

Low frequency amplifier

2SD2653

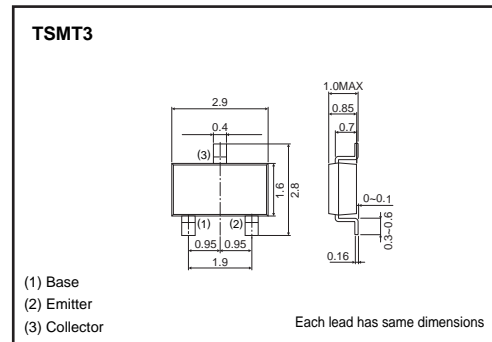
●Application

Low frequency amplifier
Driver

●Features

- 1) A collector current is large.
- 2) $V_{CE(sat)} \leq 180\text{mV}$
at $I_C = 1\text{A} / I_B = 50\text{mA}$

●External dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|------------------------------|-----------|-------------|------|
| Collector-base voltage | V_{CB0} | 15 | V |
| Collector-emitter voltage | V_{CE0} | 12 | V |
| Emitter-base voltage | V_{EB0} | 6 | V |
| Collector current | I_C | 2 | A |
| | I_{CP} | 4 | A*1 |
| Power dissipation | P_C | 500 | mW |
| | | 1*2 | W |
| 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

●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|---------------|------|------|------|------|--|
| Collector-base breakdown voltage | BV_{CB0} | 15 | — | — | V | $I_C=10\mu\text{A}$ |
| Collector-emitter breakdown voltage | BV_{CE0} | 12 | — | — | V | $I_C=1\text{mA}$ |
| Emitter-base breakdown voltage | BV_{EB0} | 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 | $V_{CE(sat)}$ | — | 90 | 180 | mV | $I_C=1\text{A}, I_B=50\text{mA}$ |
| DC current gain | h_{FE} | 270 | — | 680 | — | $V_{CE}=2\text{V}, I_C=200\text{mA}^*$ |
| Transition frequency | f_T | — | 360 | — | MHz | $V_{CE}=2\text{V}, I_E=-200\text{mA}, f=100\text{MHz}^*$ |
| Corrector output capacitance | C_{ob} | — | 20 | — | pF | $V_{CB}=10\text{V}, I_E=0\text{A}, f=1\text{MHz}$ |

* Pulsed

●Packaging specifications

| Type | Package | Taping |
|------|------------------------------|--------|
| | 2SD2653 | Code |
| | Basic ordering unit (pieces) | 3000 |
| | | ○ |

Transistors

●Electrical characteristic curves

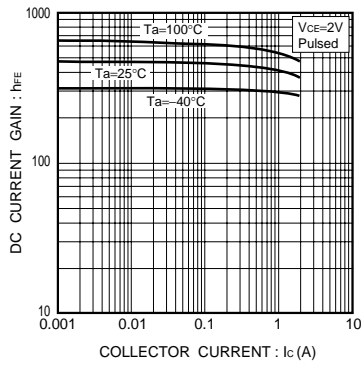


Fig.1 DC current gain vs. collector current

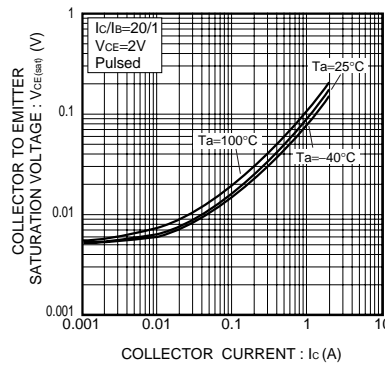


Fig.2 Base-emitter saturation voltage vs. collector current

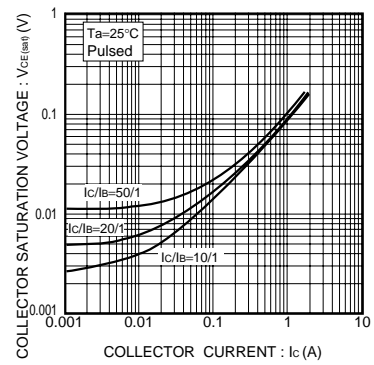


Fig.3 Collector-emitter saturation voltage vs. collector current

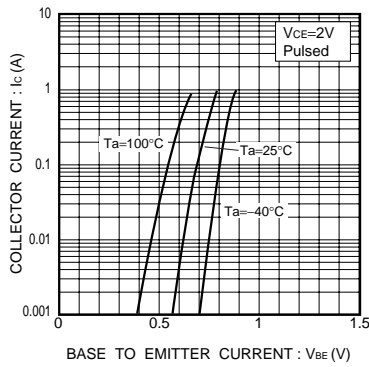


Fig.4 Grounded emitter propagation characteristics

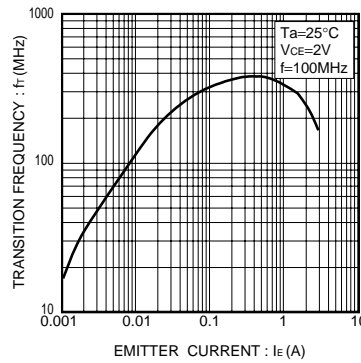


Fig.5 Gain bandwidth product vs. emitter current

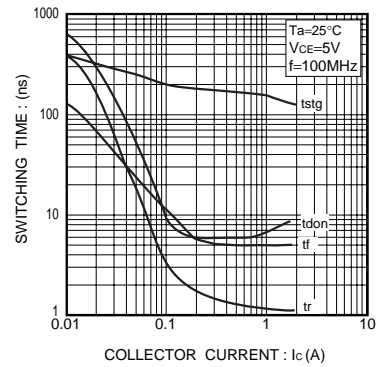


Fig.6 Switching time

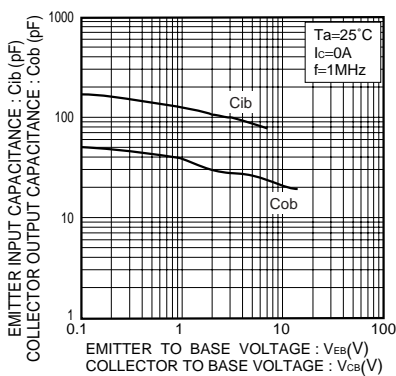


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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