

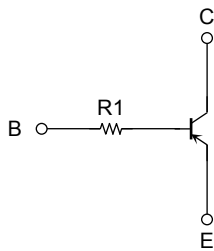
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process) (Bias Resistor Built-in Transistor)

## RN2112FS, RN2113FS

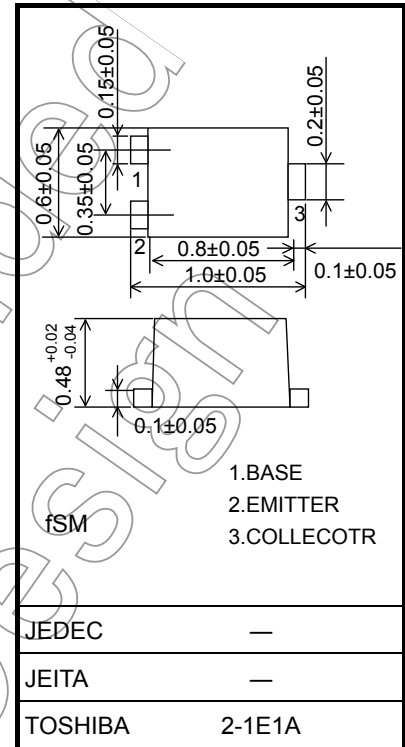
Switching, Inverter Circuit, Interface Circuit and Driver Circuit Applications

- Incorporating a bias resistor into a transistor reduces parts count. Reducing the parts count enables the manufacture of ever more compact equipment and lowers assembly cost.
- Complementary to RN1112FS, RN1113FS

### Equivalent Circuit and Bias Resistor Values



Unit: mm



Weight: 0.0006 g (typ.)

### Absolute Maximum Ratings (Ta = 25°C)

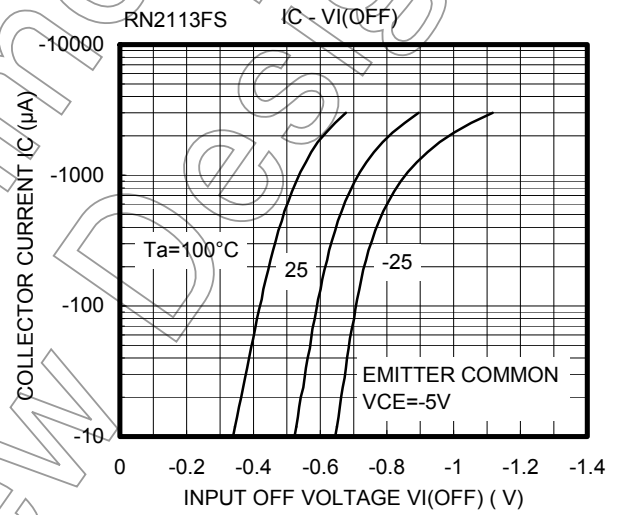
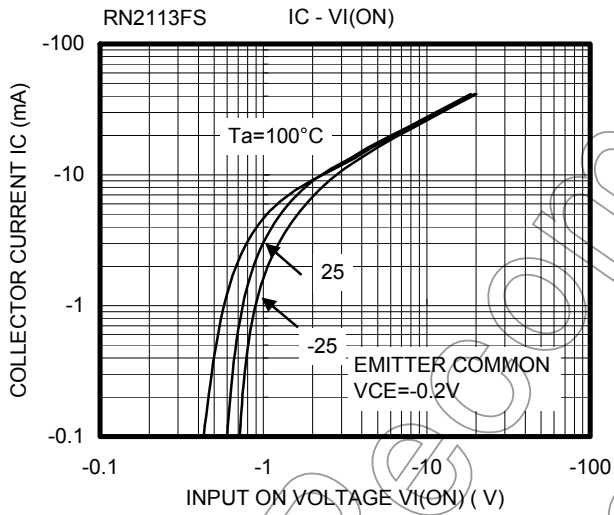
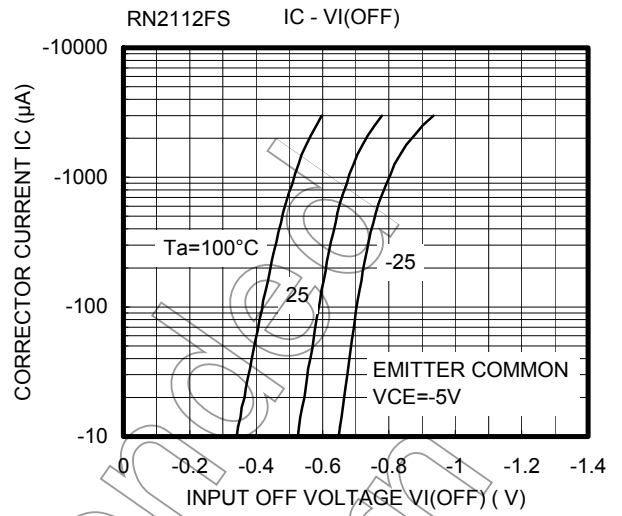
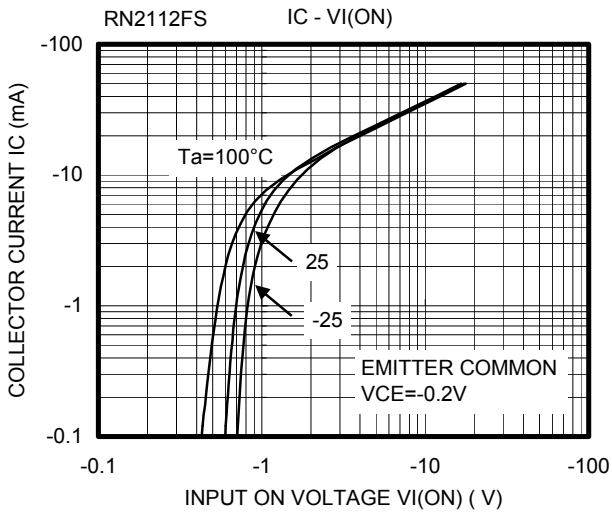
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V <sub>CB0</sub>	-20	V
Collector-emitter voltage	V <sub>CEO</sub>	-20	V
Emitter-base voltage	V <sub>EB0</sub>	-5	V
Collector current	I <sub>C</sub>	-50	mA
Collector power dissipation	P <sub>C</sub>	50	mW
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature range	T <sub>stg</sub>	-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.

