

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

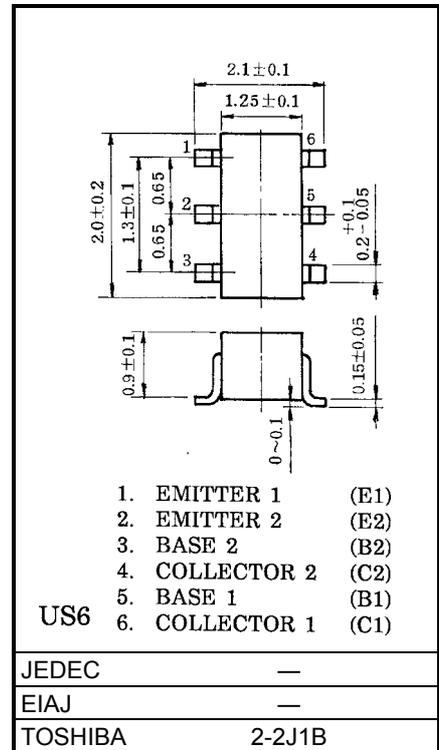
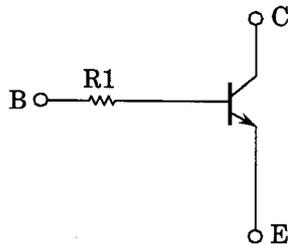
RN1970,RN1971

Switching, Inverter Circuit, Interface Circuit
And Driver Circuit Applications

Unit: mm

- Including two devices in US6 (ultra super mini type 6 leads)
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN2970~RN2971

Equivalent Circuit



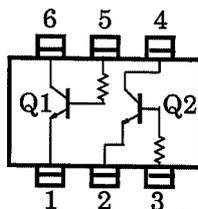
Weight: 6.8mg

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

Characterisitic	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 *	200	mW
Junction temperature	T _j	150	°C
Storage temperature range	T _{stg}	-55~150	°C

*: Total rating

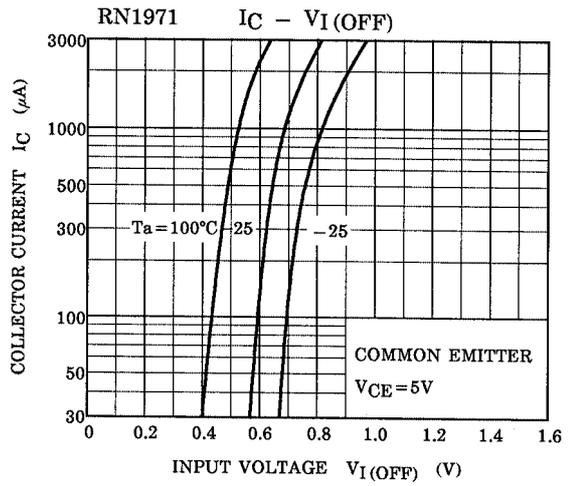
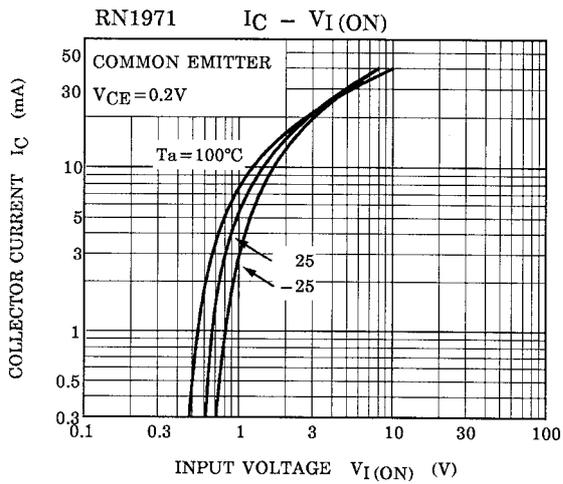
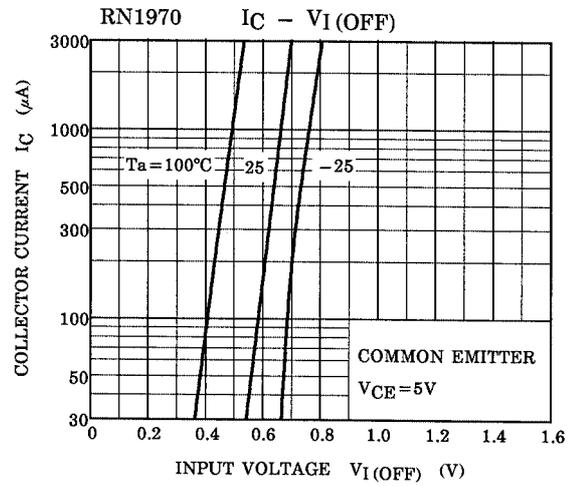
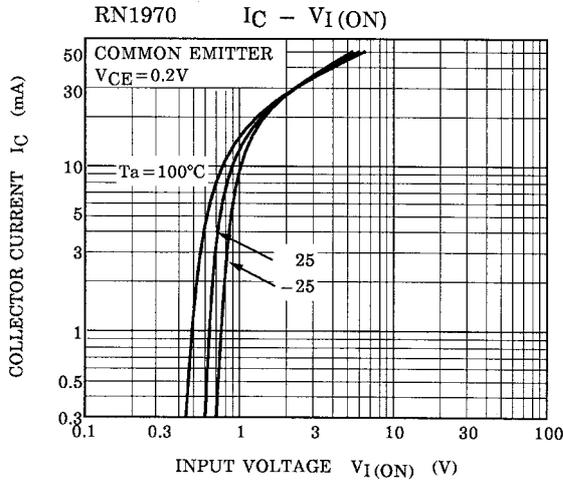
Equivalent Circuit (Top View)



