

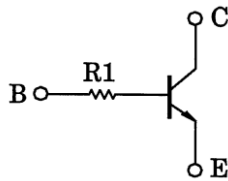
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

RN1610, RN1611

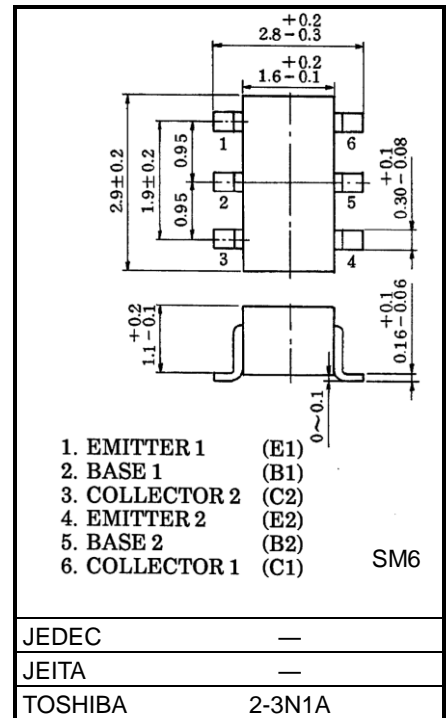
Switching, Inverter Circuit,
Interface Circuit and Driver Circuit

- Including two devices in SM6 (super-mini-type with six (6) leads)
- With built-in bias resistors
- Simplified 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 RN2610 and RN2611

Equivalent Circuit



Unit: mm



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

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V _{CB0}	50	V
Collector-emitter voltage	V _{CE0}	50	V
Emitter-base voltage	V _{EB0}	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

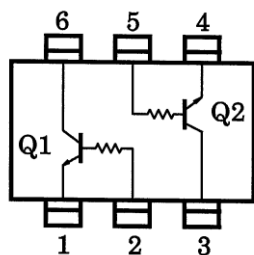
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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

Start of commercial production
1988-11

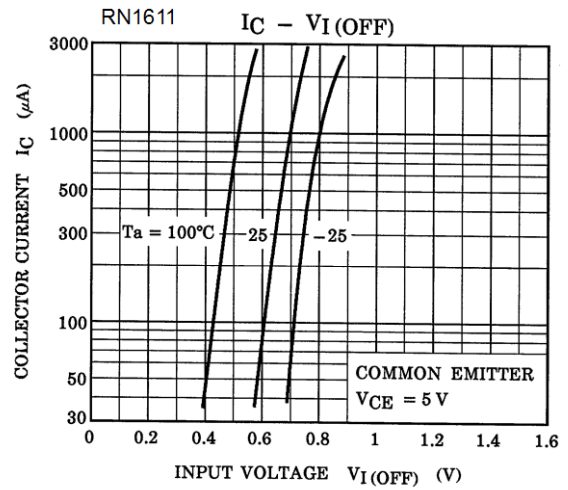
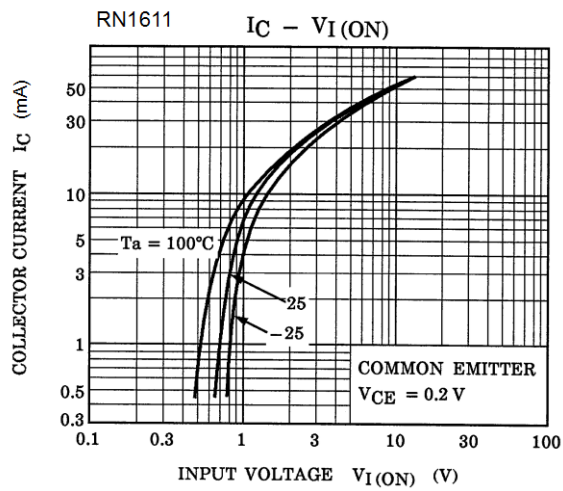
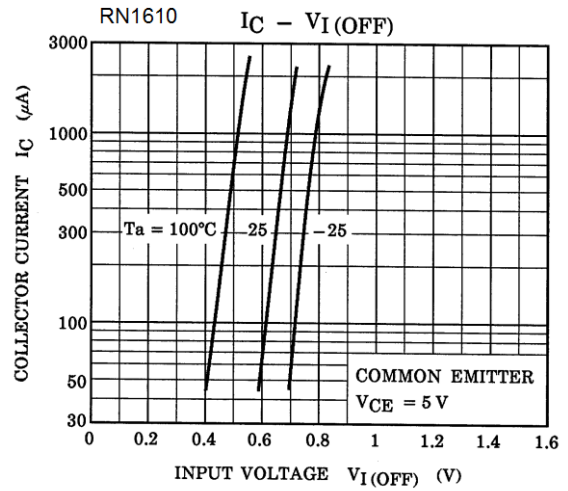
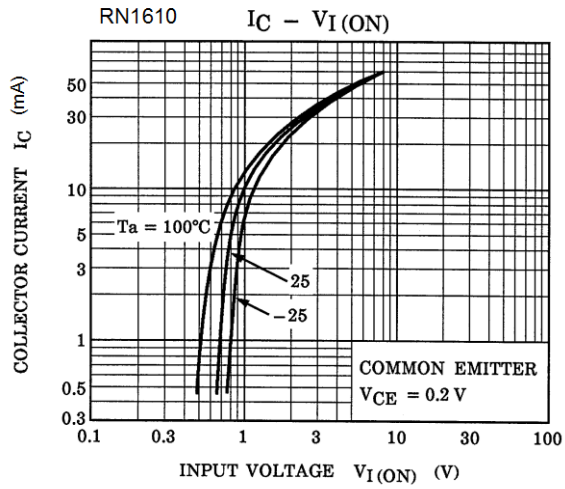
Equivalent Circuit (Top View)



