

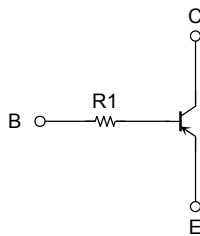
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process) (Bias Resistor Built-in Transistor)

# RN2972FS, RN2973FS

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 RN1972FS, RN1973FS

## Equivalent Circuit and Bias Resistor Values



## 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	$V_{EBO}$	-5	V
Collector current	$I_C$	-50	mA
Collector power dissipation	$P_C$ (Note 1)	50	mW
Junction temperature	$T_j$	150	°C
Storage temperature range	$T_{stg}$	-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.

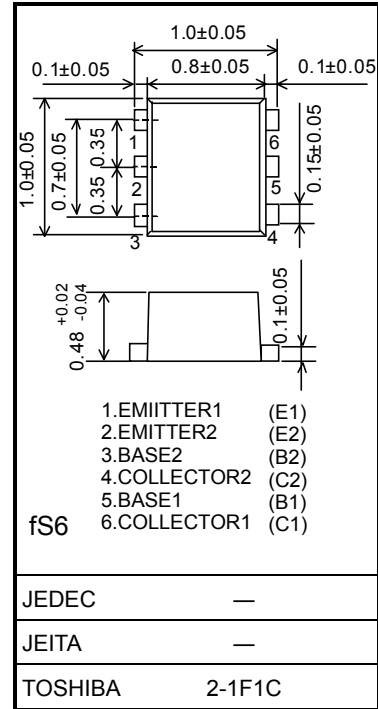
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note 1: Total rating

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

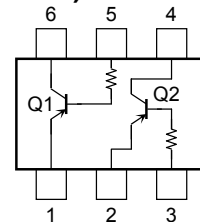
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit	
Collector cut-off current	$I_{CBO}$	$V_{CB} = -20\text{ V}, I_E = 0$	—	—	-100	nA	
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5\text{ V}, I_C = 0$	—	—	-100	nA	
DC current gain	$h_{FE}$	$V_{CE} = -5\text{ V}, I_C = -1\text{ mA}$	300	—	—		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -5\text{ mA}, I_B = -0.25\text{ mA}$	—	—	-0.15	V	
Collector output capacitance	$C_{ob}$	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	1.2	—	pF	
Input resistor	RN2972FS	R1	—	17.6	22	26.4	kΩ
	RN2973FS			37.6	47	56.4	

Unit: mm

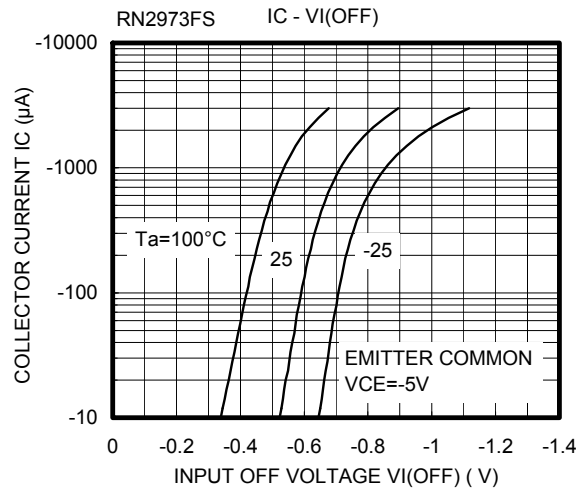
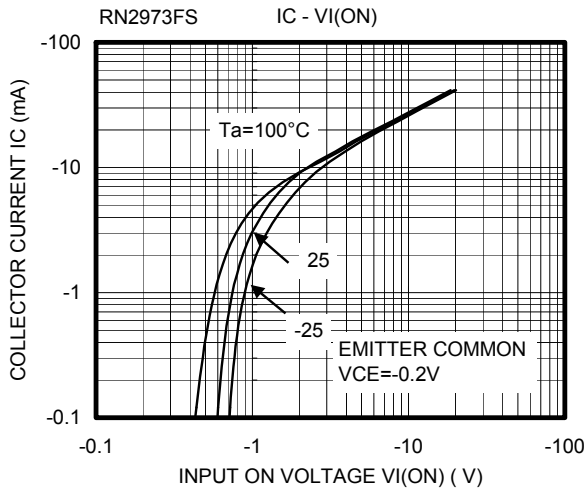
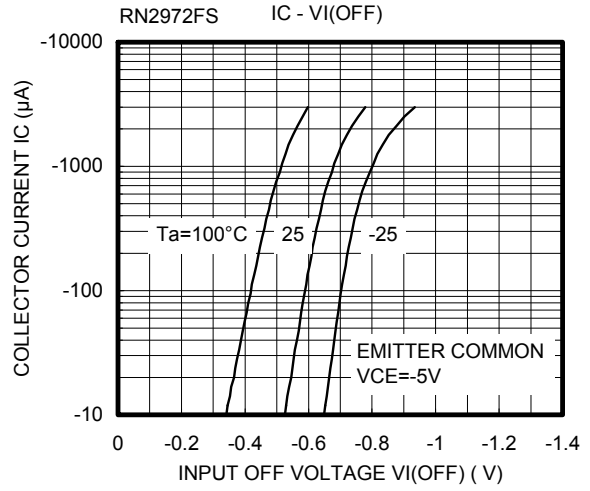
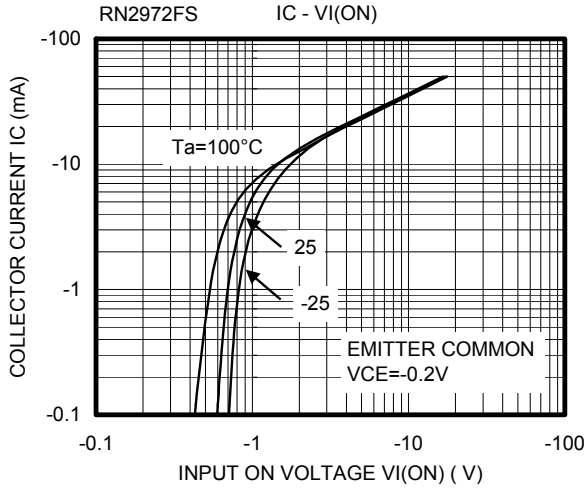


Weight: 0.001g (typ.)

