

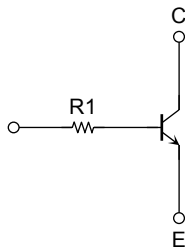
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process) (Transistor with Built-in Bias Resistor)

## RN1912AFS, RN1913AFS

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 the parts count. Reducing the parts count enables the manufacture of ever more compact equipment and lowers assembly costs.
- Complementary to the RN2912AFS/RN2913AFS

### Equivalent Circuit and Bias Resistor Values



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

Characteristic	Symbol	Rating	Unit
Collector-base voltage	$V_{CB0}$	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.

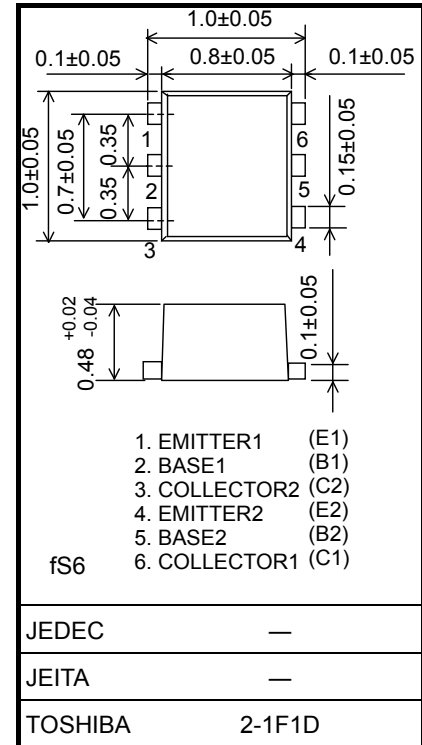
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note 1: Total rating

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

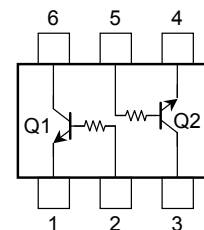
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit	
Collector cutoff current	$I_{CB0}$	$V_{CB} = 50\text{ V}, I_E = 0$	—	—	100	nA	
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	100	nA	
DC current gain	$h_{FE}$	$V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$	120	—	700		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 5\text{ mA}, I_B = 0.25\text{ mA}$	—	—	0.15	V	
Collector output capacitance	$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	0.7	—	pF	
Input resistor	RN1912AFS	R1	—	17.6	22	26.4	kΩ
	RN1913AFS			37.6	47	56.4	

