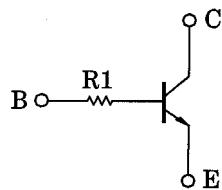


TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process) (Bias Resistor built-in Transistor)

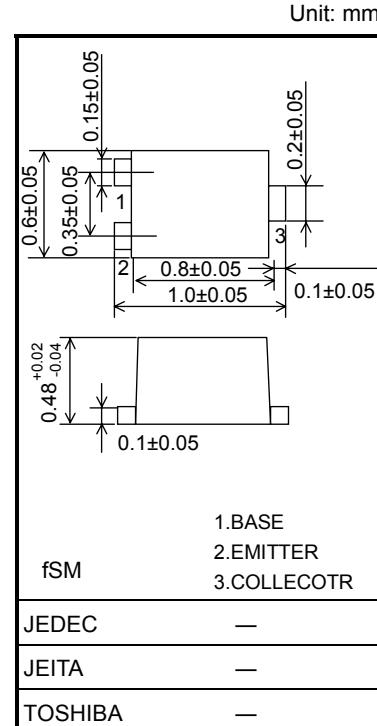
**RN1112FS,RN1113FS**

Switching, Inverter Circuit, Interface Circuit and  
Driver Circuit Applications

- Incorporating a bias resistor into a transistor reduces parts count.  
Reducing the parts count enable the manufacture of ever more compact equipment and save assembly cost.
- Complementary to RN2112FS, RN2113FS

**Equivalent Circuit and Bias Resistor Values****Maximum Ratings (Ta = 25°C)**

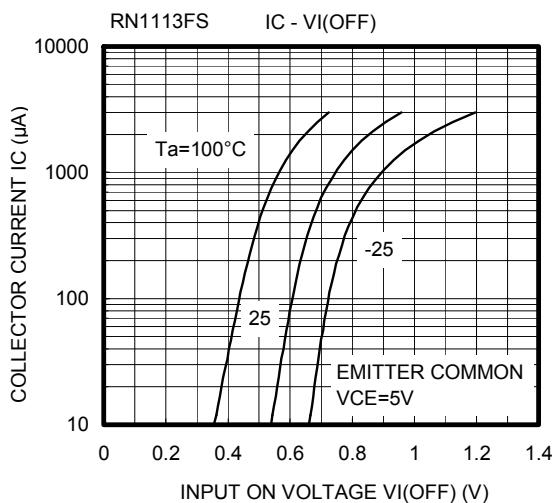
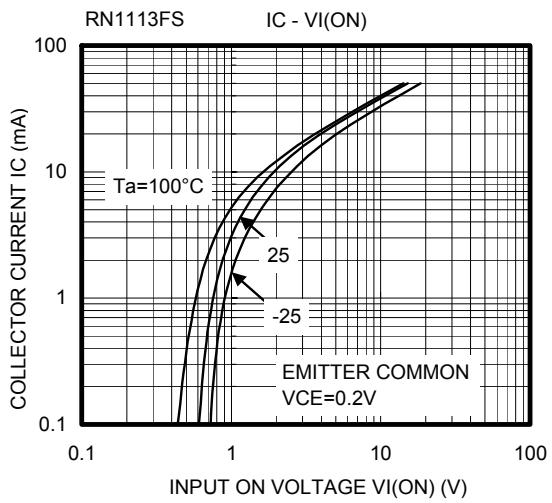
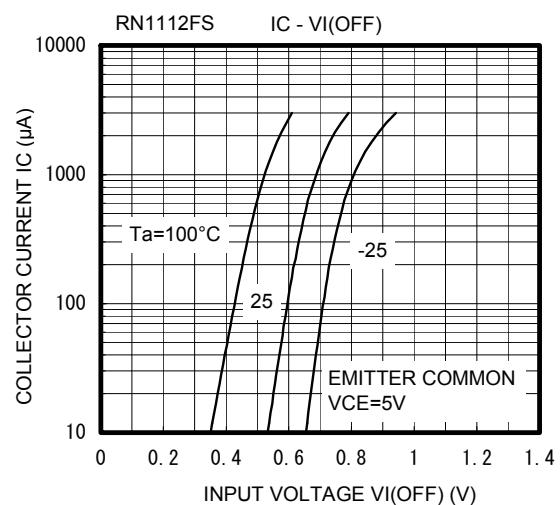
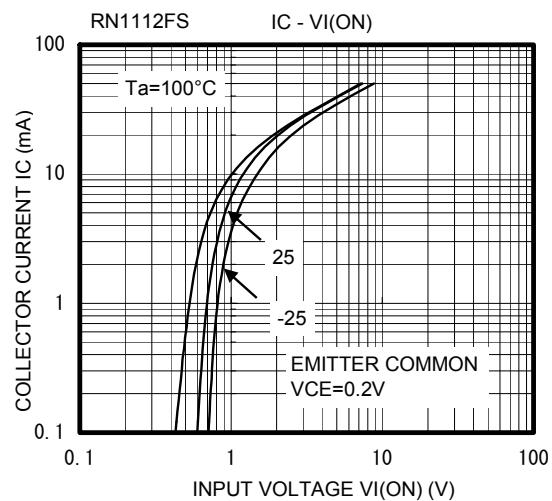
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V <sub>CBO</sub>	20	V
Collector-emitter voltage	V <sub>CEO</sub>	20	V
Emitter-base voltage	V <sub>EBO</sub>	5	V
Collector current	I <sub>C</sub>	50	mA
Collector power dissipation	P <sub>C</sub>	50	mW
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature range	T <sub>stg</sub>	-55~150	°C

