

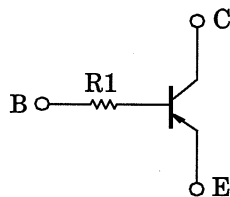
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process) (Bias Resistor built-in Transistor)

RN2312, RN2313

Switching, Inverter Circuit, Interface Circuit
and Driver Circuit Applications

- 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)

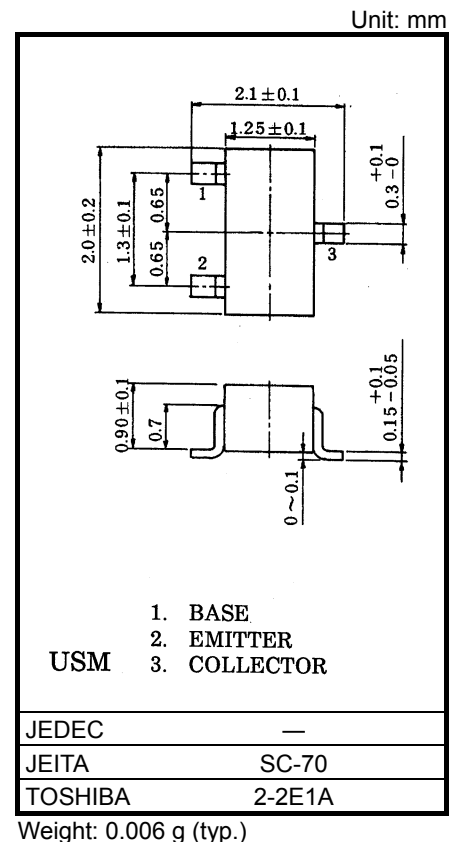
Characterisitic	Symbol	Rating	Unit
Collector-base voltage	V _{CB0}	-50	V
Collector-emitter voltage	V _{CEO}	-50	V
Emitter-base voltage	V _{EBO}	-5	V
Collector current	I _C	-100	mA
Collector power dissipation	P _C	100	mW
Junction temperature	T _j	150	°C
Storage temperature range	T _{stg}	-55 to 150	°C

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.

