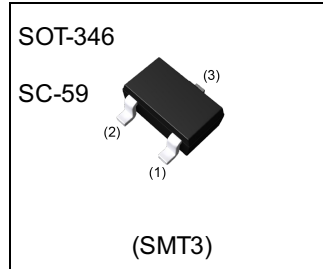


| Parameter | Value        |
|-----------|--------------|
| $V_{CEO}$ | -50V         |
| $I_C$     | -500mA       |
| R         | 10k $\Omega$ |

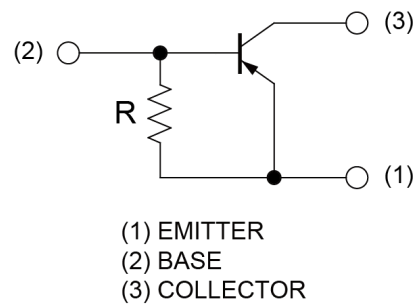
●Outline



●Features

- 1)The built-in bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input, and parasitic effects are almost completely eliminated.
- 2)Only the on/off conditions need to be set for operation, making device design easy.
- 3)Higher mounting densities can be achieved.

●Inner circuit



●Application

INVERTER, INTERFACE, DRIVER

●Packaging specifications

| Part No. | Package        | Package size | Taping code | Reel size (mm) | Tape width (mm) | Basic ordering unit.(pcs) | Marking |
|----------|----------------|--------------|-------------|----------------|-----------------|---------------------------|---------|
| DTB114GK | SOT-346 (SMT3) | 2928         | T146        | 180            | 8               | 3000                      | L14     |

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

| Parameter                    | Symbol              | Values      | Unit             |
|------------------------------|---------------------|-------------|------------------|
| Collector-base voltage       | $V_{\text{CBO}}$    | -50         | V                |
| Collector-emitter voltage    | $V_{\text{CEO}}$    | -50         | V                |
| Emitter-base voltage         | $V_{\text{EBO}}$    | -5          | V                |
| Collector current            | $I_{\text{C}}$      | -500        | mA               |
| Power dissipation            | $P_{\text{D}}^{*1}$ | 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     | $BV_{\text{CBO}}$    | $I_{\text{C}} = -50\mu\text{A}$   | -50    | -    | -    | V             |
| Collector-emitter breakdown voltage  | $BV_{\text{CEO}}$    | $I_{\text{C}} = -1\text{mA}$  | -50    | -    | -    | V             |
| Emitter-base breakdown voltage       | $BV_{\text{EBO}}$    | $I_{\text{E}} = -720\mu\text{A}$  | -5     | -    | -    | V             |
| Collector cut-off current            | $I_{\text{CBO}}$     | $V_{\text{CB}} = -50\text{V}$   | -      | -    | -500 | nA            |
| Emitter cut-off current              | $I_{\text{EBO}}$     | $V_{\text{EB}} = -4\text{V}$  | -300   | -    | -580 | $\mu\text{A}$ |
| Collector-emitter saturation voltage | $V_{\text{CE(sat)}}$ | $I_{\text{C}} = -50\text{mA}$ , $I_{\text{B}} = -2.5\text{mA}$                        | -      | -    | -300 | mV            |
| DC current gain                      | $h_{\text{FE}}^{*2}$ | $V_{\text{CE}} = -5\text{V}$ , $I_{\text{C}} = -50\text{mA}$                          | 56     | -    | -    | -             |
| Emitter-base resistance              | R                    | -   | 7      | 10   | 13   | k $\Omega$    |
| Transition frequency                 | $f_{\text{T}}^{*3}$  | $V_{\text{CE}} = -10\text{V}$ , $I_{\text{E}} = 50\text{mA}$ ,<br>$f = 100\text{MHz}$ | -      | 200  | -    | MHz           |

\*1 Each terminal mounted on a reference land.

\*2 Pulsed

\*3 Characteristics of built-in transistor.

