

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

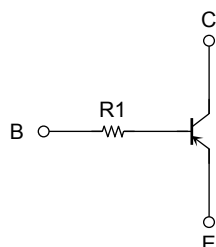
RN2912AFS, RN2913AFS

Switching, Inverter Circuit, Interface Circuit and
Driver Circuit Applications

Unit: mm

- Two devices are incorporated into a fine-pitch, small-mold (6-pin) package.
- Incorporating a bias resistor into a transistor reduces the parts count.
Reducing the parts count enables the manufacture of ever more compact equipment and lowers assembly costs.
- Complementary to the RN1912AFS/RN1913AFS

Equivalent Circuit and Bias Resistor Values



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

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-50	V
Collector-emitter voltage	V_{CEO}	-50	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current	I_C	-80	mA
Collector power dissipation	P_C (Note 1)	50	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55~150	°C

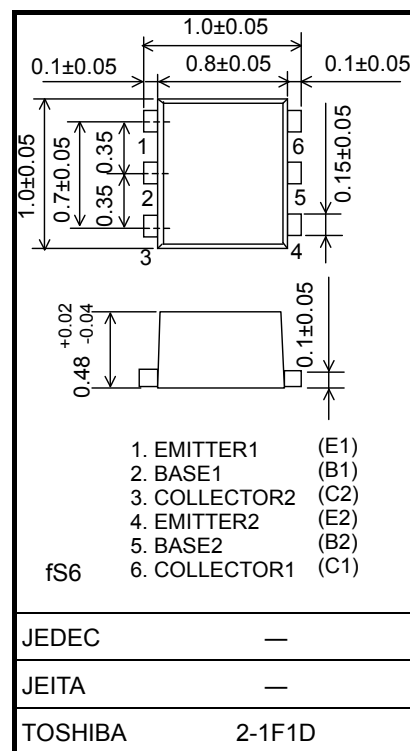
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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

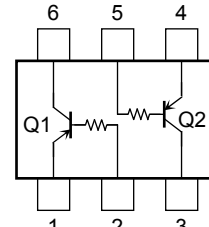
Electrical Characteristics (Ta = 25°C) (Q1, Q2 common)

