

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

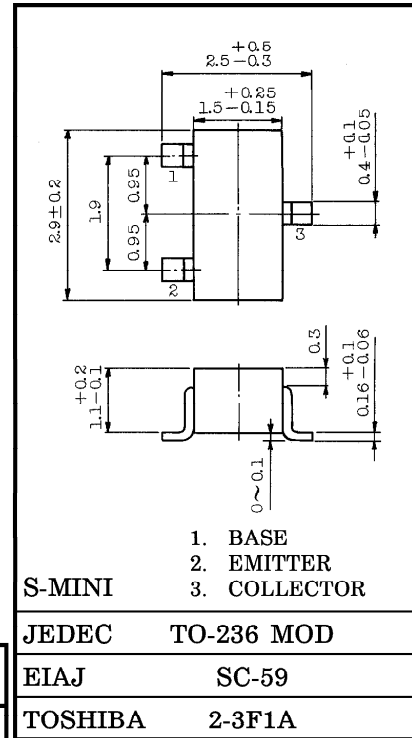
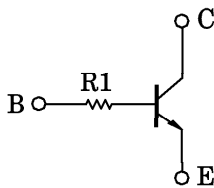
# RN1412, RN1413

SWITCHING, INVERTER CIRCUIT, INTERFACE CIRCUIT AND DRIVER  
CIRCUIT APPLICATIONS.

Unit in mm

- With Built-in Bias Resistors
- Simplify Circuit Design
- Reduce a Quantity of Parts and Manufacturing Process
- Complementary to RN2412, RN2413

EQUIVALENT CIRCUIT



Weight : 0.012g

MAXIMUM RATINGS (Ta = 25°C)

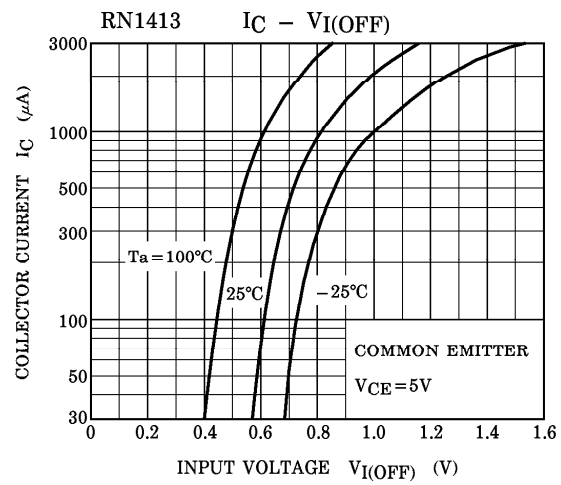
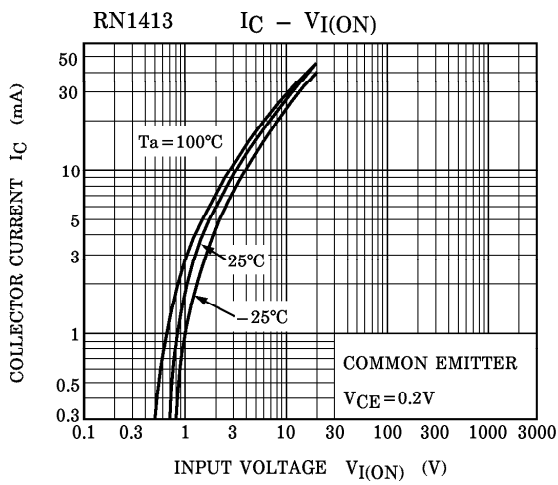
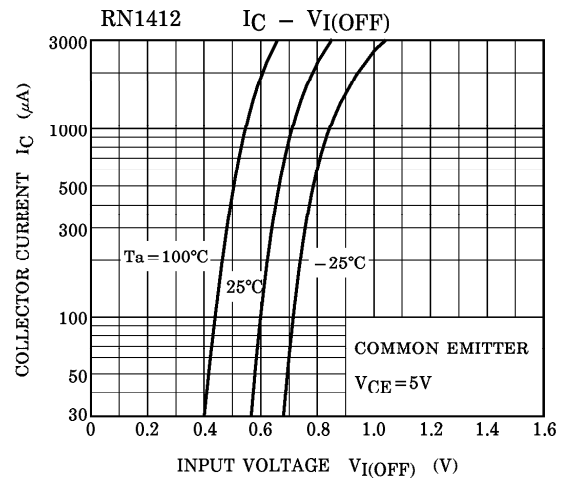
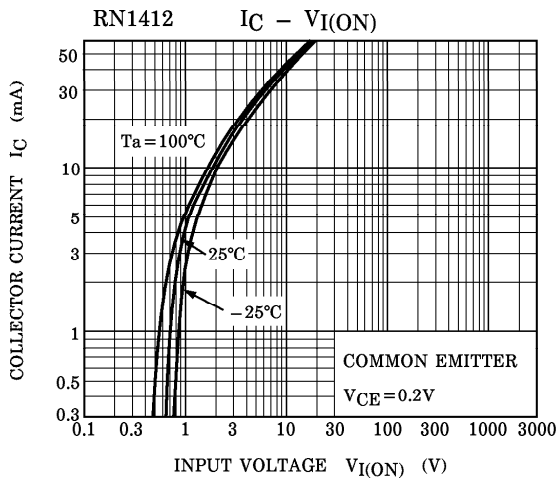
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V <sub>CB0</sub>	50	V
Collector-Emitter Voltage	V <sub>CEO</sub>	50	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	V
Collector Current	I <sub>C</sub>	100	mA
Collector Power Dissipation	P <sub>C</sub>	200	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55~150	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> = 50V, I <sub>E</sub> = 0	—	—	100	nA	
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> = 5V, I <sub>C</sub> = 0	—	—	100	nA	
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 1mA	120	—	700		
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 5mA, I <sub>B</sub> = 0.25mA	—	0.1	0.3	V	
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 5mA	—	250	—	MHz	
Collector Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f = 1MHz	—	3	6	pF	
Input Resistance	RN1412	R1	—	15.4	22	28.6	kΩ
	RN1413			32.9	47	61.1	