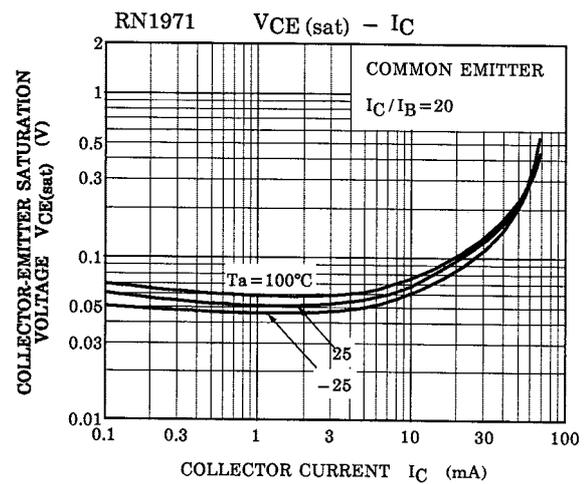
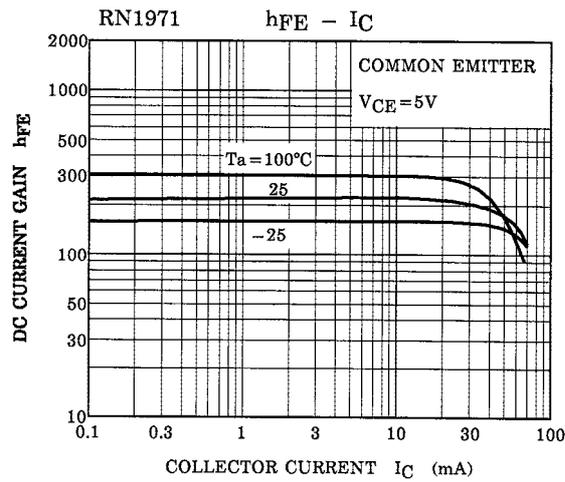
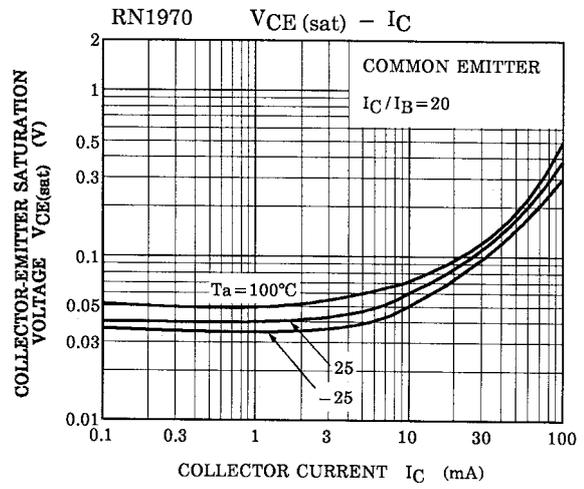
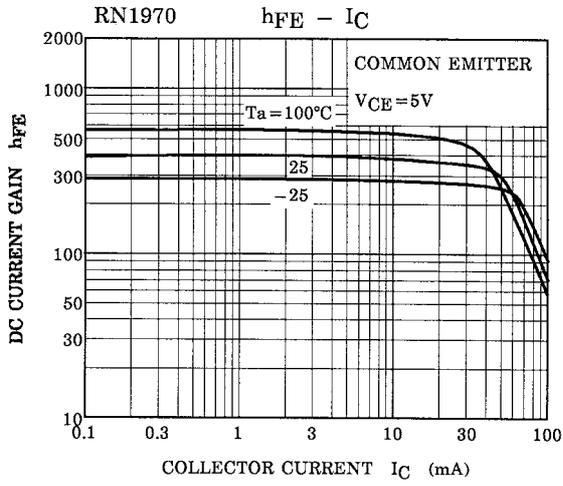
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

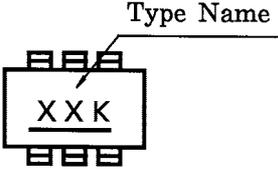
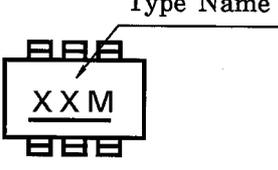
Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	—	$V_{CB} = 5V, I_E = 0$	—	—	100	nA
Emitter cut-off current	I_{EBO}	—	$V_{EB} = 5V, I_C = 0$	—	—	100	nA
DC current gain	h_{FE}	—	$V_{CE} = 5V, I_C = 1mA$	120	—	700	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	$I_C = 5mA, I_B = 0.25mA$	—	0.1	0.3	V
Translation 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	RN1970	R1	—	3.29	4.7	6.11	kΩ
	RN1971			7	10	13	

(Q1, Q2 Common)



(Q1, Q2 Common)



Type Name	Marking
RN1970	 <p>The diagram shows a rectangular marking on a component. The text 'XXX' is printed in the center and is underlined. Above and below the rectangle are two rows of three small rectangular marks. A line points from the text 'Type Name' to the top-right corner of the rectangle.</p>
RN1971	 <p>The diagram shows a rectangular marking on a component. The text 'XXM' is printed in the center and is underlined. Above and below the rectangle are two rows of three small rectangular marks. A line points from the text 'Type Name' to the top-right corner of the rectangle.</p>

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