

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

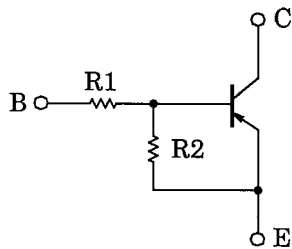
RN2507, RN2508, RN2509

Switching, Inverter Circuit, Interface Circuit
And Driver Circuit Applications

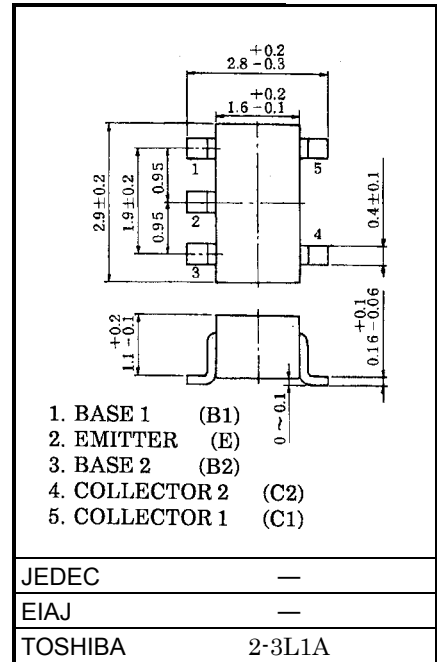
Unit in mm

- Including two devices in SMV (super mini type with 5 leads)
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1507~RN1509

Equivalent Circuit and Bias Resistor Values

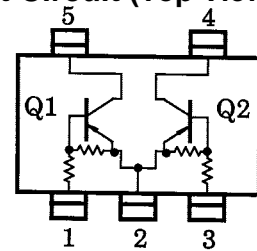


| Type No. | R1 (kΩ) | R2 (kΩ) |
|----------|---------|---------|
| RN2507 | 10 | 47 |
| RN2508 | 22 | 47 |
| RN2509 | 47 | 22 |



Weight: 0.014g

Equivalent Circuit (Top View)



Maximum Ratings (Ta = 25°C) (Q1, Q2 Common)

