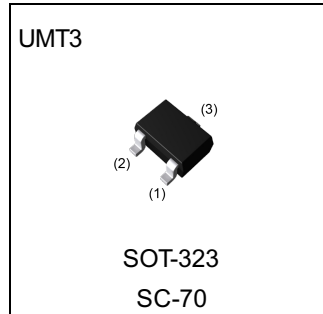


| Parameter | Value |
|-----------|-------|
| $V_{CEO}$ | 12V   |
| $I_C$     | 1.5A  |

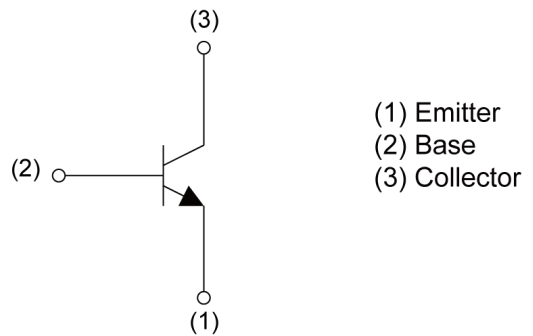
●Outline



●Features

- 1 A collector current is large
- 2)Collector saturation voltage is low.  
 $V_{CE(sat)} \leq 200mV$   
 at  $I_C=500mA / I_B=25mA$

●Inner circuit



●Application

LOW FREQUENCY AMPLIFIER, DRIVER

●Packaging specifications

| Part No. | Package | Package size | Taping code | Reel size (mm) | Tape width (mm) | Basic ordering unit.(pcs) | Marking |
|----------|---------|--------------|-------------|----------------|-----------------|---------------------------|---------|
| 2SD2652  | UMT3    | 2021         | T106        | 180            | 8               | 3000                      | EW      |

● **Absolute maximum ratings** ( $T_a = 25^\circ\text{C}$ )

| Parameter                    | Symbol               | Values      | Unit             |
|------------------------------|----------------------|-------------|------------------|
| Collector-base voltage       | $V_{\text{CBO}}$     | 15          | V                |
| Collector-emitter voltage    | $V_{\text{CEO}}$     | 12          | V                |
| Emitter-base voltage         | $V_{\text{EBO}}$     | 6           | V                |
| Collector current            | $I_{\text{C}}$       | 1.5         | A                |
|                              | $I_{\text{CP}}^{*1}$ | 3           | A                |
| Power dissipation            | $P_{\text{D}}^{*2}$  | 200         | mW               |
| Junction temperature         | $T_{\text{j}}$       | 150         | $^\circ\text{C}$ |
| Range of storage temperature | $T_{\text{stg}}$     | -55 to +150 | $^\circ\text{C}$ |

● **Electrical characteristics** ( $T_a = 25^\circ\text{C}$ )

| Parameter                            | Symbol               | Conditions   | Values |      |      | Unit |
|--------------------------------------|----------------------|--|--------|------|------|------|
|                                      |                      |  | Min.   | Typ. | Max. |      |
| Collector-base breakdown voltage     | $BV_{\text{CBO}}$    | $I_{\text{C}} = 10\mu\text{A}$   | 15     | -    | -    | V    |
| Collector-emitter breakdown voltage  | $BV_{\text{CEO}}$    | $I_{\text{C}} = 1\text{mA}$  | 12     | -    | -    | V    |
| Emitter-base breakdown voltage       | $BV_{\text{EBO}}$    | $I_{\text{E}} = 10\mu\text{A}$   | 6      | -    | -    | V    |
| Collector cut-off current            | $I_{\text{CBO}}$     | $V_{\text{CB}} = 15\text{V}$   | -      | -    | 100  | nA   |
| Emitter cut-off current              | $I_{\text{EBO}}$     | $V_{\text{EB}} = 6\text{V}$  | -      | -    | 100  | nA   |
| Collector-emitter saturation voltage | $V_{\text{CE(sat)}}$ | $I_{\text{C}} = 500\text{mA}, I_{\text{B}} = 25\text{mA}$                    | -      | 80   | 200  | mV   |
| DC current gain                      | $h_{\text{FE}}^{*3}$ | $V_{\text{CE}} = 2\text{V}, I_{\text{C}} = 200\text{mA}$                     | 270    | -    | 680  | -    |
| Transition frequency                 | $f_{\text{T}}^{*3}$  | $V_{\text{CE}} = 2\text{V}, I_{\text{E}} = -200\text{mA}, f = 100\text{MHz}$ | -      | 400  | -    | MHz  |
| Output capacitance                   | $C_{\text{ob}}$      | $V_{\text{CB}} = 10\text{V}, I_{\text{E}} = 0\text{mA}, f = 1\text{MHz}$     | -      | 12   | -    | pF   |