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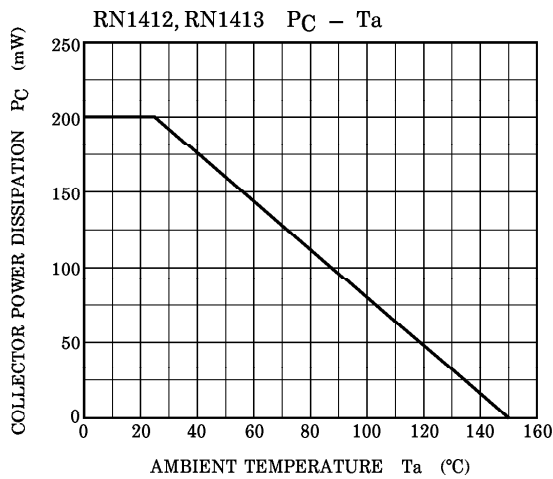
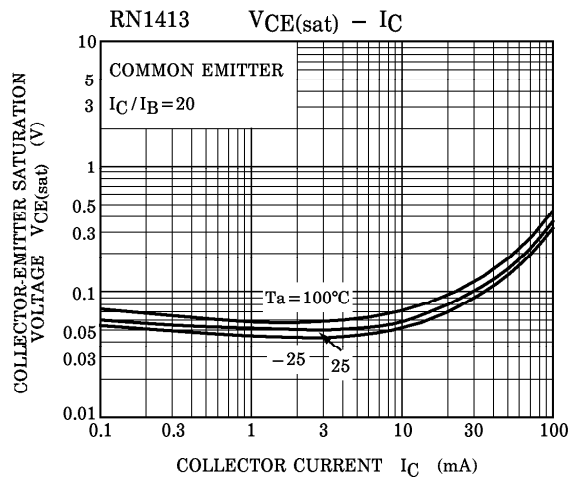
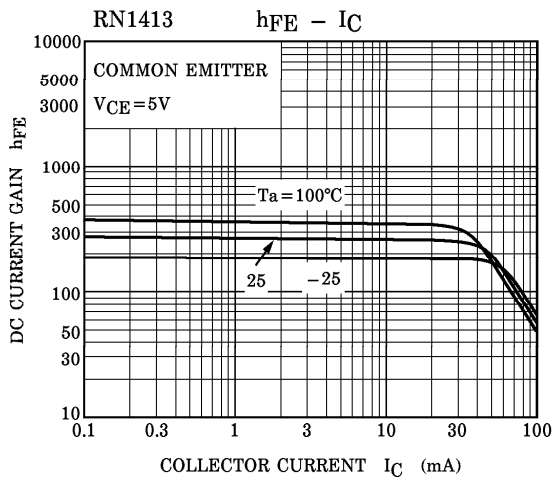
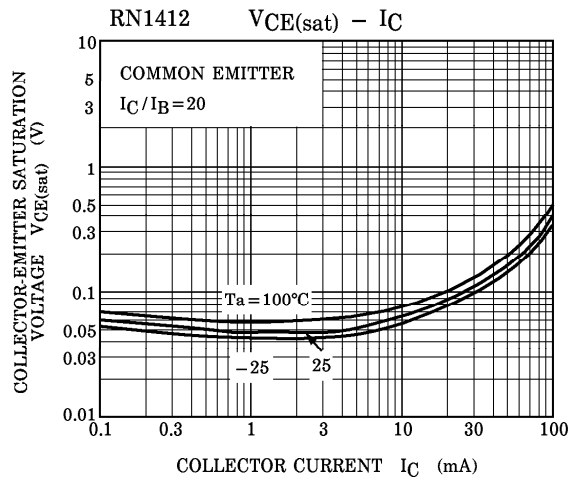
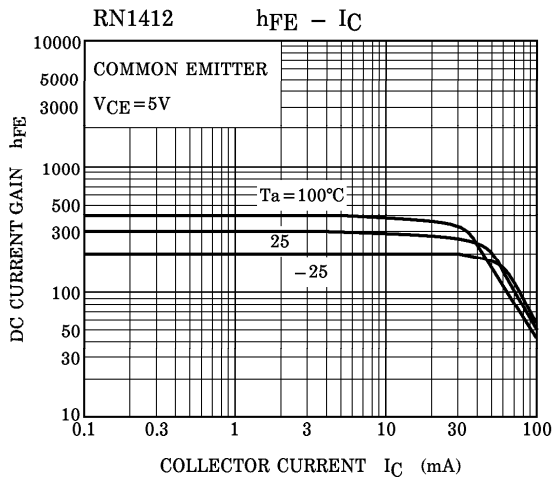
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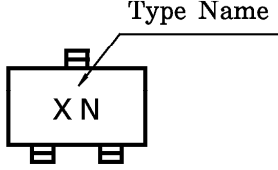
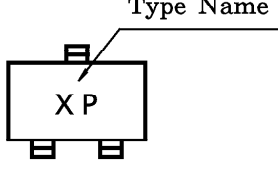


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TYPE NAME	MARKING
RN1412	 A schematic diagram of a component marking. It shows a rectangular box with the letters "X N" inside. Above the top-left corner of the box is a small square symbol with a diagonal line. A line extends from this symbol to the text "Type Name" located above and to the right of the box. Below the box are two small square symbols, one on the left and one on the right.
RN1413	 A schematic diagram of a component marking. It shows a rectangular box with the letters "X P" inside. Above the top-left corner of the box is a small square symbol with a diagonal line. A line extends from this symbol to the text "Type Name" located above and to the right of the box. Below the box are two small square symbols, one on the left and one on the right.