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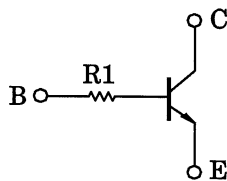
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

RN1610, RN1611

Switching, Inverter Circuit, Interface Circuit and Driver Circuit Applications

- 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)

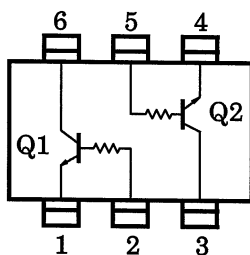
Characteristic	Symbol	Rating	Unit
Collector-base voltage	V _{CBO}	50	V
Collector-emitter voltage	V _{CEO}	50	V
Emitter-base voltage	V _{EBO}	5	V
Collector current	I _C	100	mA
Collector power dissipation	P _C *	300	mW
Junction temperature	T _j	150	°C
Storage temperature range	T _{stg}	-55 to 150	°C

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.

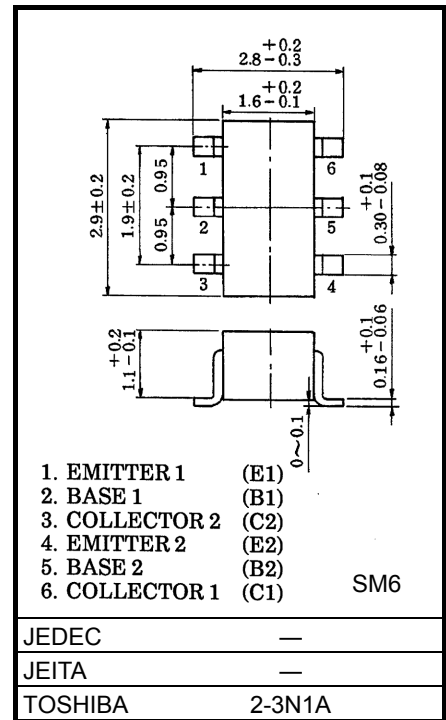
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

* Total rating

Equivalent Circuit (Top View)



Unit: mm



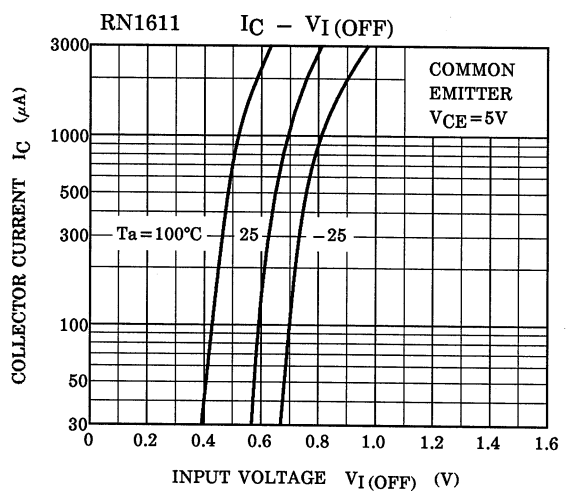
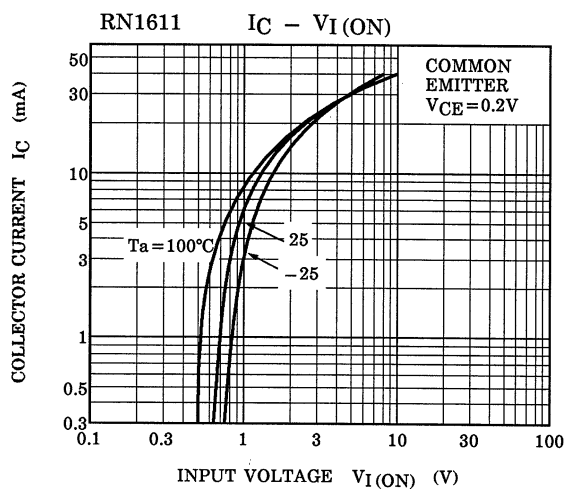
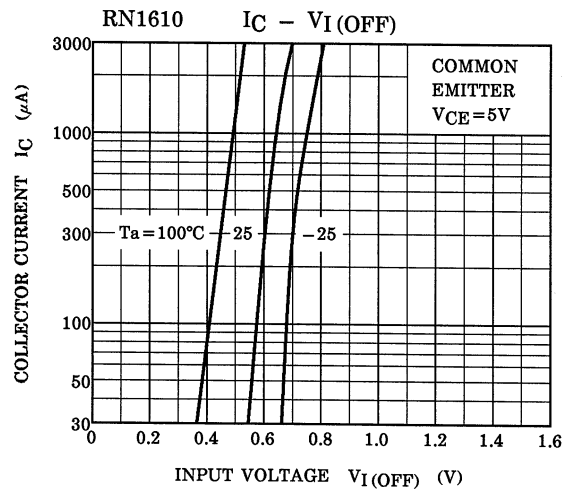
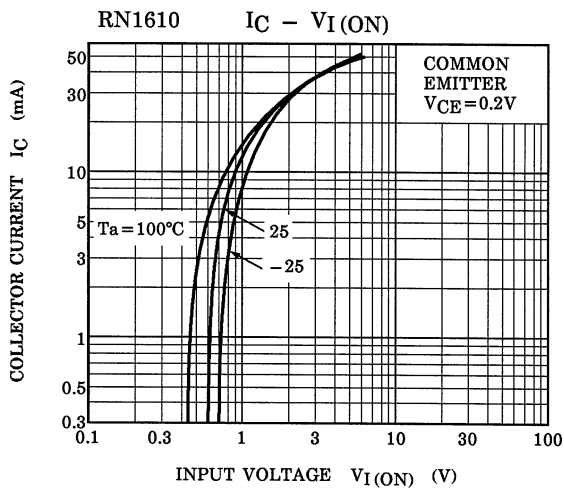
1. EMITTER 1 (E1)
 2. BASE 1 (B1)
 3. COLLECTOR 2 (C2)
 4. EMITTER 2 (E2)
 5. BASE 2 (B2)
 6. COLLECTOR 1 (C1)
- SM6