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

\*2 Each terminal mounted on a reference land.

\*3 Pulsed

● Electrical characteristic curves ( $T_a = 25^\circ\text{C}$ )

Fig.1 Ground Emitter Propagation Characteristics

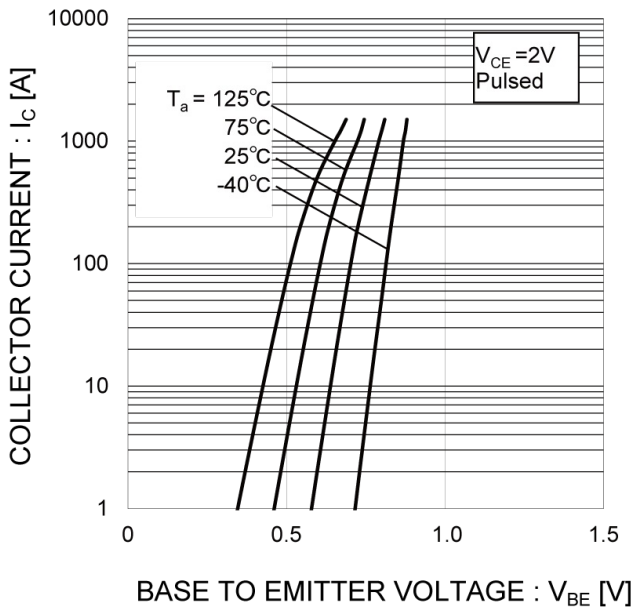


Fig.2 Typical Output Characteristics

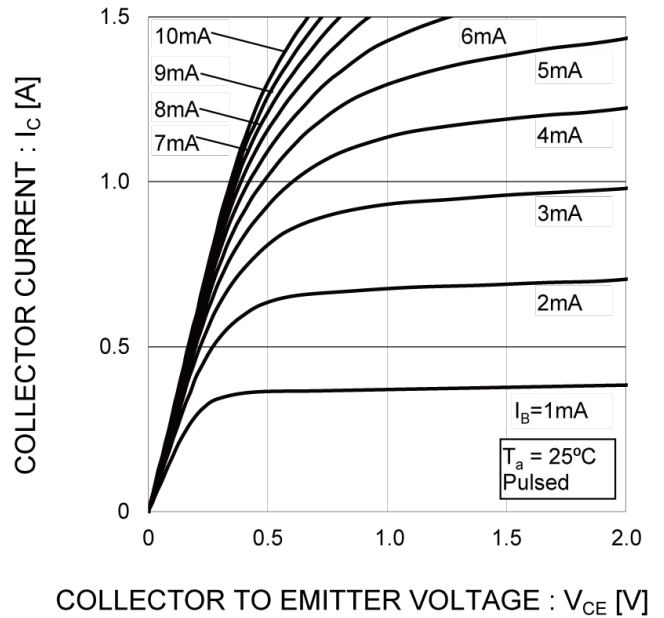


Fig.3 DC Current Gain vs. Collector Current (I)

