

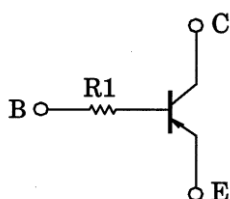
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process) (Bias Resistor built-in Transistor)

# RN2510, RN2511

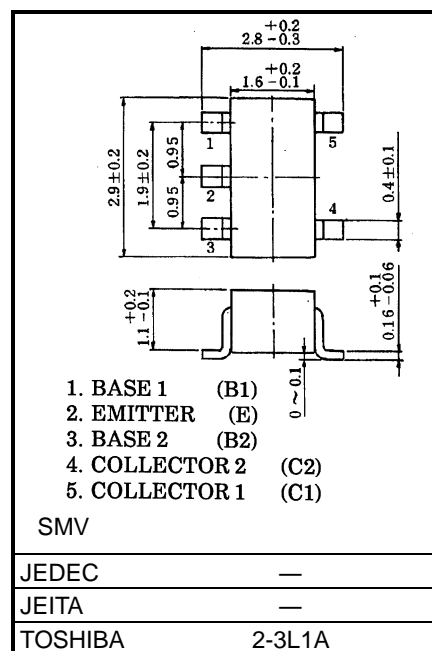
Switching, Inverter Circuit,  
Interface Circuit and Driver Circuit

- Including two devices in SMV (super mini type with 5 leads)
- With built-in bias resistors.
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process and miniaturize equipment.
- Various resistance values are available to suit various circuit designs.
- Complementary to RN1510 to RN1511

### Equivalent Circuit



Unit: mm

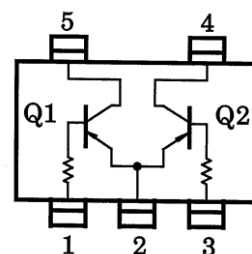


Weight: 14 mg (typ.)

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

Characteristics	Symbol	Rating	Unit
Collector-base voltage	VCBO	-50	V
Collector-emitter voltage	VCEO	-50	V
Emitter-base voltage	VEBO	-5	V
Collector current	IC	-100	mA
Collector power dissipation	PC*	300	mW
Junction temperature	Tj	150	°C
Storage temperature range	Tstg	-55 to 150	°C

### Equivalent Circuit (top view)



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).

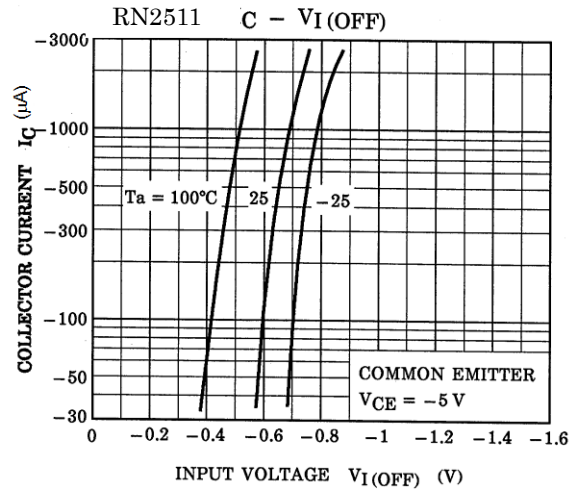
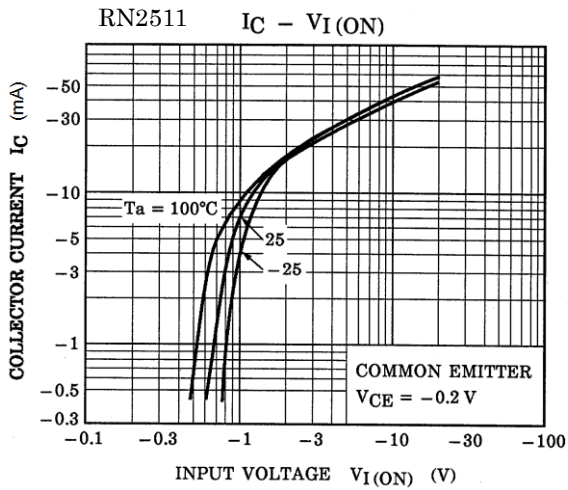
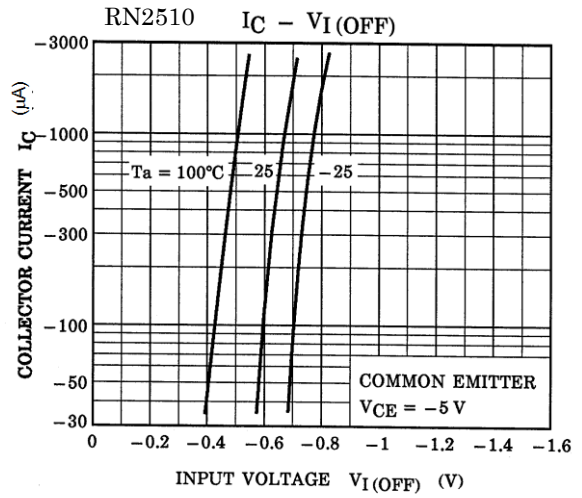
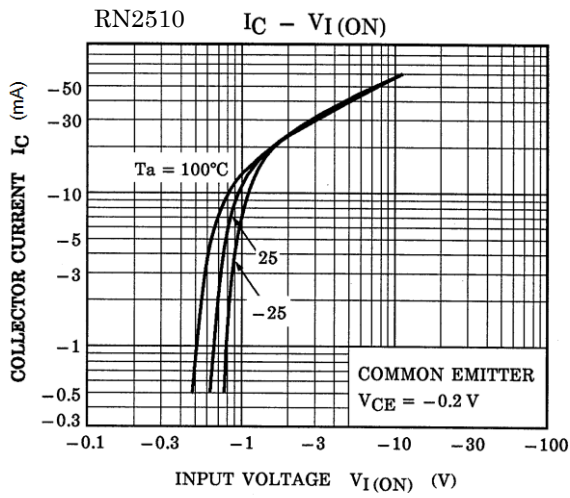
\* Total rating

