

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

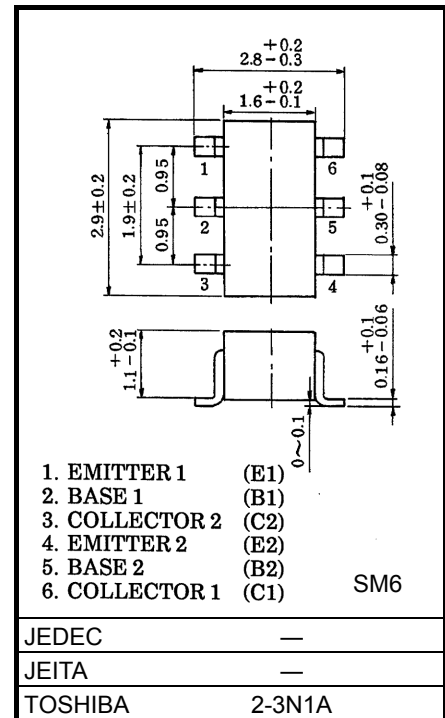
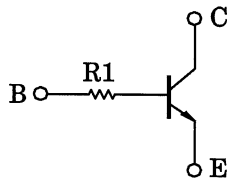
RN1610, RN1611

Switching, Inverter Circuit, Interface Circuit
and Driver Circuit Applications

Unit: mm

- Including two devices in SM6 (super-mini-type with six (6) leads)
- With built-in bias resistors
- Simplified circuit design
- Reduced number of parts and manufacturing process
- Complementary to RN2610 and RN2611

Equivalent Circuit



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

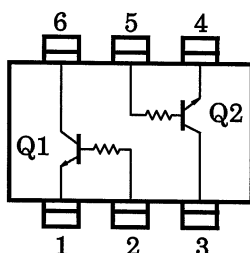
Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	50	V
Collector-emitter voltage	V_{CEO}	50	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	100	mA
Collector power dissipation	P_C^*	300	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55 to 150	°C

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

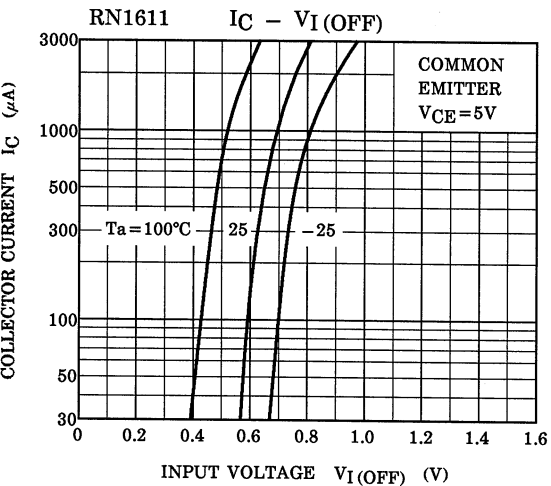
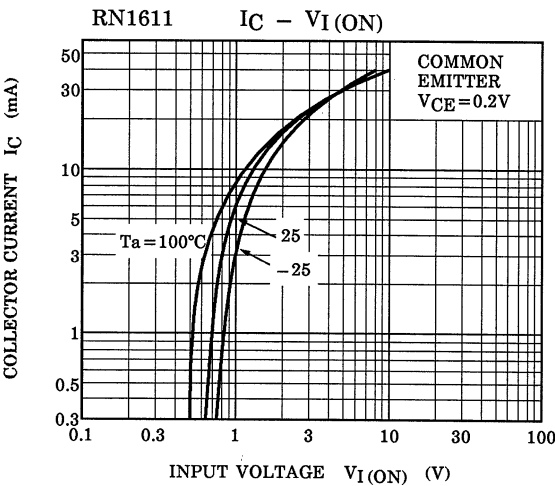
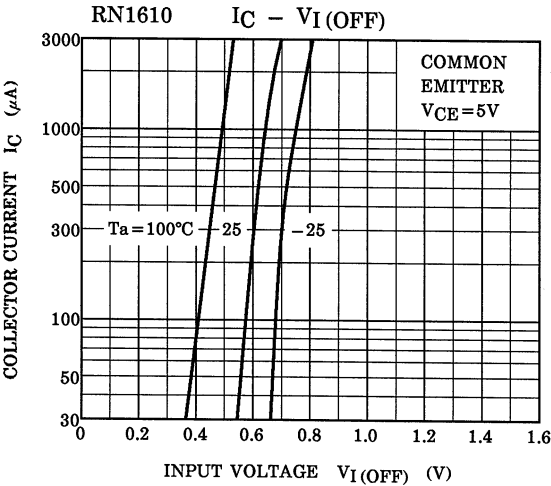
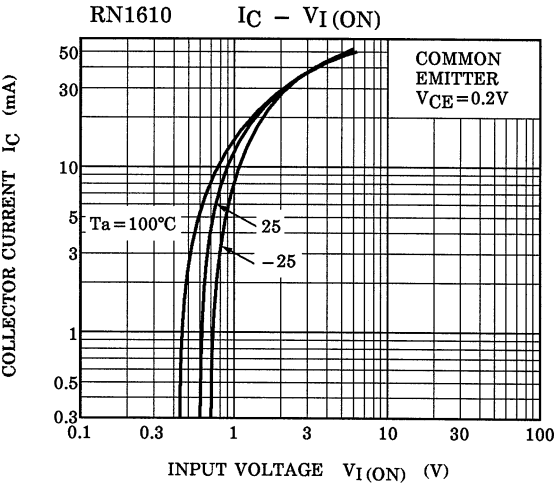
Equivalent Circuit (Top View)



