

# General purpose amplification (30V, 1A)

## 2SD2656

### ●Application

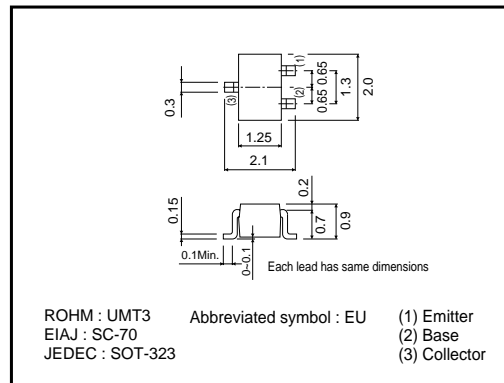
Low frequency amplifier

### ●Features

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

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

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



### ●External 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 |
|------|------------------------------|--------|
|      | 2SD2656                      | Code   |
|      | Basic ordering unit (pieces) | 3000   |
|      |                              | ○      |

### ●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   | $V_{EB}=6\text{V}$  |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | -    | 140  | 350  | mV   | $I_c/I_B=500\text{mA}/25\text{mA}$                              |
| DC current gain                      | $h_{FE}$      | 270  | -    | 680  | -    | $V_{CE}/I_c=2\text{V}/100\text{mA}$ *1                          |
| Transition frequency                 | $f_r$         | -    | 400  | -    | MHz  | $V_{CE}=2\text{V}$ , $I_E=-100\text{mA}$ , $f=100\text{MHz}$ *1 |
| Corrector output capacitance         | $C_{ob}$      | -    | 5    | -    | pF   | $V_{CB}=10\text{V}$ , $I_E=0\text{A}$ , $f=1\text{MHz}$         |

\*1 Pulsed

Transistors

●Electrical characteristic curves

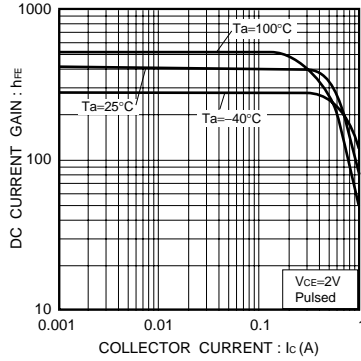


Fig.1 DC current gain vs. collector current

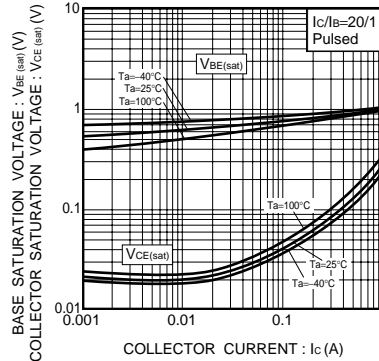


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

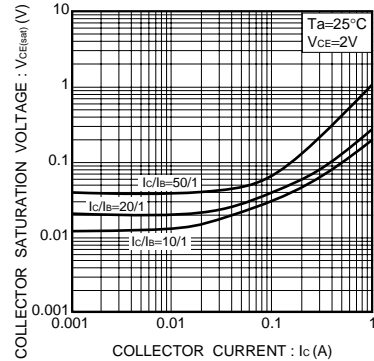


Fig.3 Collector-emitter saturation voltage vs. collector current

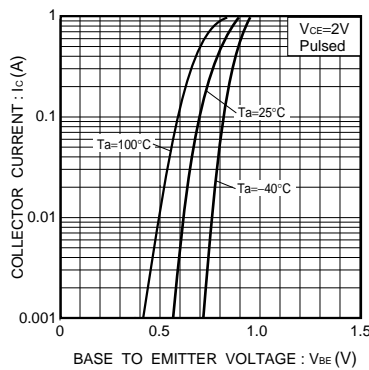


Fig.4 Grounded emitter propagation characteristics

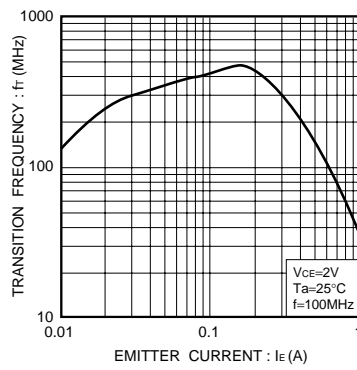


Fig.5 Gain bandwidth product vs. emitter current

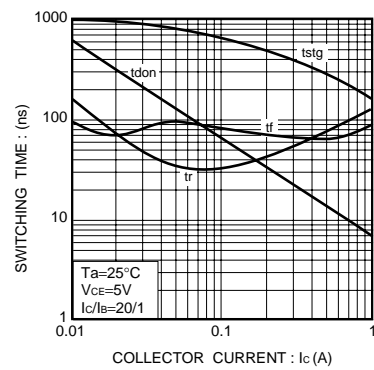


Fig.6 Switching time

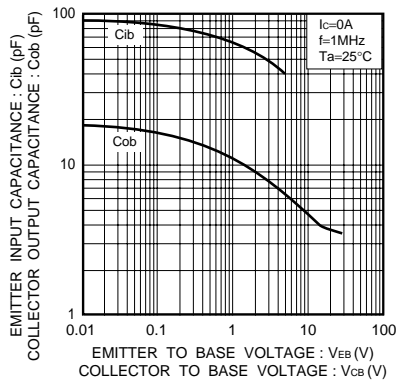


Fig.7 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

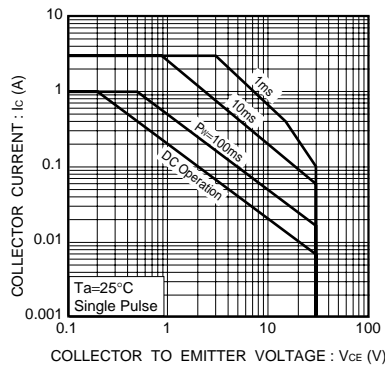


Fig.8 Safe Operating Area

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