

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

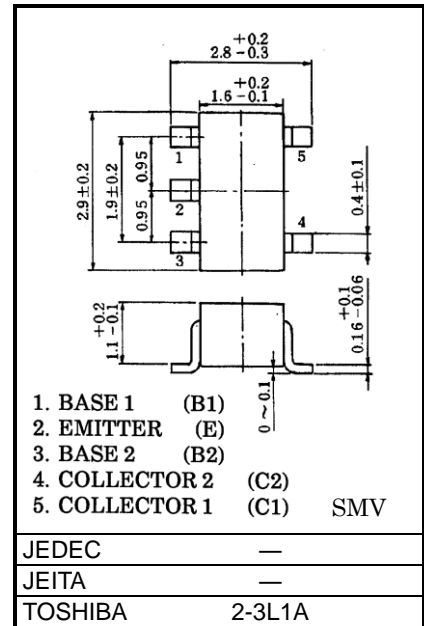
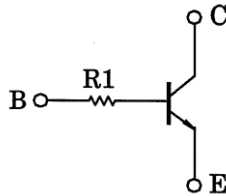
# RN1510, RN1511

Unit: mm

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 RN2510 to RN2511

### Equivalent Circuit



Weight: 0.014g (typ.)

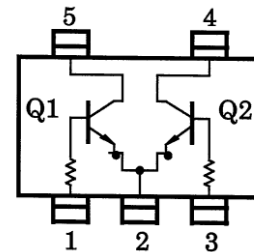
### Absolute Maximum Ratings (Ta = 25°C) (Q1, Q2 Common)

Characteristic	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

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

### Equivalent Circuit (Top View)

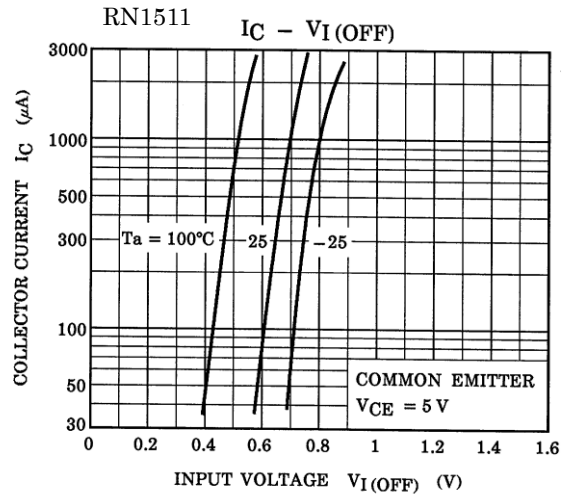
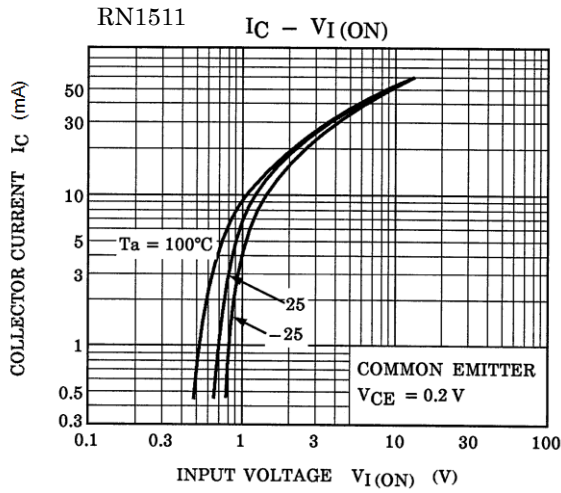
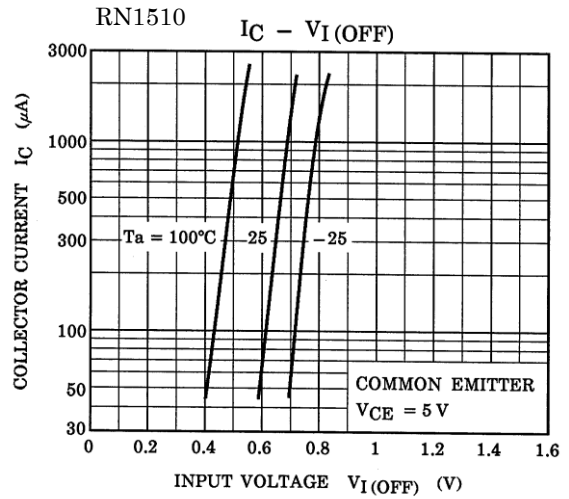
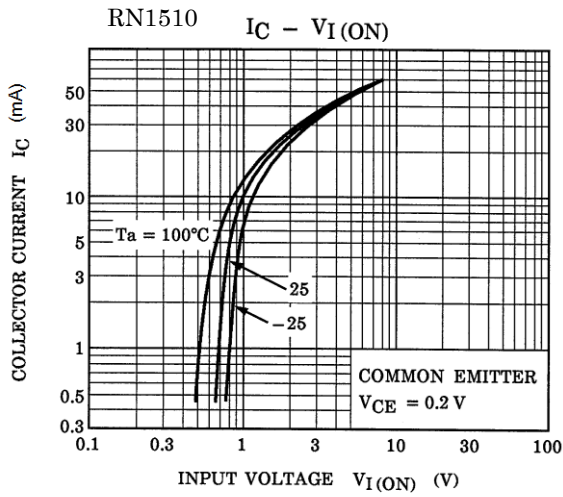


