

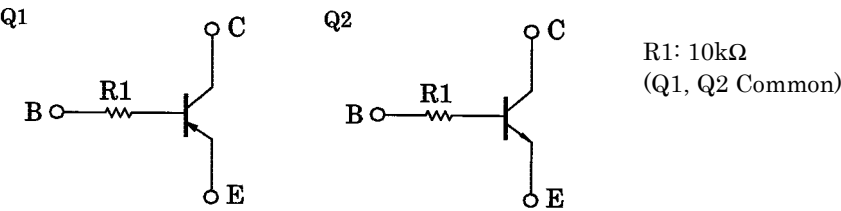
TOSHIBA Transistor  
Silicon PNP Epitaxial Type (PCT Process) Silicon NPN Epitaxial Type (PCT Process)

RN4911

Switching, Inverter Circuit, Interface Circuit  
And Driver Circuit Applications

- Includeing two devices in US6 (ultra super mini type with 6 leads)
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process

Equivalent Circuit and Bias Resister Values



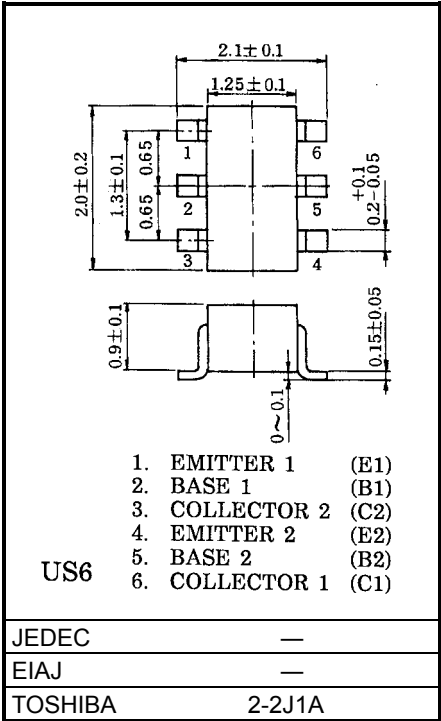
Q1 Maximum Ratings (Ta = 25°C)

| Characteristic            | Symbol           | Rating | Unit |
|---------------------------|------------------|--------|------|
| Collector-base voltage    | V <sub>CBO</sub> | -50    | V    |
| Collector-emitter voltage | V <sub>CEO</sub> | -50    | V    |
| Emitter-base voltage      | V <sub>EBO</sub> | -5     | V    |
| Collector current         | I <sub>C</sub>   | -100   | mA   |

Q2 Maximum Ratings (Ta = 25°C)

| Characteristic            | Symbol           | Rating | Unit |
|---------------------------|------------------|--------|------|
| Collector-base voltage    | V <sub>CBO</sub> | 50     | V    |
| Collector-emitter voltage | V <sub>CEO</sub> | 50     | V    |
| Emitter-base voltage      | V <sub>EBO</sub> | 5      | V    |
| Collector current         | I <sub>C</sub>   | 100    | mA   |

Unit: mm

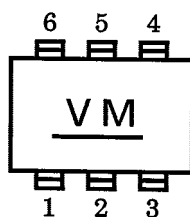


## Q1, Q2 Common Maximum Ratings (Ta = 25°C)

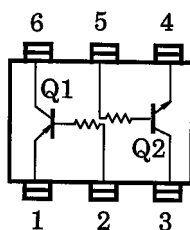
| Characteristic              | Symbol    | Rating  | Unit |
|-----------------------------|-----------|---------|------|
| Collector power dissipation | $P_C$ *   | 200     | mW   |
| Junction temperature        | $T_j$     | 150     | °C   |
| Storage temperature range   | $T_{stg}$ | -55~150 | °C   |

\* Total rating

## Marking



## Equivalent Circuit (Top View)



**Q1 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 | mA   |
| 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   |