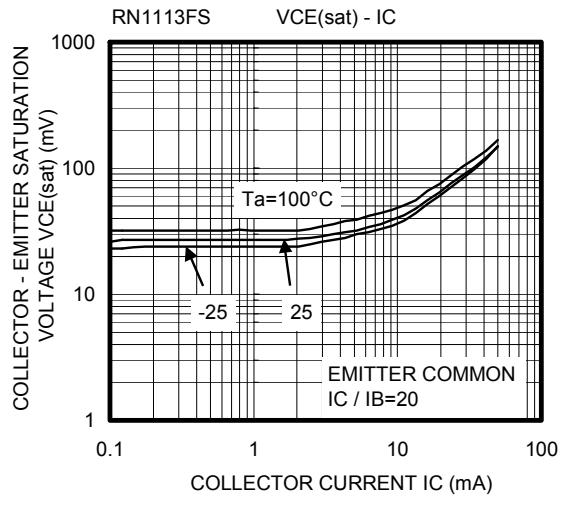
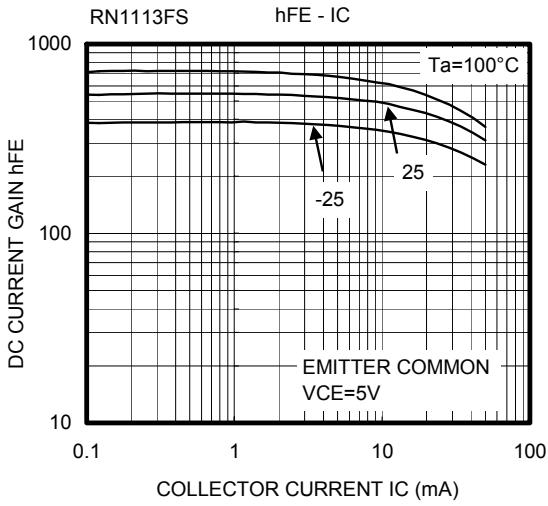
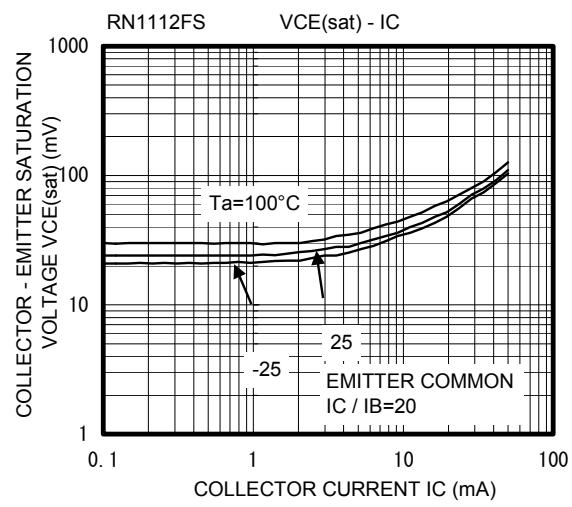
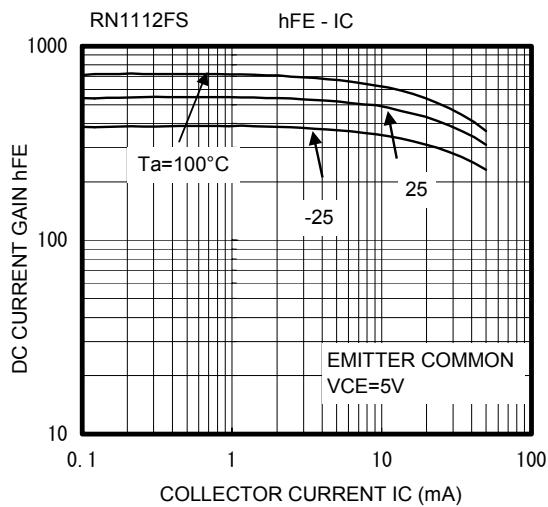


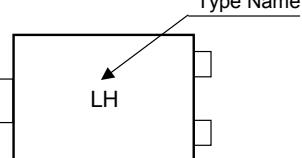
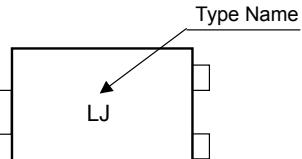
Weight:0.0006mg (typ.)

**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</sub> (sat)	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	RN1112FS	R1	—	17.6	22	26.4
	RN1113FS			37.6	47	56.4
						kΩ





Type Name	Marking
RN1112FS	
RN1113FS	

**HANDLING PRECAUTION**

When handling individual devices (which are not yet mounted on a circuit board), be sure that the environment is protected against electrostatic electricity. 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.

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030619EAA

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