

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

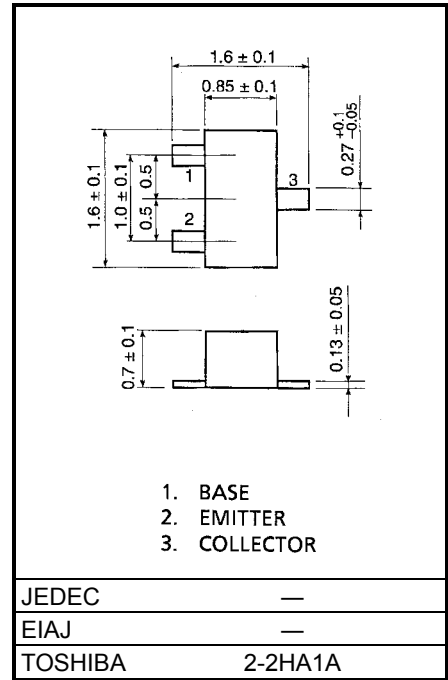
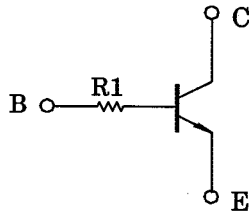
RN1110F, RN1111F

Switching, Inverter Circuit, Interface Circuit
And Driver Circuit Applications

Unit: mm

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN2110F, RN2111F

Equivalent Circuit

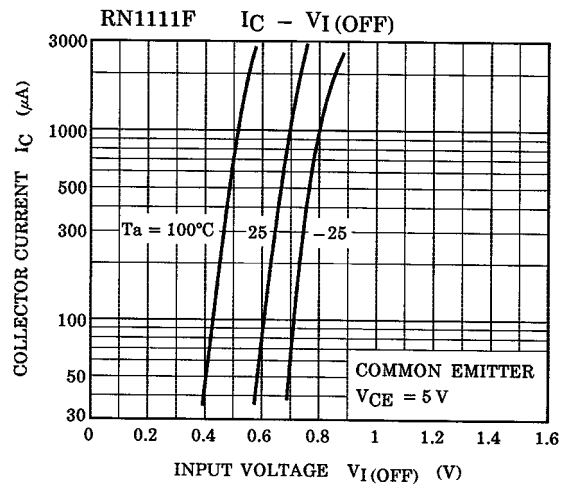
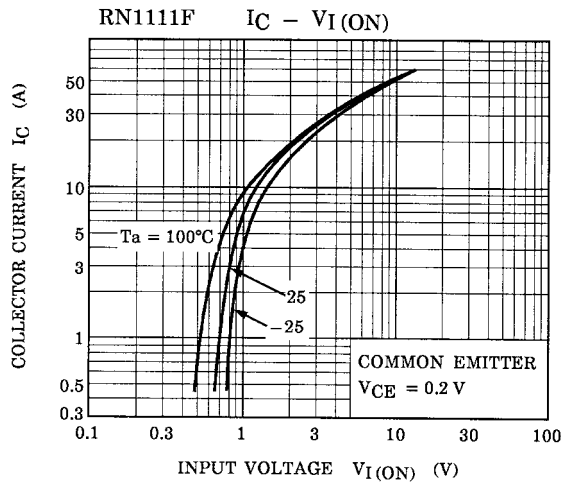
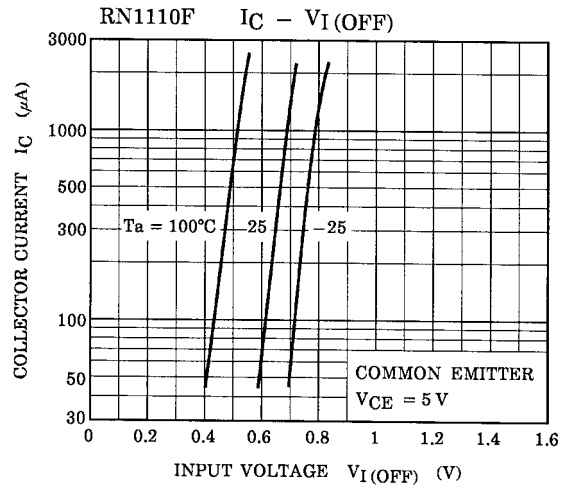
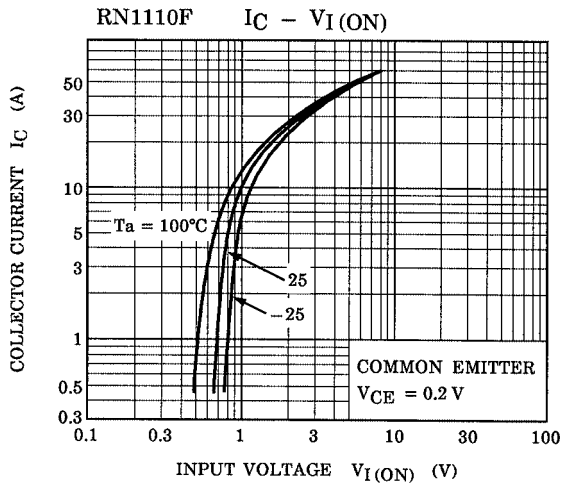


