

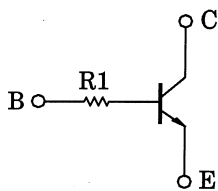
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process) (Bias Resistor built-in Transistor)

RN1972FS, RN1973FS

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 RN2972FS, RN2973FS

Equivalent Circuit and Bias Resistor Values

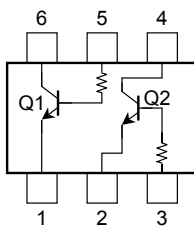


Maximum Ratings (Ta = 25°C) (Q1, Q2 common)

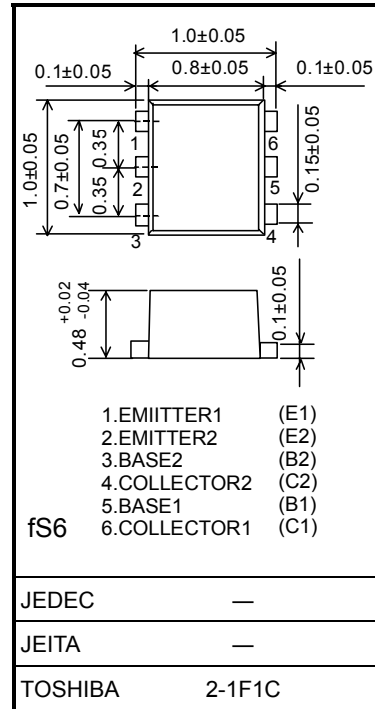
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	20	V
Collector-emitter voltage	V_{CEO}	20	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	50	mA
Collector power dissipation	P_C (Note)	50	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55~150	°C

Note: Total rating

Equivalent Circuit (top view)



Unit: mm

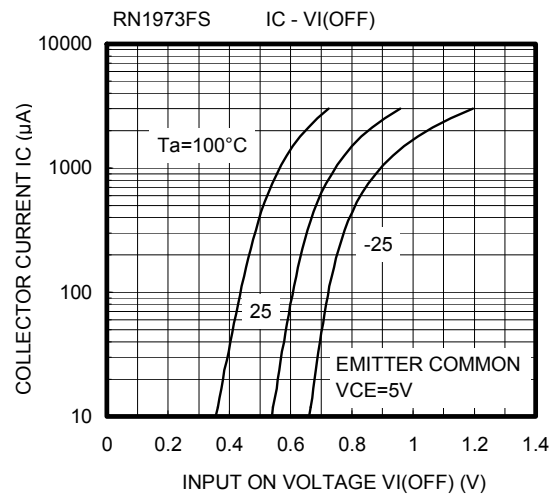
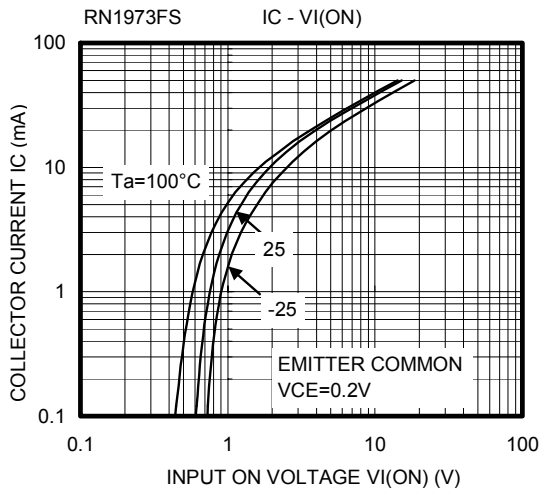
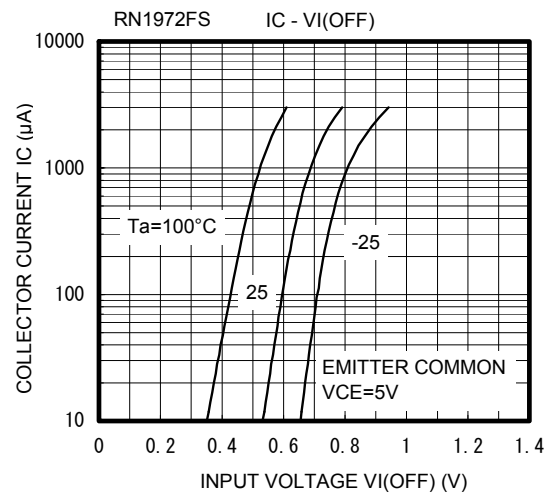
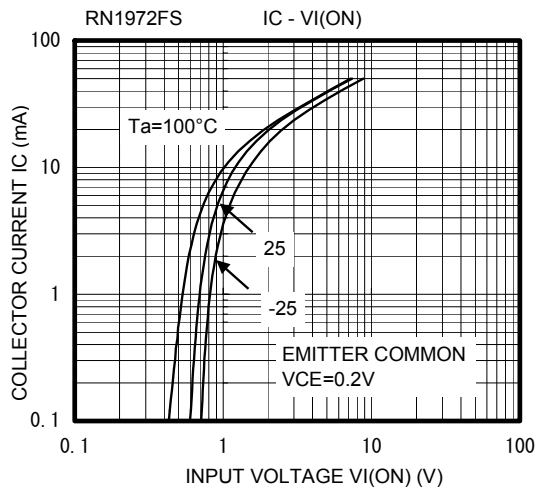


Weight: 0.001g (typ.)

