

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process) (Bias Resistor built-in Transistor)

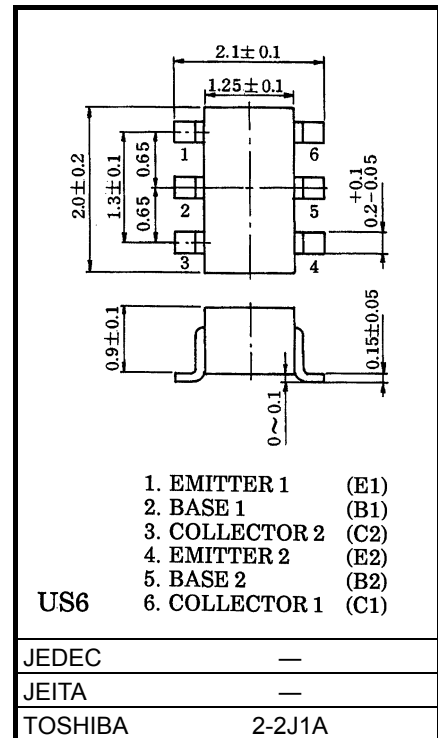
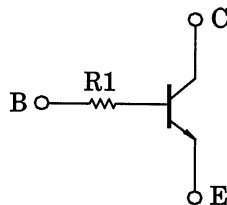
RN1910,RN1911

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 RN2910 and RN2911

Equivalent Circuit



US6

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

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

Characterisitic	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^*	100	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55 to 150	°C

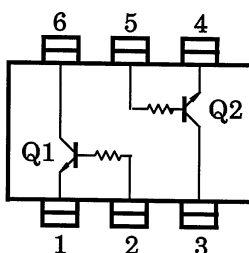
Weight: 6.8 mg (typ.)

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

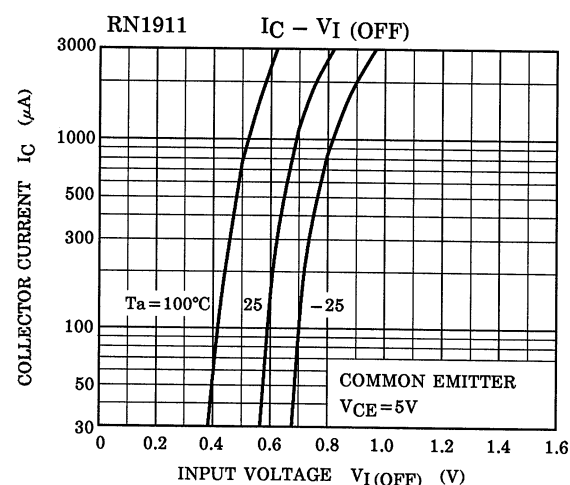
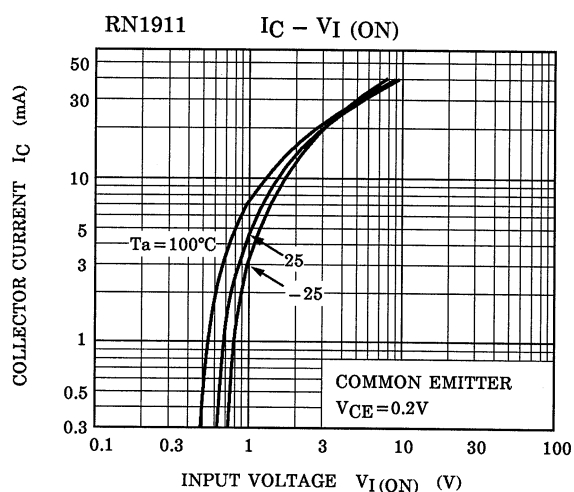
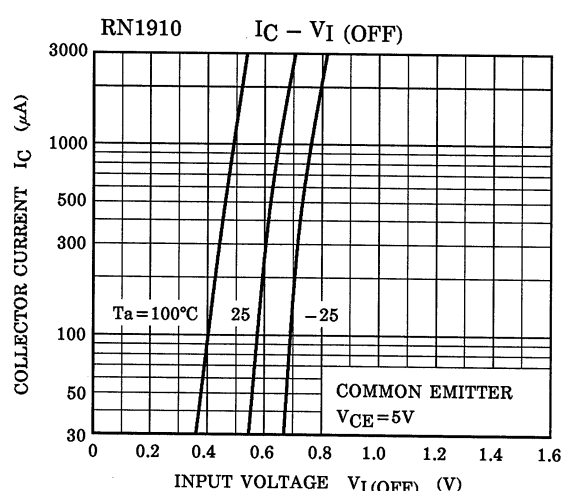
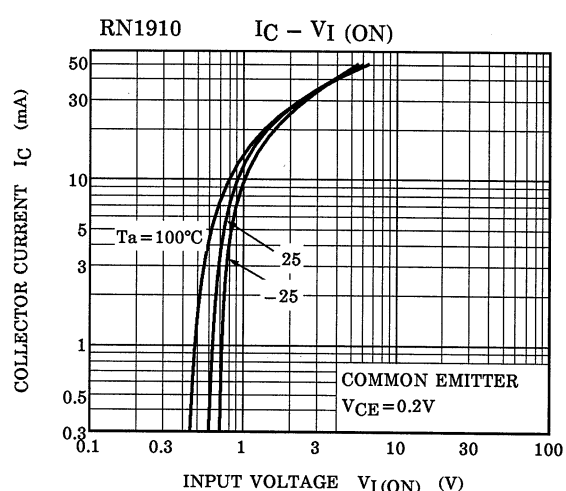
Equivalent Circuit (Top View)



