

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process)

# 2SA1721

## 1. Applications

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

## 2. Features

- 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

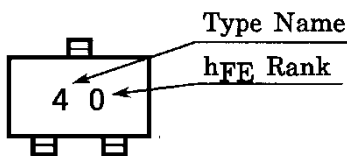
## 3. Absolute Maximum Ratings (Note) ( $T_a = 25^\circ\text{C}$ )

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	$^\circ\text{C}$

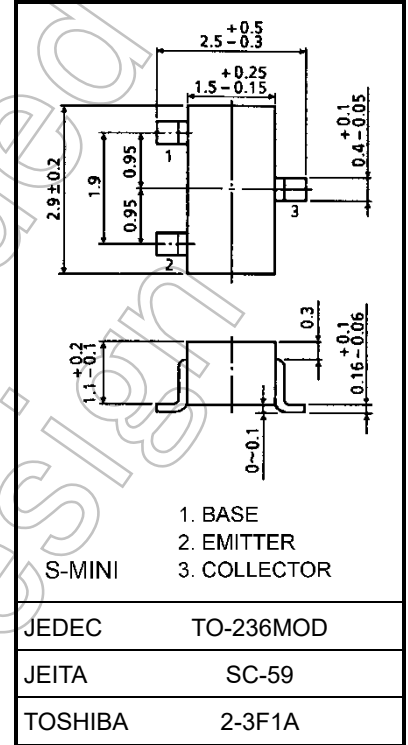
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

## 4. Marking



Unit: mm



Weight: 0.012 g (typ.)

Start of commercial production  
1988-09

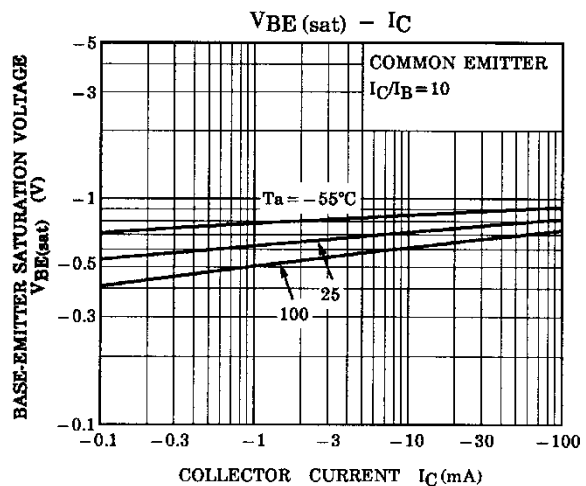
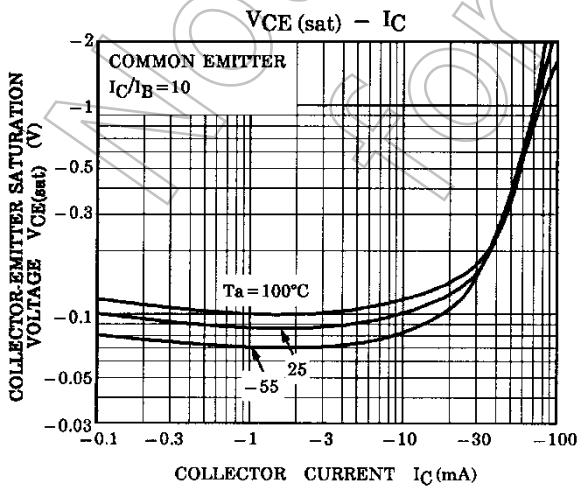
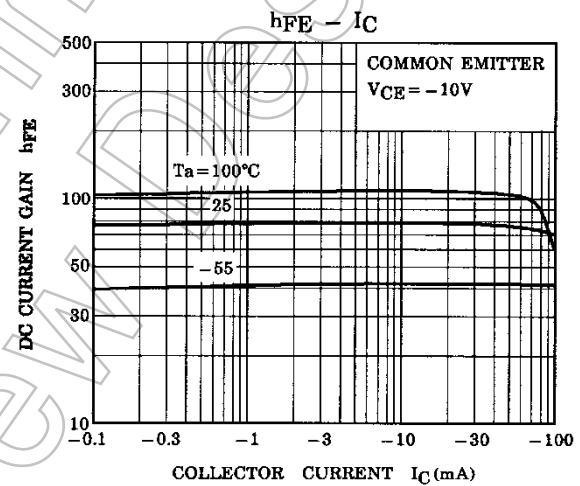
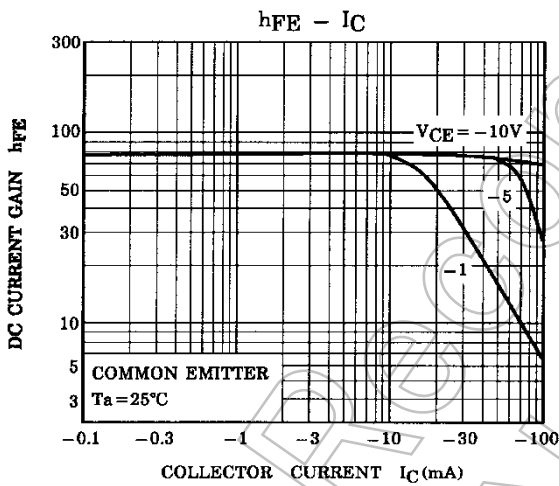
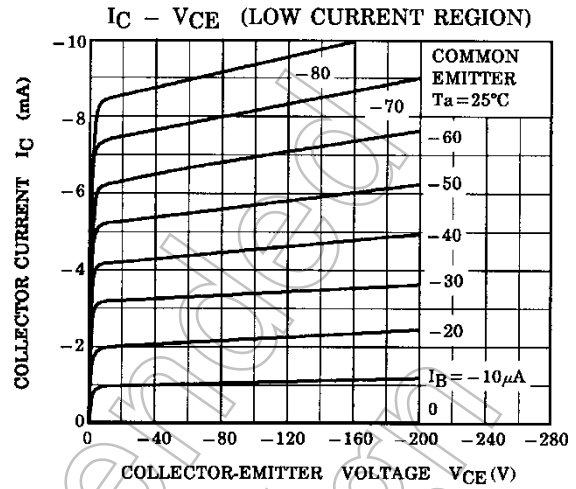
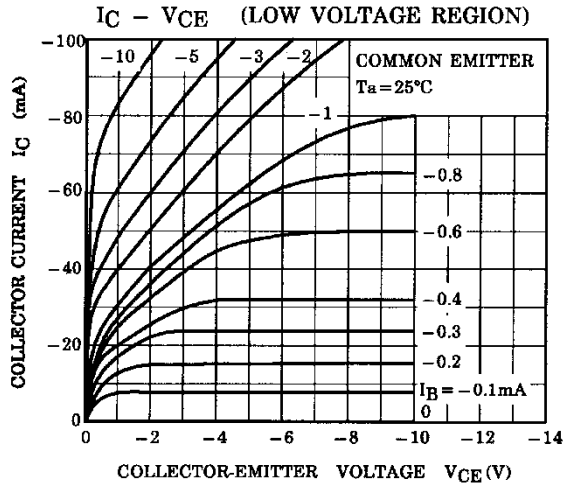
## 5. Electrical Characteristics (Ta = 25°C)