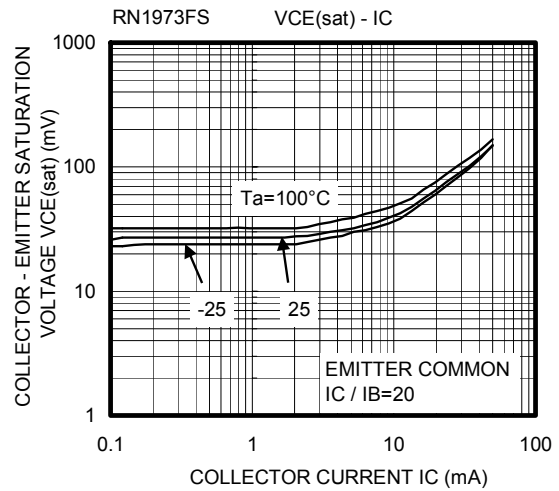
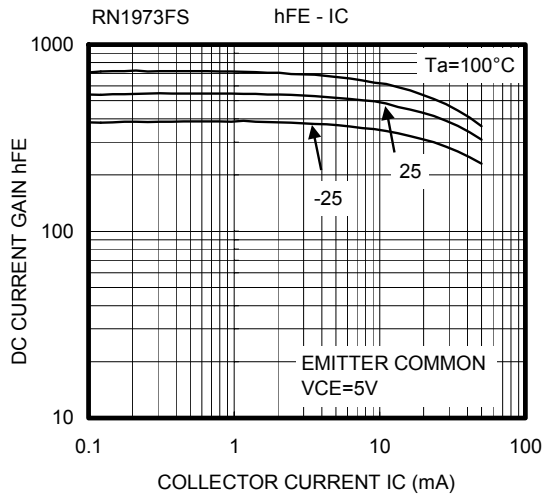
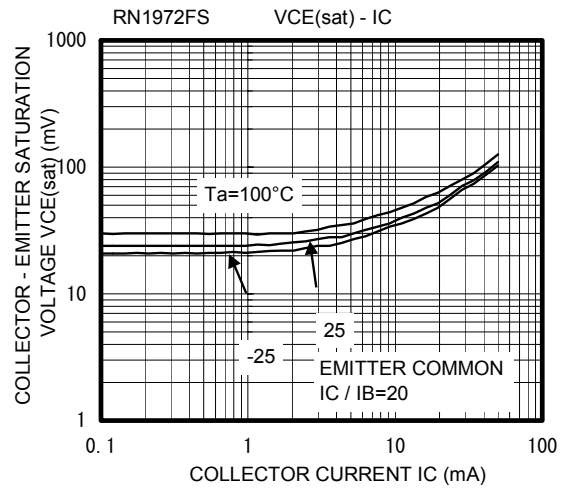
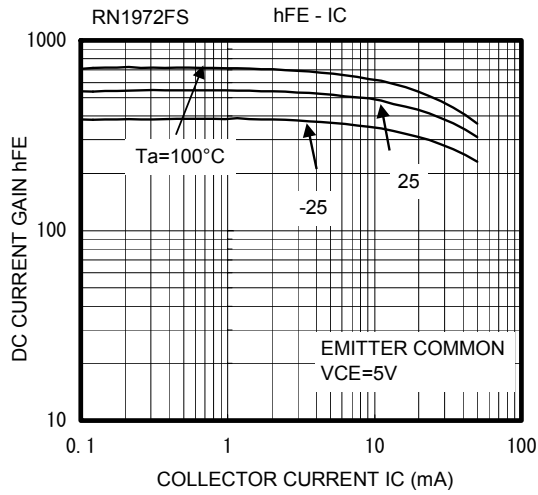
Electrical Characteristics (Ta = 25°C) (Q1, Q2 common)

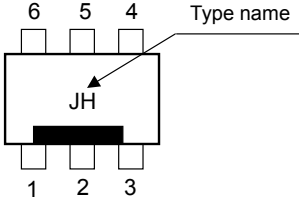
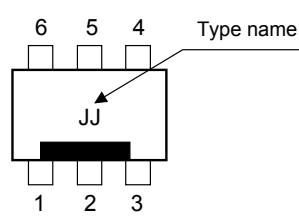
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 20\text{ V}, I_E = 0$	—	—	100	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	100	nA
DC current gain	h_{FE}	$V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$	300	—	—	
Collector-emitter saturation 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	RN1972FS	—	17.6	22	26.4	kΩ
	RN1973FS		37.6	47	56.4	

(Q1, Q2 common)



(Q1, Q2 common)



Type Name	Marking
RN1972FS	 <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. The marking 'JH' is printed in the center of the component. An arrow points from the text 'Type name' to the 'JH' marking.</p>
RN1973FS	 <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. The marking 'JJ' is printed in the center of the component. An arrow points from the text 'Type name' to the 'JJ' 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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