Start of commercial production  
1988-10

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

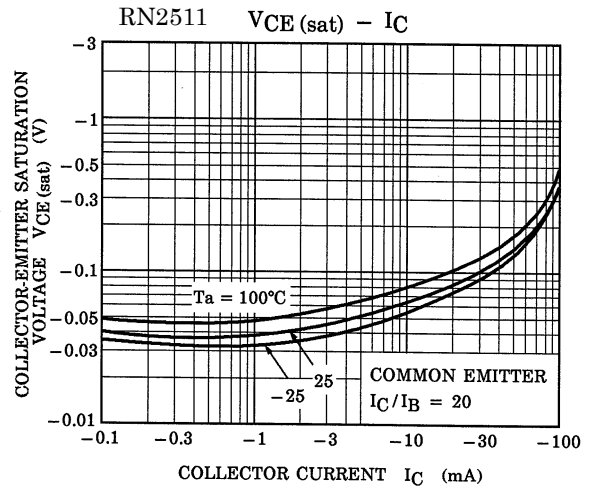
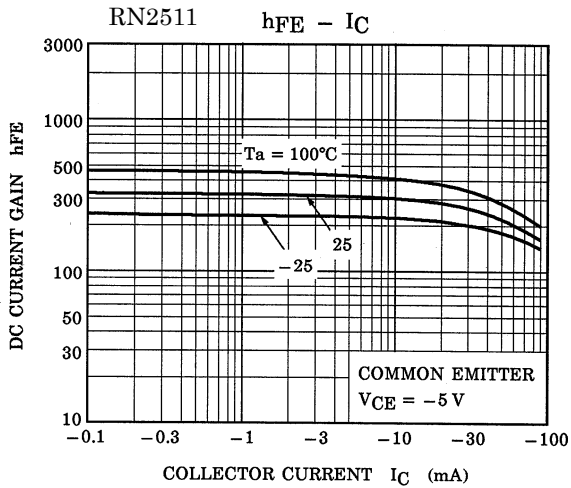
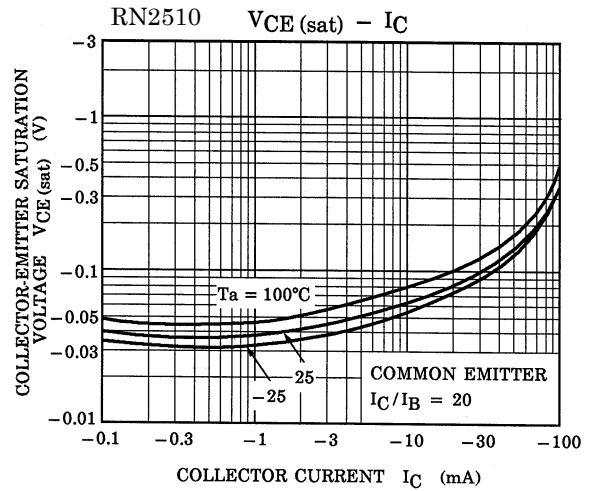
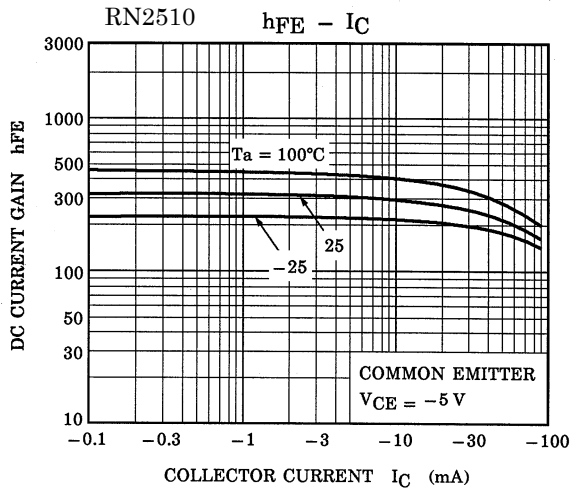
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit	
Collector cut-off current	ICBO	V <sub>CB</sub> = -50 V, I <sub>E</sub> = 0 mA	—	—	-100	nA	
Emitter cut-off current	IEBO	V <sub>EB</sub> = -5 V, I <sub>C</sub> = 0 mA	—	—	-100	nA	
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> = -5 V, I <sub>C</sub> = -1 mA	120	—	400	—	
Collector-emitter saturation voltage	V <sub>CE (sat)</sub>	I <sub>C</sub> = -5 mA, I <sub>B</sub> = -0.25 mA	—	-0.1	-0.3	V	
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = -10 V, I <sub>C</sub> = -5 mA	—	200	—	MHz	
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = -10 V, I <sub>E</sub> = 0 mA, f = 1 MHz	—	3	6	pF	
Input resistance	RN2510	R <sub>1</sub>	—	3.29	4.7	6.11	kΩ
	RN2511			7	10	13	

## Characteristics Curves(Q1, Q2 Common)




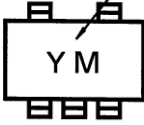
The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

## Characteristics Curves(Q1, Q2 Common)



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

## Marking

Part No	Marking
RN2510	<p data-bbox="603 315 871 338">Part No.(abbreviation code)</p> 
RN2511	<p data-bbox="603 551 871 573">Part No.(abbreviation code)</p> 

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