Start of commercial production
1988-11

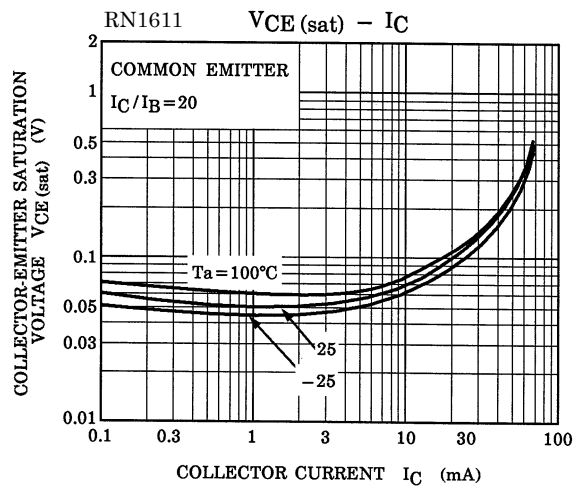
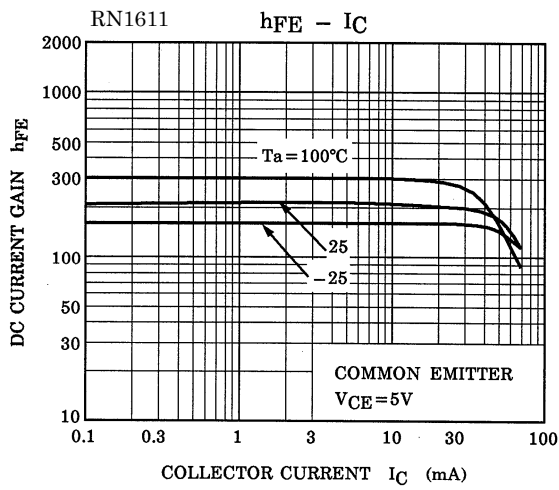
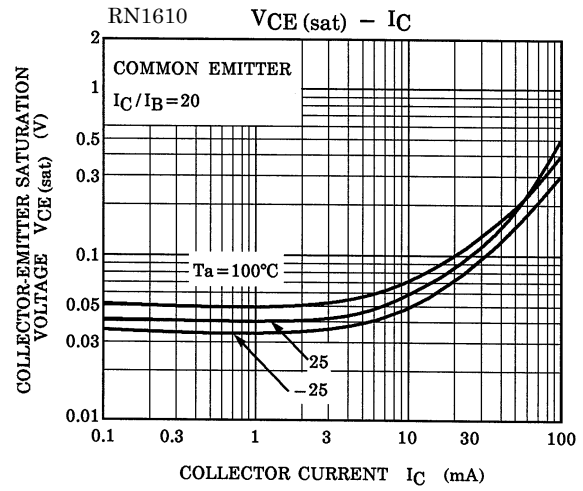
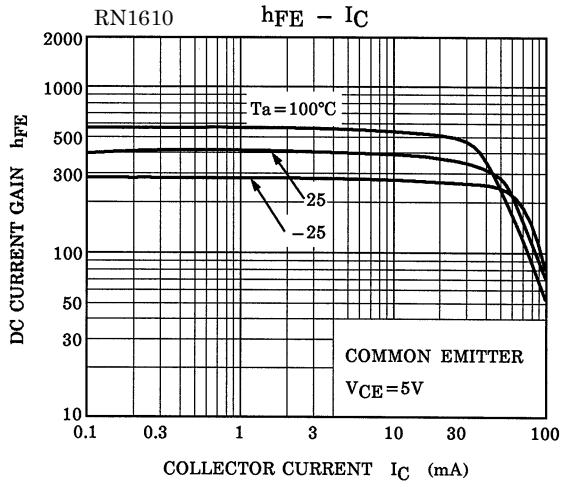
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

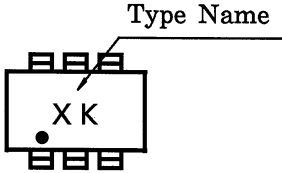
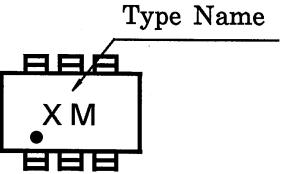
Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	—	$V_{CB} = 50\text{ V}, I_E = 0$	—	—	100	nA
Emitter cut-off current	I_{EBO}	—	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	100	nA
DC current gain	h_{FE}	—	$V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$	120	—	700	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	$I_C = 5\text{ mA}, I_B = 0.25\text{ mA}$	—	0.1	0.3	V
Transition frequency	f_T	—	$V_{CE} = 10\text{ V}, I_C = 5\text{ mA}$	—	250	—	MHz
Collector output capacitance	C_{ob}	—	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	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	 <p>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 below the 'X'. A line points from the text 'Type Name' above to the top-right corner of the component.</p>
RN1611	 <p>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 below the 'X'. A line points from the text 'Type Name' above to the top-right corner of the component.</p>

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