

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

RN1510,RN1511

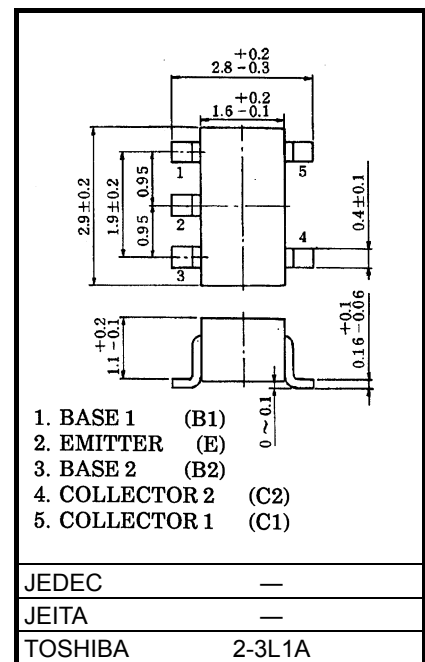
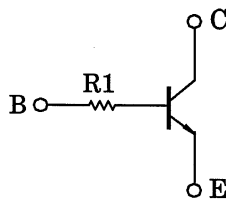
Unit: mm

Switching, Inverter Circuit, Interface Circuit
and Driver Circuit Applications

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
- Complementary to RN2510~RN2511

Equivalent Circuit

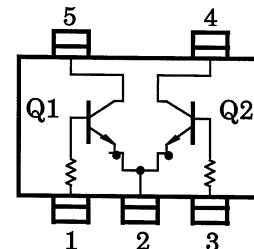


Weight: 0.014g (typ.)

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

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CB0}	50	V
Collector-emitter voltage	V_{CEO}	50	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	100	mA
Collector power dissipation	P_C^*	300	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55~150	°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.

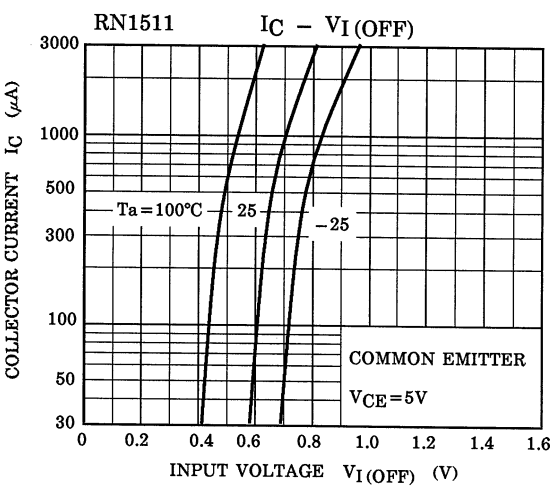
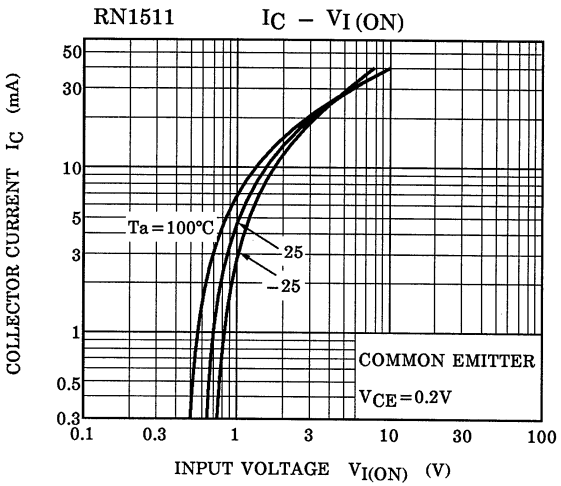
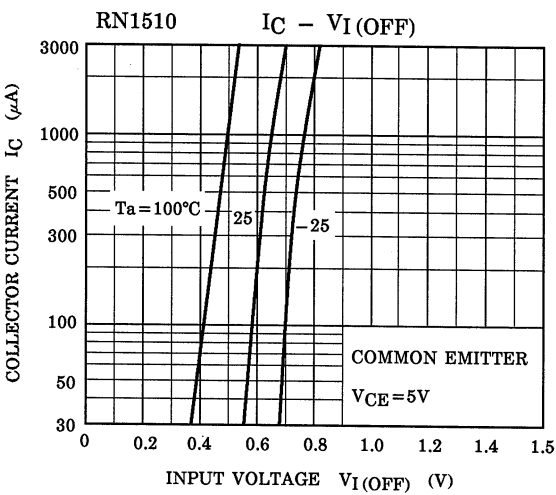
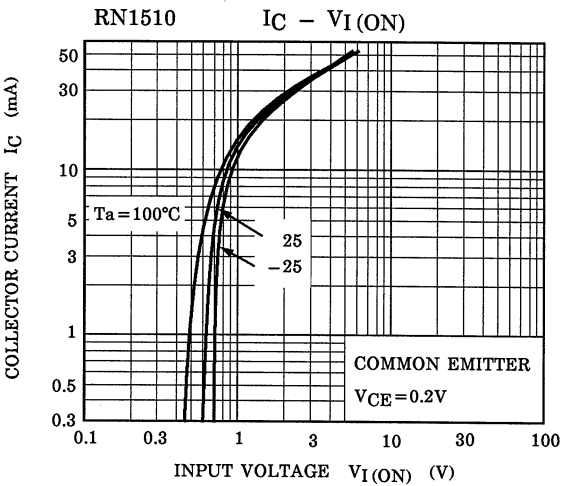
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