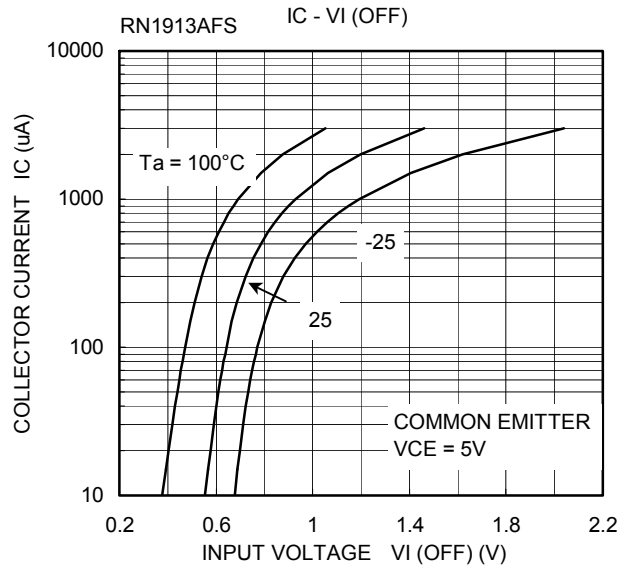
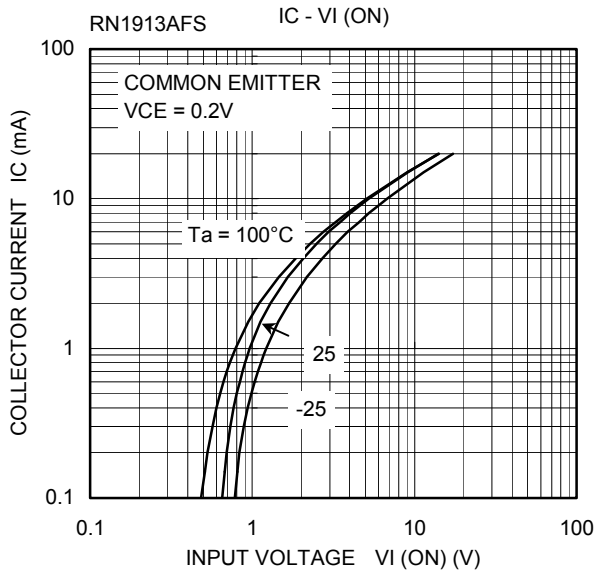
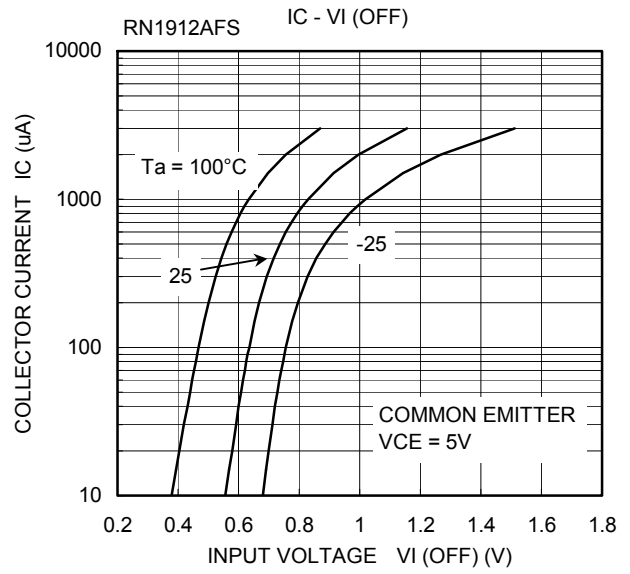
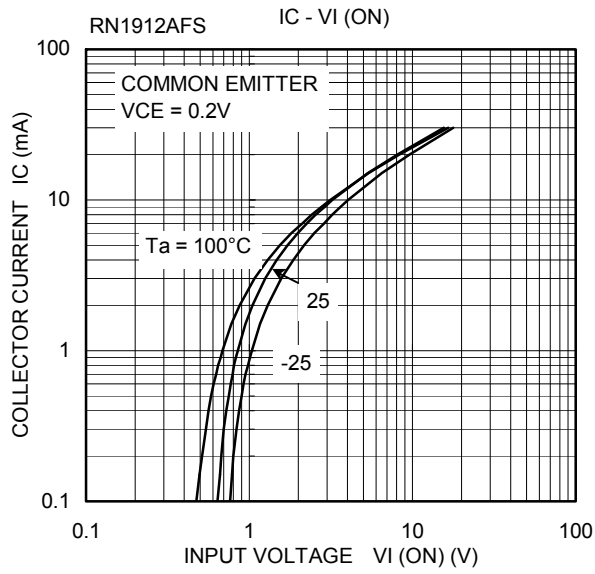
Unit: mm