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

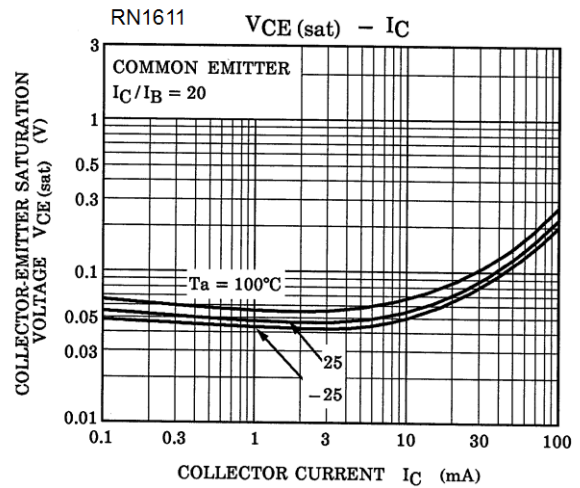
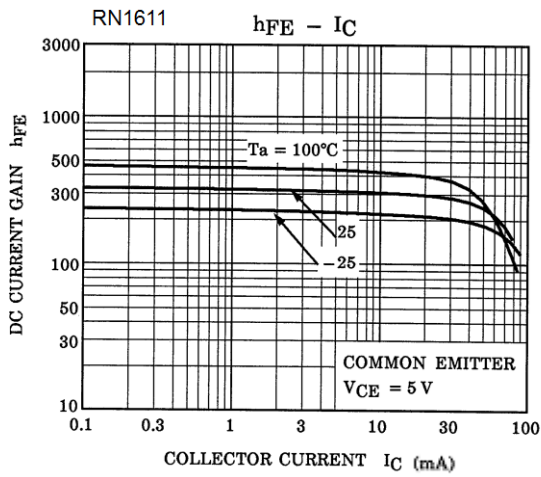
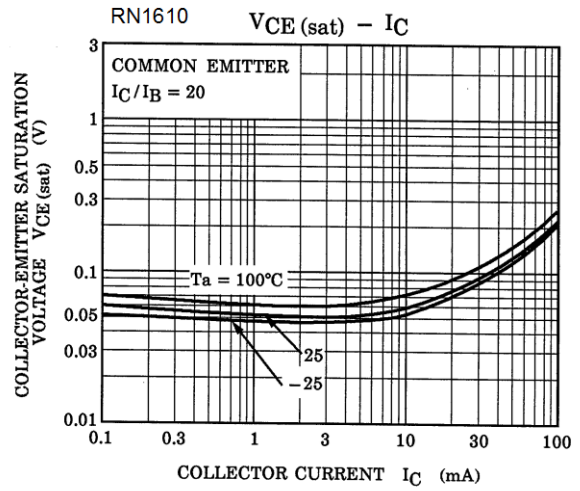
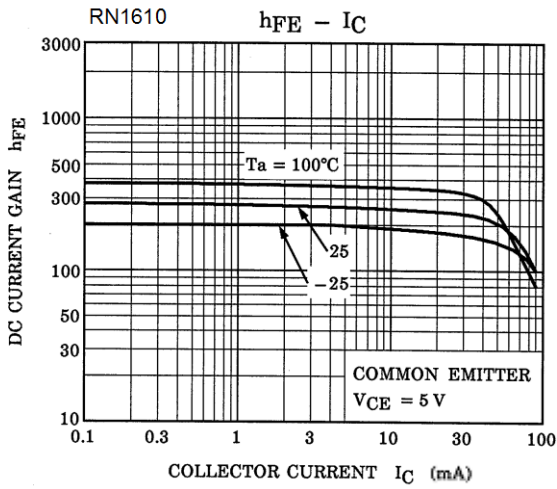
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit	
Collector cut-off current	I_{CBO}	$V_{CB} = 50\text{ V}, I_E = 0\text{ mA}$	—	—	100	nA	
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{ V}, I_C = 0\text{ mA}$	—	—	100	nA	
DC current gain	h_{FE}	$V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$	120	—	700	—	
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}	$V_{CB} = 10\text{ V}, I_E = 0\text{ mA}, f = 1\text{ MHz}$	—	3	6	pF	
Input resistance	RN1610	R1	—	3.29	4.7	6.11	kΩ
	RN1611			7	10	13	

Characteristics Curves (Q1, Q2 Common)



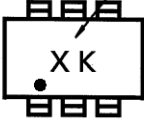

The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

Characteristics Curves (Q1, Q2 Common)



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

Marking

Part No.	Marking
RN1610	<p data-bbox="603 344 868 374">Part No.(abbreviation code)</p> 
RN1611	<p data-bbox="603 595 868 624">Part No.(abbreviation code)</p> 

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