*: Total rating

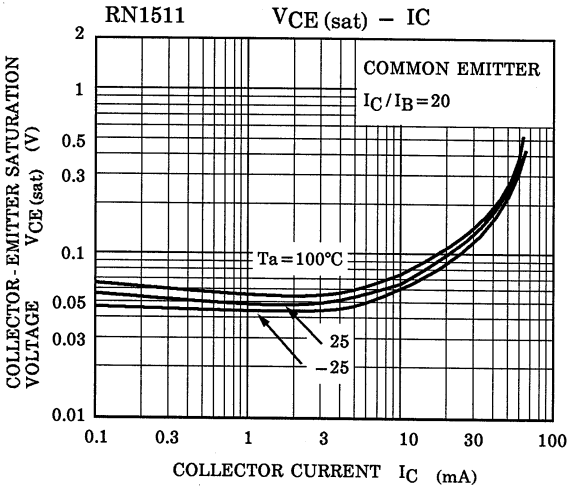
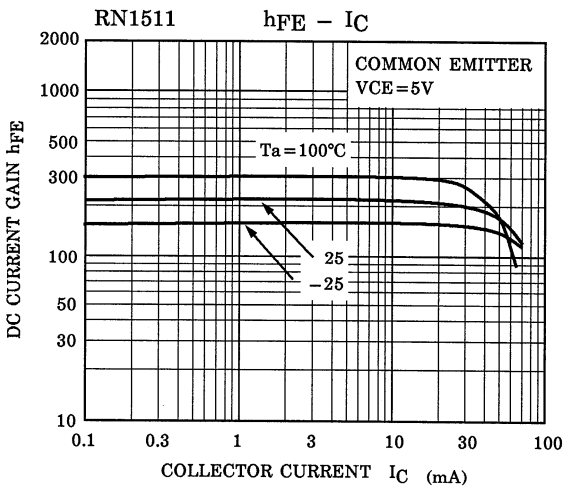
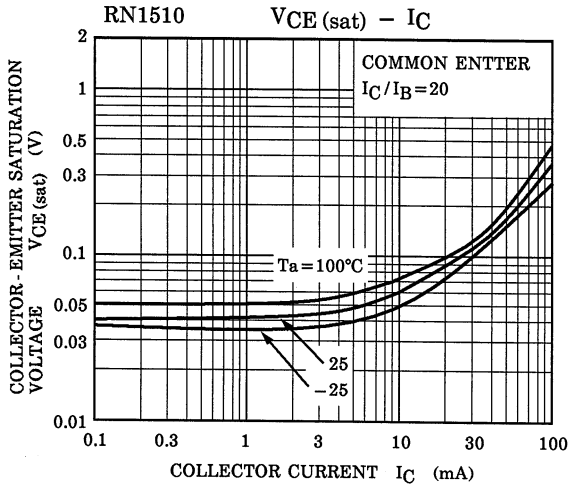
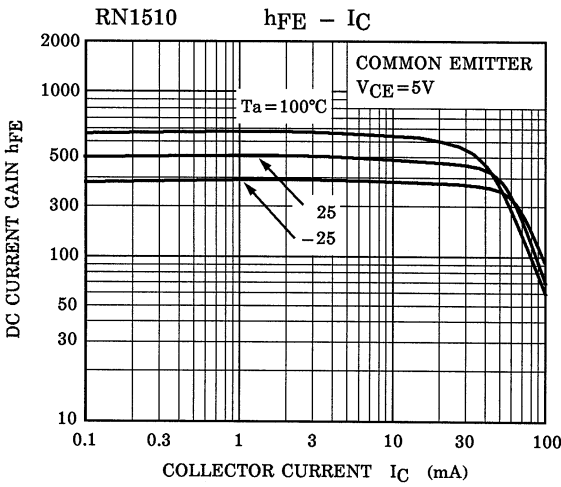
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

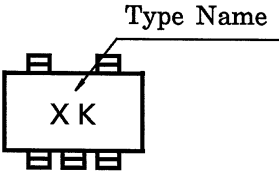
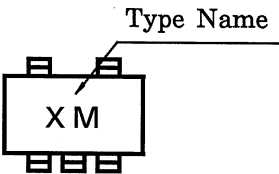
Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	—	$V_{CB} = 50V, I_E = 0$	—	—	100	nA
Emitter cut-off current	I_{EBO}	—	$V_{EB} = 5V, I_C = 0$	—	—	100	nA
DC current gain	h_{FE}	—	$V_{CE} = 5V, I_C = 1mA$	120	—	700	
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	$I_C = 5mA, I_B = 0.25mA$	—	0.1	0.3	V
Transition frequency	f_T	—	$V_{CE} = 10V, I_C = 5mA$	—	250	—	MHz
Collector output capacitance	C_{ob}	—	$V_{CB} = 10V, I_E = 0, f = 1MHz$	—	3	6	pF
Input resistor	RN1510	R1	—	3.29	4.7	6.11	kΩ
	RN1511			7	10	13	

(Q1, Q2 Common)



(Q1, Q2 Common)



Type Name	Marking
RN1510	 The diagram shows a rectangular component with four pins on the top and four on the bottom. The text 'X K' is printed in the center. A leader line points from the text 'Type Name' to the 'K' in 'X K'.
RN1511	 The diagram shows a rectangular component with four pins on the top and four on the bottom. The text 'X M' is printed in the center. A leader line points from the text 'Type Name' to the 'M' in 'X M'.

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