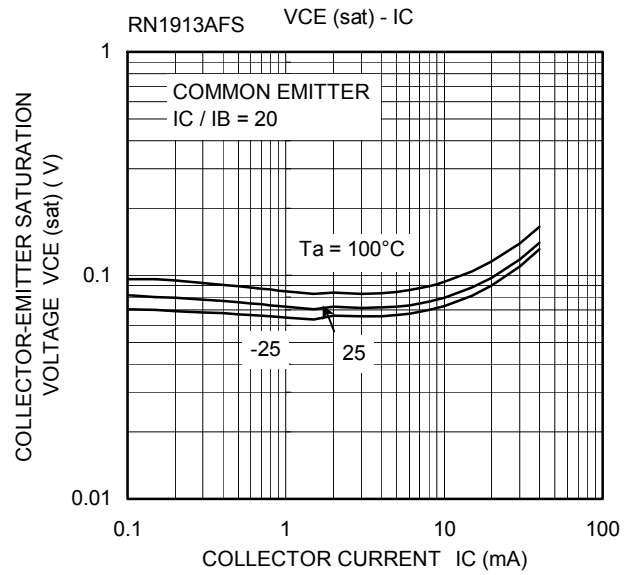
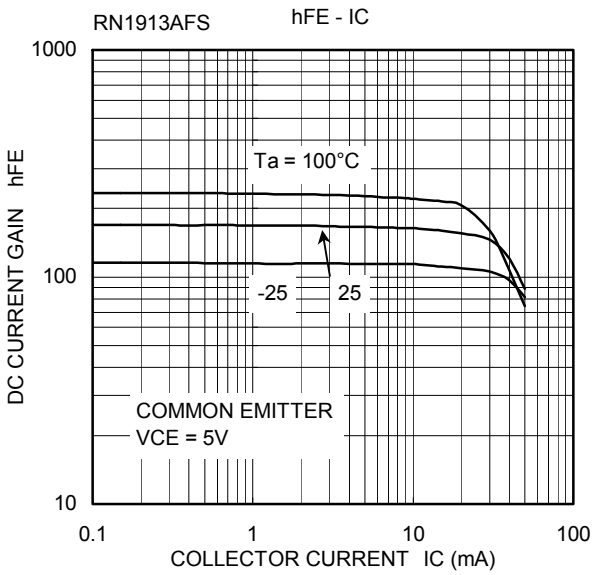
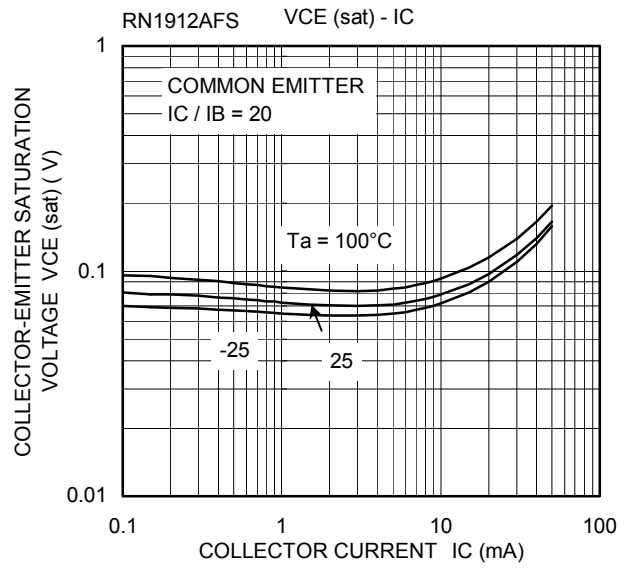
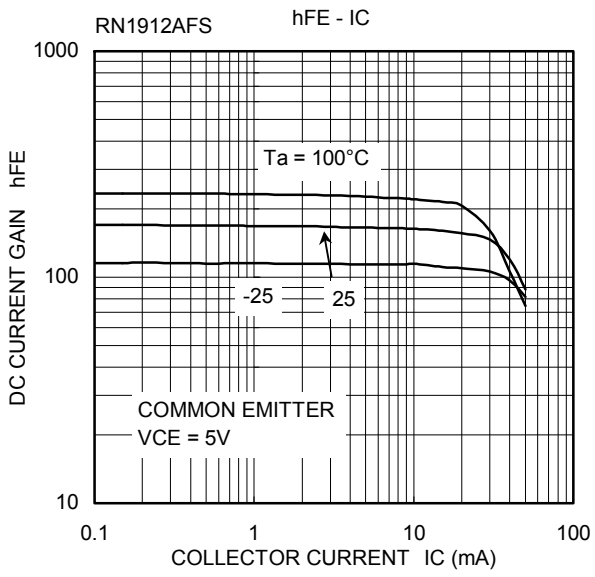


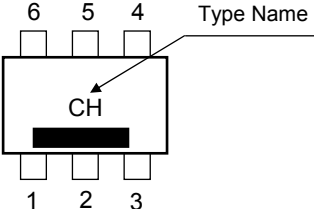
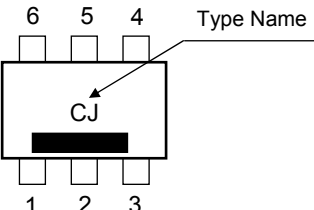
Weight: 0.001 g (typ.)

### Equivalent Circuit (top view)







Type Name	Marking
RN1912AFS	 <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 text 'CH' is printed in the center of the component. A solid black horizontal bar is located below the 'CH' text. An arrow labeled 'Type Name' points to the 'CH' text.</p>
RN1913AFS	 <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 text 'CJ' is printed in the center of the component. A solid black horizontal bar is located below the 'CJ' text. An arrow labeled 'Type Name' points to the 'CJ' text.</p>

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