

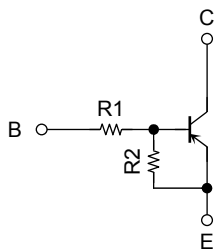
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process) (Bias Resistor built-in Transistor)

RN2907FS, RN2908FS, RN2909FS

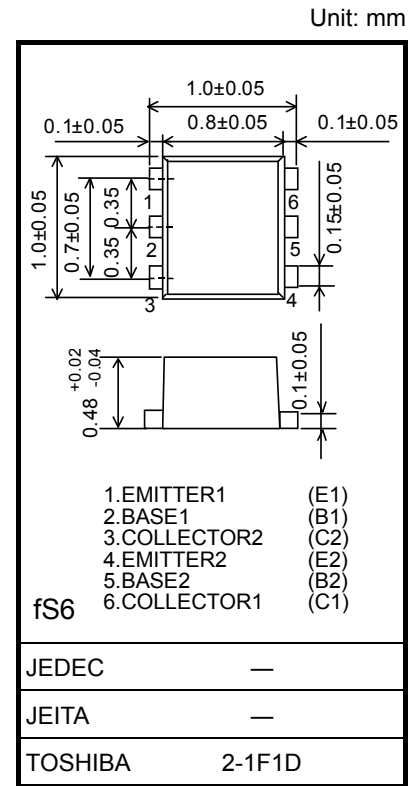
Switching, Inverter Circuit, Interface Circuit and Driver Circuit Applications.

- Two devices are incorporated into a fine pitch small mold (6-pin) package.
- 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 RN1907FS to RN1909FS

Equivalent Circuit and Bias Resistor Values



Type No.	R1 (kΩ)	R2 (kΩ)
RN2907FS	10	47
RN2908FS	22	47
RN2909FS	47	22

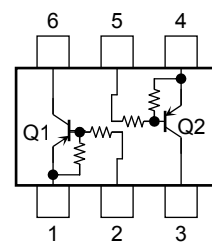


Weight: 1 mg (typ.)

Absolute Maximum Ratings (Ta = 25°C) (Q1, Q2 common)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V _{CBO}	-20	V
Collector-emitter voltage	V _{CEO}	-20	V
Emitter-base voltage	V _{EBO}	-6	V
		-7	V
		-15	V
Collector current	I _C	-50	mA
Collector power dissipation	P _C *	50	mW
Junction temperature	T _j	150	°C
Storage temperature range	T _{stg}	-55 to 150	°C

Equivalent Circuit (top view)



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.