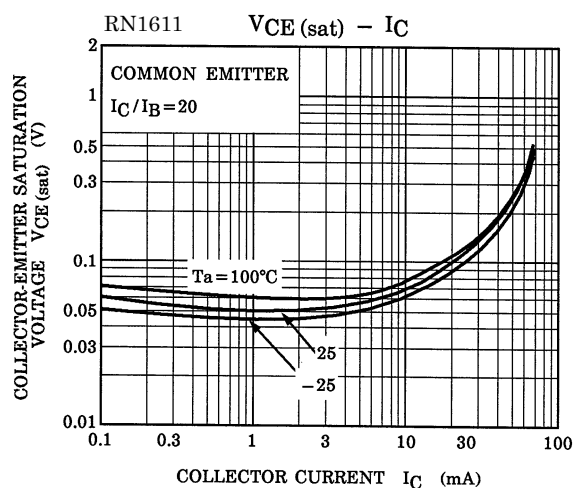
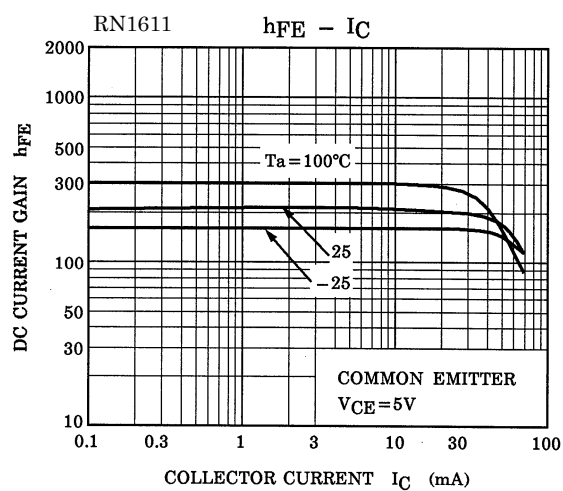
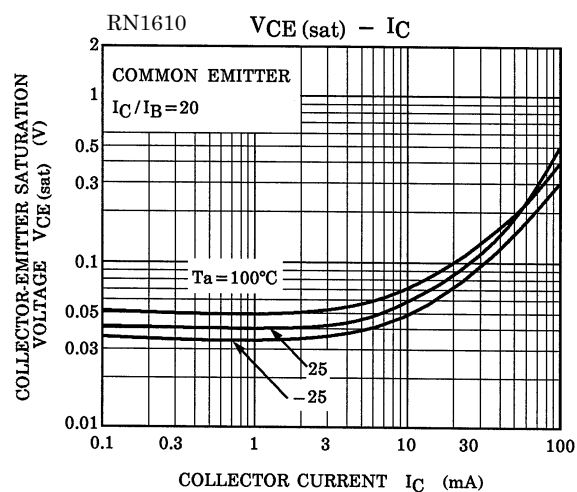
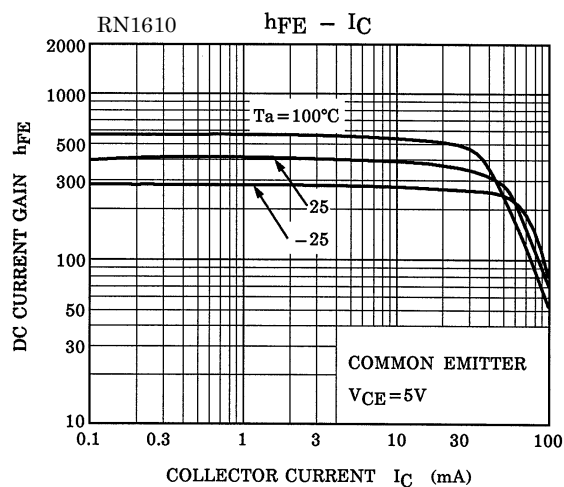
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

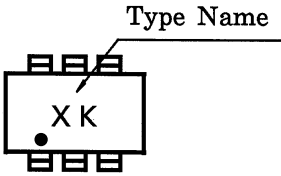
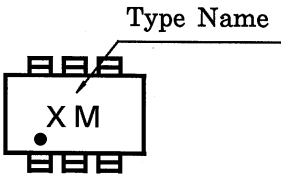
Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		ICBO	—	V _{CB} = 50 V, I _E = 0	—	—	100	nA
Emitter cut-off current		IEBO	—	VEB = 5 V, I _C = 0	—	—	100	nA
DC current gain		h _{FE}	—	V _{CE} = 5 V, I _C = 1 mA	120	—	700	—
Collector-emitter saturation voltage		V _{CE} (sat)	—	I _C = 5 mA, I _B = 0.25 mA	—	0.1	0.3	V
Transition frequency		f _T	—	V _{CE} = 10 V, I _C = 5 mA	—	250	—	MHz
Collector output capacitance		C _{ob}	—	V _{CB} = 10 V, I _E = 0, f = 1 MHz	—	3	6	pF
Input resistor	RN1610	R1	—	—	3.29	4.7	6.11	kΩ
	RN1611				7	10	13	

(Q1, Q2 Common)



(Q1, Q2 Common)



Type Name	Marking
RN1610	 The diagram shows a rectangular component with four pins on each of the top and bottom edges. Inside the rectangle, the text "X K" is printed, with a small dot positioned to the left of the "X". A leader line labeled "Type Name" points to the "X" character.
RN1611	 The diagram shows a rectangular component with four pins on each of the top and bottom edges. Inside the rectangle, the text "X M" is printed, with a small dot positioned to the left of the "X". A leader line labeled "Type Name" points to the "X" character.

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