

# RT1N141U-T150

Transistor With Resistor  
For Switching Application  
Silicon NPN Epitaxial Type

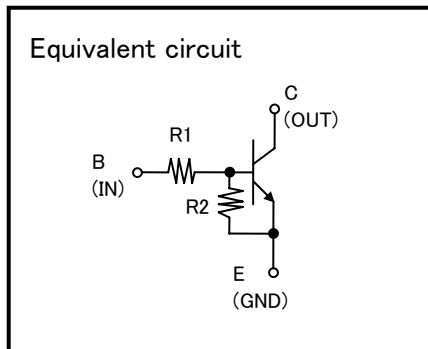
AEC-Q101 Compliance

## FEATURE

- Built-in bias resistor ( $R1=10k\Omega, R2=10k\Omega$ )
- Mini package for easy mounting

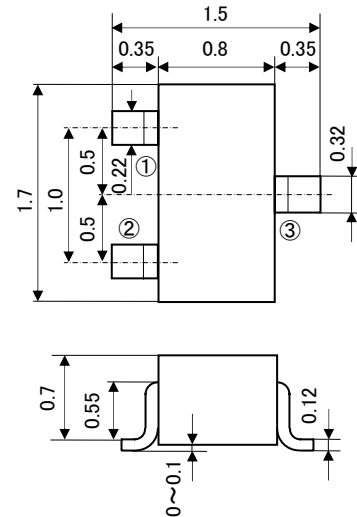
## APPLICATION

Inverted circuit, switching circuit, interface circuit, driver circuit.



## OUTLINE DRAWING

UNIT : mm



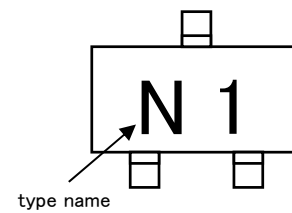
Terminal  
Connector

- ① : Base            JEITA : SC-75A  
② : Emitter        JEDEC : —  
③ : Collector

## MAXIMUM RATING ( $T_a=25^\circ\text{C}$ )

| SYMBOL    | PARAMETER                    | RATING   | UNIT             |
|-----------|------------------------------|----------|------------------|
| $V_{CBO}$ | Collector to Base voltage    | 50       | V                |
| $V_{EBO}$ | Emitter to Base voltage      | 10       | V                |
| $V_{CEO}$ | Collector to Emitter voltage | 50       | V                |
| $V_{IN}$  | Input voltage                | 40       | V                |
| $I_C$     | Collector current            | 100      | mA               |
| $I_{CM}$  | Peak Collector current       | 200      | mA               |
| $P_C$     | Collector dissipation        | 150      | mW               |
| $T_j$     | Junction temperature         | +150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage temperature          | -55~+150 | $^\circ\text{C}$ |