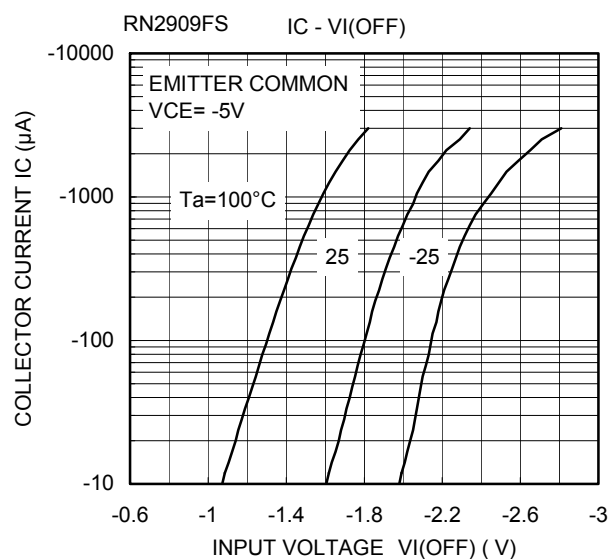
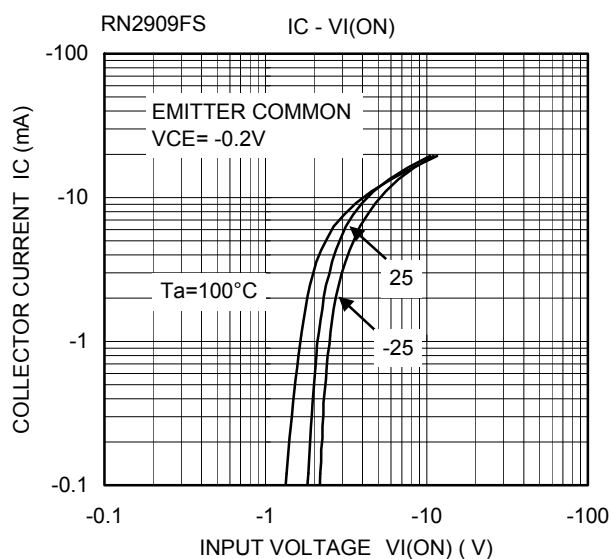
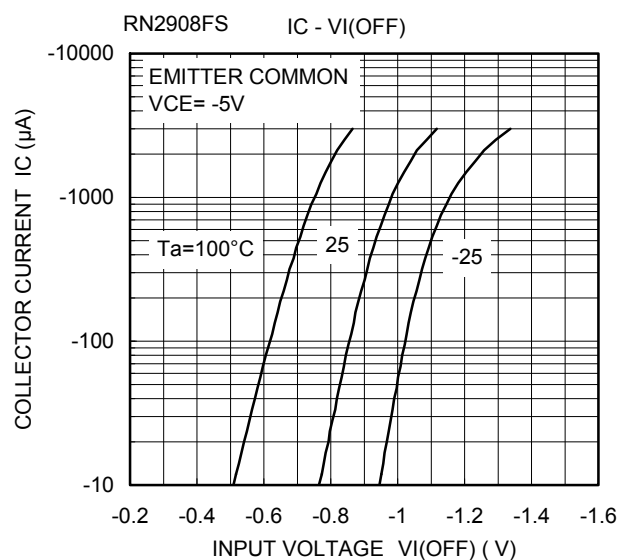
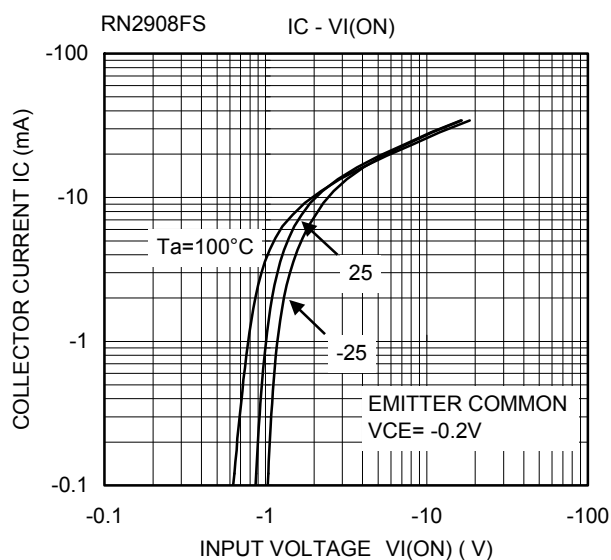
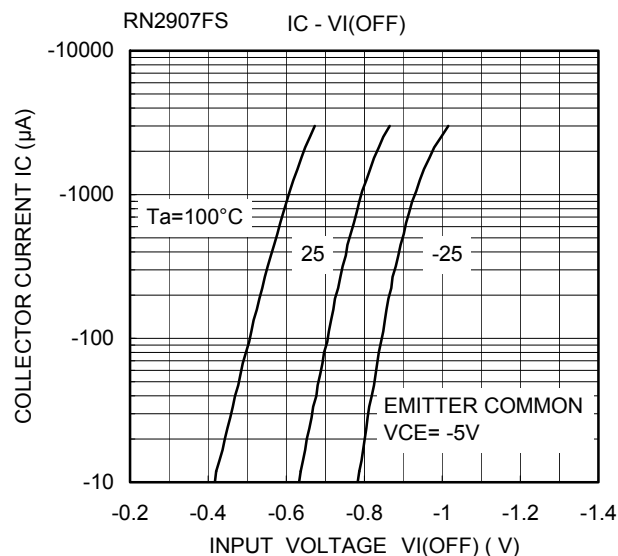
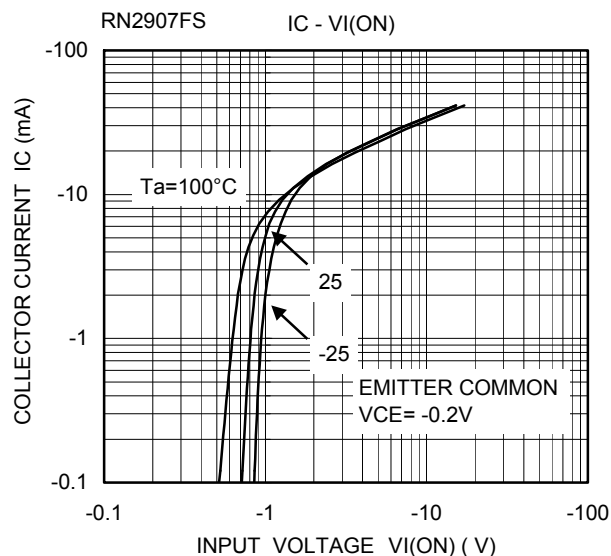
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