Start of commercial production  
1988-10

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

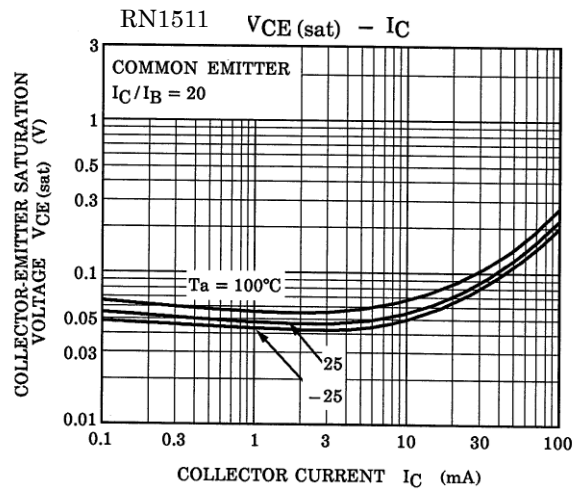
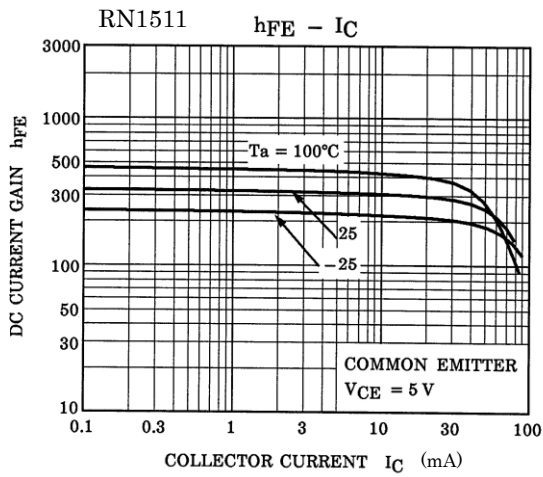
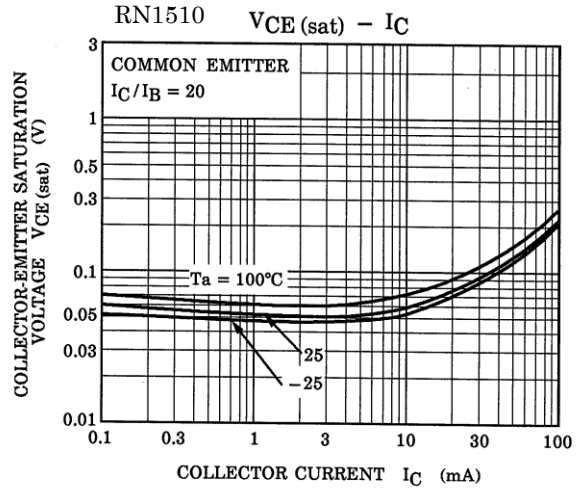
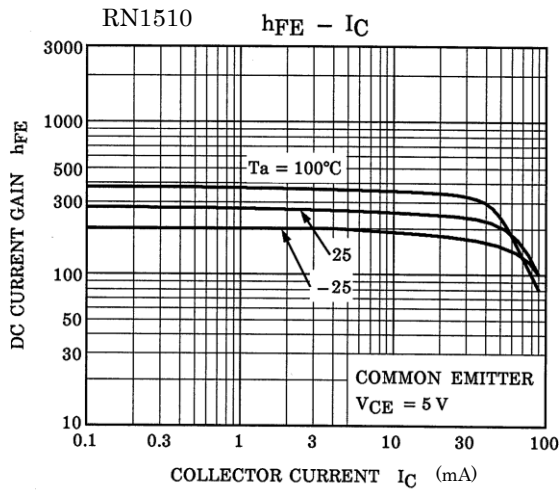
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	ICBO	V <sub>CB</sub> = 50 V, I <sub>E</sub> = 0 mA	—	—	100	nA
Emitter cut-off current	IEBO	V <sub>EB</sub> = 5 V, I <sub>C</sub> = 0 mA	—	—	100	nA
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 1 mA	120	—	700	—
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	—	250	—	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	RN1510	—	3.29	4.7	6.11	kΩ
	RN1511		7	10	13	

## Characteristics Curves(Q1, Q2 Common)



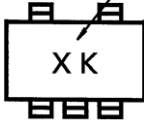
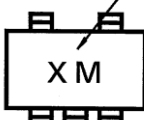
The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

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## Marking

Part No	Marking
RN1510	<p data-bbox="603 286 863 315">Part No.(abbreviation code)</p> 
RN1511	<p data-bbox="603 517 863 546">Part No.(abbreviation code)</p> 

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