

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

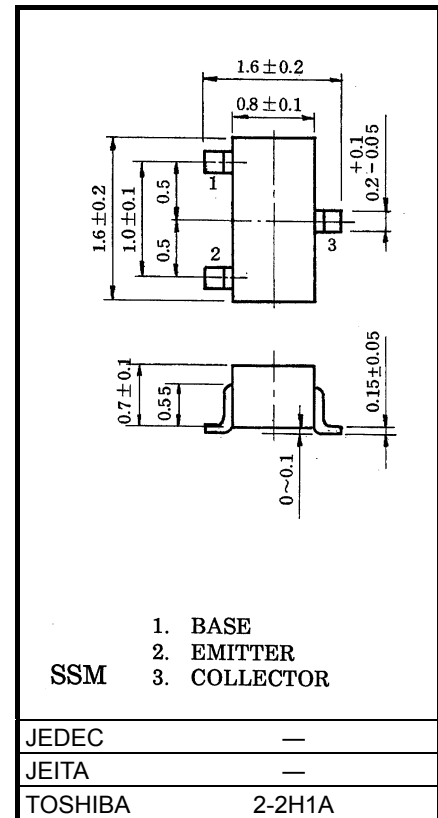
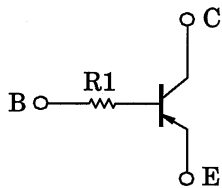
RN2112, RN2113

Switching, Inverter Circuit, Interface Circuit
and Driver Circuit Applications

Unit: mm

- Built-in bias resistors
- Simplified circuit design
- Fewer parts and simplified manufacturing process
- Complementary to RN1112, RN1113

Equivalent Circuit



Absolute Maximum Ratings (Ta = 25°C)

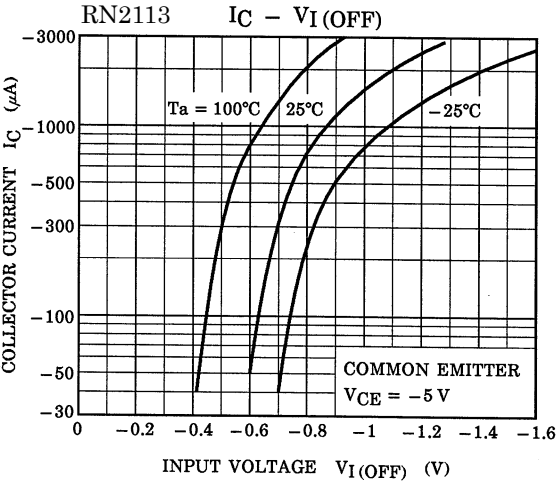
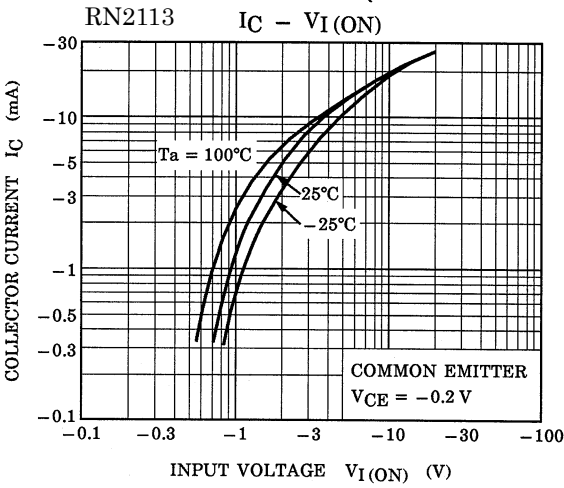
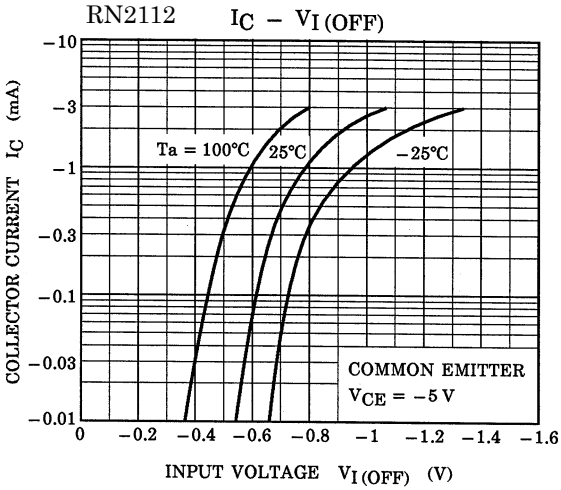
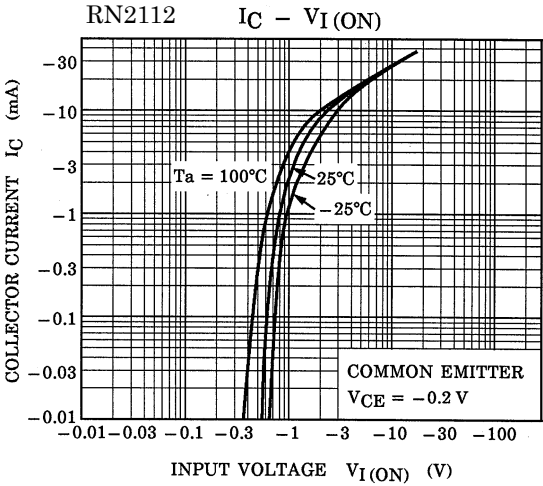
Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-50	V
Collector-emitter voltage	V_{CEO}	-50	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current	I_C	-100	mA
Collector power dissipation	P_C	100	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55~150	°C