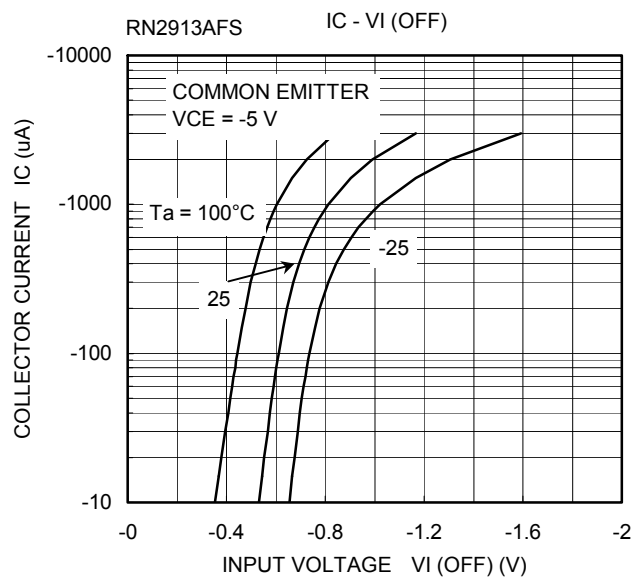
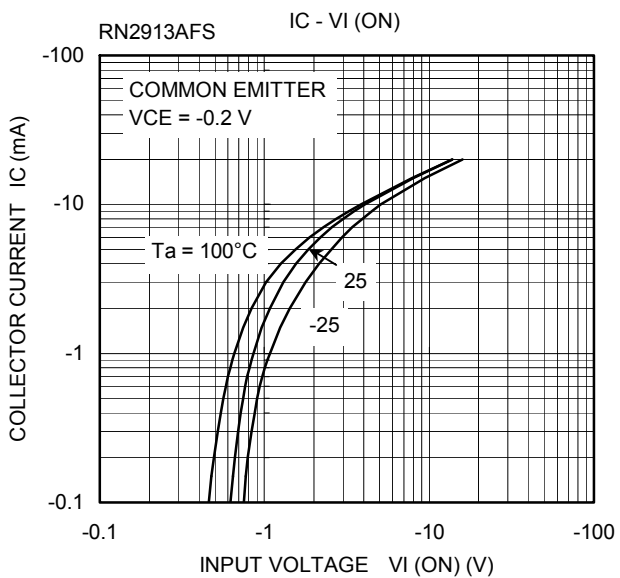
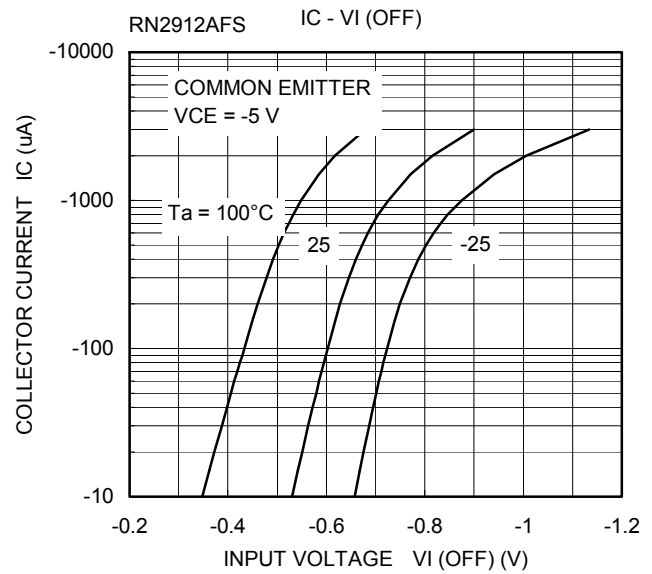
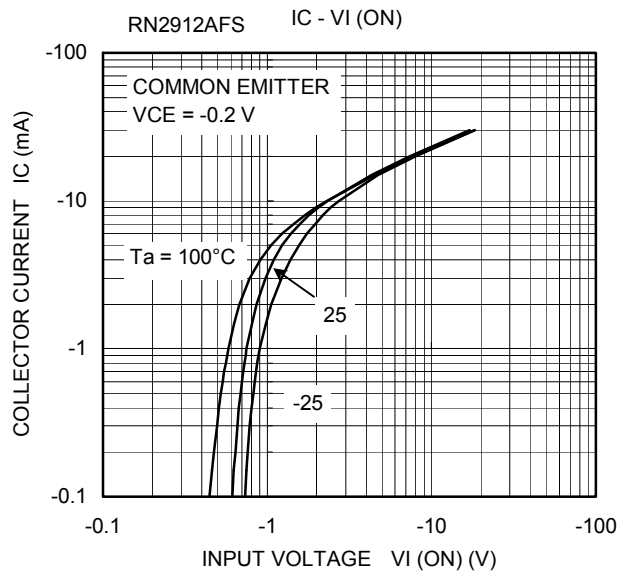
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = -50\text{ V}, I_E = 0$	—	—	-100	nA
Emitter cutoff current	I_{EBO}	$V_{EB} = -5\text{ V}, I_C = 0$	—	—	-100	nA
DC current gain	h_{FE}	$V_{CE} = -5\text{ V}, I_C = -1\text{ mA}$	120	—	400	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -5\text{ mA}, I_B = -0.25\text{ mA}$	—	—	-0.15	V
Collector output capacitance	C_{ob}	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	0.9	—	pF
Input resistor	RN2912AFS	R1	17.6	22	26.4	kΩ
	RN2913AFS		37.6	47	56.4	