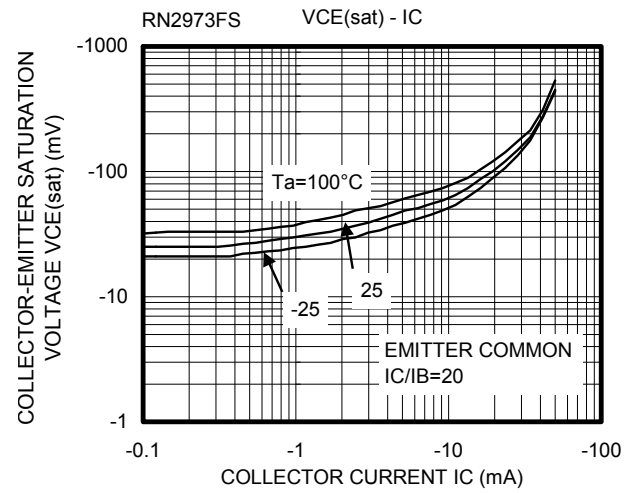
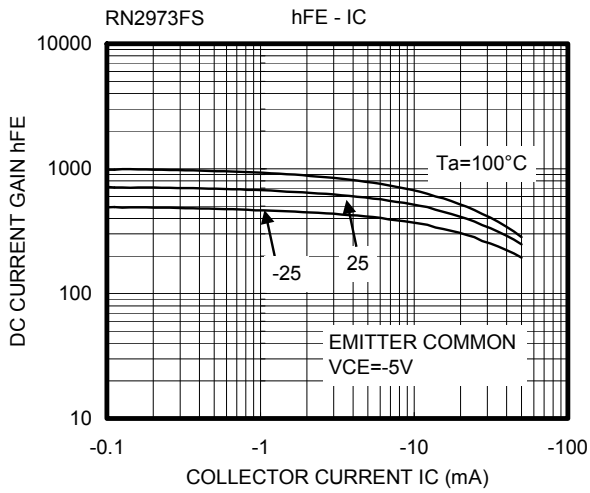
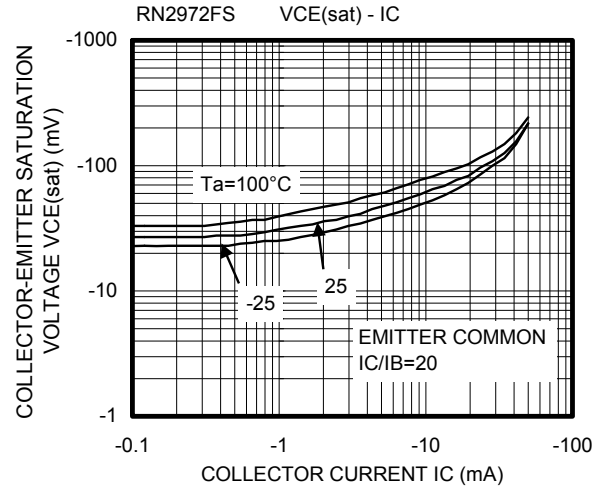
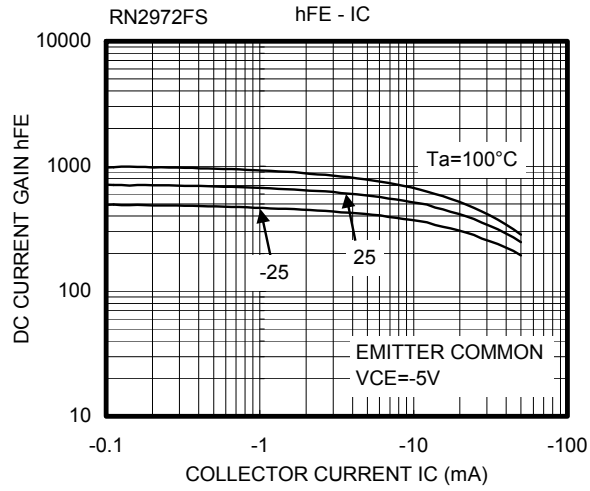
## Equivalent Circuit (top view)

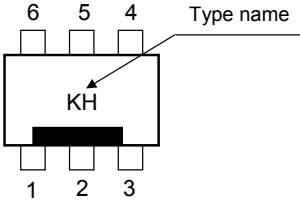
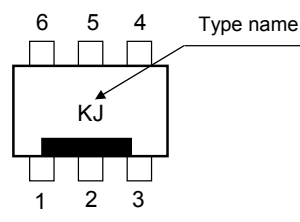


**Q1, Q2 Common**



## Q1, Q2 Common



Type Name	Marking
RN2972FS	 <p>The diagram shows a rectangular component with six pins. Pins 1, 2, and 3 are on the bottom edge, and pins 4, 5, and 6 are on the top edge. The marking 'KH' is located in the center of the component. An arrow labeled 'Type name' points to the 'KH' marking.</p>
RN2973FS	 <p>The diagram shows a rectangular component with six pins. Pins 1, 2, and 3 are on the bottom edge, and pins 4, 5, and 6 are on the top edge. The marking 'KJ' is located in the center of the component. An arrow labeled 'Type name' points to the 'KJ' 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.

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