## MARKING



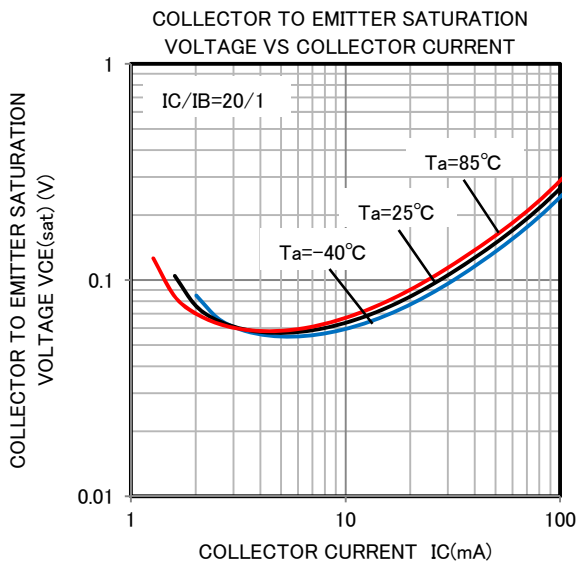
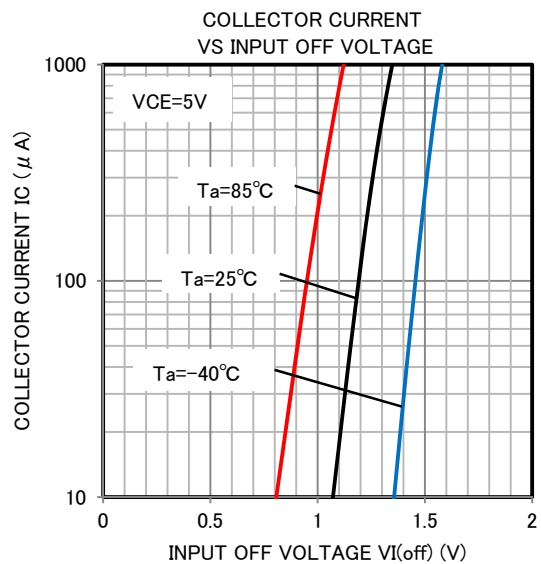
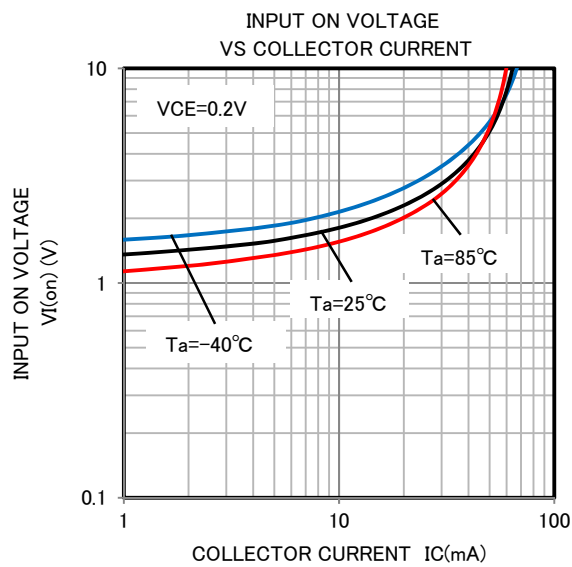
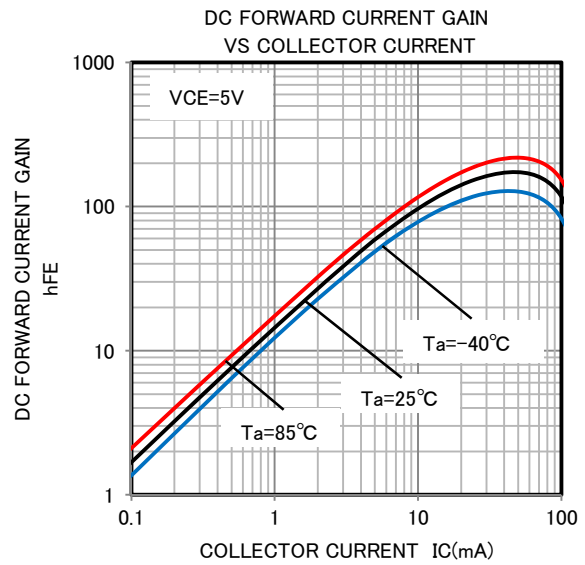
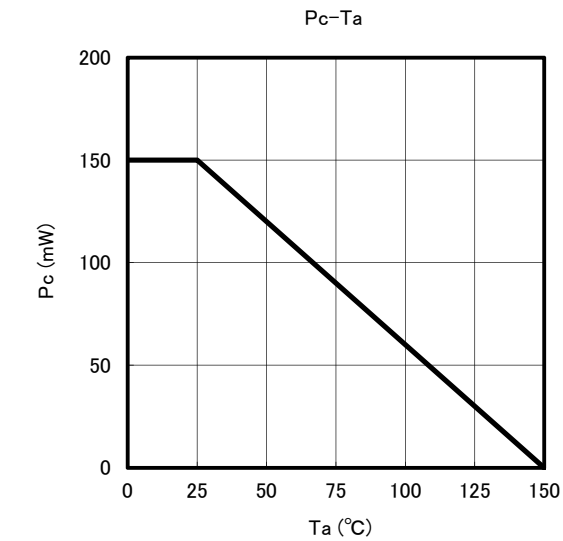
## ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ )

| SYMBOL        | PARAMETER                 | TEST CONDITION                         | LIMIT |     |     | UNIT          |
|---------------|---------------------------|--|-------|-----|-----|---------------|
|               |                           |  | MIN   | TYP | MAX |               |
| $V_{(BR)CEO}$ | C to E breakdown voltage  | $I_C=100\mu\text{A}, R_{BE}=\infty$    | 50    | —   | —   | V             |
| $I_{CBO}$     | Collector cut off current | $V_{CB}=50\text{V}, I_E=0$             | —     | —   | 0.1 | $\mu\text{A}$ |
| $I_{EBO}$     | Emitter cut off current   | $V_{EB}=5\text{V}, I_C=0$              | 192   | 250 | 357 | $\mu\text{A}$ |
| $h_{FE}$      | DC forward current gain   | $V_{CE}=5\text{V}, I_C=10\text{mA}$    | 50    | —   | —   | —             |
| $V_{CE(sat)}$ | C to E saturation voltage | $I_C=10\text{mA}, I_B=0.5\text{mA}$    | —     | 0.1 | 0.3 | V             |
| $V_{I(ON)}$   | Input on voltage          | $V_{CE}=0.2\text{V}, I_C=5\text{mA}$   | —     | 1.5 | 3.0 | V             |
| $V_{I(OFF)}$  | Input off voltage         | $V_{CE}=5\text{V}, I_C=100\mu\text{A}$ | 0.8   | 1.1 | —   | V             |
| R1            | Input resistor            | —                                      | 7     | 10  | 13  | $k\Omega$     |
| R2/R1         | Resistor ratio            | —                                      | 0.9   | 1.0 | 1.1 | —             |
| $f_T$         | Gain band width product   | $V_{CE}=6\text{V}, I_E=-10\text{mA}$   | —     | 200 | —   | MHz           |

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## TYPICAL CHARACTERISTICS





**Keep safety first in your circuit designs!**

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