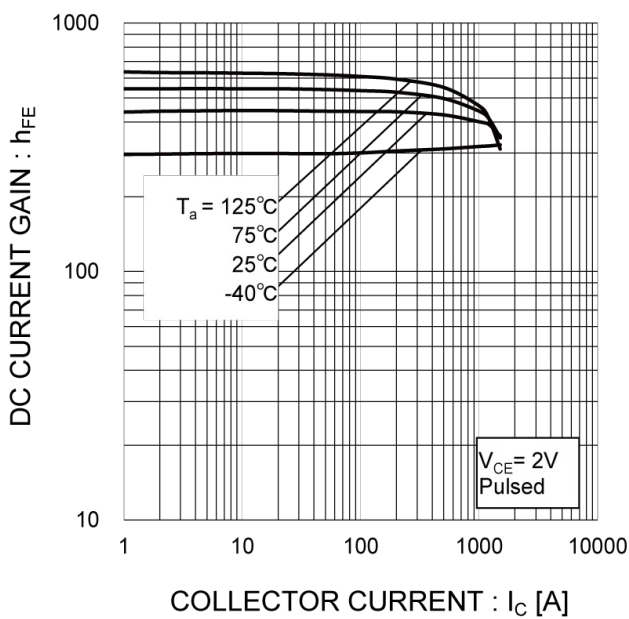
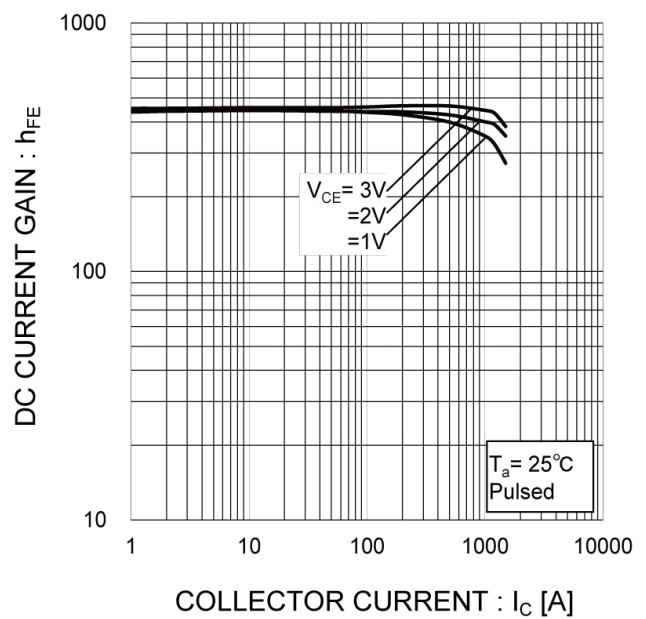


Fig.4 DC Current Gain vs. Collector Current (II)



● Electrical characteristic curves ( $T_a = 25^\circ\text{C}$ )

Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

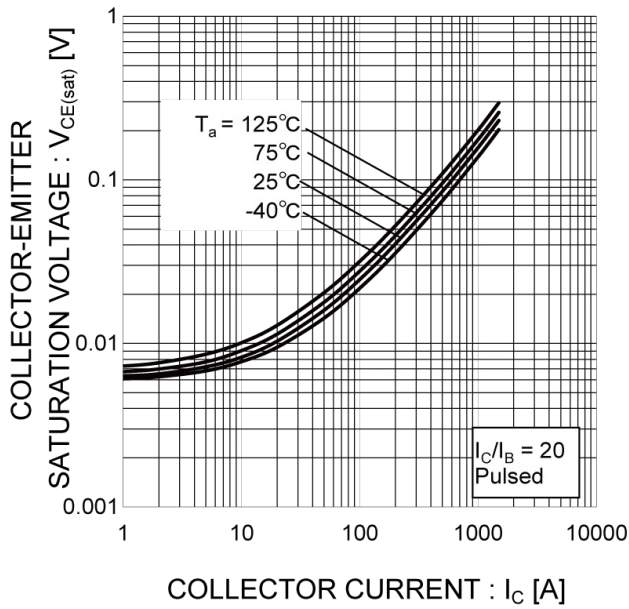


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

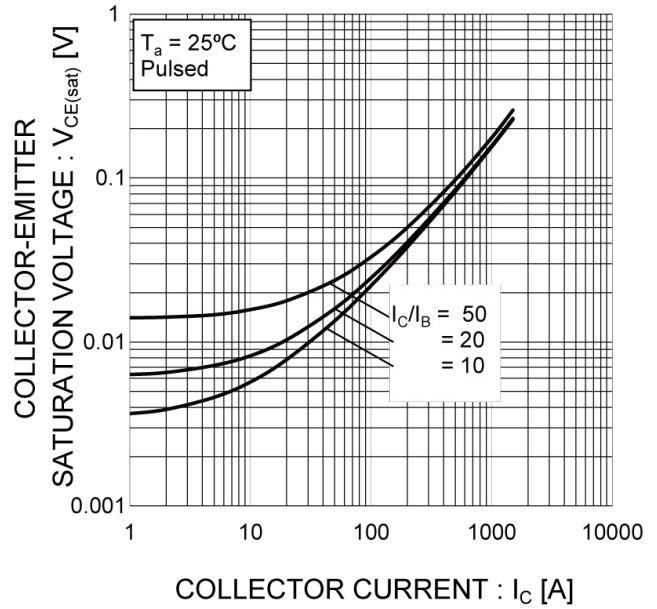


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

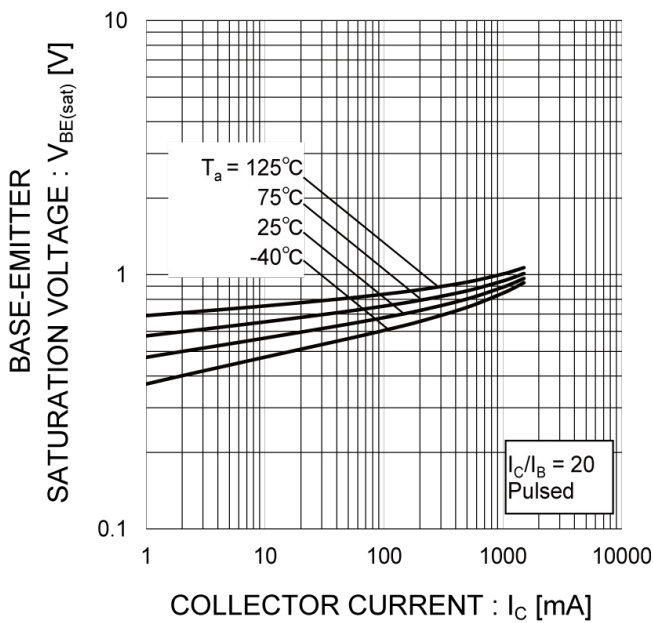
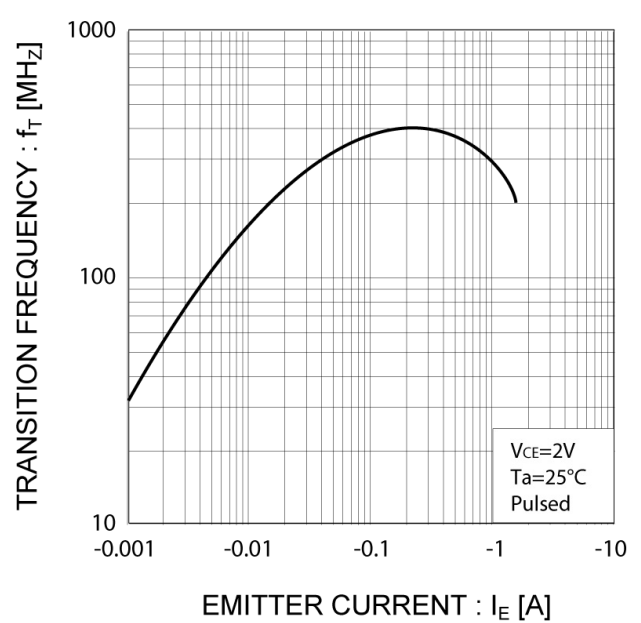


