

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)
(Transistor with Built-in Bias Resistor)

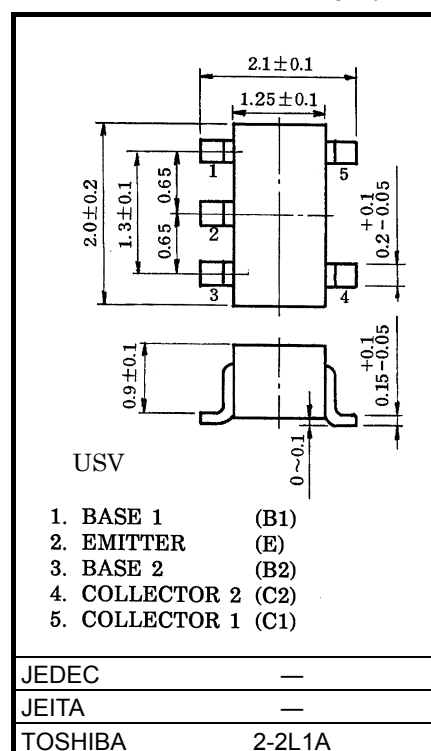
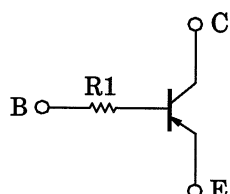
RN2710,RN2711

Unit: mm

Switching, Inverter Circuit, Interface Circuit
and Driver Circuit Applications

- Including two devices in USV (ultra super mini type with 5 leads)
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1710 and RN1711

Equivalent Circuit



Weight: 6.2 mg (typ.)

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

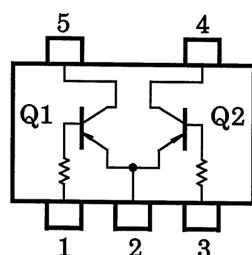
| Characteristic | Symbol | Rating | Unit |
|-----------------------------|-----------|---------|------|
| Collector-base voltage | V_{CBO} | -50 | V |
| Collector-emitter voltage | V_{CEO} | -50 | V |
| Emitter-base voltage | V_{EBO} | -5 | V |
| Collector current | I_C | -100 | mA |
| Collector power dissipation | P_C^* | 200 | mW |
| Junction temperature | T_j | 150 | °C |
| Storage temperature range | T_{stg} | -55~150 | °C |

