

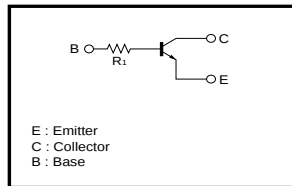
# Digital transistors (built in resistor)

## DTC115TH / DTC115TUA / DT115TKA / DTC115TSA

### ●Features

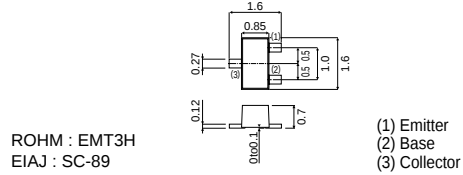
- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
- 2) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input, and parasitic effects are almost completely eliminated.
- 3) Only the on / off conditions need to be set for operation, making device design easy.
- 4) Higher mounting densities can be achieved.

### ●Equivalent circuit

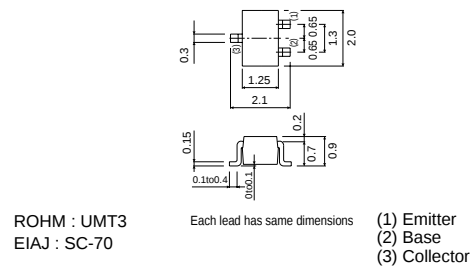


### ●External dimensions (Units : mm)

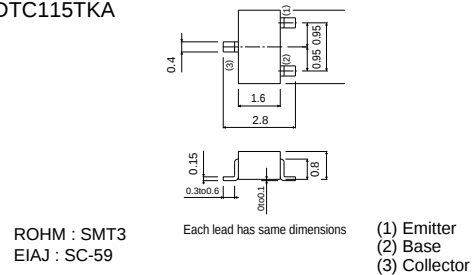
#### DTC115TH



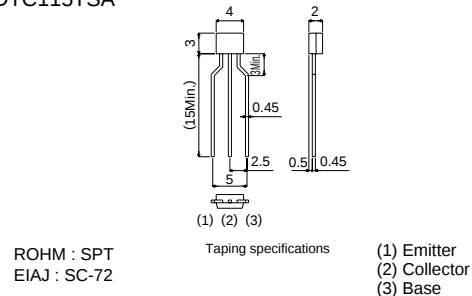
#### DTC115TUA



#### DTC115TKA



#### DTC115TSA



# DTC115TH / DTC115TUA / DTC115TKA / DTC115TSA

## Transistors

### ●Absolute maximum ratings (Ta=25°C)

| Parameter                   | Symbol                | Limits   | Unit |
|-----------------------------|-----------------------|----------|------|
| Collector-base voltage      | V <sub>CB0</sub>      | 50       | V    |
| Collector-emitter voltage   | V <sub>CE0</sub>      | 50       | V    |
| Emitter-base voltage        | V <sub>EB0</sub>      | 5        | V    |
| Collector current           | I <sub>c</sub>        | 100      | mA   |
| Collector power dissipation | DTC115TH              | 150      | mW   |
|                             | DTC115TUA / DTC115TKA | 200      |      |
|                             | DTC115TSA             | 300      |      |
| Junction temperature        | T <sub>j</sub>        | 150      | °C   |
| Storage temperature         | T <sub>stg</sub>      | -55~+150 | °C   |

### ●Packaging, marking, and packaging specifications

| Part No.                     | DTC115TH | DTC115TUA | DTC115TKA | DTC115TSA |
|------------------------------|----------|-----------|-----------|-----------|
| Package                      | EMT3H    | UMT3      | SMT3      | SPT       |
| Marking                      | 09       | 09        | 09        | -         |
| Packaging code               | T2L      | T106      | T146      | TP        |
| Basic ordering unit (pieces) | 8000     | 3000      | 3000      | 5000      |

### ●Electrical characteristics (Ta=25°C)

| Parameter                            | Symbol               | Min. | Typ. | Max. | Unit | Conditions                                           |
|--------------------------------------|----------------------|------|------|------|------|------------------------------------------------------|
| Collector-base breakdown voltage     | BV <sub>CB0</sub>    | 50   | -    | -    | V    | I <sub>c</sub> =50μA                                 |
| Collector-emitter breakdown voltage  | BV <sub>CE0</sub>    | 50   | -    | -    | V    | I <sub>c</sub> =1mA                                  |
| Emitter-base breakdown voltage       | BV <sub>EB0</sub>    | 5    | -    | -    | V    | I <sub>e</sub> =50μA                                 |
| Collector cutoff current             | I <sub>CB0</sub>     | -    | -    | 0.5  | μA   | V <sub>CB</sub> =50V                                 |
| Emitter cutoff current               | I <sub>EB0</sub>     | -    | -    | 0.5  | μA   | V <sub>EB</sub> =4V                                  |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | -    | -    | 0.3  | V    | I <sub>c</sub> /I <sub>b</sub> =1mA/0.1mA            |
| DC current transfer ratio            | h <sub>FE</sub>      | 100  | 250  | 600  | -    | I <sub>c</sub> =1mA, V <sub>CE</sub> =5V             |
| Input resistance                     | R <sub>i</sub>       | 70   | 100  | 130  | kΩ   | -                                                    |
| Transition frequency                 | f <sub>T</sub>       | -    | 250  | -    | MHz  | V <sub>CE</sub> =10V, I <sub>E</sub> =-5mA, f=100MHz |

\* Transition frequency of the device.