*: Total rating

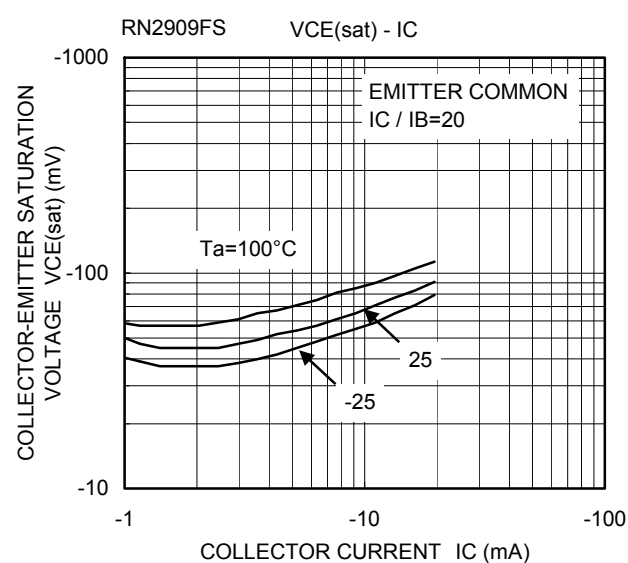
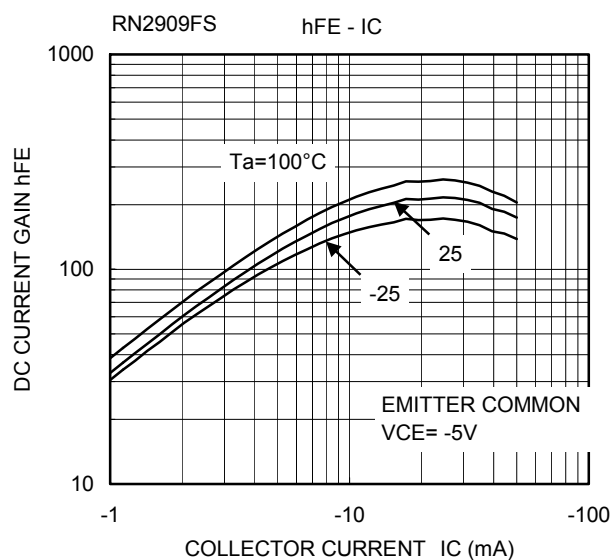
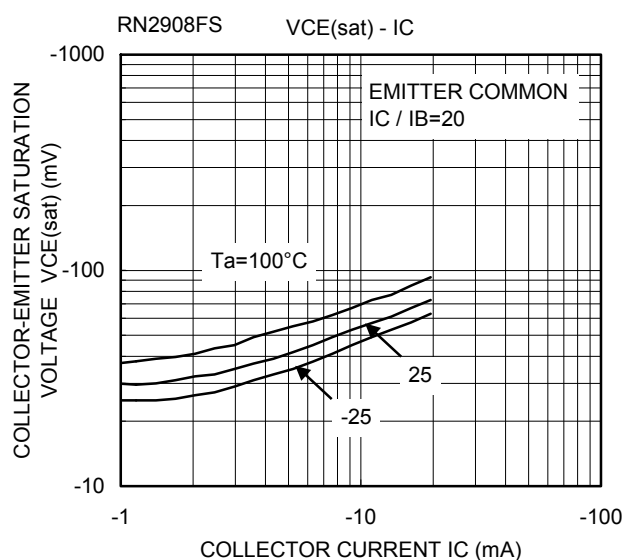
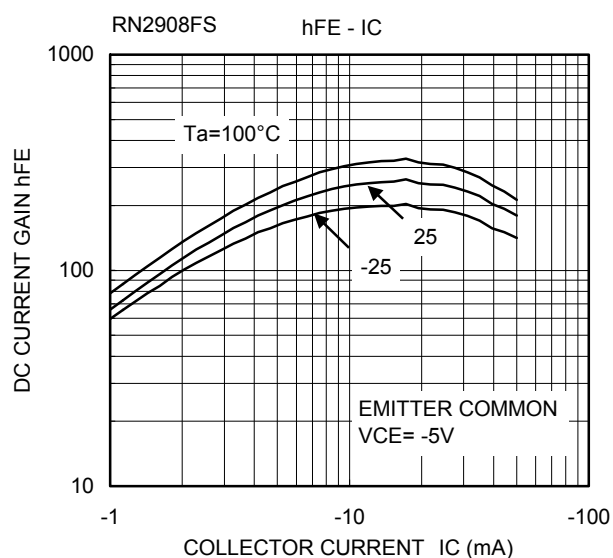
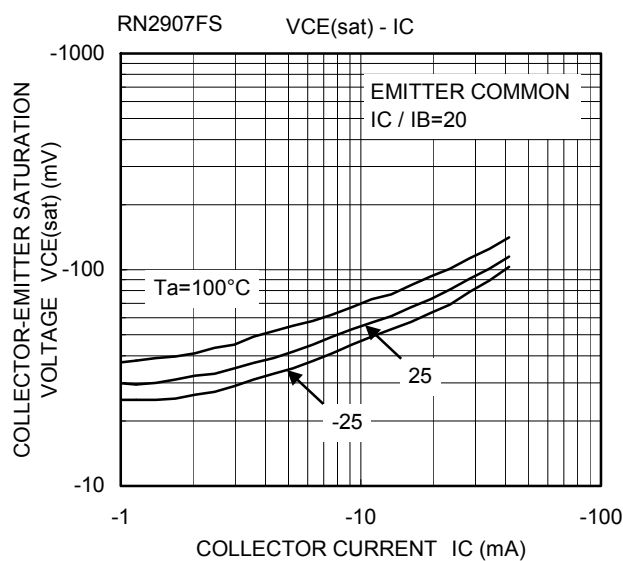
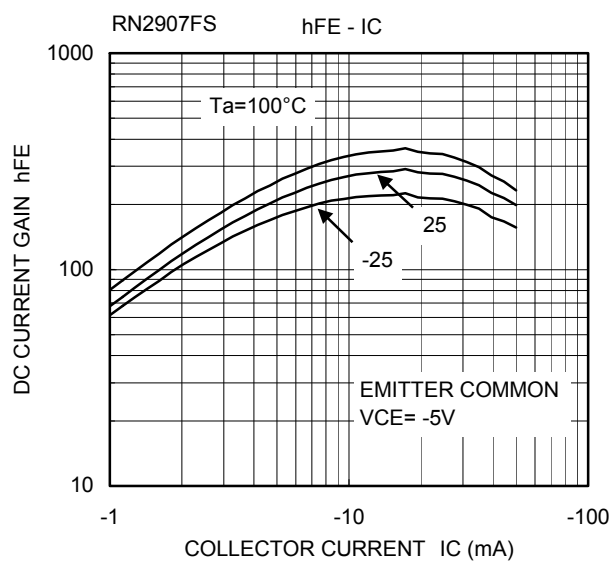
Electrical Characteristics (Ta = 25°C) (Q1, Q2 common)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	RN2907FS to 2909FS	I_{CBO}	$V_{CB} = -20\text{ V}, I_E = 0$	—	—	-100	nA
		I_{CEO}	$V_{CE} = -20\text{ V}, I_B = 0$	—	—	-500	
Emitter cut-off current	RN2907FS	I_{EBO}	$V_{EB} = -6\text{ V}, I_C = 0$	-0.088	—	-0.131	mA
	RN2908FS		$V_{EB} = -7\text{ V}, I_C = 0$	-0.085	—	-0.126	
	RN2909FS		$V_{EB} = -15\text{ V}, I_C = 0$	-0.182	—	-0.271	
DC current gain	RN2907FS	h_{FE}	$V_{CE} = -5\text{ V},$ $I_C = -10\text{ mA}$	120	—	—	
