

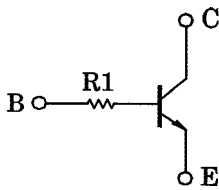
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

RN1312,RN1313

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 RN2312, RN2313

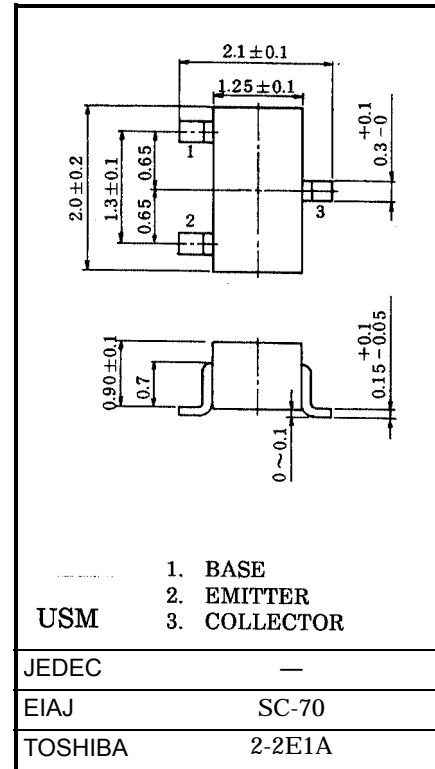
Equivalent Circuit



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
Base current	I _B	100	mA
Collector power dissipation	P _C	150	mW
Junction temperature	T _j	125	°C
Storage temperature range	T _{stg}	-55~125	°C

Unit in mm



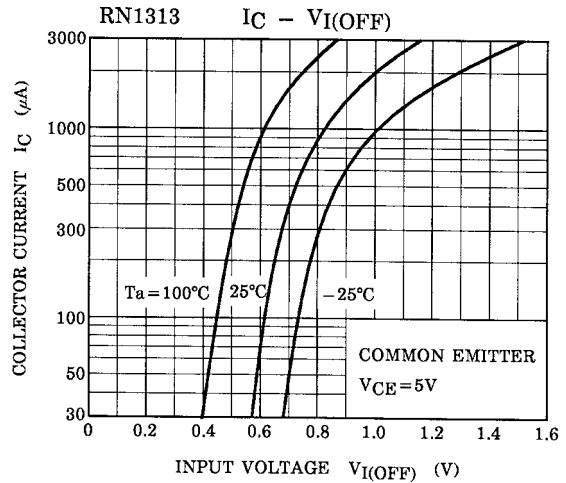
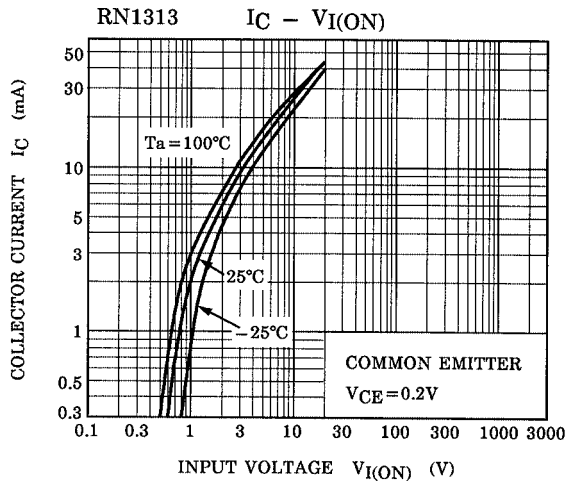
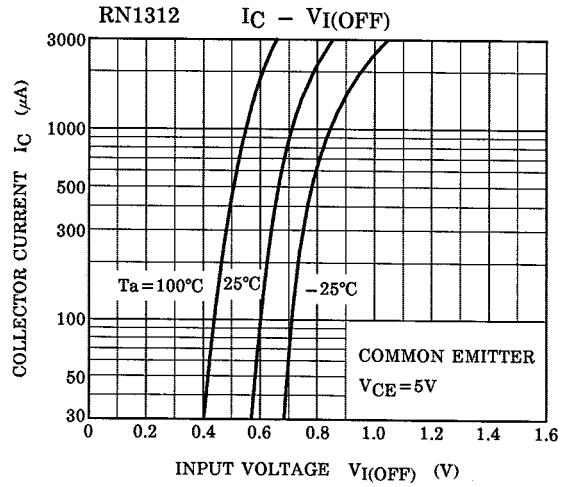
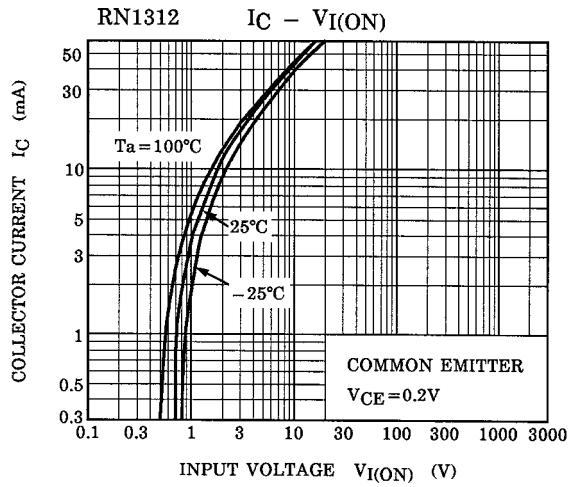
Weight: 0.006g

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	—	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 = 0, f = 1MHz	—	3	6	pF
Input resistor	RN1312	R1	—	15.4	22	28.6	kΩ
	RN1313			32.9	47	61.1	