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

* : Total rating

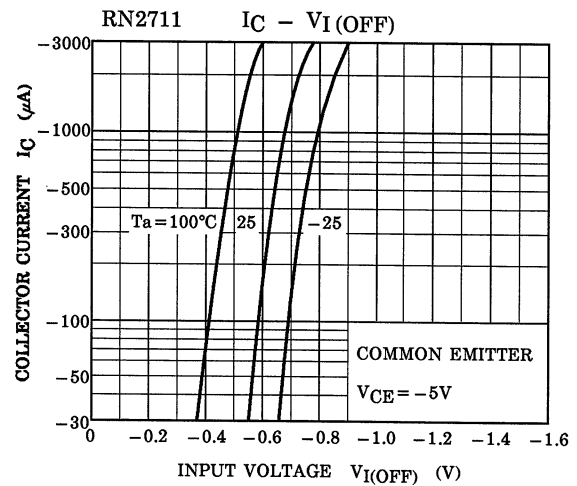
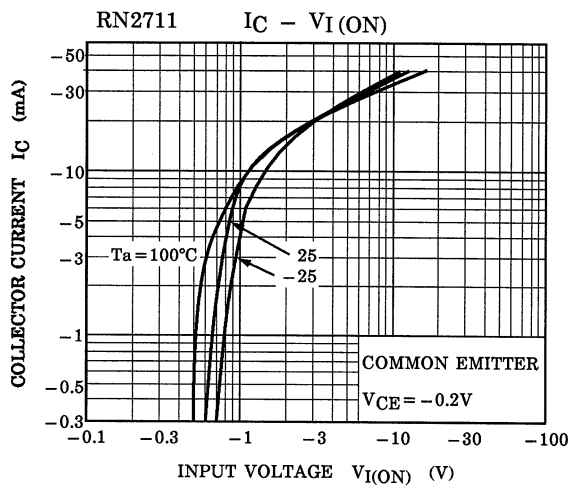
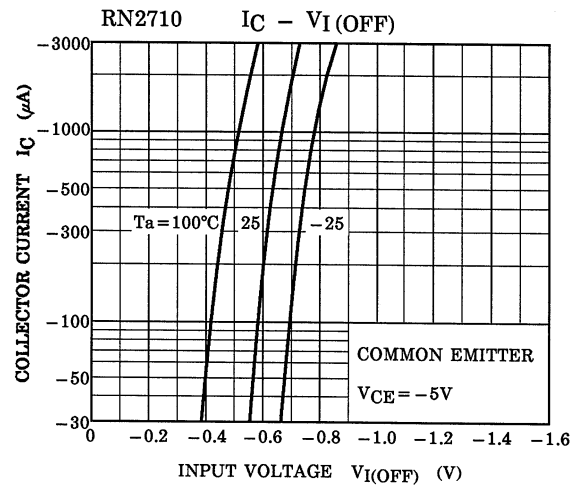
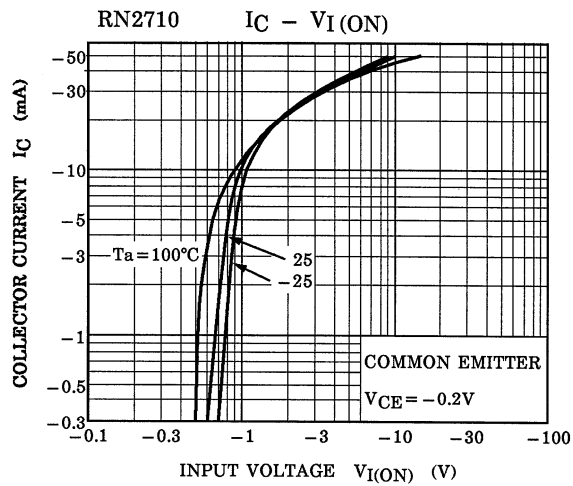
Equivalent Circuit (Top View)



