

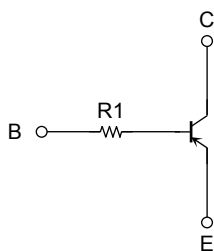
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process) (Bias Resistor Built-in Transistor)

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_{CB0}	-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.

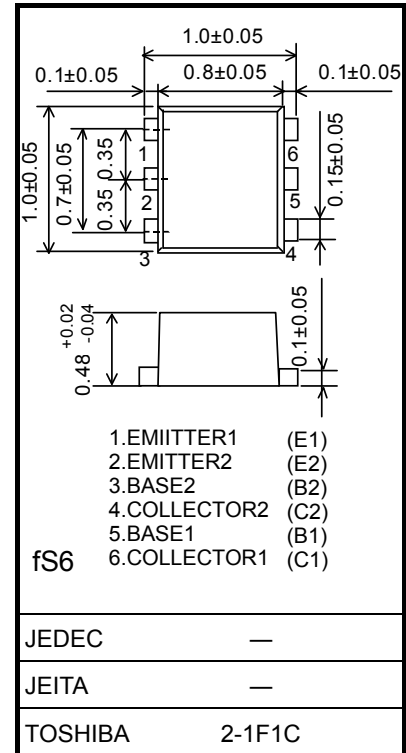
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note 1: Total rating

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

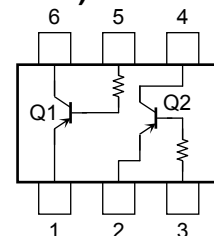
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit	
Collector cut-off current	I_{CBO}	$V_{CB} = -20\text{ V}, I_E = 0$	—	—	-100	nA	
Emitter cut-off current	I_{EBO}	$V_{EB} = -5\text{ V}, I_C = 0$	—	—	-100	nA	
DC current gain	h_{FE}	$V_{CE} = -5\text{ V}, I_C = -1\text{ mA}$	300	—	—		
Collector-emitter 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