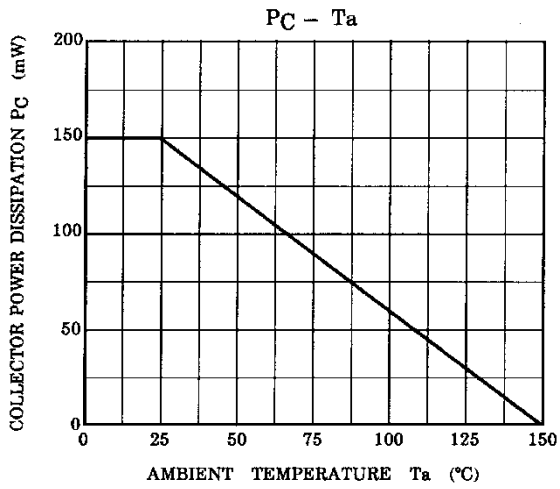
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	ICBO	V <sub>CB</sub> = -300 V, I <sub>E</sub> = 0 mA	—	—	-0.1	μA
Emitter cut-off current	IEBO	V <sub>EB</sub> = -5 V, I <sub>C</sub> = 0 mA	—	—	-0.1	μA
Collector-base breakdown voltage	V <sub>(BR)</sub> CBO	I <sub>C</sub> = -0.1 mA, I <sub>E</sub> = 0 mA	-300	—	—	V
Collector-emitter breakdown voltage	V <sub>(BR)</sub> CEO	I <sub>C</sub> = -1 mA, I <sub>B</sub> = 0 mA	-300	—	—	V
DC current gain	h <sub>FE</sub> (1) (Note1)	V <sub>CE</sub> = -10 V, I <sub>C</sub> = -20 mA	30	—	150	
	h <sub>FE</sub> (2)	V <sub>CE</sub> = -10 V, I <sub>C</sub> = -1 mA	20	—	—	
Collector-emitter saturation voltage	V <sub>CE</sub> (sat)	I <sub>C</sub> = -20 mA, I <sub>B</sub> = -2 mA	—	—	-0.5	V
Base-emitter saturation voltage	V <sub>BE</sub> (sat)	I <sub>C</sub> = -20 mA, I <sub>B</sub> = -2 mA	—	—	-1.2	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = -10 V, I <sub>C</sub> = -20 mA	50	55	—	MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = -20 V, I <sub>E</sub> = 0 mA, f = 1 MHz	—	5.5	6.0	pF

Note1: h<sub>FE</sub> (1) classification R: 30 to 90, O: 50 to 150

Not Recommended for New Design

## 6. Characteristic Chart (Note)





Not Recommended for New Design

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

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