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

Fig.1 Grounded Emitter Propagation Characteristics

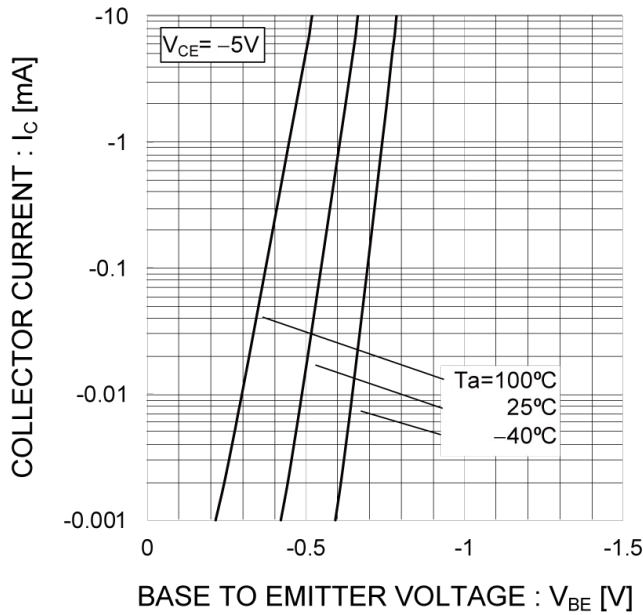


Fig.2 Grounded Emitter Output Characteristics

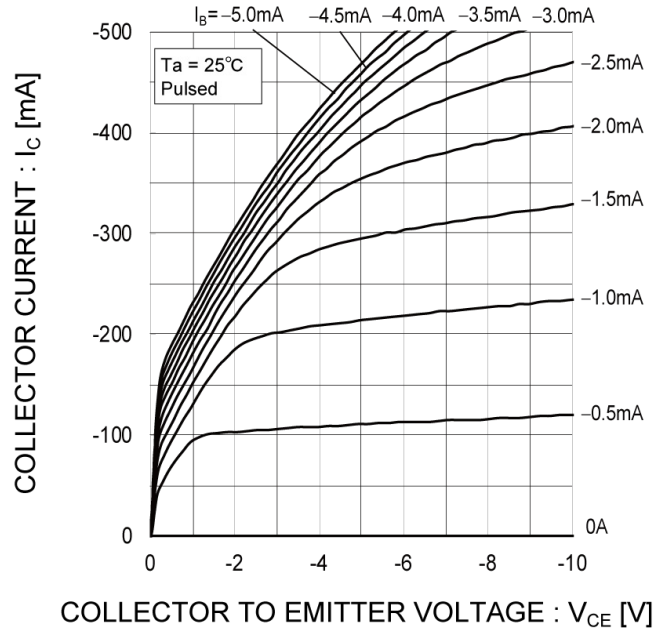


Fig.3 DC Current Gain vs. Collector Current

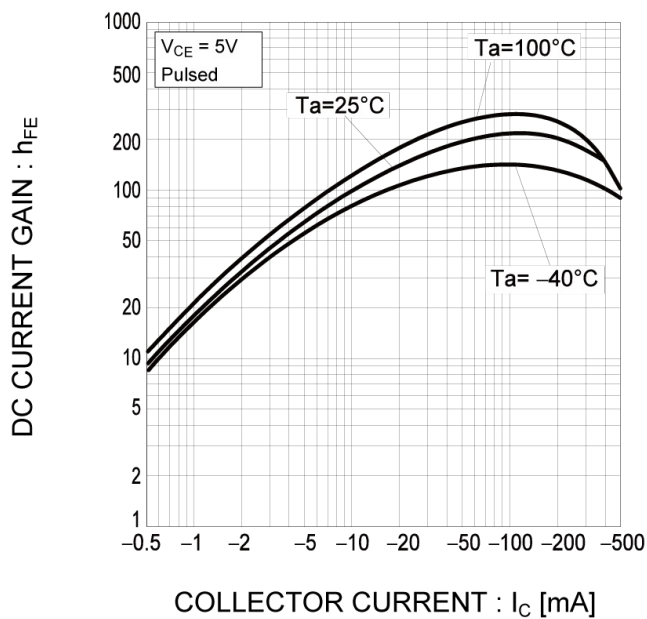
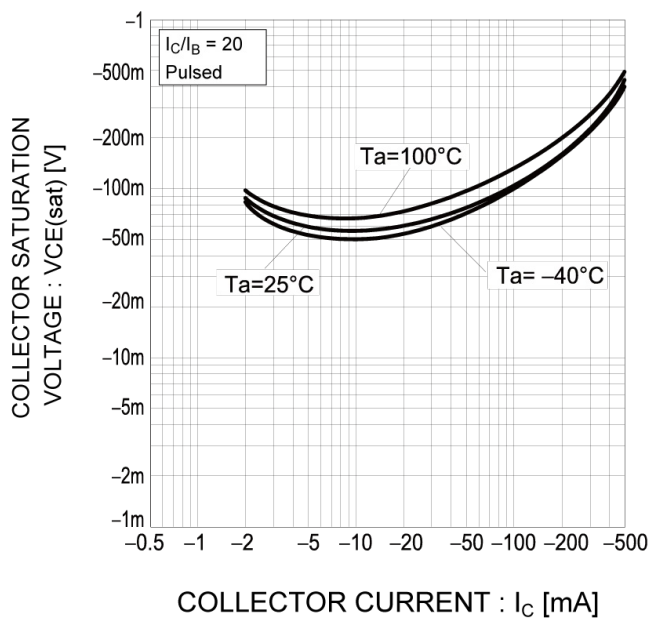
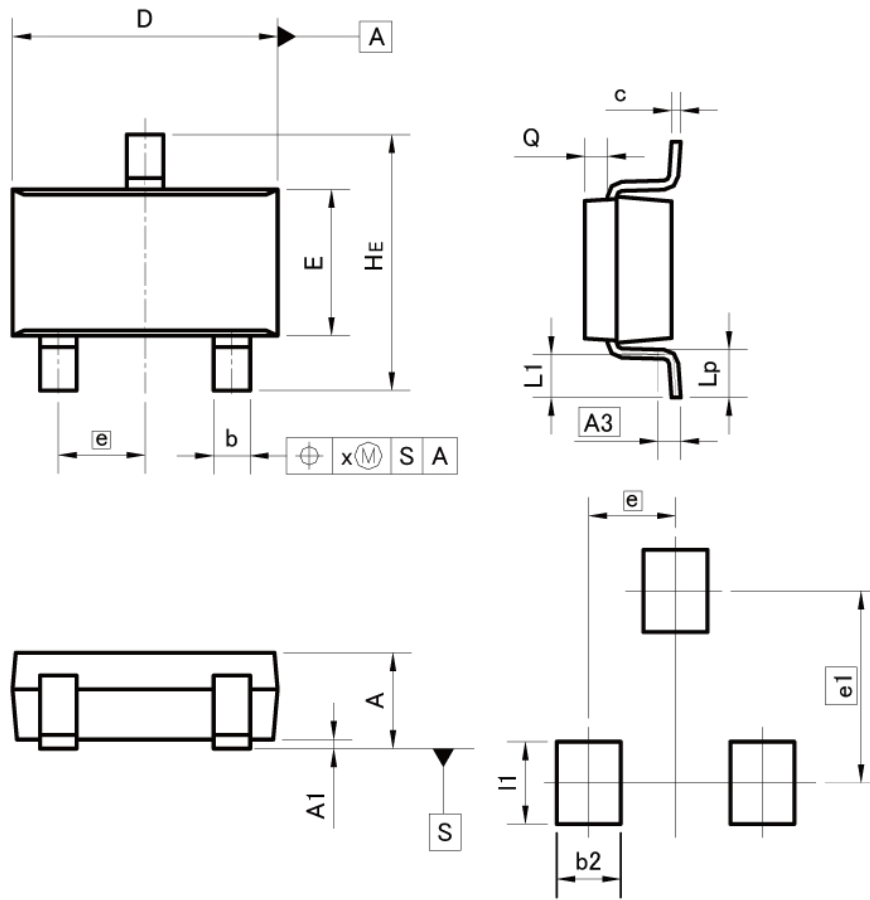