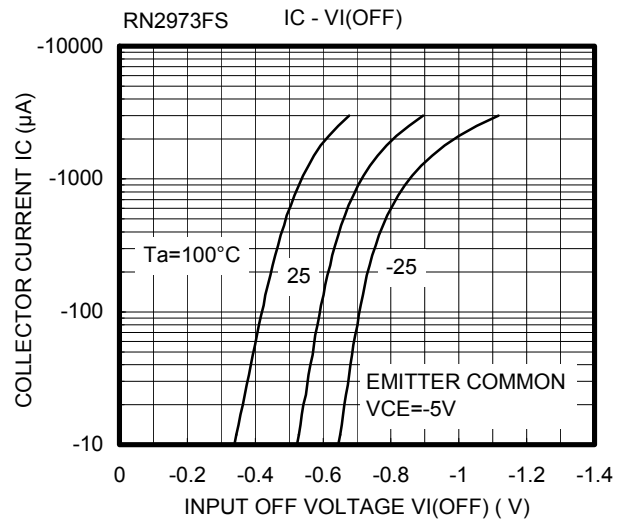
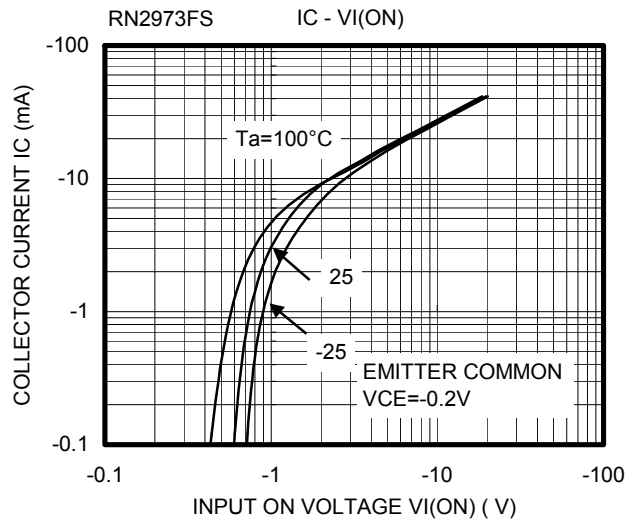
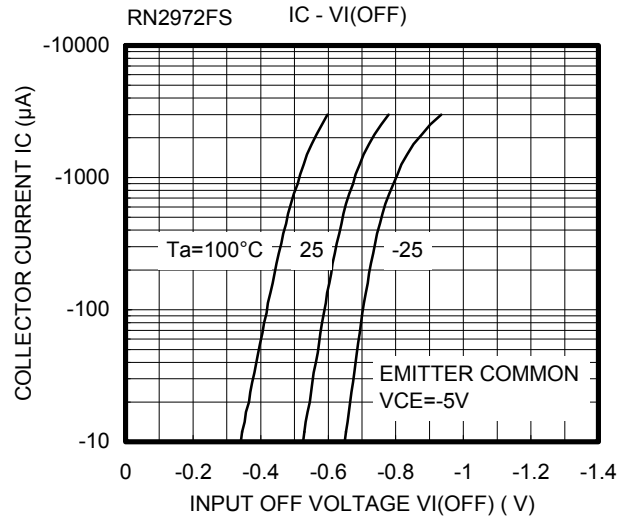
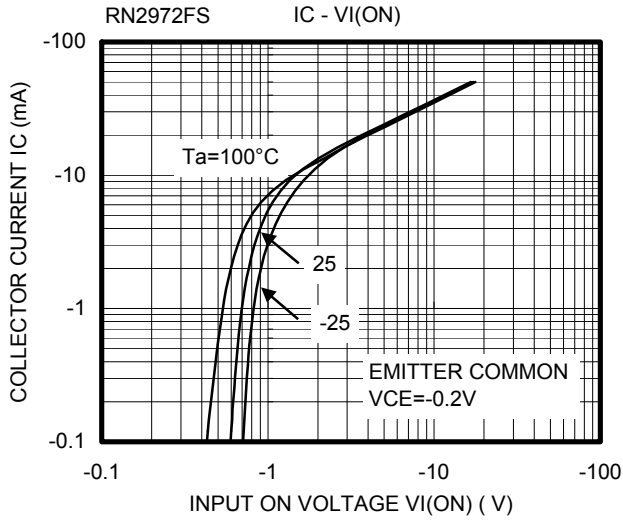


Weight: 0.001g (typ.)