	RN2908FS			120	—	—	
	RN2909FS			100	—	—	
Collector-emitter saturation voltage	RN2907FS to 2909FS	$V_{CE(sat)}$	$I_C = -5\text{ mA},$ $I_B = -0.25\text{ mA}$	—	—	-0.15	V
Input voltage (ON)	RN2907FS	$V_I(ON)$	$V_{CE} = -0.2\text{ V},$ $I_C = -5\text{ mA}$	-0.7	—	-1.5	V
	RN2908FS			-0.8	—	-2.2	
	RN2909FS			-1.6	—	-5.0	
Input voltage (OFF)	RN2907FS	$V_I(OFF)$	$V_{CE} = -5\text{ V},$ $I_C = -0.1\text{ mA},$	-0.5	—	-1.0	V
	RN2908FS			-0.6	—	-1.1	
	RN2909FS			-1.3	—	-2.6	
Collector output capacitance	RN2907FS to 2909FS	C_{ob}	$V_{CB} = -10\text{ V}, I_E = 0,$ $f = 1\text{ MHz}$	—	1.2	—	pF
Input resistor	RN2907FS	R1	—	8	10	12	kΩ
	RN2908FS			17.6	22	26.4	
	RN2909FS			37.6	47	56.4	
Resistor ratio	RN2907FS	R1/R2	—	0.17	0.213	0.255	
	RN2908FS			0.374	0.468	0.562	
	RN2909FS			1.71	2.14	2.56	