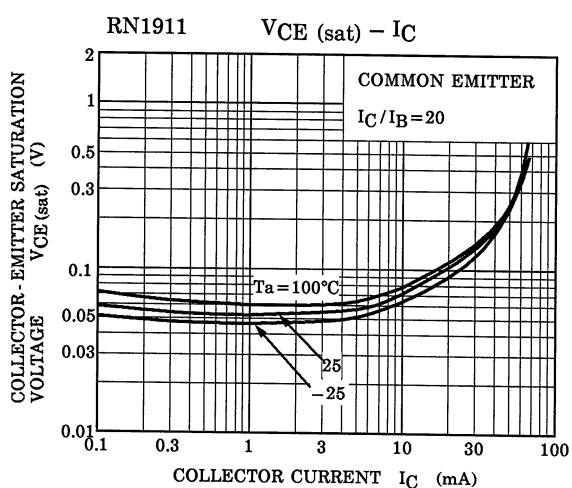
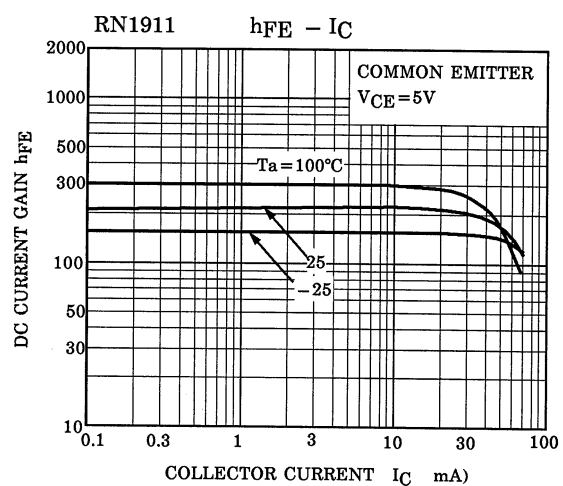
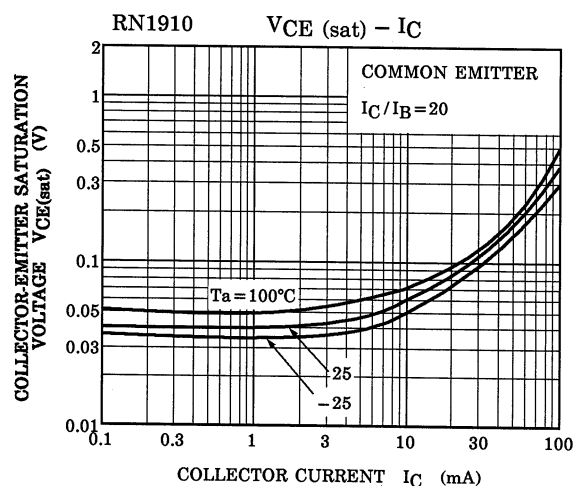
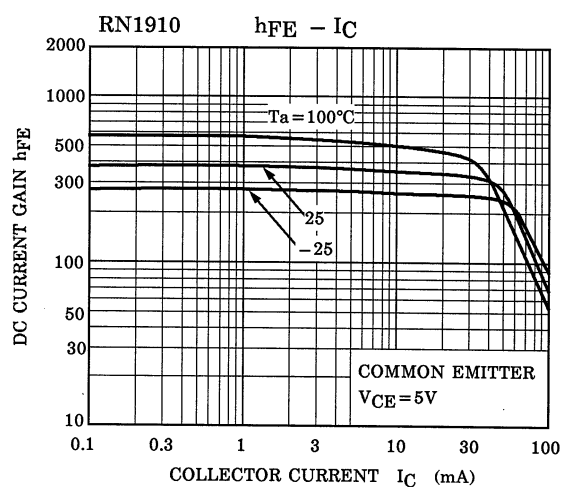
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		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}	—	$V_{CB} = 10V, I_E = 0V, f = 1MHz$	—	3	6	pF
Input resistor	RN1910	R1	—	—	3.29	4.7	6.11	kΩ
	RN1911				7	10	13	

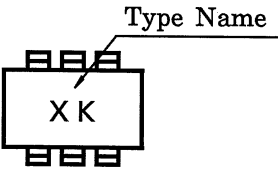
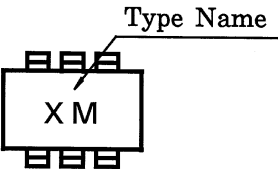
(Q1, Q2 Common)



(Q1, Q2 Common)



Marking

Type Name	Marking
RN1910	 The diagram shows a rectangular component with four pins on each of the longer sides. A box is drawn in the center containing the text "X K". A line points from the text "Type Name" to the top-right pin.
RN1911	 The diagram shows a rectangular component with four pins on each of the longer sides. A box is drawn in the center containing the text "X M". A line points from the text "Type Name" to the top-right pin.

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