Fig.8 Gain Bandwidth Product vs. Emitter Current



●Electrical characteristic curves( $T_a = 25^\circ\text{C}$ )

Fig.9 Emitter Input Capacitance vs.  
Emitter-Base Voltage  
Collector Output Capacitance vs.  
Collector-Base Voltage

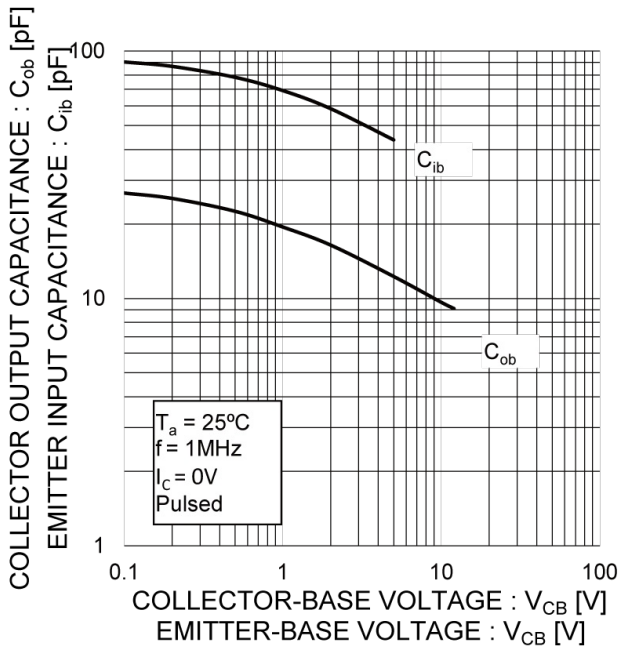
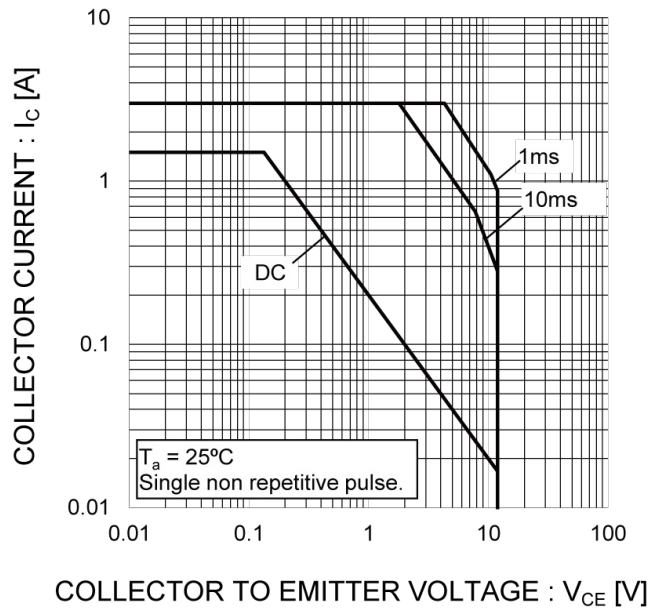
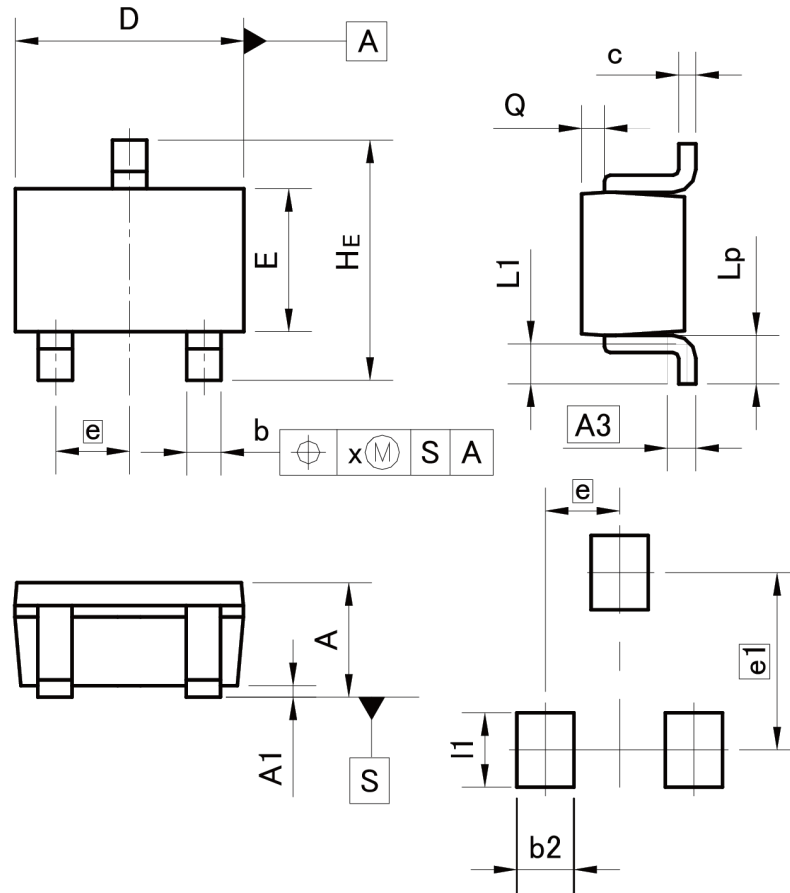