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current



●Dimensions

SOT-346  
SC-59  
(SMT3)



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

| DIM | MILIMETERS |      | INCHES |       |
|-----|------------|------|--------|-------|
|     | MIN        | MAX  | MIN    | MAX   |
| A   | 1.00       | 1.30 | 0.039  | 0.051 |
| A1  | 0.00       | 0.10 | 0.000  | 0.004 |
| A3  | 0.25       |      | 0.010  |       |
| b   | 0.35       | 0.50 | 0.014  | 0.020 |
| c   | 0.09       | 0.25 | 0.004  | 0.010 |
| D   | 2.80       | 3.00 | 0.110  | 0.118 |
| E   | 1.50       | 1.80 | 0.059  | 0.071 |
| e   | 0.95       |      | 0.037  |       |
| HE  | 2.60       | 3.00 | 0.102  | 0.118 |
| L1  | 0.30       | 0.60 | 0.012  | 0.024 |
| Lp  | 0.40       | 0.70 | 0.016  | 0.028 |
| Q   | 0.20       | 0.30 | 0.008  | 0.012 |
| x   | -          | 0.10 | -      | 0.004 |
| y   | -          | 0.10 | -      | 0.004 |

| DIM | MILIMETERS |      | INCHES |       |
|-----|------------|------|--------|-------|
|     | MIN        | MAX  | MIN    | MAX   |
| b2  | -          | 0.60 | -      | 0.024 |
| e1  | 2.10       |      | 0.083  |       |
| l1  | -          | 0.90 | -      | 0.035 |

Dimension in mm/inches

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| JAPAN     | USA       | EU         | CHINA     |
|-----------|-----------|------------|-----------|
| CLASS III | CLASS III | CLASS II b | CLASS III |
| CLASS IV  |           | CLASS III  |           |

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  - Use of our Products in places where the Products are exposed to sea wind or corrosive gases, including Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, and NO<sub>2</sub>
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  - Use of the Products in places subject to dew condensation
- The Products are not subject to radiation-proof design.
- Please verify and confirm characteristics of the final or mounted products in using the Products.
- In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse. is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.
- De-rate Power Dissipation (Pd) depending on Ambient temperature (Ta). When used in sealed area, confirm the actual ambient temperature.
- Confirm that operation temperature is within the specified range described in the product specification.
- ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

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1. Product performance and soldered connections may deteriorate if the Products are stored in the places where:
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  - [b] the temperature or humidity exceeds those recommended by ROHM
  - [c] the Products are exposed to direct sunshine or condensation
  - [d] the Products are exposed to high Electrostatic
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