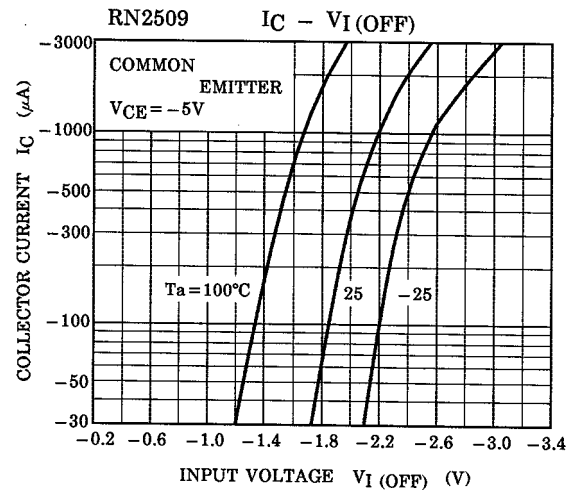
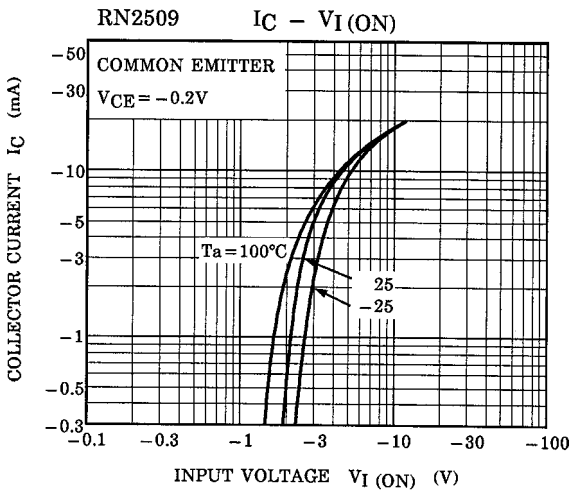
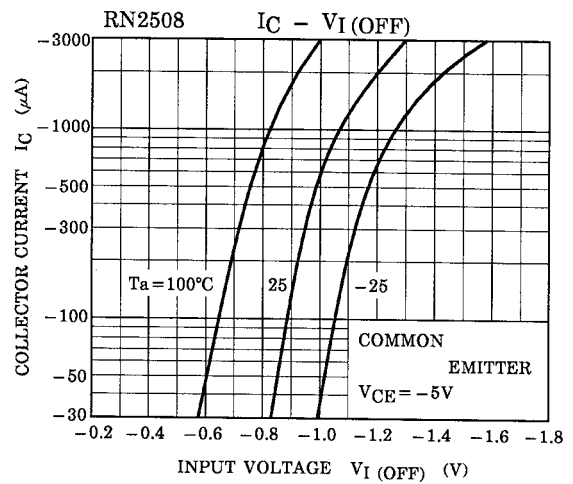
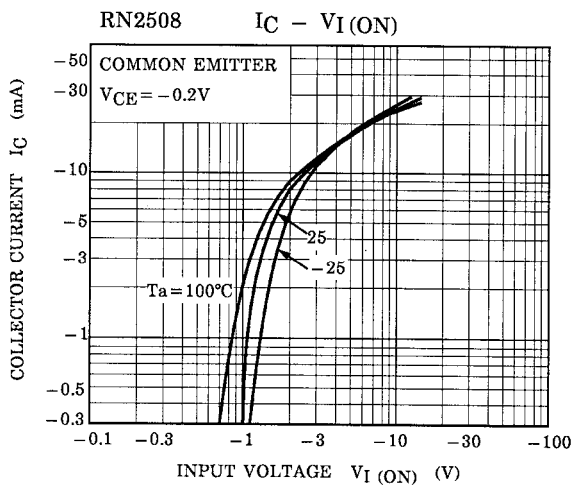
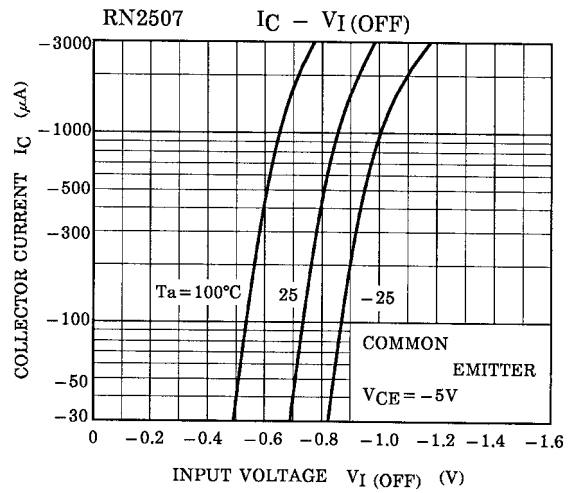
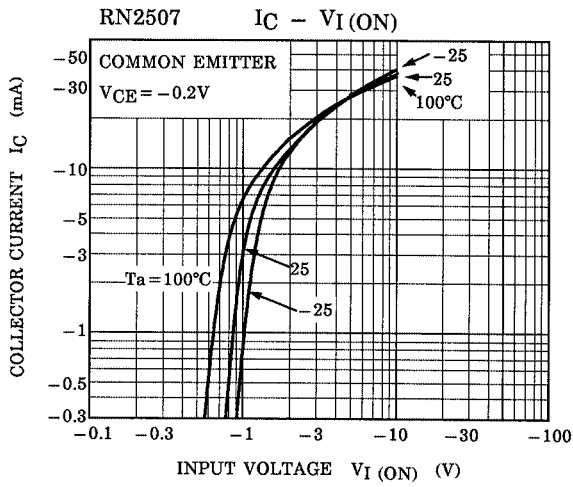
| Characteristic | Symbol | Rating | Unit | |
|-----------------------------|---------------|-----------|---------|----|
| Collector-base voltage | RN2507~RN2509 | V_{CB0} | -50 | V |
| Collector-emitter voltage | | V_{CEO} | -50 | V |
| Emitter-base voltage | RN2507 | V_{EBO} | -6 | V |
| | RN2508 | | -7 | |
| | RN2509 | | -15 | |
| Collector current | RN2507~RN2509 | I_C | -100 | mA |
| Collector power dissipation | | P_C^* | 300 | mW |
| Junction temperature | | T_j | 150 | °C |
| Storage temperature range | | T_{stg} | -55~150 | °C |