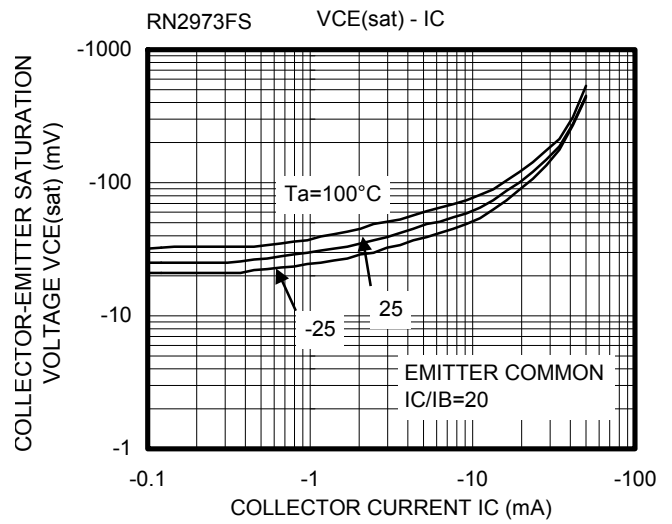
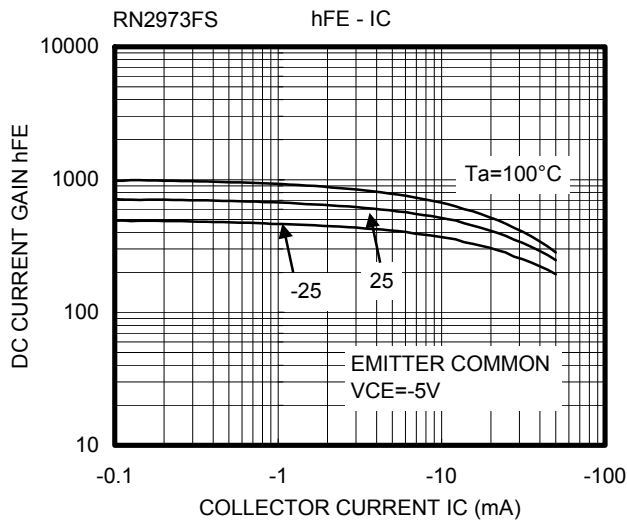
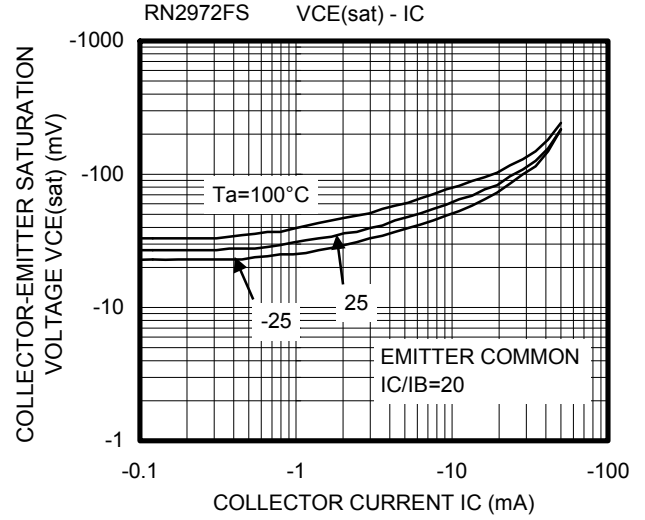
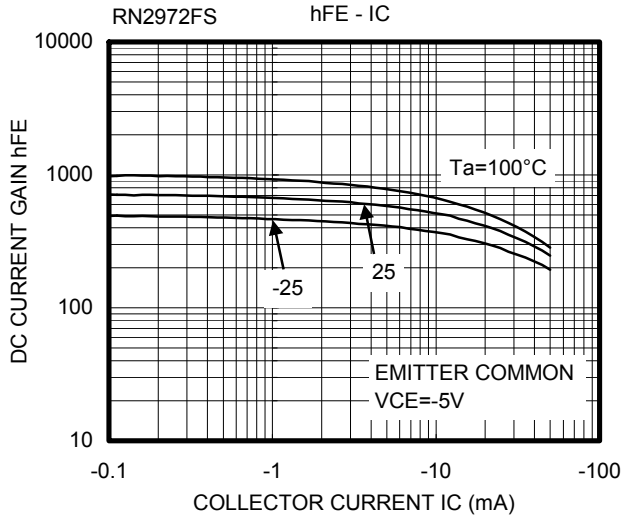
Equivalent Circuit (top view)

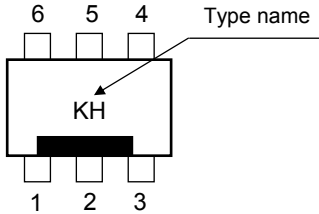
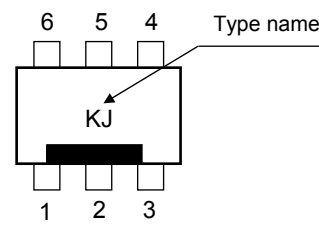


Q1, Q2 Common



Q1, Q2 Common



Type Name	Marking
RN2972FS	 <p>The diagram shows a rectangular component with six pins. The top three pins are labeled 6, 5, and 4 from left to right. The bottom three pins are labeled 1, 2, and 3 from left to right. A black bar is located between the top and bottom pins. The marking 'KH' is printed 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. The top three pins are labeled 6, 5, and 4 from left to right. The bottom three pins are labeled 1, 2, and 3 from left to right. A black bar is located between the top and bottom pins. The marking 'KJ' is printed 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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