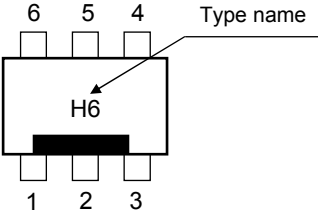
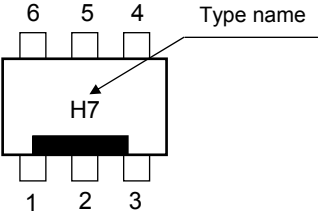
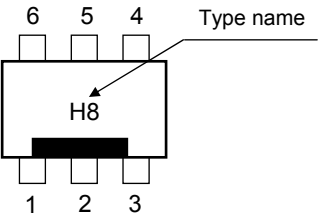
Q1, Q2 Common



Q1, Q2 Common



Marking

Type Name	Marking
RN2907FS	 The diagram shows a rectangular component with six pins. Pins 1, 2, and 3 are at the bottom, and pins 4, 5, and 6 are at the top. A black rectangular marking is located between pins 1 and 2. An arrow points from the text 'Type name' to the top right corner of the component. The marking 'H6' is printed inside the component.
RN2908FS	 The diagram shows a rectangular component with six pins. Pins 1, 2, and 3 are at the bottom, and pins 4, 5, and 6 are at the top. A black rectangular marking is located between pins 1 and 2. An arrow points from the text 'Type name' to the top right corner of the component. The marking 'H7' is printed inside the component.
RN2909FS	 The diagram shows a rectangular component with six pins. Pins 1, 2, and 3 are at the bottom, and pins 4, 5, and 6 are at the top. A black rectangular marking is located between pins 1 and 2. An arrow points from the text 'Type name' to the top right corner of the component. The marking 'H8' is printed inside the component.

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.

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