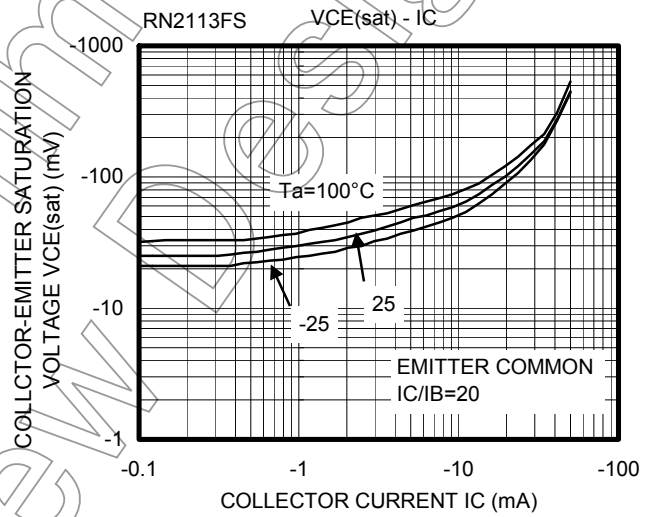
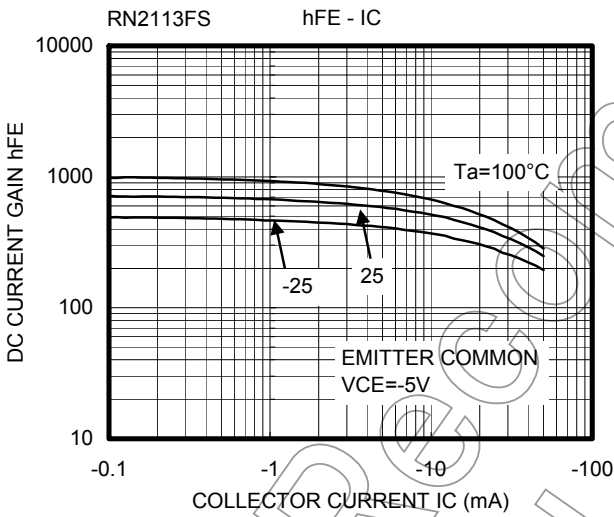
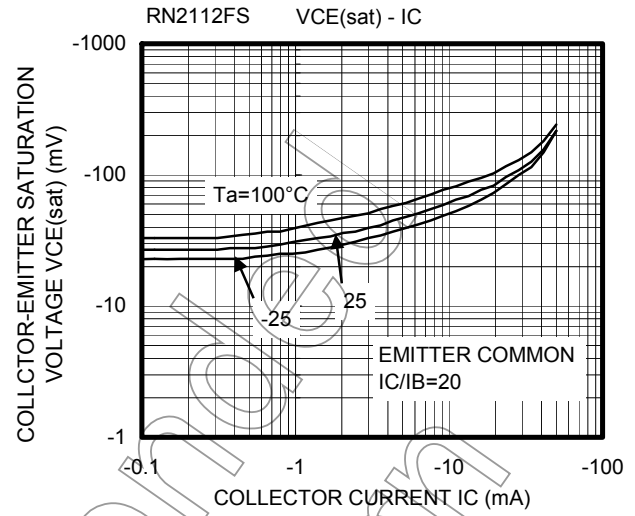
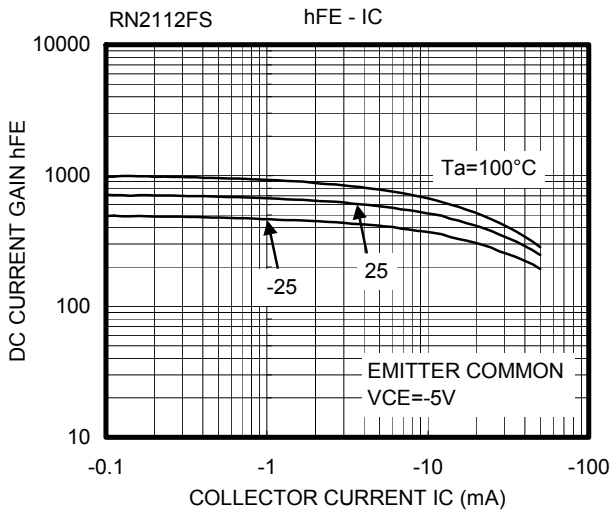
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

