

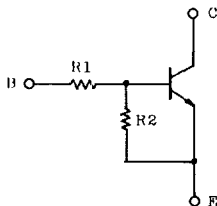
# RN1007, 1008, 1009

SWITCHING, INVERTER CIRCUIT, INTERFACE CIRCUIT  
AND DRIVER CIRCUIT APPLICATIONS.

## FEATURES:

- . With Built-in Bias Resistors
- . Simplify Circuit Design
- . Reduce a Quantity of Parts and Manufacturing Process
- . Complementary to RN2007~2009

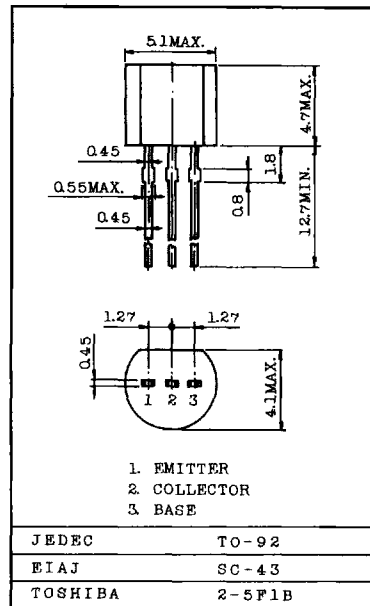
## EQUIVALENT CIRCUIT



## BIAS RESISTOR VALUES

| TYPE No. | R1 (k $\Omega$ ) | R2 (k $\Omega$ ) |
|----------|------------------|------------------|
| RN1007   | 10               | 47               |
| RN1008   | 22               | 47               |
| RN1009   | 47               | 22               |

Unit in mm



Weight : 0.21g

## MAXIMUM RATINGS (Ta=25°C)

| CHARACTERISTIC              | SYMBOL           | RATING  | UNIT |
|-----------------------------|------------------|---------|------|
| Collector-Base Voltage      | V <sub>CB0</sub> | 50      | V    |
| Collector-Emitter Voltage   | V <sub>CE0</sub> | 50      | V    |
| Emitter-Base Voltage        | RN1007           | 6       | V    |
|                             | RN1008           | 7       |      |
|                             | RN1009           | 15      |      |
| Collector Current           | I <sub>C</sub>   | 100     | mA   |
| Collector Power Dissipation | P <sub>C</sub>   | 400     | mW   |
| Junction Temperature        | T <sub>j</sub>   | 150     | °C   |
| Storage Temperature Range   | T <sub>stg</sub> | -55~150 | °C   |

**ELECTRICAL CHARACTERISTICS (Ta=25°C)**

| CHARACTERISTIC                       |        | SYMBOL                         | TEST CONDITION                                    | MIN.  | TYP.  | MAX.  | UNIT |
|--------------------------------------|--------|--------------------------------|---------------------------------------------------|-------|-------|-------|------|
| Collector Cut-off Current            |        | I <sub>CBO</sub>               | V <sub>CB</sub> =50V, I <sub>E</sub> =0           | -     | -     | 100   | nA   |
|                                      |        | I <sub>CEO</sub>               | V <sub>CE</sub> =50V, I <sub>B</sub> =0           | -     | -     | 500   | nA   |
| Emitter Cut-off Current              | RN1007 | I <sub>EBO</sub>               | V <sub>EB</sub> =6V, I <sub>C</sub> =0            | 0.081 | -     | 0.15  | mA   |
|                                      | RN1008 |                                | V <sub>EB</sub> =7V, I <sub>C</sub> =0            | 0.078 | -     | 0.145 |      |
|                                      | RN1009 |                                | V <sub>EB</sub> =15V, I <sub>C</sub> =0           | 0.167 | -     | 0.311 |      |
| DC Current Gain                      | RN1007 | h <sub>FE</sub>                | V <sub>CE</sub> =5V, I <sub>C</sub> =10mA         | 80    | -     | -     | -    |
|                                      | RN1008 |                                |                                                   | 80    | -     | -     |      |
|                                      | RN1009 |                                |                                                   | 70    | -     | -     |      |
| Collector-Emitter Saturation Voltage |        | V <sub>CE(sat)</sub>           | I <sub>C</sub> =5mA, I <sub>B</sub> =0.25mA       | -     | 0.1   | 0.3   | V    |
| Input Voltage (ON)                   | RN1007 | V <sub>I(ON)</sub>             | V <sub>CE</sub> =0.2V, I <sub>C</sub> =5mA        | 0.7   | -     | 1.8   | V    |
|                                      | RN1008 |                                |                                                   | 1.0   | -     | 2.6   |      |
|                                      | RN1009 |                                |                                                   | 2.2   | -     | 5.8   |      |
| Input Voltage (OFF)                  | RN1007 | V <sub>I(OFF)</sub>            | V <sub>CE</sub> =5V, I <sub>C</sub> =0.1mA        | 0.5   | -     | 1.0   | V    |
|                                      | RN1008 |                                |                                                   | 0.6   | -     | 1.16  |      |
|                                      | RN1009 |                                |                                                   | 1.5   | -     | 2.6   |      |
| Transition Frequency                 |        | f <sub>T</sub>                 | V <sub>CE</sub> =10V, I <sub>C</sub> =5mA         | -     | 250   | -     | MHz  |
| Collector Output Capacitance         |        | C <sub>ob</sub>                | V <sub>CB</sub> =10V, I <sub>E</sub> =0<br>f=1MHz | -     | 3     | 6     | pF   |
| Input Resistor                       | RN1007 | R <sub>I</sub>                 |                                                   | 7     | 10    | 13    | kΩ   |
|                                      | RN1008 |                                |                                                   | 15.4  | 22    | 28.6  |      |
|                                      | RN1009 |                                |                                                   | 32.9  | 47    | 61.1  |      |
| Resistor Ratio                       | RN1007 | R <sub>I</sub> /R <sub>2</sub> |                                                   | 0.191 | 0.213 | 0.232 | -    |
|                                      | RN1008 |                                |                                                   | 0.421 | 0.468 | 0.515 |      |
|                                      | RN1009 |                                |                                                   | 1.92  | 2.14  | 2.35  |      |