* Total rating

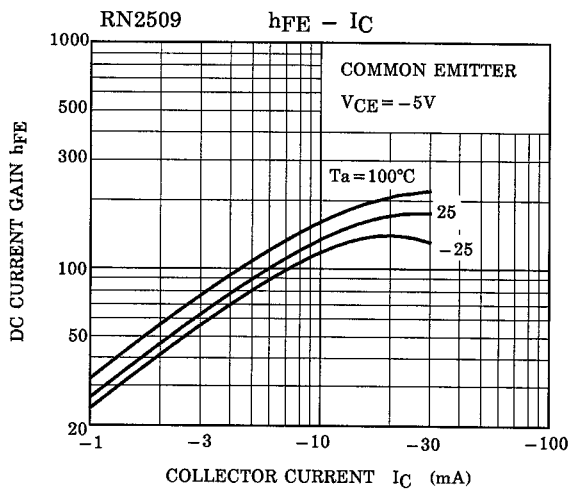
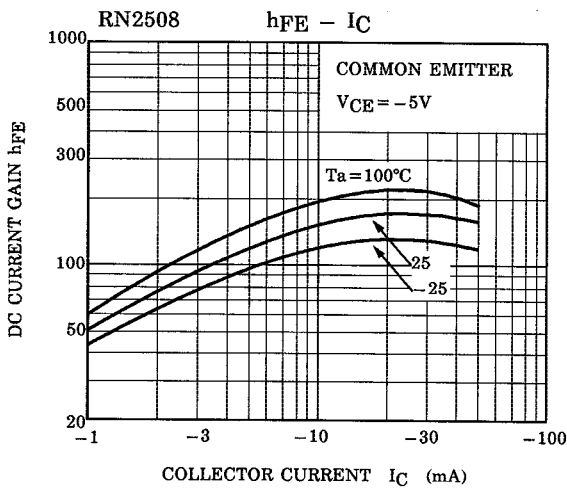
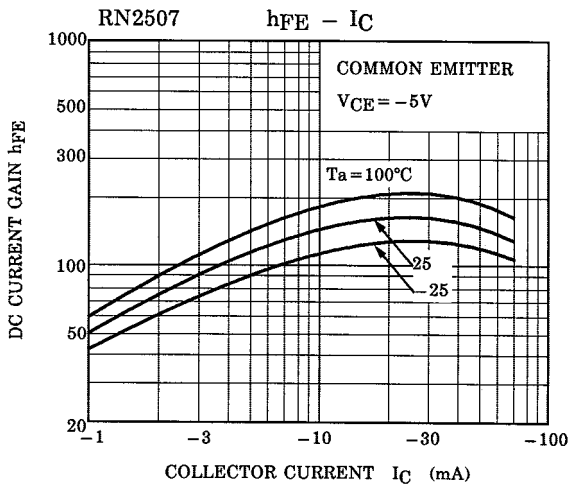
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

