

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

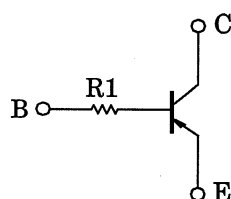
RN2312,RN2313

Switching, Inverter Circuit, Interface Circuit
and Driver Circuit Applications

Unit: mm

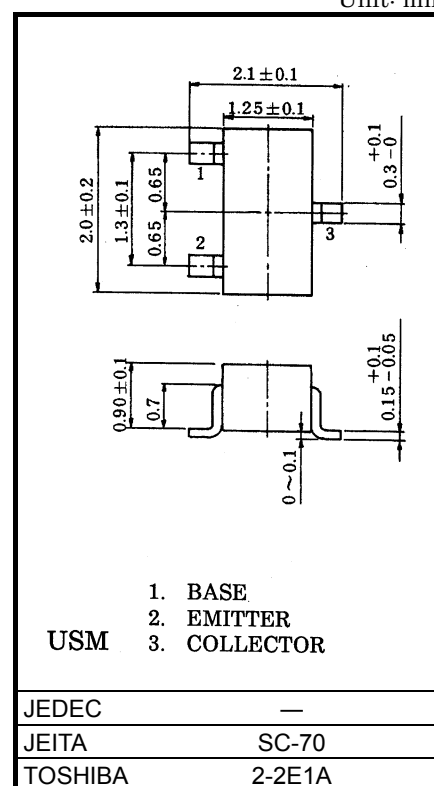
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1312, RN1313

Equivalent Circuit



Absolute Maximum Ratings (Ta = 25°C)

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}	-55~150	°C



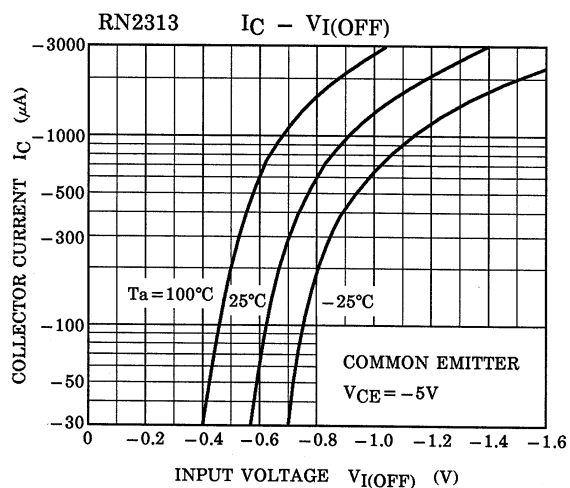
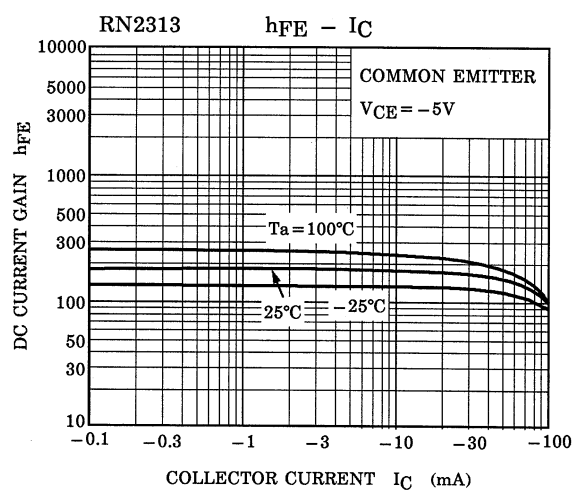
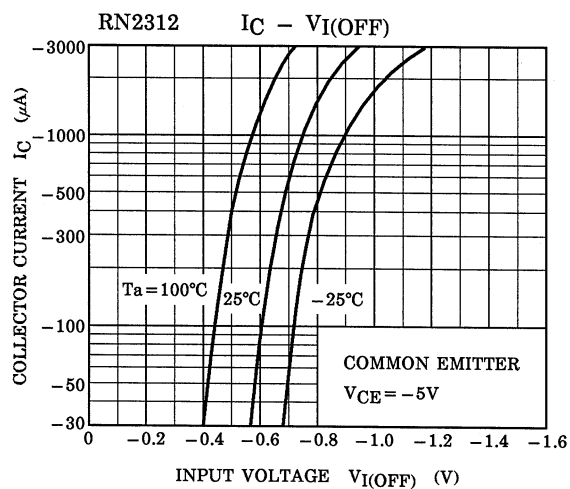
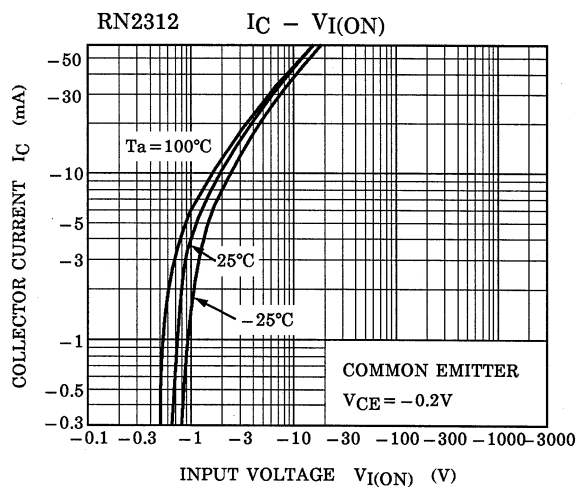
Weight: 0.006 g (typ.)