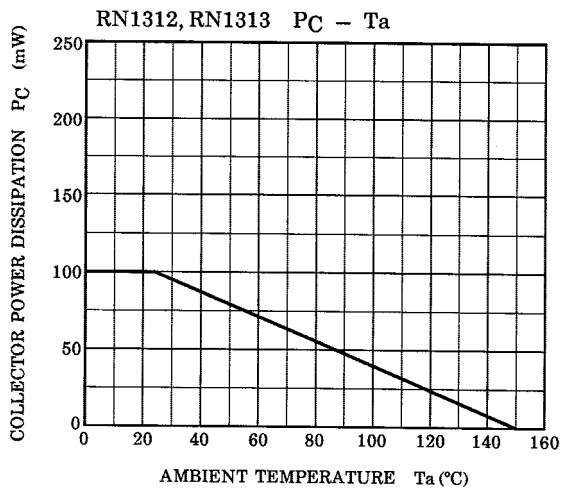
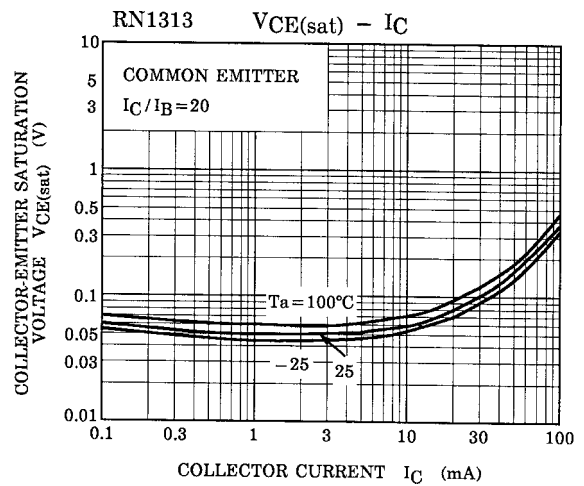
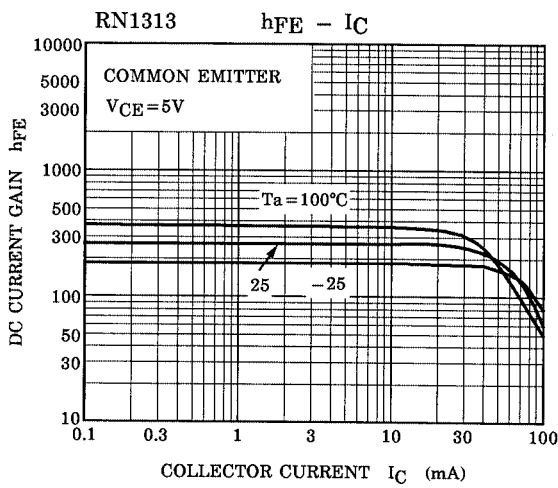
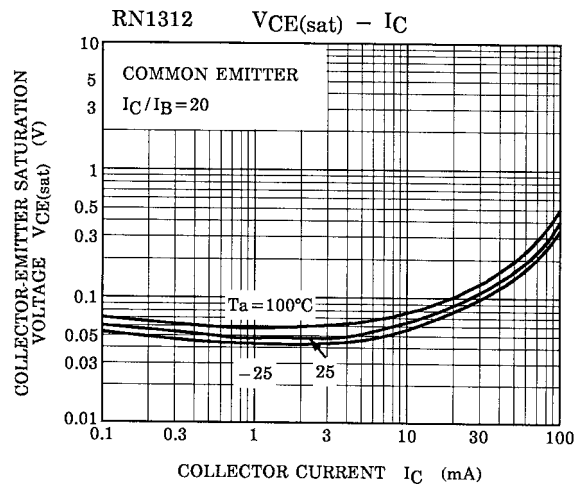
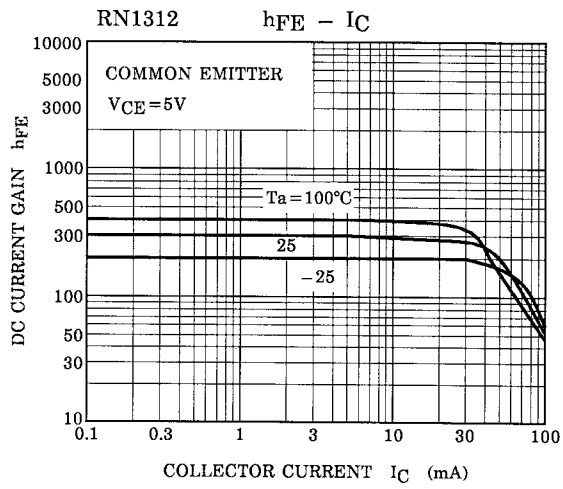
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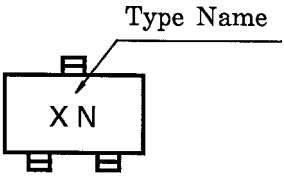
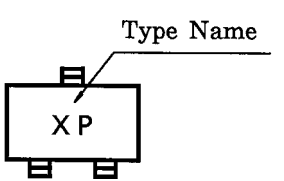
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Type Name	Marking
RN1312	 <p>The diagram shows a rectangular component with two pins at the bottom. The text 'X N' is printed inside the rectangle. A line points from the text 'Type Name' to the top-left corner of the component.</p>
RN1313	 <p>The diagram shows a rectangular component with two pins at the bottom. The text 'X P' is printed inside the rectangle. A line points from the text 'Type Name' to the top-left corner of the component.</p>