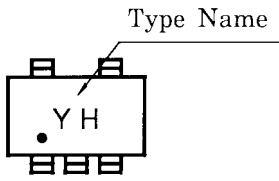
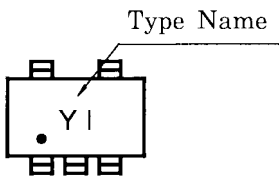
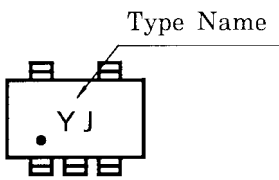
| Characteristic | | Symbol | Test Circuit | Test Condition | Min | Typ. | Max | Unit |
|--------------------------------------|---------------|-----------------------|--------------|--|--------|-------|--------|------|
| Collector cut-off current | RN2507~RN2509 | ICBO | — | V _{CB} = -50V, I _E = 0 | — | — | -100 | nA |
| | | ICEO | — | V _{CE} = -50V, I _B = 0 | — | — | -500 | nA |
| Emitter cut-off current | RN2507 | IEBO | — | V _{EB} = -6V, I _C = 0 | -0.081 | — | -0.15 | mA |
| | RN2508 | | — | V _{EB} = -7V, I _C = 0 | -0.078 | — | -0.145 | |
| | RN2509 | | — | V _{EB} = -15V, I _C = 0 | -0.167 | — | -0.311 | |
| DC current gain | RN2507 | h _{FE} | — | V _{CE} = -5V, I _C = -10mA | 80 | — | — | — |
| | RN2508 | | — | | 80 | — | — | |
| | RN2509 | | — | | 70 | — | — | |
| Collector-emitter saturation voltage | RN2507~RN2509 | V _{CE (sat)} | — | I _C = -5mA, I _B = -0.25mA | — | -0.1 | -0.3 | V |
| Input voltage (ON) | RN2507 | V _{I (ON)} | — | V _{CE} = -0.2V, I _C = -5mA | -0.7 | — | -1.8 | V |
| | RN2508 | | — | | -1.0 | — | -2.6 | |
| | RN2509 | | — | | -2.2 | — | -5.8 | |
| Input voltage (OFF) | RN2507 | V _{I (OFF)} | — | V _{CE} = -5V, I _C = -0.1mA | -0.5 | — | -1.0 | V |
| | RN2508 | | — | | -0.6 | — | -1.16 | |
| | RN2509 | | — | | -1.5 | — | -2.6 | |
| Translation frequency | RN2507~RN2509 | f _T | — | V _{CE} = -10V, I _C = -5mA | — | 200 | — | MHz |
| Collector output capacitance | RN2507~RN2509 | C _{ob} | — | V _{CB} = -10V, I _E = 0 f = 1MHz | — | 3 | 6 | pF |
| Input resistor | RN2507 | R1 | — | — | 7 | 10 | 13 | kΩ |
| | RN2508 | | — | | 15.4 | 22 | 28.6 | |
| | RN2509 | | — | | 32.9 | 47 | 61.1 | |
| Resistor ratio | RN2507 | R1/R2 | — | — | 0.191 | 0.213 | 0.232 | — |
| | RN2508 | | — | | 0.421 | 0.468 | 0.515 | |
| | RN2509 | | — | | 1.92 | 2.14 | 2.35 | |

(Q1, Q2 Common)



(Q1, Q2 Common)



| Type Name | Marking |
|-----------|--|
| RN2507 |  <p>The diagram shows a rectangular component with two pins on top and four pins on the bottom. The marking 'YH' is printed on the component, with a small dot to the left of the 'Y'. A line points from the text 'Type Name' to the 'Y' character.</p> |
| RN2508 |  <p>The diagram shows a rectangular component with two pins on top and four pins on the bottom. The marking 'YI' is printed on the component, with a small dot to the left of the 'Y'. A line points from the text 'Type Name' to the 'Y' character.</p> |
| RN2509 |  <p>The diagram shows a rectangular component with two pins on top and four pins on the bottom. The marking 'YJ' is printed on the component, with a small dot to the left of the 'Y'. A line points from the text 'Type Name' to the 'Y' character.</p> |

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