

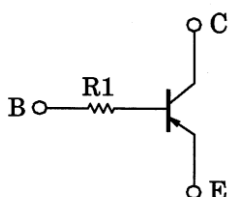
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)(Bias Resistor built-in Transistor)

RN2110MFV, RN2111MFV

Switching, Inverter Circuit, Interface Circuit and Driver Circuit Applications

- Ultra-small package, suited to very high density mounting
- Incorporating a bias resistor into the transistor reduces the number of parts, so enabling the manufacture of ever more compact equipment and lowering assembly cost.
- A wide range of resistor values is available for use in various circuits.
- Complementary to the RN1110MFV, RN1111MFV

Equivalent Circuit



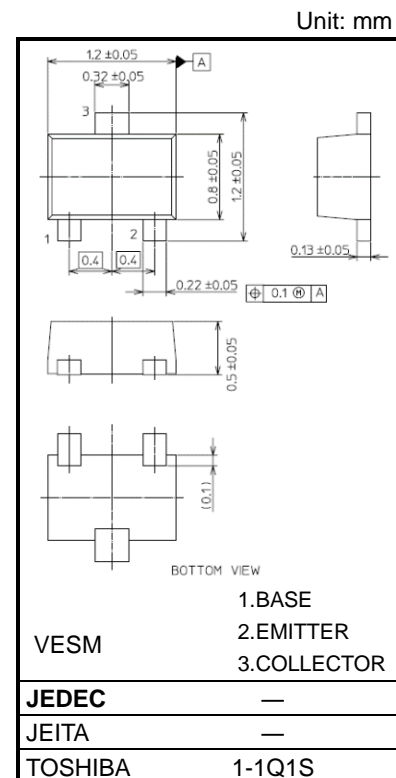
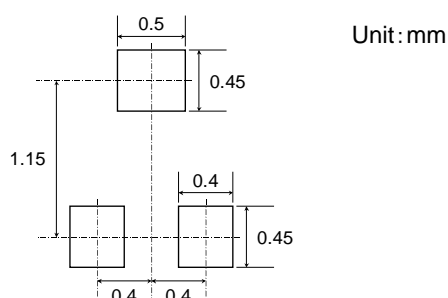
Absolute Maximum Ratings (Ta = 25°C)

| 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 (Note 1) | 150 | mW |
| Junction temperature | T_j | 150 | °C |
| Storage temperature range | T_{stg} | -55 to 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).

Note 1: Mounted on an FR4 board (25.4 mm × 25.4 mm × 1.6 mm)