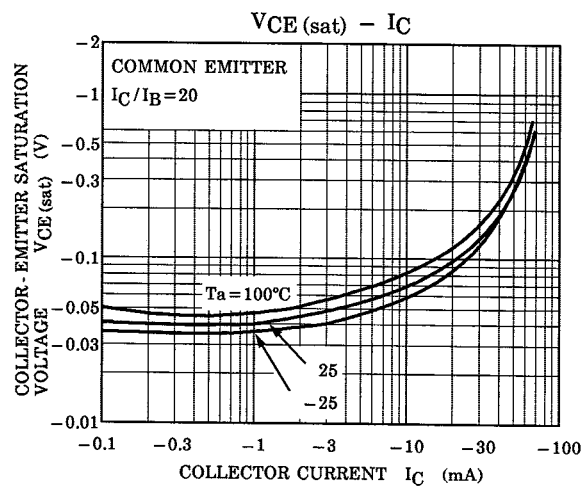
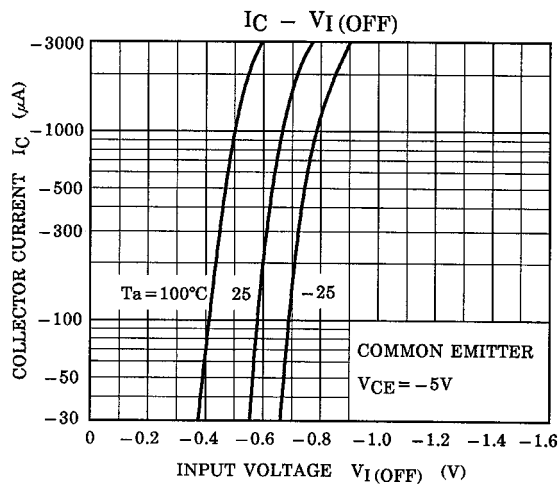
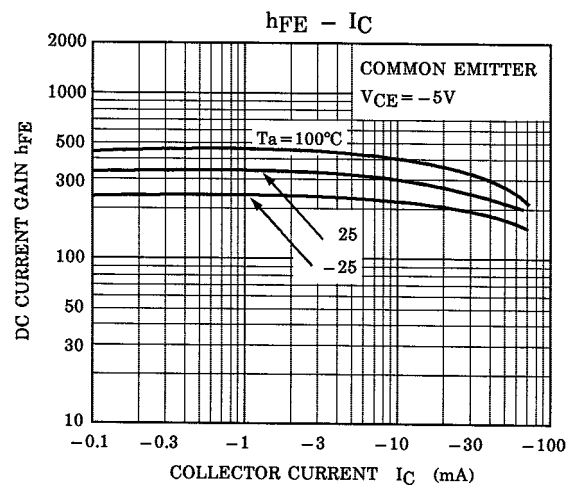
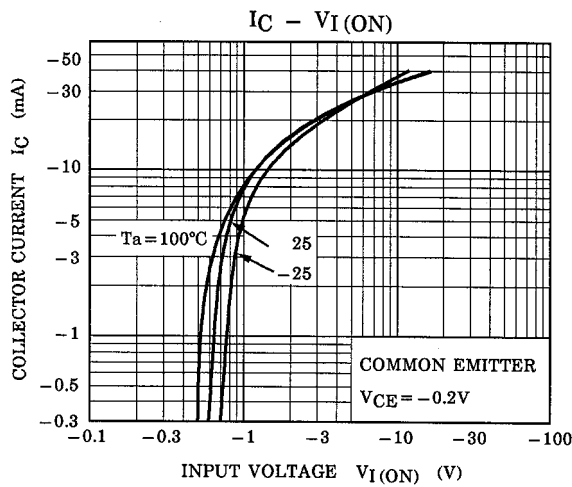
**Q2 Electrical Characteristics (Ta = 25°C)**

| 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 | mA   |
| 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         | $C_{ob}$      | —            | $V_{CB} = 10V, I_E = 0, f = 1 MHz$ | —   | 3    | 6   | pF   |