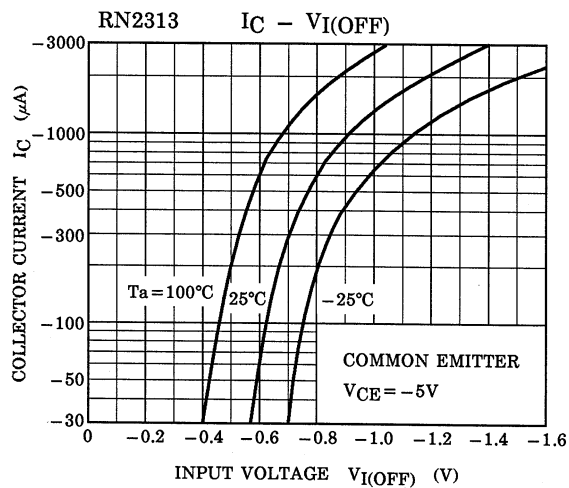
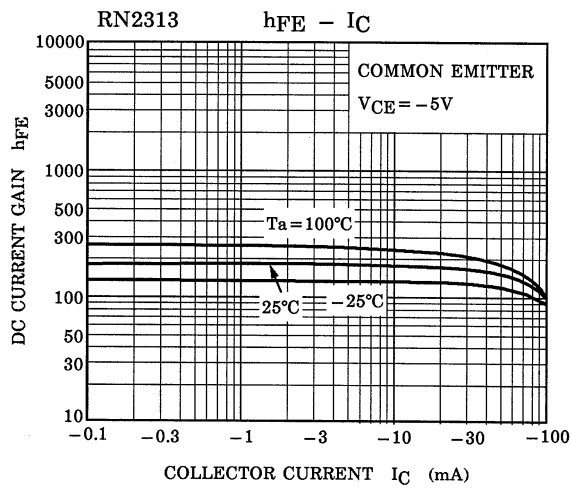
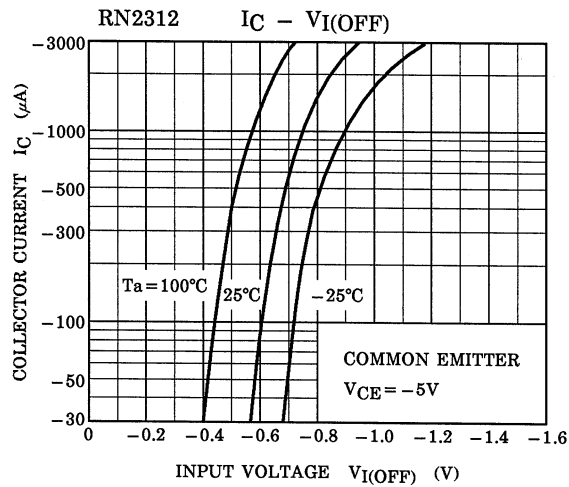
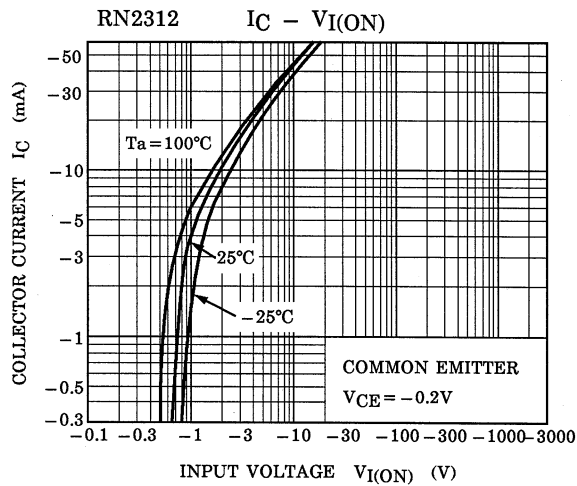
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

