

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process)

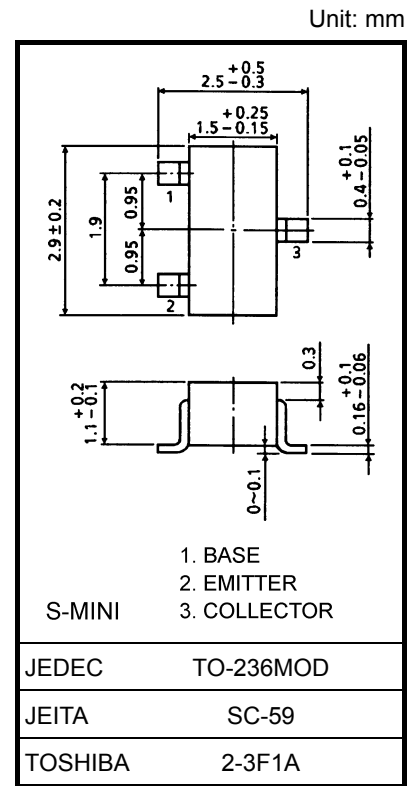
# 2SA1721

High Voltage Control Applications  
 Plasma Display, Nixie Tube Driver Applications  
 Cathode Ray Tube Brightness Control Applications

- High voltage:  $V_{CBO} = -300\text{ V}$ ,  $V_{CEO} = -300\text{ V}$
- Low saturation voltage:  $V_{CE(sat)} = -0.5\text{ V (max)}$
- Small collector output capacitance:  $C_{ob} = 5.5\text{ pF (typ.)}$
- Complementary to 2SC4497

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

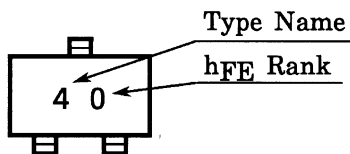
| Characteristics             | Symbol    | Rating     | Unit             |
|-----------------------------|-----------|------------|------------------|
| Collector-base voltage      | $V_{CBO}$ | -300       | V                |
| Collector-emitter voltage   | $V_{CEO}$ | -300       | V                |
| Emitter-base voltage        | $V_{EBO}$ | -5         | V                |
| Collector current           | $I_C$     | -100       | mA               |
| Base current                | $I_B$     | -20        | mA               |
| Collector power dissipation | $P_C$     | 150        | mW               |
| Junction temperature        | $T_j$     | 150        | $^\circ\text{C}$ |
| Storage temperature range   | $T_{stg}$ | -55 to 150 | $^\circ\text{C}$ |



Weight: 0.012 g (typ.)

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).

### Marking

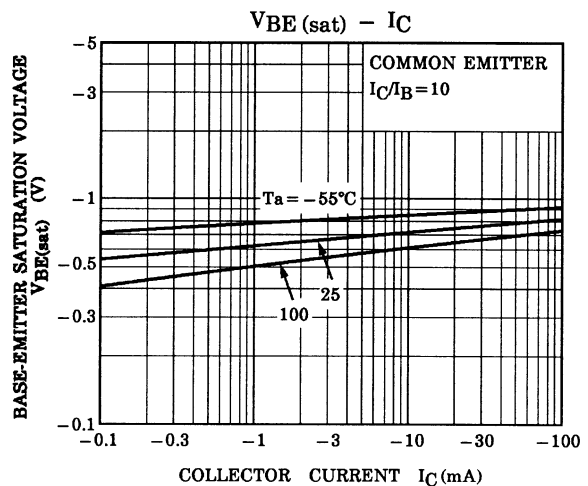
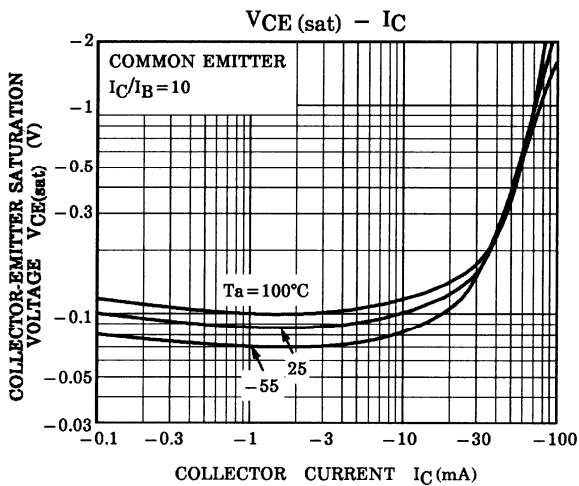
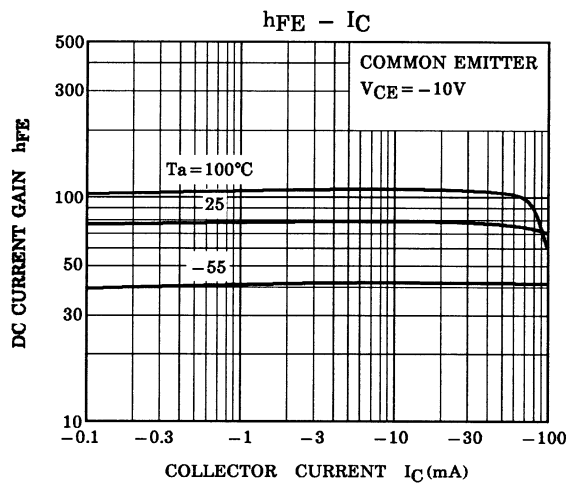
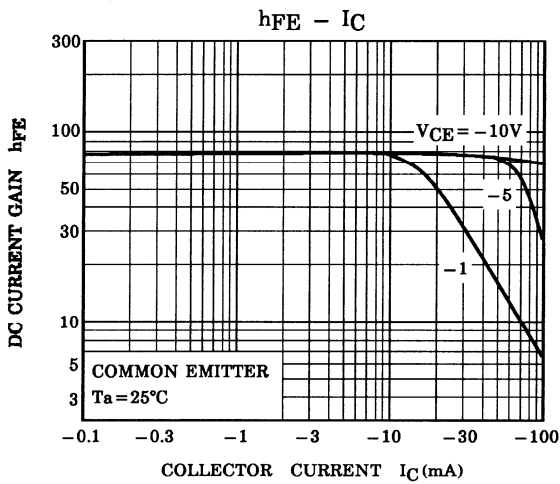
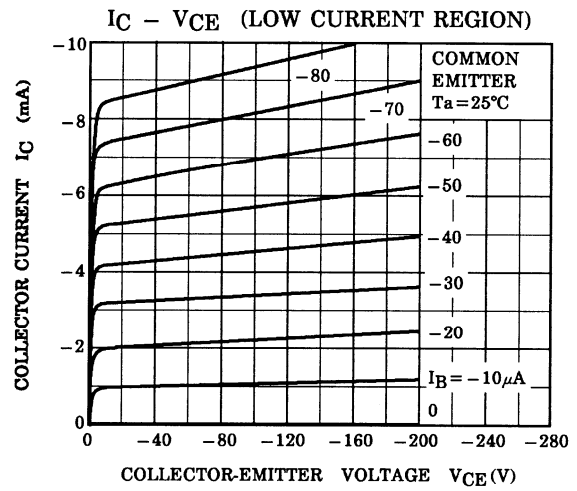
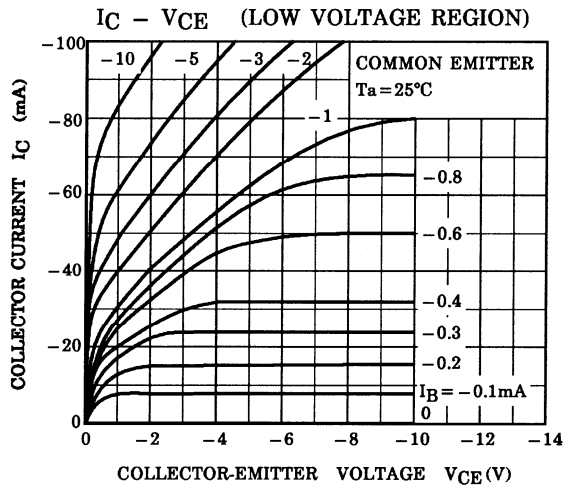


