

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

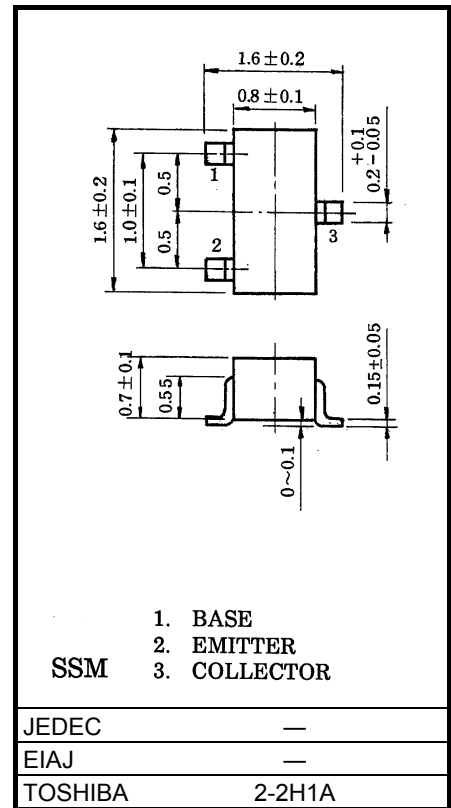
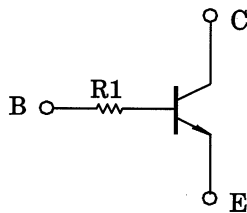
RN1112, RN1113

Switching, Inverter Circuit, Interface Circuit and Driver Circuit Applications

Unit: mm

- With built-in bias resistors
- Simplified circuit design
- Reduced number of parts and simplified process
- Complementary to RN2112, RN2113

Equivalent Circuit



Absolute Maximum Ratings (Ta = 25°C)

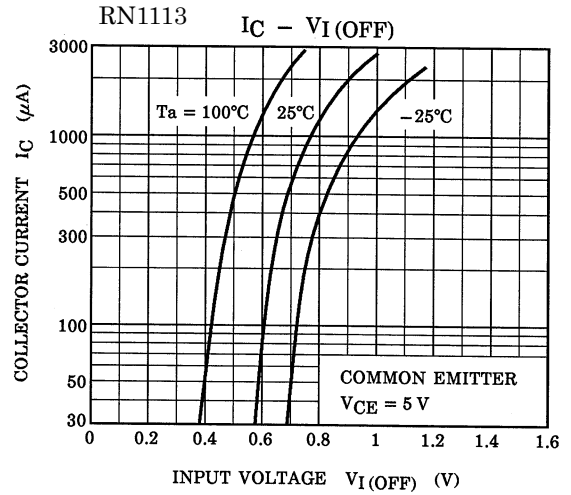
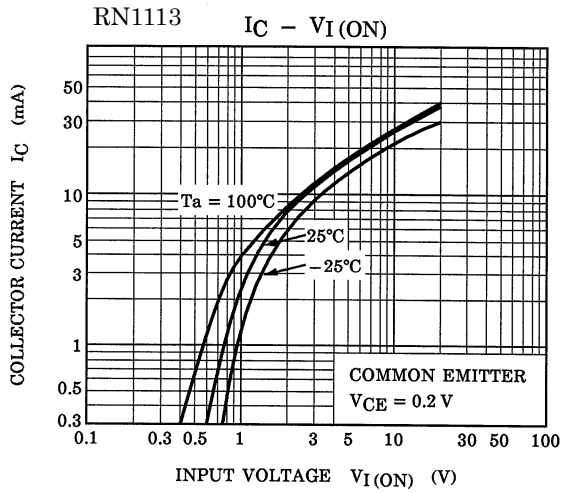
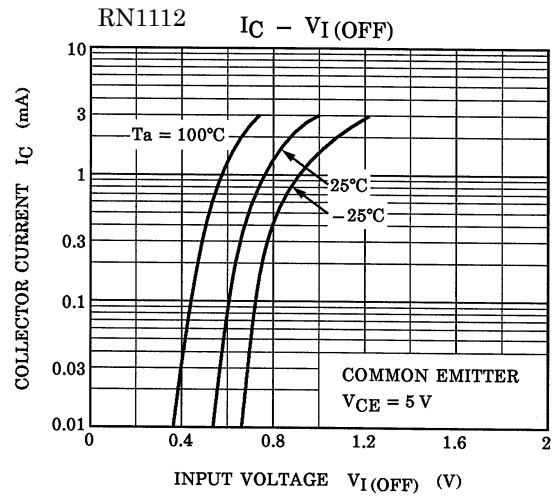
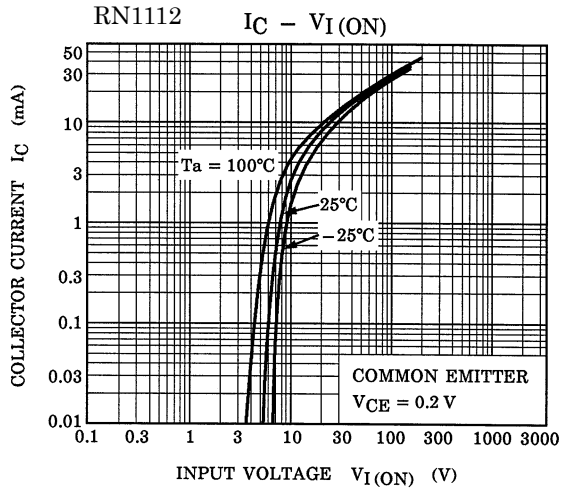
Characteristic	Symbol	Rating	Unit
Collector-base voltage	V _{CB0}	50	V
Collector-emitter voltage	V _{CEO}	50	V
Emitter-base voltage	V _{EBO}	5	V
Collector current	I _c	100	mA
Collector power dissipation	P _c	100	mW
Junction temperature	T _j	150	°C
Storage temperature range	T _{stg}	-55~150	°C