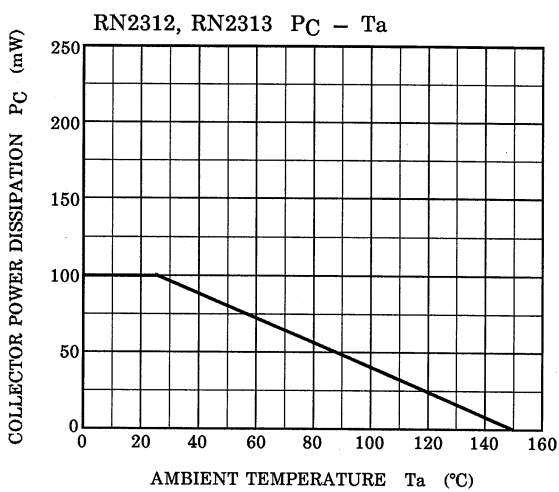
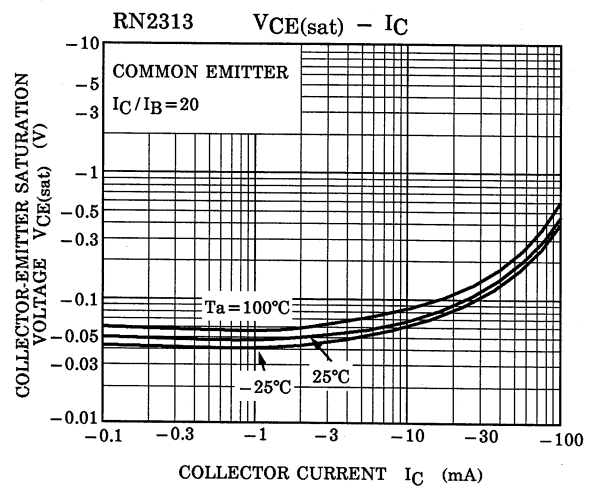
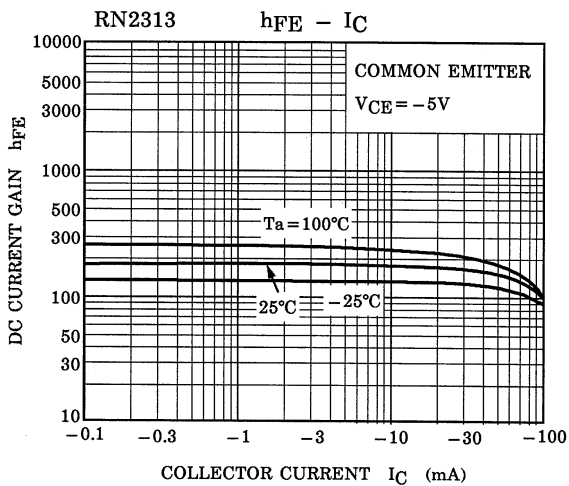
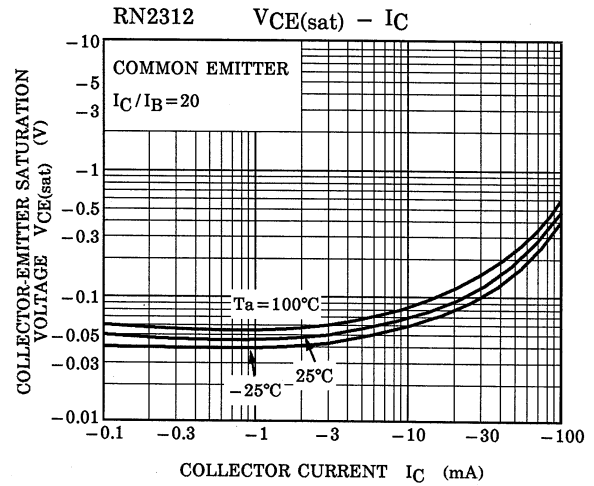
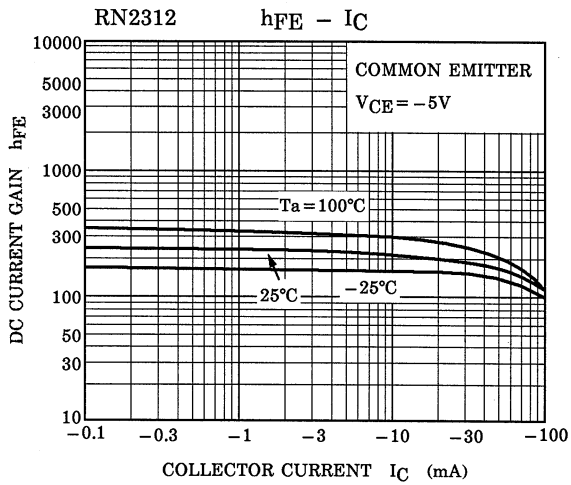
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