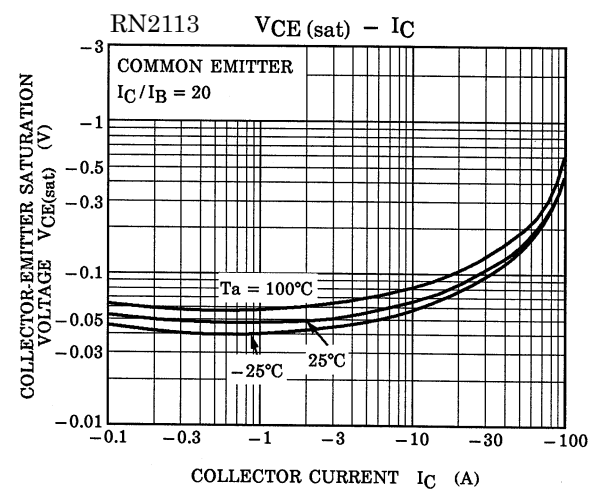
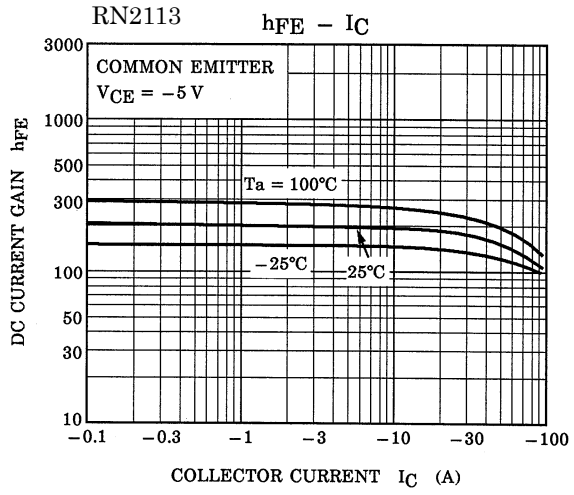
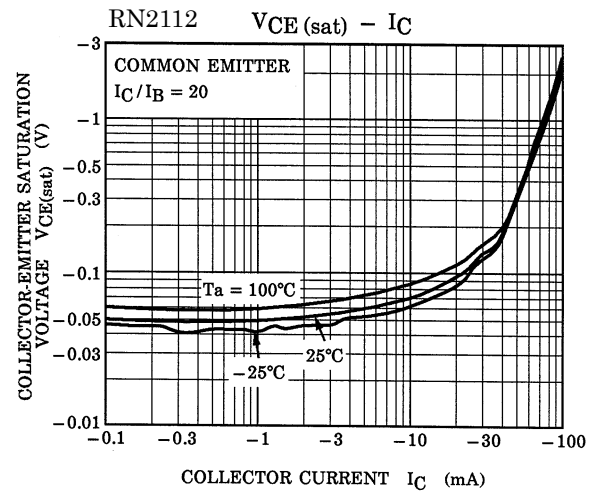
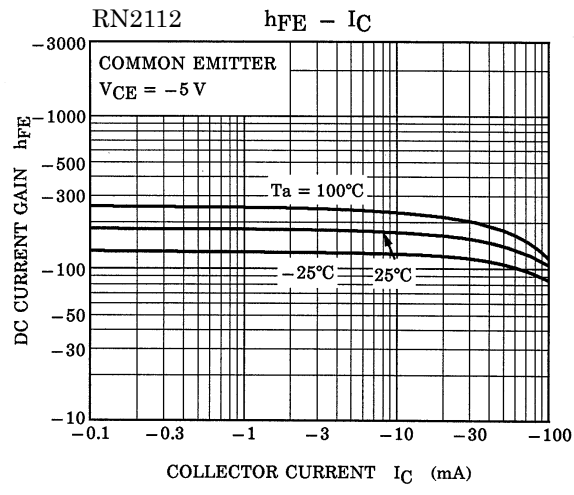
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

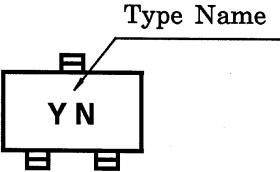
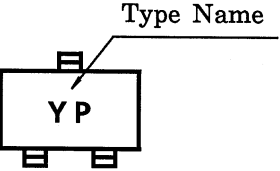
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	—	$V_{CB} = -50\text{ V}, I_E = 0$	—	—	-100	nA
Emitter cut-off current	I_{EBO}	—	$V_{EB} = -5\text{ V}, I_C = 0$	—	—	-100	nA
DC current gain	h_{FE}	—	$V_{CE} = -5\text{ V}, I_C = -1\text{ mA}$	120	—	400	—
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	—	$V_{CE} = -10\text{ V}, I_C = -5\text{ mA}$	—	200	—	MHz
Collector output capacitance	C_{ob}	—	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	3	6	pF
Input resistor	RN2112	R1	—	15.4	22	28.6	kΩ
	RN2113			32.9	47	61.1	





Type Name	Marking
RN2112	 The diagram shows a rectangular component with the letters 'Y N' inside. A leader line points from the text 'Type Name' to the 'Y' character. There are four small square mounting tabs: one at the top center, one at the bottom left, one at the bottom right, and one on the right side.
RN2113	 The diagram shows a rectangular component with the letters 'Y P' inside. A leader line points from the text 'Type Name' to the 'Y' character. There are four small square mounting tabs: one at the top center, one at the bottom left, one at the bottom right, and one on the right side.

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