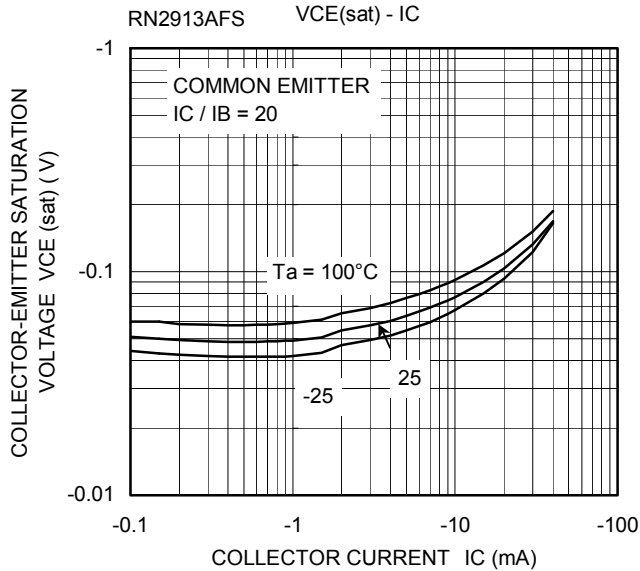
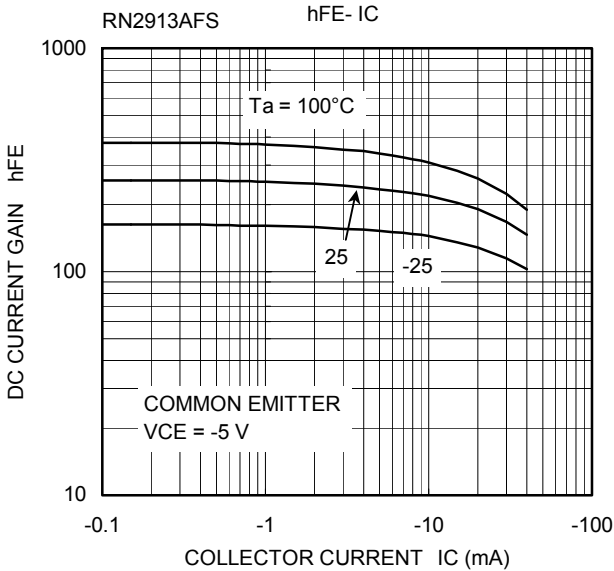
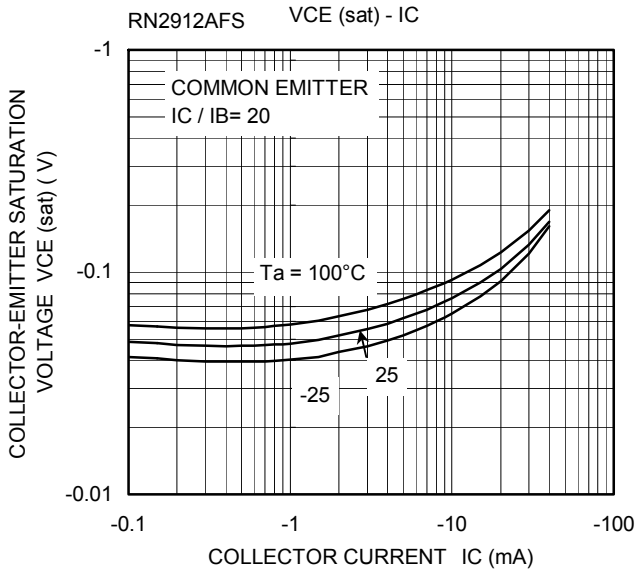
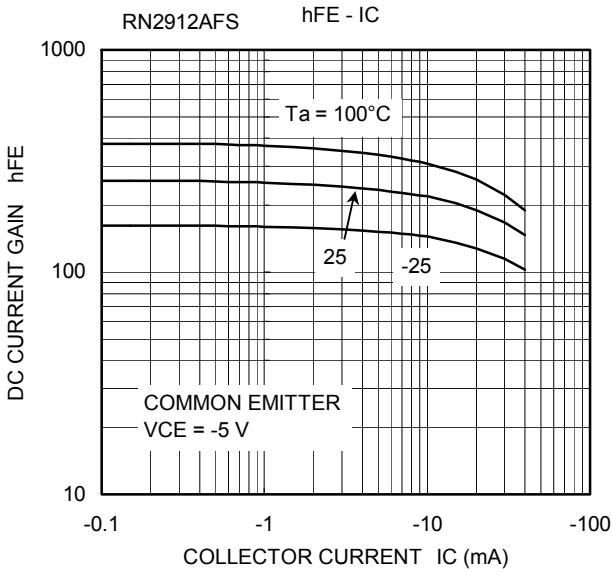


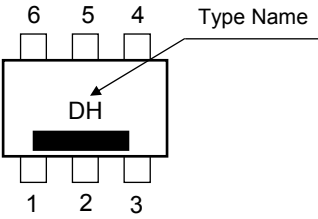
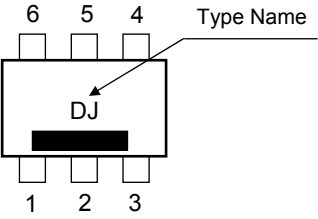
Weight: 0.001 g (typ.)

Equivalent Circuit (top view)







Type Name	Marking
RN2912AFS	 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. The component is marked with 'DH' in the center, a solid black bar below it, and the text 'Type Name' with an arrow pointing to the top right corner.
RN2913AFS	 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. The component is marked with 'DJ' in the center, a solid black bar below it, and the text 'Type Name' with an arrow pointing to the top right corner.

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