### Electrical Characteristics (Ta = 25°C)

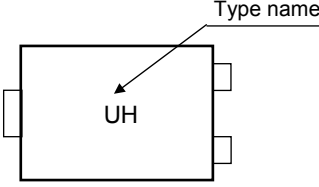
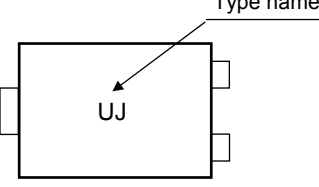
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit	
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = -20 V, I <sub>E</sub> = 0	—	—	-100	nA	
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = -5 V, I <sub>C</sub> = 0	—	—	-100	nA	
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> = -5 V, I <sub>C</sub> = -1 mA	300	—	—		
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = -5 mA, I <sub>B</sub> = -0.25 mA	—	—	-0.15	V	
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = -10 V, I <sub>E</sub> = 0, f = 1 MHz	—	1.2	—	pF	
Input resistor	RN2112FS	R1	—	17.6	22	26.4	kΩ
	RN2113FS			37.6	47	56.4	



Not For New



Not for New

Type Name	Marking
RN2112FS	 <p>The diagram shows a rectangular component with a notch on the left side and two pins on the right side. The marking 'UH' is located in the center. An arrow labeled 'Type name' points to the 'UH' marking.</p>
RN2113FS	 <p>The diagram shows a rectangular component with a notch on the left side and two pins on the right side. The marking 'UJ' is located in the center. An arrow labeled 'Type name' points to the 'UJ' marking.</p>

**Handling Precaution**

When handling individual devices (which are not yet mounted on a circuit board), be sure that the environment is protected against electrostatic discharge. Operators should wear anti-static clothing, and containers and other objects that come into direct contact with devices should be made of anti-static materials.

Not Recommended for New Design

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