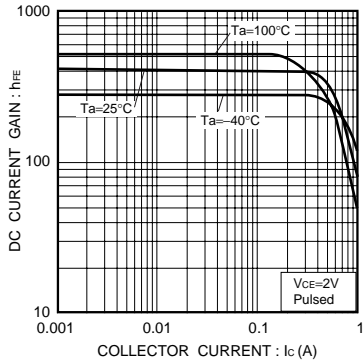


Fig.1 DC current gain vs. collector current

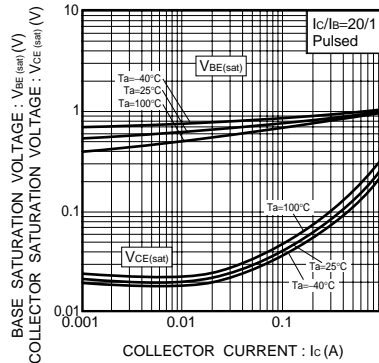


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

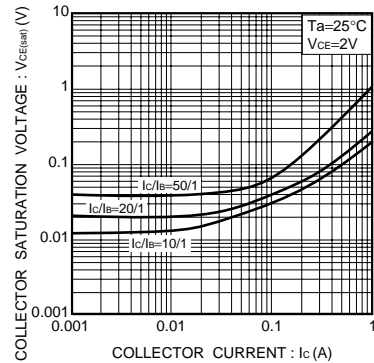


Fig.3 Collector-emitter saturation voltage vs. collector current

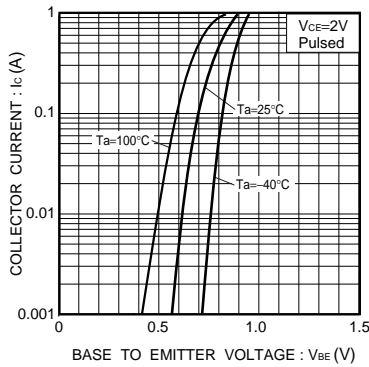


Fig.4 Grounded emitter propagation characteristics

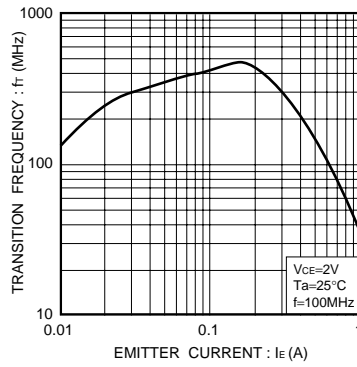


Fig.5 Gain bandwidth product vs. emitter current

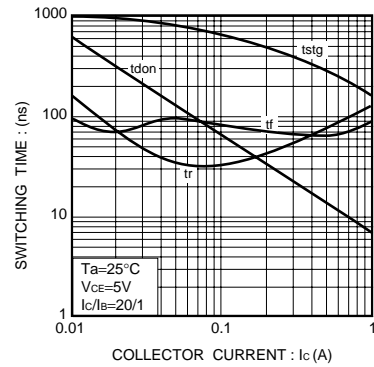


Fig.6 Switching time

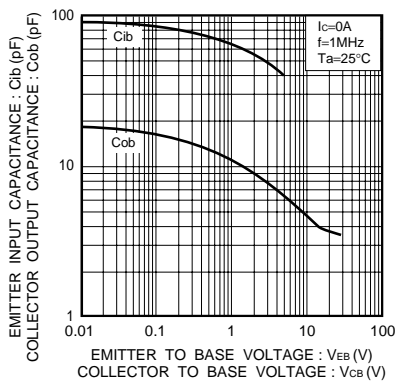


Fig.7 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

## Appendix

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