

# RT2N12M-T150

Composite Transistor With Resistor  
For Switching Application  
Silicon NPN Epitaxial Type

AEC-Q101 Compliance

## DESCRIPTION

RT2N12M is composite transistor with built-in bias resistor.

## FEATURE

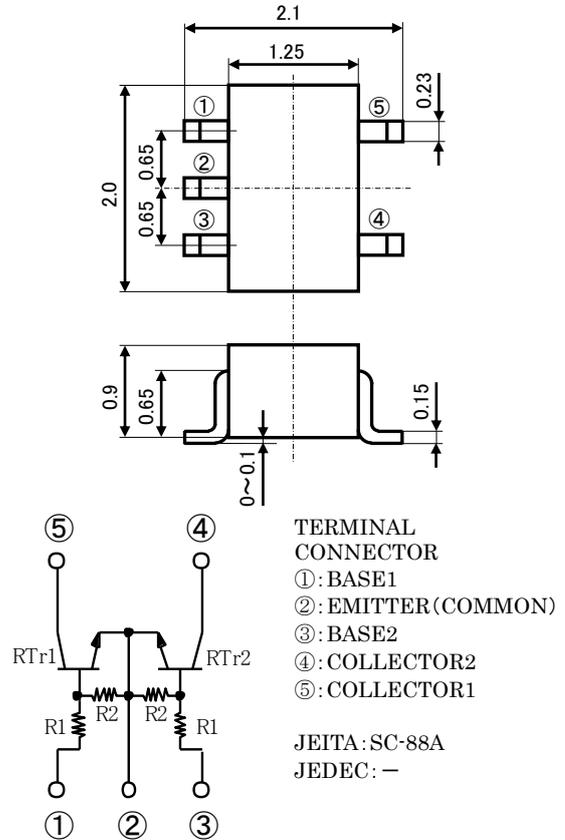
Built-in bias resistor ( $R_1=4.7k\Omega$ ,  $R_2=47k\Omega$ )  
Mini package for easy mounting

## APPLICATION

Inverted circuit, Switching circuit,  
Interface circuit, Driver circuit

## OUTLINE DRAWING

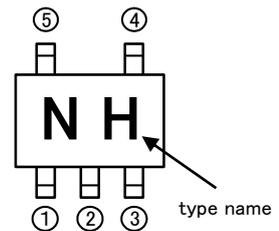
Unit: mm



## MAXIMUM RATING ( $T_a=25^\circ\text{C}$ ) (RT<sub>r1</sub>, RT<sub>r2</sub> COMMON)

| SYMBOL    | PARAMETER                    | RATING   | UNIT             |
|-----------|------------------------------|----------|------------------|
| $V_{CB0}$ | Collector to Base voltage    | 50       | V                |
| $V_{EB0}$ | Emitter to Base voltage      | 6        | V                |
| $V_{CEO}$ | Collector to Emitter voltage | 50       | V                |
| $V_{IN}$  | Input voltage                | 30       | V                |
| $I_C$     | Collector current            | 100      | mA               |
| $I_{CM}$  | Peak Collector current       | 200      | mA               |
| $P_T$     | Total dissipation            | 200      | mW               |
| $T_j$     | Junction temperature         | +150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage temperature          | -55~+150 | $^\circ\text{C}$ |