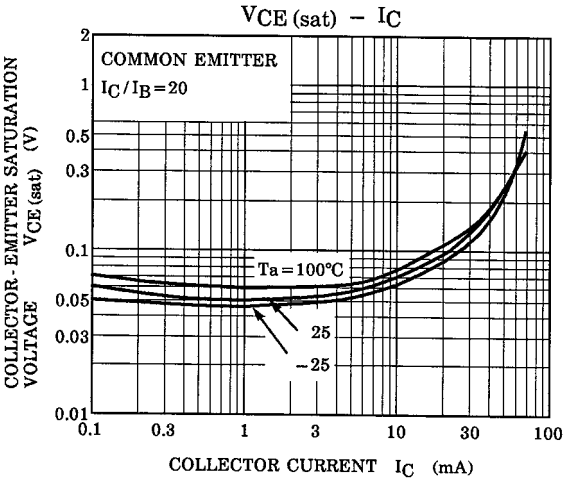
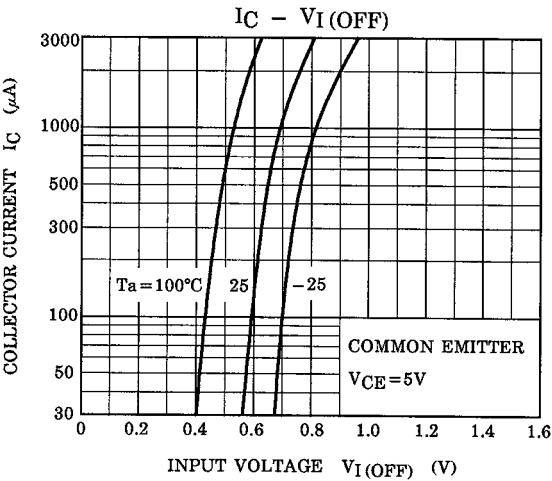
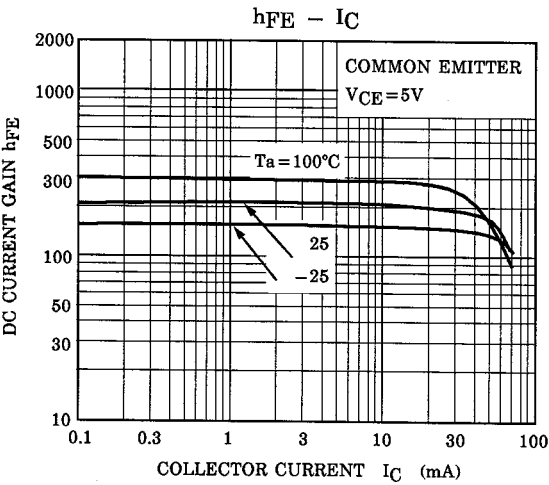
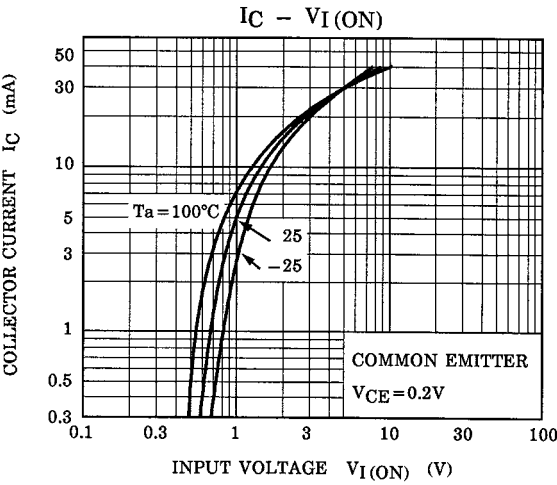
**Q1, Q2 Common Electrical Characteristics (Ta = 25°C)**

| Characteristic | Symbol | Test Circuit | Test Condition | Min | Typ. | Max | Unit |
|----------------|--------|--------------|----------------|-----|------|-----|------|
| Input resistor | R1     | —            | —              | 7   | 10   | 13  | kΩ   |

Q1



Q2



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000707EAA

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