

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

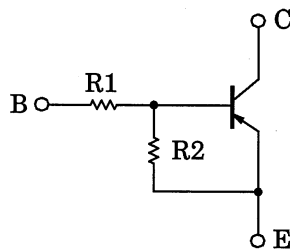
RN2307, RN2308, RN2309

Switching, Inverter Circuit, Interface Circuit
And Driver Circuit Applications

Unit in mm

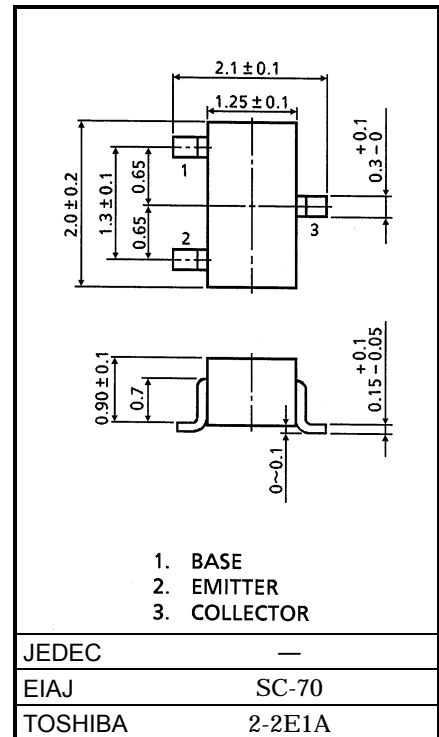
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1307~RN1309

Equivalent Circuit



Bias Resistor Values

| Type No. | R1 (kΩ) | R2 (kΩ) |
|----------|---------|---------|
| RN2307 | 10 | 47 |
| RN2308 | 22 | 47 |
| RN2309 | 47 | 22 |



Weight: 0.006g

Maximum Ratings (Ta = 25°C)