## MARKING



## ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ ) (RT<sub>r1</sub>, RT<sub>r2</sub> COMMON)

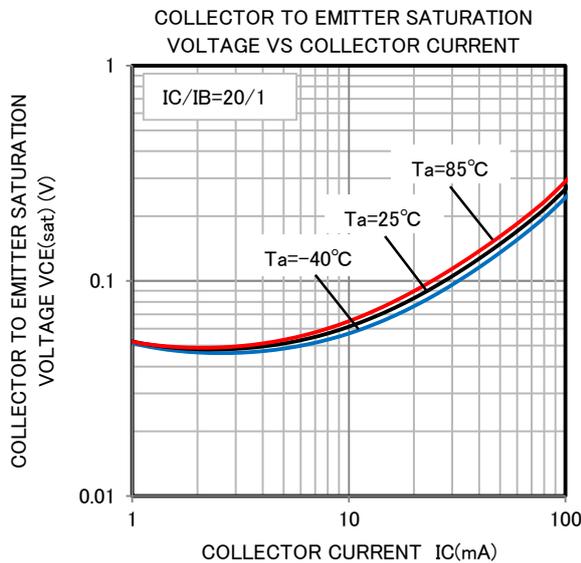
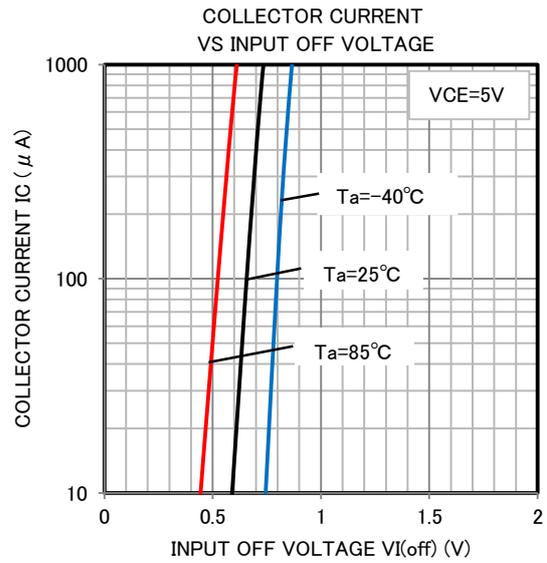
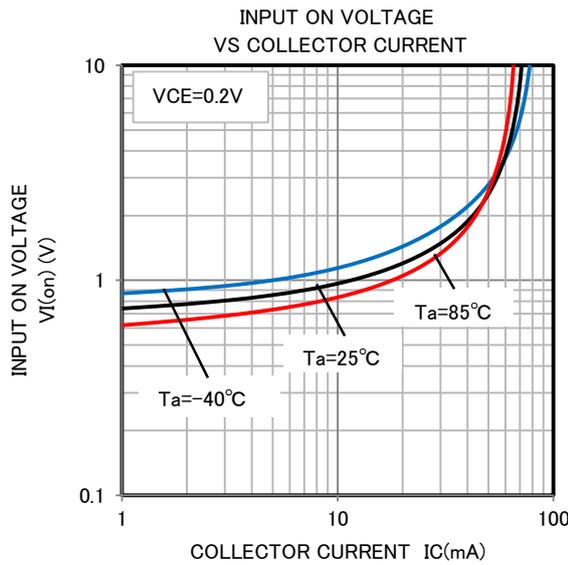
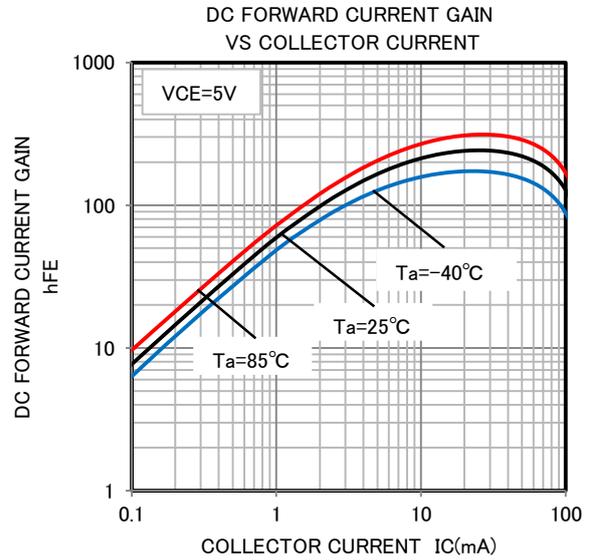
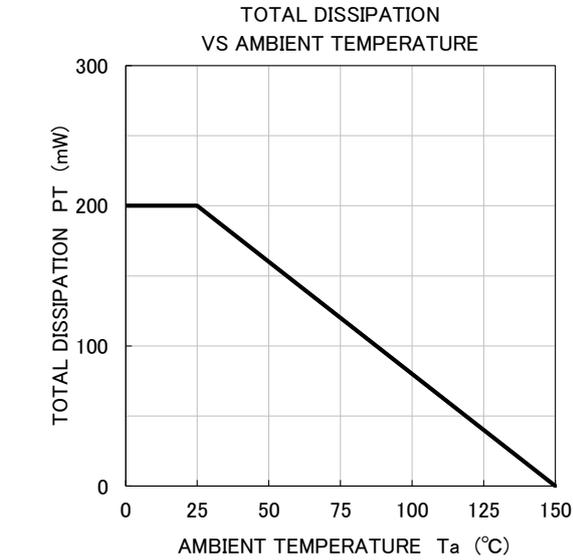
| SYMBOL        | PARAMETER                               | TEST CONDITIONS                           | LIMITS |     |     | UNIT          |
|---------------|---|---|--------|-----|-----|---------------|
|               |   |   | MIN    | TYP | MAX |               |
| $V_{(BR)CEO}$ | Collector to Emitter breakdown voltage  | $I_C=100\mu\text{A}$ , $R_{BE}=\infty$    | 50     | -   | -   | V             |
| $I_{CB0}$     | Collector cut off current               | $V_{CB}=50\text{V}$ , $I_E=0$             | -      | -   | 0.1 | $\mu\text{A}$ |
| $I_{EB0}$     | Emitter cut off current                 | $V_{EB}=5\text{V}$ , $I_C=0$              | 73     | 97  | 140 | $\mu\text{A}$ |
| $h_{FE}$      | DC forward current gain                 | $V_{CE}=5\text{V}$ , $I_C=10\text{mA}$    | 80     | -   | -   | -             |
| $V_{CE(sat)}$ | Collector to Emitter saturation voltage | $I_C=10\text{mA}$ , $I_B=0.5\text{mA}$    | -      | -   | 0.3 | V             |
| $V_{I(ON)}$   | Input on voltage                        | $V_{CE}=0.2\text{V}$ , $I_C=5\text{mA}$   | -      | 0.8 | 1.4 | V             |
| $V_{I(OFF)}$  | Input off voltage                       | $V_{CE}=5\text{V}$ , $I_C=100\mu\text{A}$ | 0.4    | 0.6 | -   | V             |
| $R_1$         | Input resistor                          | -   | 3.3    | 4.7 | 6.1 | $k\Omega$     |
| $R_2/R_1$     | Resistor ratio                          | -   | 8      | 10  | 12  | -             |
| $f_T$         | Gain band width product                 | $V_{CE}=6\text{V}$ , $I_E=-10\text{mA}$   | -      | 200 | -   | MHz           |

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## TYPICAL CHARACTERISTICS

(RTr1, RTr2 COMMON)



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

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