Fig.10 Safe Operating Area



●Dimensions

UMT3



Pattern of terminal position areas  
[Not a recommended pattern of soldering pads]

| DIM | MILIMETERS |      | INCHES |       |
|-----|------------|------|--------|-------|
|     | MIN        | MAX  | MIN    | MAX   |
| A   | 0.80       | 1.00 | 0.031  | 0.039 |
| A1  | 0.00       | 0.10 | 0.000  | 0.004 |
| A3  | 0.25       |      | 0.010  |       |
| b   | 0.15       | 0.30 | 0.006  | 0.012 |
| c   | 0.10       | 0.20 | 0.004  | 0.008 |
| D   | 1.90       | 2.10 | 0.075  | 0.083 |
| E   | 1.15       | 1.35 | 0.045  | 0.053 |
| e   | 0.65       |      | 0.026  |       |
| HE  | 2.00       | 2.20 | 0.079  | 0.087 |
| L1  | 0.20       | 0.50 | 0.008  | 0.020 |
| Lp  | 0.25       | 0.55 | 0.010  | 0.022 |
| Q   | 0.10       | 0.30 | 0.004  | 0.012 |
| x   | -          | 0.10 | -      | 0.004 |

| DIM | MILIMETERS |      | INCHES |       |
|-----|------------|------|--------|-------|
|     | MIN        | MAX  | MIN    | MAX   |
| b2  | -          | 0.50 | -      | 0.020 |
| e1  | 1.55       |      | 0.061  |       |
| l1  | -          | 0.65 | -      | 0.026 |

Dimension in mm/inches

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## 2SD2652 - Web Page

[Distribution Inventory](#)

|                             |         |
|-----------------------------|---------|
| Part Number                 | 2SD2652 |
| Package                     | UMT3    |
| Unit Quantity               | 3000    |
| Minimum Package Quantity    | 3000    |
| Packing Type                | Taping  |
| Constitution Materials List | inquiry |
| RoHS                        | Yes     |