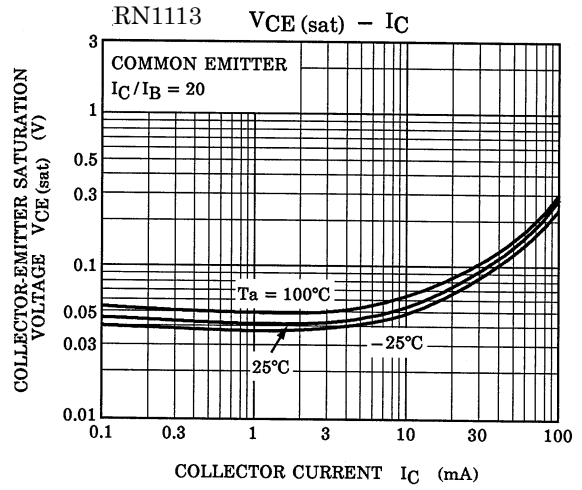
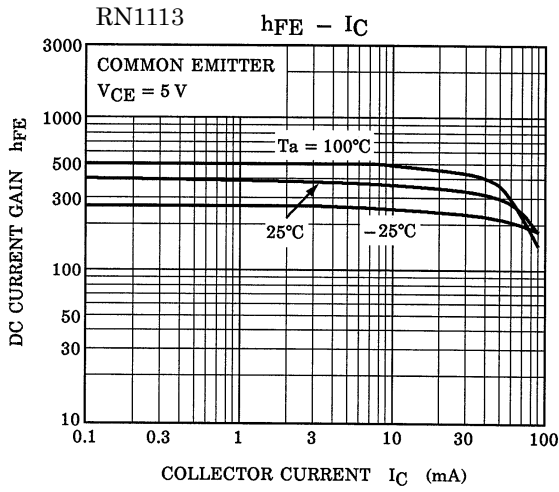
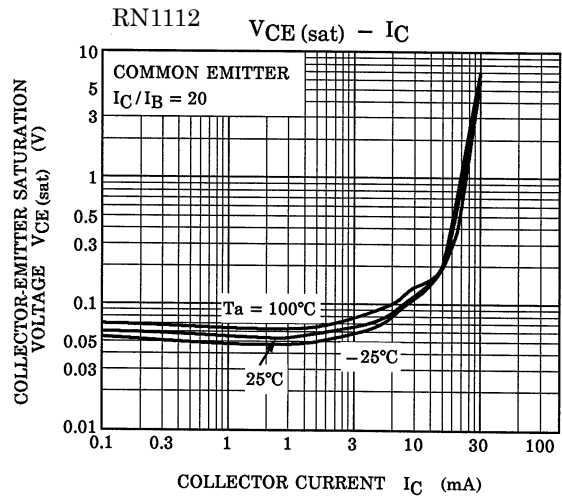
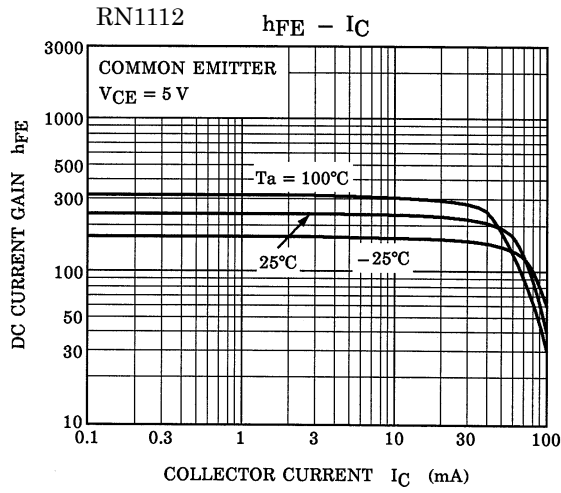
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

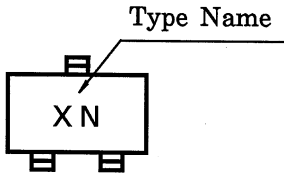
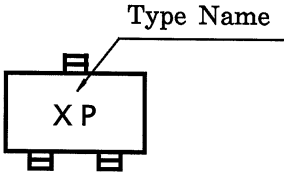
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I _{CB0}	—	V _{CB} = 50 V, I _E = 0	—	—	100	nA
Emitter cut-off current	I _{EBO}	—	V _{EB} = 5 V, I _C = 0	—	—	100	nA
DC current gain	h _{FE}	—	V _{CE} = 5 V, I _C = 1 mA	120	—	700	—
Collector-emitter saturation voltage	V _{CE (sat)}	—	I _C = 5 mA, I _B = 0.25 mA	—	0.1	0.3	V
Translation frequency	f _T	—	V _{CE} = 10 V, I _C = 5 mA	—	250	—	MHz
Collector output capacitance	C _{ob}	—	V _{CB} = 10 V, I _E = 0, f = 1 MHz	—	3	6	pF
Input resistor	RN1112	R1	—	15.4	22	28.6	kΩ
	RN1113			32.9	47	61.1	





Type Name	Marking
RN1112	 <p>The diagram shows a rectangular component with a small square protrusion on top and two small square protrusions on the bottom. The letters 'X N' are printed inside the rectangle. A line points from the text 'Type Name' above to the top protrusion.</p>
RN1113	 <p>The diagram shows a rectangular component with a small square protrusion on top and two small square protrusions on the bottom. The letters 'X P' are printed inside the rectangle. A line points from the text 'Type Name' above to the top protrusion.</p>

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20070701-EN GENERAL

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