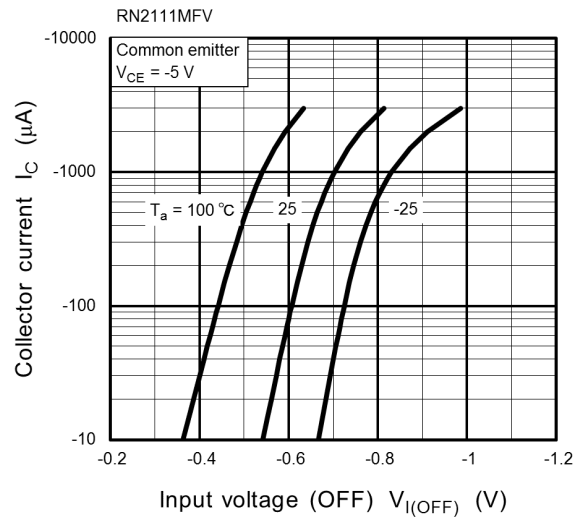
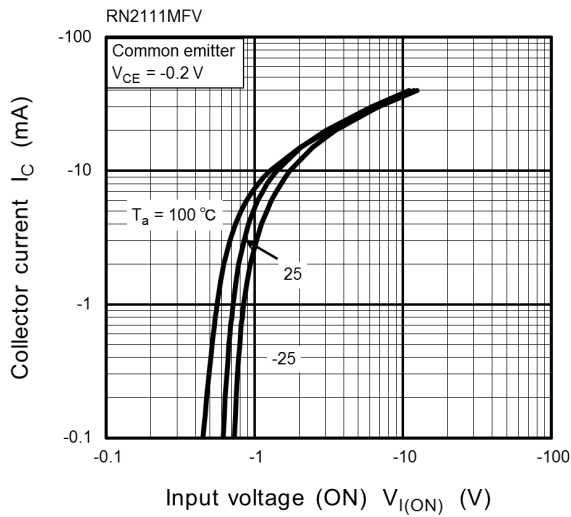
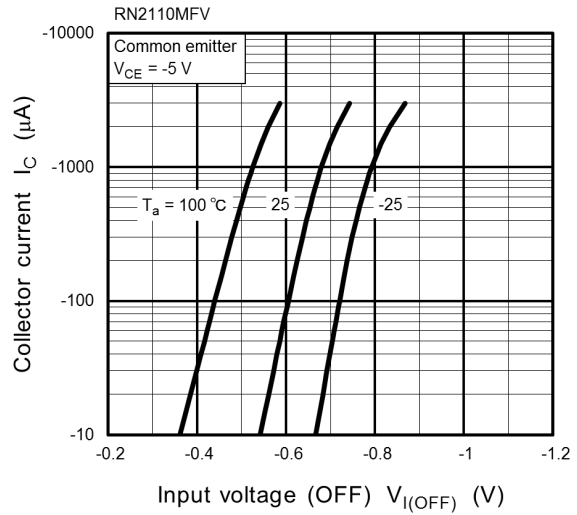
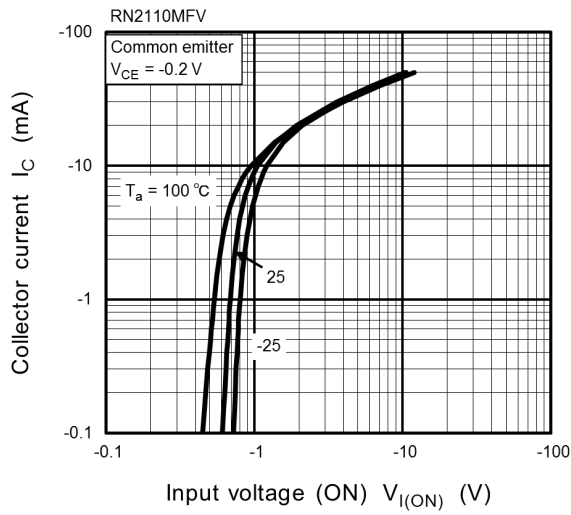
Land Pattern Dimensions (for reference only)