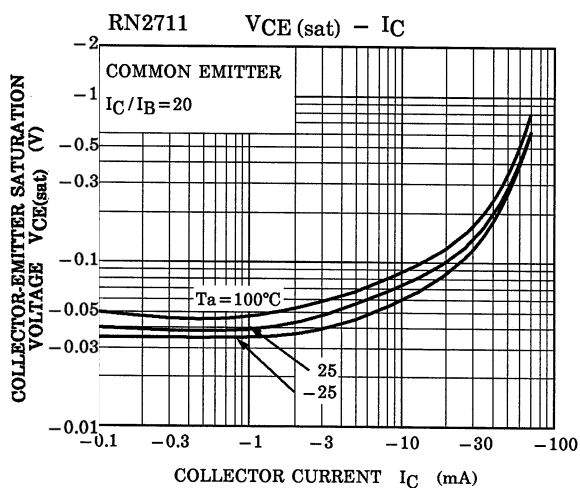
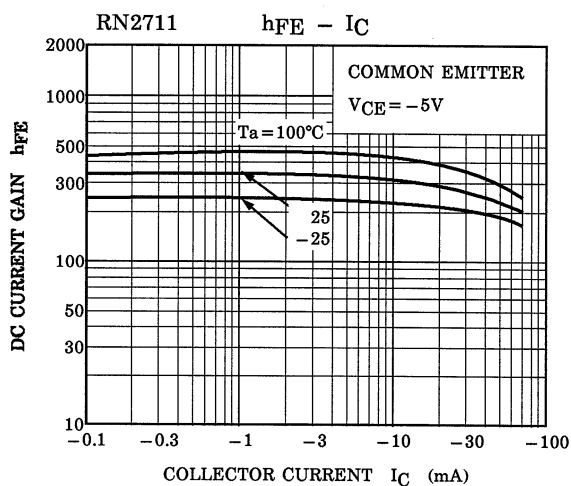
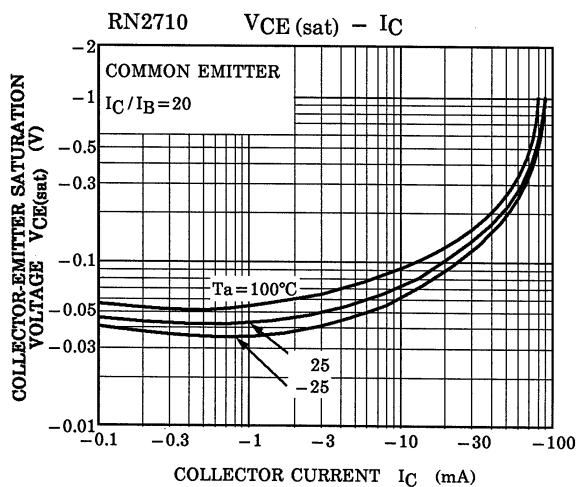
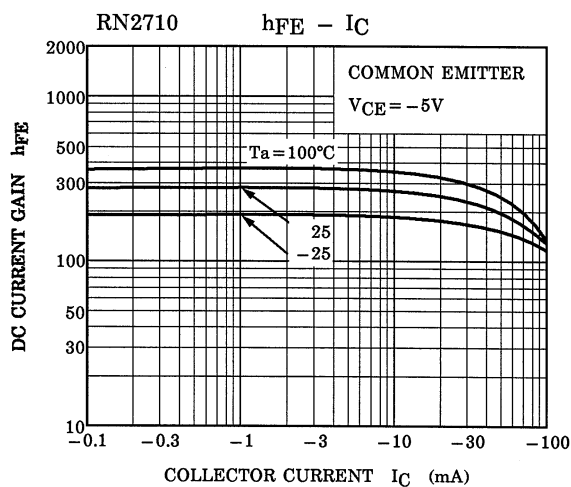
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

| 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 | — | 400 | — |
| Collector-emitter saturation voltage | | $V_{CE(sat)}$ | — | $I_C = -5mA, I_B = -0.25mA$ | — | -0.1 | -0.3 | V |
| Transition frequency | | f_T | — | $V_{CE} = -10V, I_C = -5mA$ | — | 200 | — | MHz |
| Collector output capacitance | | C_{ob} | — | $V_{CB} = -10V, I_E = 0, f = 1MHz$ | — | 3 | 6 | pF |
| Input resistor | RN2710 | R1 | — | — | 3.29 | 4.7 | 6.11 | kΩ |
| | RN2711 | | | | 7 | 10 | 13 | |

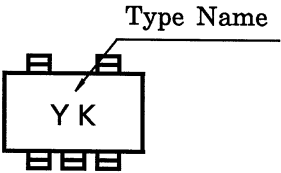
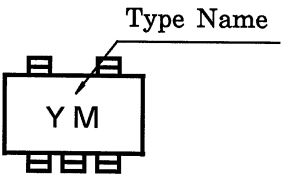
Q1, Q2 Common



Q1, Q2 Common



Marking

| Type Name | Marking |
|-----------|---|
| RN2710 |  <p>The diagram shows a rectangular component with four pins on the top and four on the bottom. The text 'Y K' is printed in the center. A line points from the text 'Type Name' to the 'Y' character.</p> |
| RN2711 |  <p>The diagram shows a rectangular component with four pins on the top and four on the bottom. The text 'Y M' is printed in the center. A line points from the text 'Type Name' to the 'Y' character.</p> |

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