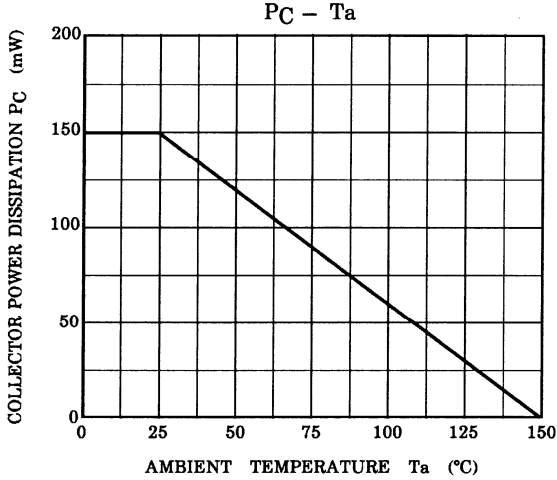
Start of commercial production  
1988-09

## Electrical Characteristics (Ta = 25°C)

| Characteristics                      | Symbol                | Test Condition                                     | Min  | Typ. | Max  | Unit          |
|--------------------------------------|-----------------------|--|------|------|------|---------------|
| Collector cut-off current            | $I_{CBO}$             | $V_{CB} = -300\text{ V}, I_E = 0$                  | —    | —    | -0.1 | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$             | $V_{EB} = -5\text{ V}, I_C = 0$                    | —    | —    | -0.1 | $\mu\text{A}$ |
| Collector-base breakdown voltage     | $V_{(BR) CBO}$        | $I_C = -0.1\text{ mA}, I_E = -0$                   | -300 | —    | —    | V             |
| Collector-emitter breakdown voltage  | $V_{(BR) CEO}$        | $I_C = -1\text{ mA}, I_B = -0$                     | -300 | —    | —    | V             |
| DC current gain                      | $h_{FE(1)}$<br>(Note) | $V_{CE} = -10\text{ V}, I_C = -20\text{ mA}$       | 30   | —    | 150  |               |
|                                      | $h_{FE(2)}$           | $V_{CE} = -10\text{ V}, I_C = -1\text{ mA}$        | 20   | —    | —    |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$         | $I_C = -20\text{ mA}, I_B = -2\text{ mA}$          | —    | —    | -0.5 | V             |
| Base-emitter saturation voltage      | $V_{BE(sat)}$         | $I_C = -20\text{ mA}, I_B = -2\text{ mA}$          | —    | —    | -1.2 | V             |
| Transition frequency                 | $f_T$                 | $V_{CE} = -10\text{ V}, I_C = -20\text{ mA}$       | 50   | 55   | —    | MHz           |
| Collector output capacitance         | $C_{ob}$              | $V_{CB} = -20\text{ V}, I_E = 0, f = 1\text{ MHz}$ | —    | 5.5  | 6.0  | pF            |

Note:  $h_{FE(1)}$  classification R: 30 to 90, O: 50 to 150





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