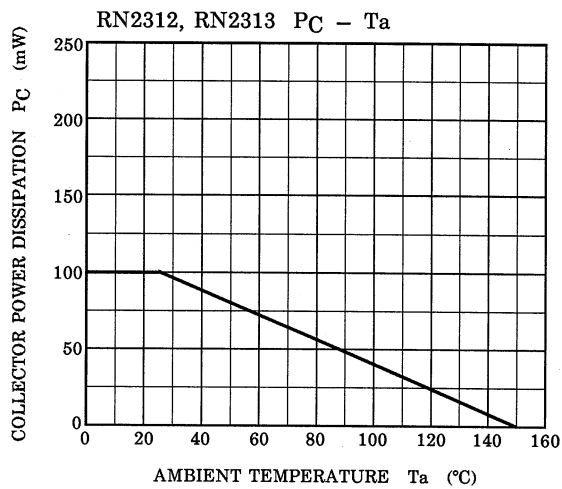
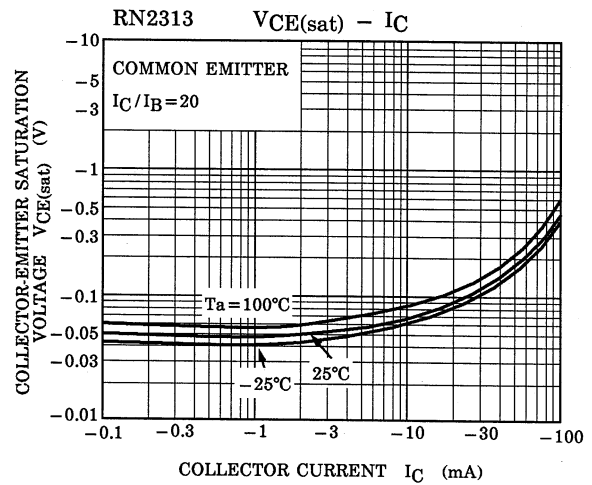
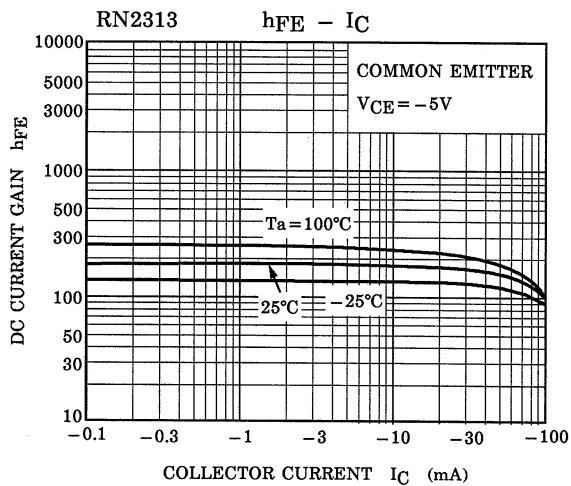
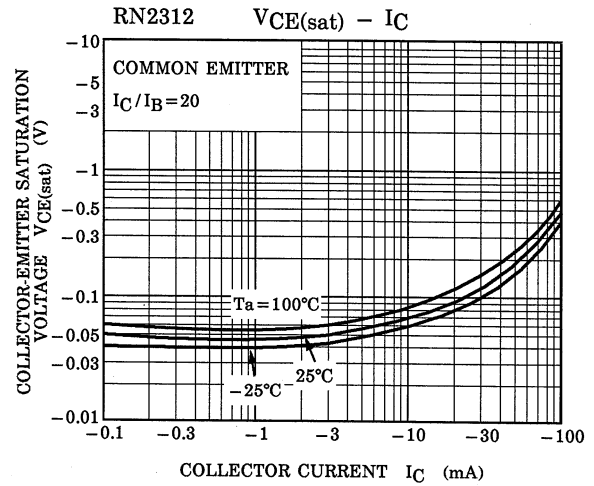
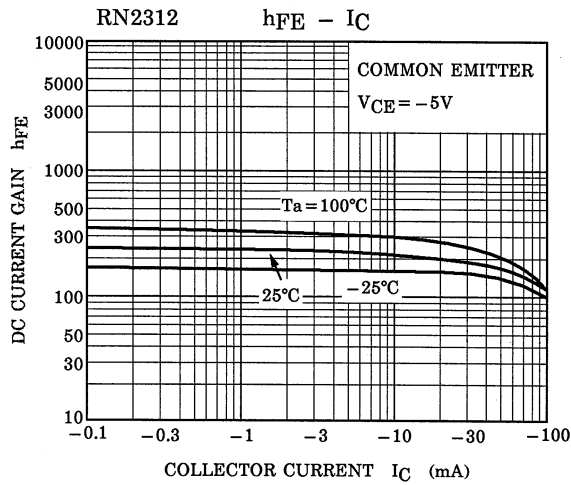
Electrical Characteristics (Ta = 25°C)

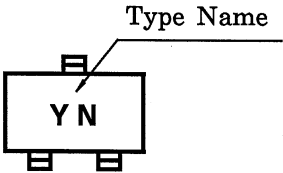
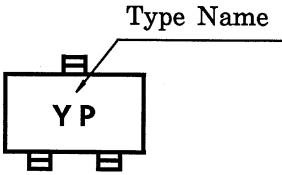
Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I _{CBO}	—	V _{CB} = -50V, I _E = 0	—	—	-100	nA
Emitter cut-off current	I _{EBO}	—	V _{EB} = -5V, I _C = 0	—	—	-100	nA
DC current gain	h _{FE}	—	V _{CE} = -5V, I _C = -1mA	120	—	400	—
Collector-emitter saturation 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	



Start of commercial production
1998-02





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 leader 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 leader line points from the text "Type Name" to the top pin.</p>

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