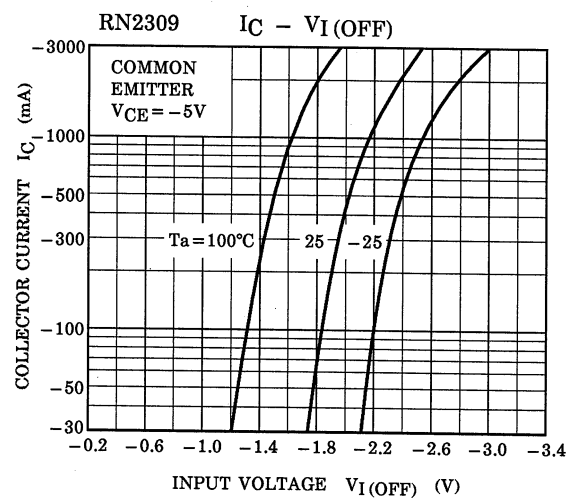
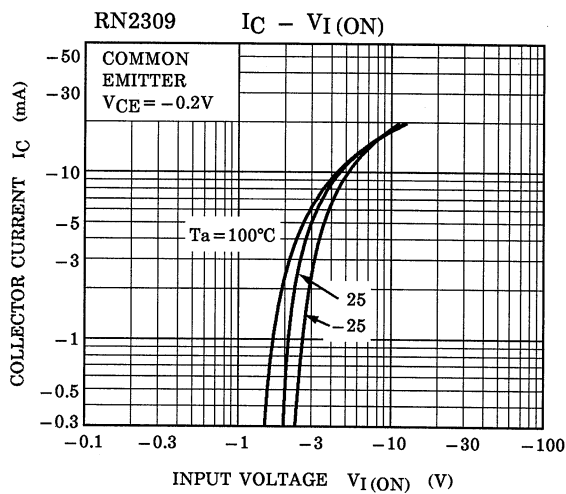
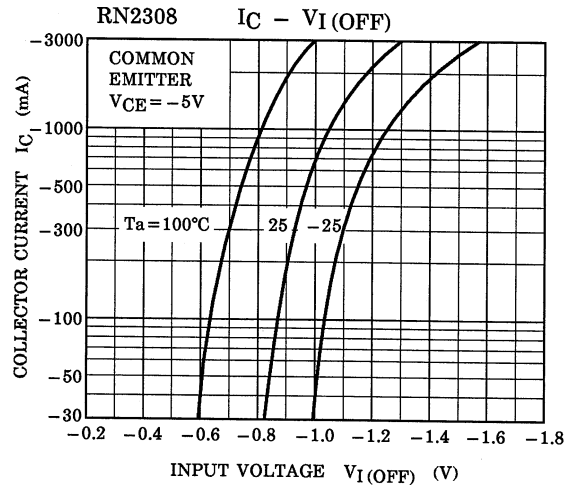
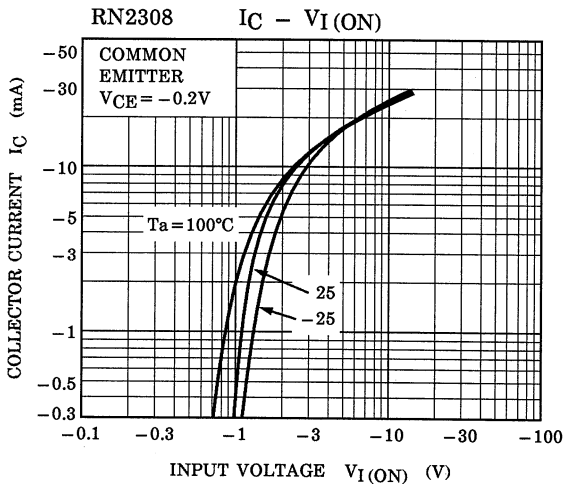
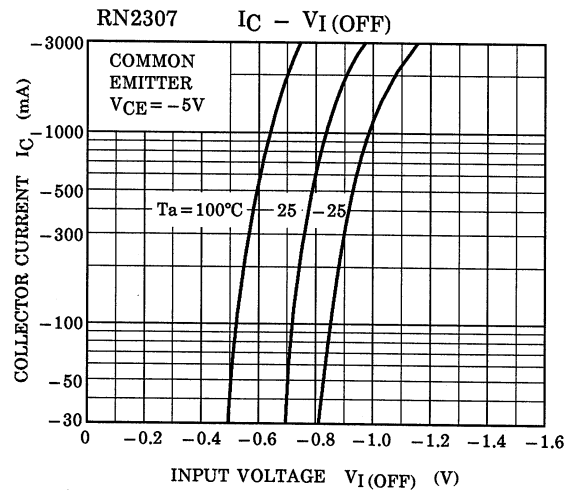
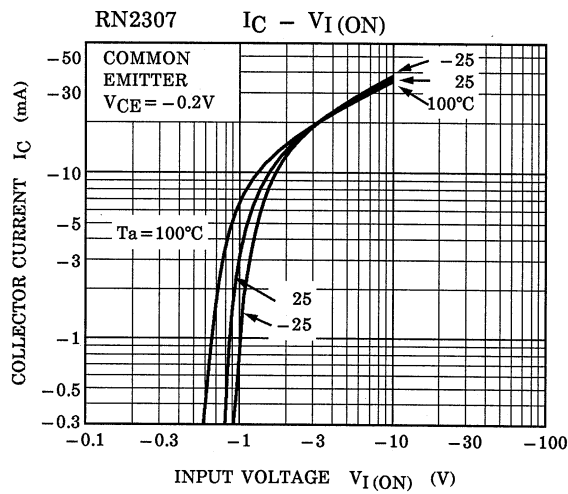
| Characteristic | Symbol | Rating | Unit |
|-----------------------------|-----------|---------|------|
| Collector-base voltage | V_{CBO} | -50 | V |
| Collector-emitter voltage | V_{CEO} | -50 | V |
| Emitter-base voltage | V_{EBO} | -6 | V |
| | | -7 | |
| | | -15 | |
| Collector current | I_C |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