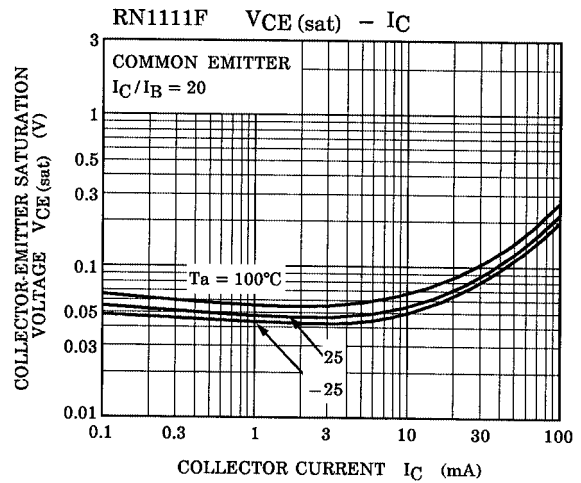
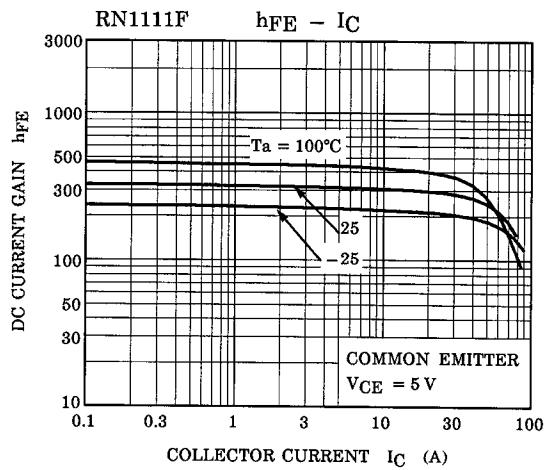
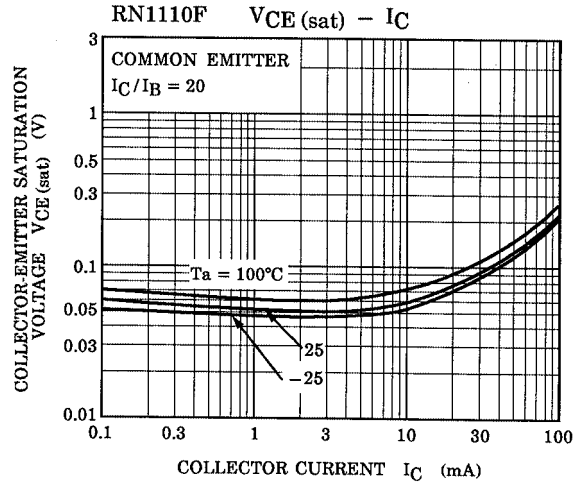
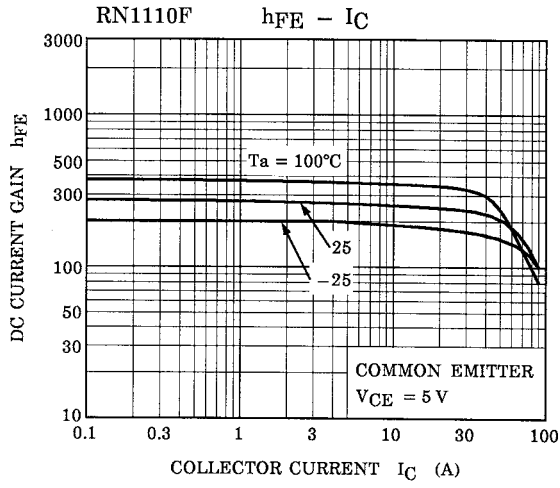
Maximum Ratings (Ta = 25°C)

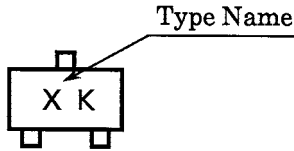
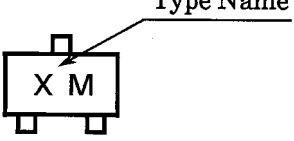
| Characteristic | Symbol | Rating | Unit |
|-----------------------------|-----------|---------|------|
| Collector-base voltage | V_{CBO} | 50 | V |
| Collector-emitter voltage | V_{CEO} | 50 | V |
| Emitter-base voltage | V_{EBO} | 5 | V |
| Collector current | I_C | 100 | mA |
| Collector power dissipation | P_C | 100 | mW |
| Junction temperature | T_j | 150 | °C |
| Storage temperature range | T_{stg} | -55~150 | °C |

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 |
| Emitter cut-off current | I_{EBO} | — | $V_{EB} = 5V, I_C = 0$ | — | — | 100 | nA |
| DC current gain | h_{FE} | — | $V_{CE} = 5V, I_C = 1mA$ | 120 | — | 700 | — |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | — | $I_C = 5mA, I_B = 0.25mA$ | — | 0.1 | 0.3 | V |
| Transition frequency | f_T | — | $V_{CE} = 10V, I_C = 5mA$ | — | 250 | — | MHz |
| Collector output capacitance | C_{ob} | — | $V_{CB} = 10V, I_E = 0, f = 1MHz$ | — | 3 | 6 | pF |
| Input resistor | RN1110F | R1 | — | 3.29 | 4.7 | 6.11 | kΩ |
| | RN1111F | | | 7 | 10 | 13 | |





| Type Name | Marking |
|-----------|---|
| RN1110F |  |
| RN1111F |  |

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