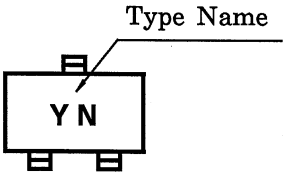
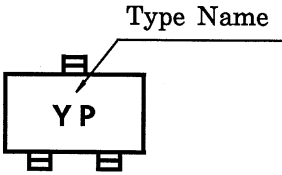
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Electrical Characteristics (Ta = 25°C)

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	—	400	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	$I_C = -5mA, I_B = -0.25mA$	—	-0.1	-0.3	V
Translation Frequency	f_T	—	$V_{CE} = -10V, I_C = -5mA$	—	200	—	MHz
Collector output capacitance	C_{ob}	—	$V_{CB} = -10V, I_E = 0, f = 1MHz$	—	3	6	pF
Input resistor	RN2312	R1	—	15.4	22	28.6	kΩ
	RN2313			32.9	47	61.1	





Type Name	Marking
RN2312	 <p>The diagram shows a rectangular component with three pins: one on the top edge and two on the bottom edge. The letters "Y N" are printed inside the rectangle. A line points from the text "Type Name" to the top pin.</p>
RN2313	 <p>The diagram shows a rectangular component with three pins: one on the top edge and two on the bottom edge. The letters "Y P" are printed inside the rectangle. A line points from the text "Type Name" to the top pin.</p>

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