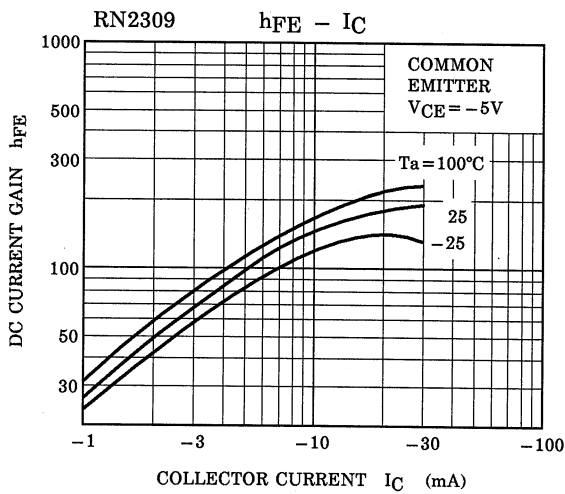
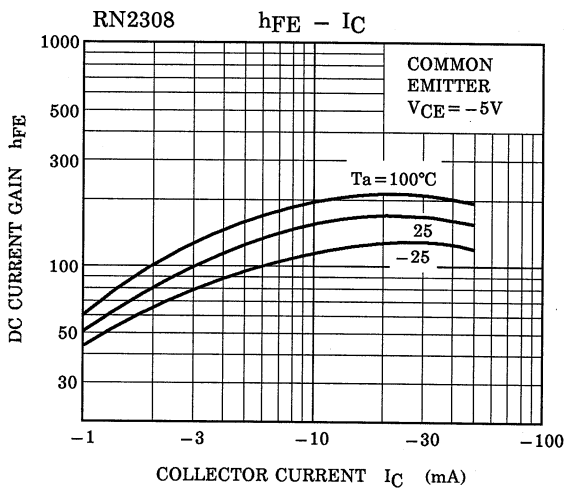
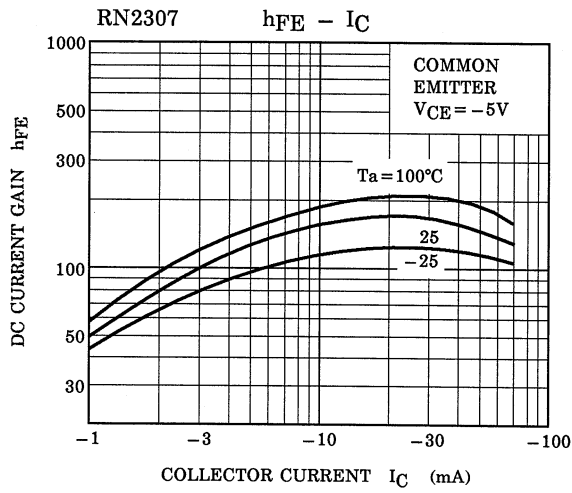
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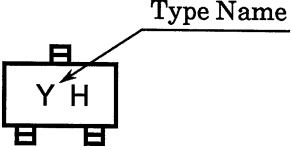
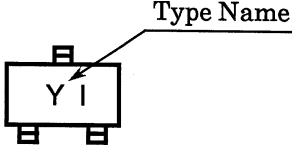
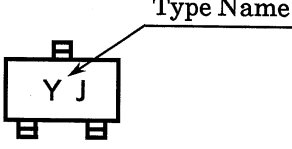
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- The information contained herein is subject to change without notice.

Electrical Characteristics (Ta = 25°C)

| Characteristic | | Symbol | Test Circuit | Test Condition | Min | Typ. | Max | Unit | |
|--------------------------------------|--|-----------------------|----------------------|---|--|--------|-------|--------|----|
| Collector cut-off current | | I _{CBO} | — | V _{CB} = -50V, I _E = 0 | — | — | -100 | nA | |
| | | I _{CEO} | — | V _{CE} = -50V, I _B = 0 | — | — | -500 | | |
| Emitter cut-off current | | RN2307 | I _{EBO} | — | V _{EB} = -6V, I _C = 0 | -0.081 | — | -0.15 | mA |
| | | RN2308 | | — | V _{EB} = -7V, I _C = 0 | -0.078 | — | -0.145 | |
| | | RN2309 | | — | V _{EB} = -15V, I _C = 0 | -0.167 | — | -0.311 | |
| DC current gain | | RN2307 | h _{FE} | — | V _{CE} = -5V, I _C = -10mA | 80 | — | — | — |
| | | RN2308 | | | | 80 | — | — | |
| | | RN2309 | | | | 70 | — | — | |
| Collector-emitter saturation voltage | | V _{CE (sat)} | — | I _C = -5mA, I _B = -0.25mA | — | -0.1 | -0.3 | V | |
| Input voltage (ON) | | RN2307 | V _{I (ON)} | — | V _{CE} = -0.2V, I _C = -5mA | -0.7 | — | -1.8 | V |
| | | RN2308 | | | | -1.0 | — | -2.6 | |
| | | RN2309 | | | | -2.2 | — | -5.8 | |
| Input voltage (OFF) | | RN2307 | V _{I (OFF)} | — | V _{CE} = -5V, I _C = -0.1mA | -0.5 | — | -1.0 | V |
| | | RN2308 | | | | -0.6 | — | -1.16 | |
| | | RN2309 | | | | -1.5 | — | -2.6 | |
| Translation frequency | | f _T | — | V _{CE} = -10V, I _C = -5mA | — | 200 | — | MHz | |
| Collector output capacitance | | C _{ob} | — | V _{CB} = -10V, I _E = 0, f = 1MHz | — | 3 | 6 | pF | |
| Input resistor | | RN2307 | R1 | — | — | 7 | 10 | 13 | kΩ |
| | | RN2308 | | | | 15.4 | 22 | 28.6 | |
| | | RN2309 | | | | 32.9 | 47 | 61.1 | |
| Resistor ratio | | RN2307 | R1/R2 | — | — | 0.191 | 0.213 | 0.232 | — |
| | | RN2308 | | | | 0.421 | 0.468 | 0.515 | |
| | | RN2309 | | | | 1.92 | 2.14 | 2.35 | |





| Type Name | Marking |
|-----------|---|
| RN2307 |  |
| RN2308 |  |
| RN2309 |  |