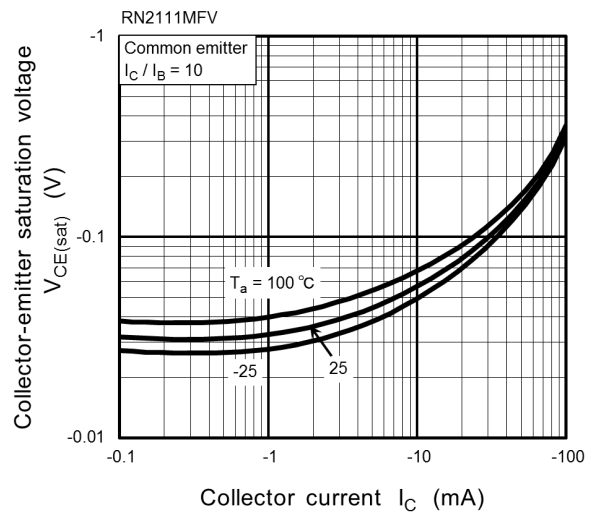
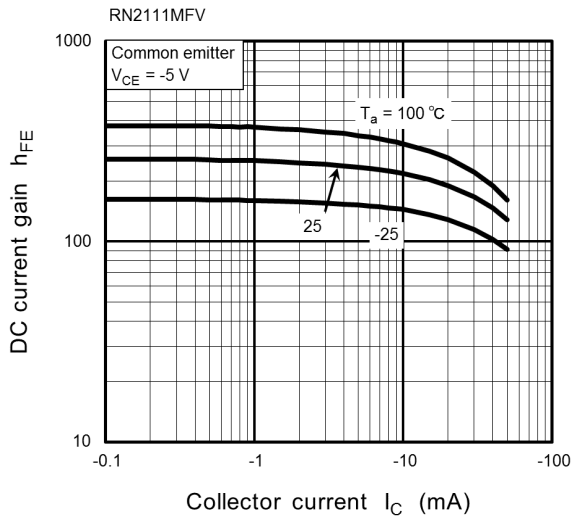
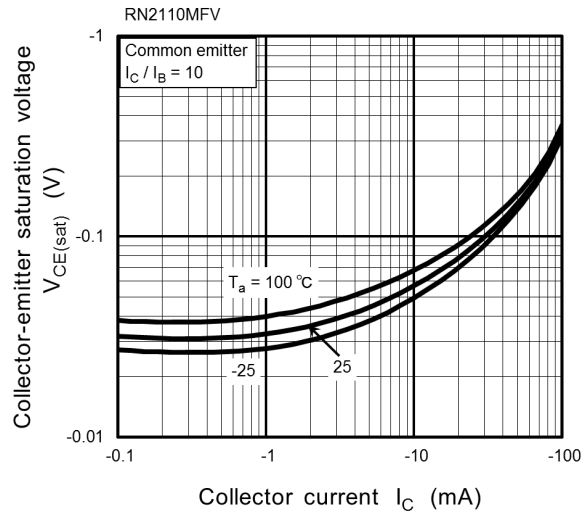
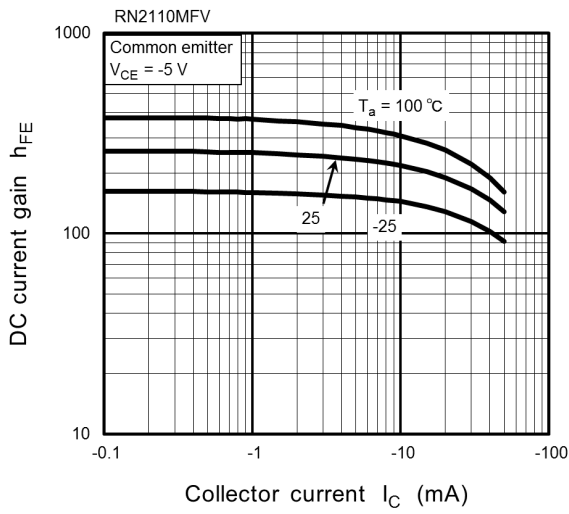


Weight: 1.5 mg (typ.)

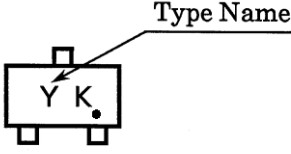
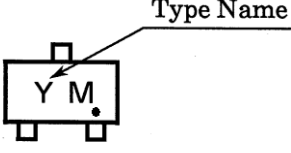
Electrical Characteristics (Ta = 25°C)

| Characteristic | | Symbol | Test Condition | Min | Typ. | Max | Unit |
|--------------------------------------|-----------|-----------------------|--|------|------|------|------|
| Collector cutoff current | | ICBO | V _{CB} = -50 V, I _E = 0 A | — | — | -100 | nA |
| Emitter cutoff current | | IEBO | V _{EB} = -5 V, I _C = 0 A | — | — | -100 | nA |
| DC current gain | | h _{FE} | V _{CE} = -5 V, I _C = -1 mA | 120 | — | 400 | — |
| Collector-emitter saturation voltage | | V _{CE (sat)} | I _C = -5 mA, I _B = -0.5 mA | — | -0.1 | -0.3 | V |
| Collector output capacitance | | C _{ob} | V _{CB} = -10 V, I _E = 0 A, f = 1 MHz | — | 0.9 | — | pF |
| Input resistor | RN2110MFV | R1 | — | 3.29 | 4.7 | 6.11 | kΩ |
| | RN2111MFV | | | 7 | 10 | 13 | |





Marking

| Type Name | Marking |
|-----------|---|
| RN2110MFV |  <p>The diagram shows a rectangular component with a small square protrusion on top and two small square protrusions on the bottom. The letters 'Y K' are printed on the front face, with a small dot to the right of the 'K'. An arrow points from the text 'Type Name' to the 'Y' character.</p> |
| RN2111MFV |  <p>The diagram shows a rectangular component with a small square protrusion on top and two small square protrusions on the bottom. The letters 'Y M' are printed on the front face, with a small dot to the right of the 'M'. An arrow points from the text 'Type Name' to the 'Y' character.</p> |

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