

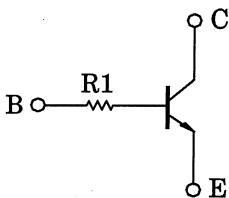
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process) (Bias Resistor built-in Transistor)

RN1112ACT, RN1113ACT

- Switching Applications
- Inverter Circuit Applications
- Interface Circuit Applications
- Driver Circuit Applications

- Incorporating a bias resistor into a transistor reduces the number of parts, which enables the manufacture of ever more compact equipment and saves assembly cost.
- Complementary to RN2112ACT, RN2113ACT

Equivalent Circuit and Bias Resistor Values



Absolute Maximum Ratings (Ta = 25°C)

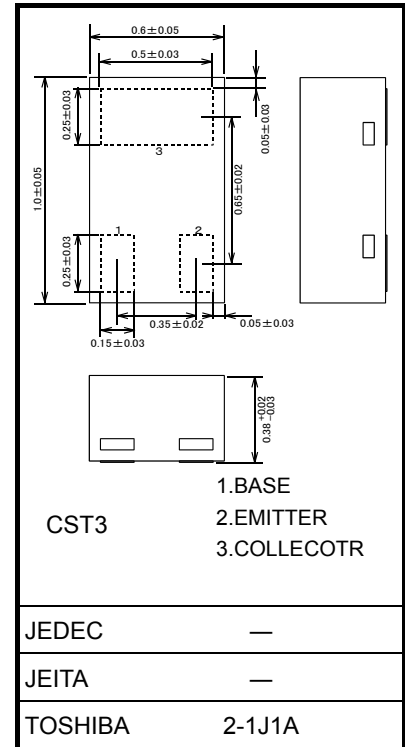
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V _{CBO}	50	V
Collector-emitter voltage	V _{CEO}	50	V
Emitter-base voltage	V _{EBO}	5	V
Collector current	I _C	80	mA
Collector power dissipation	P _C (Note1)	100	mW
Junction temperature	T _j	150	°C
Storage temperature range	T _{stg}	-55 to 150	°C

Note1: Mounted on FR4 board (10 mm × 10 mm × 1 mm)

Note2: 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).

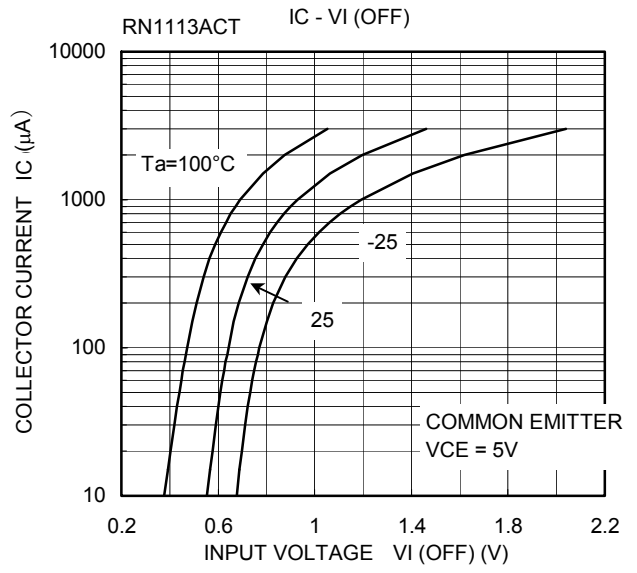
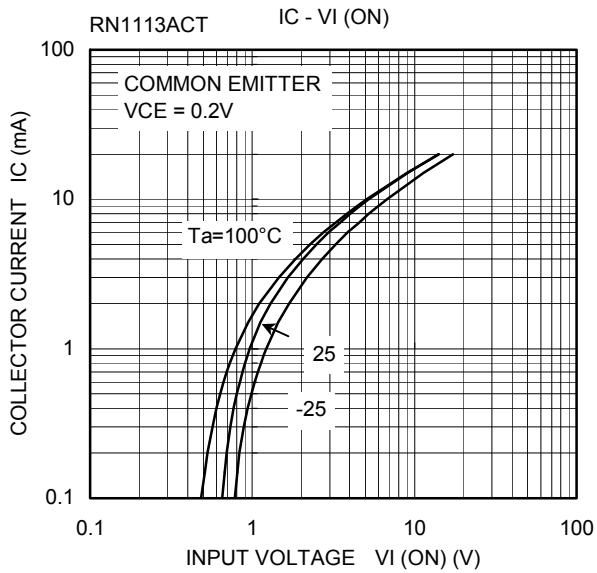
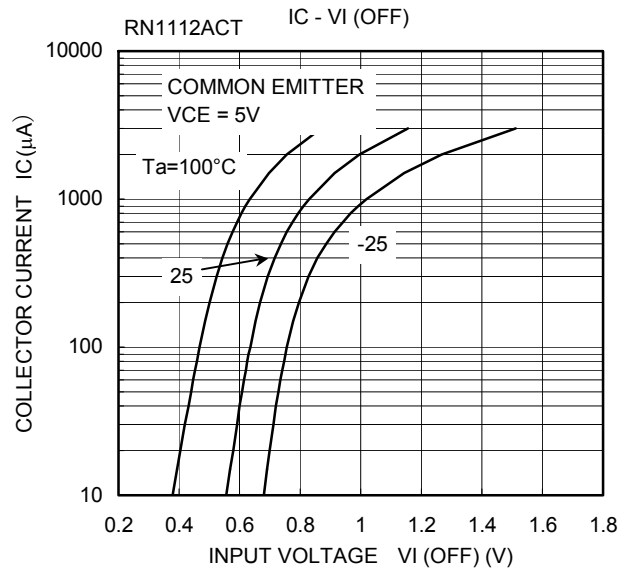
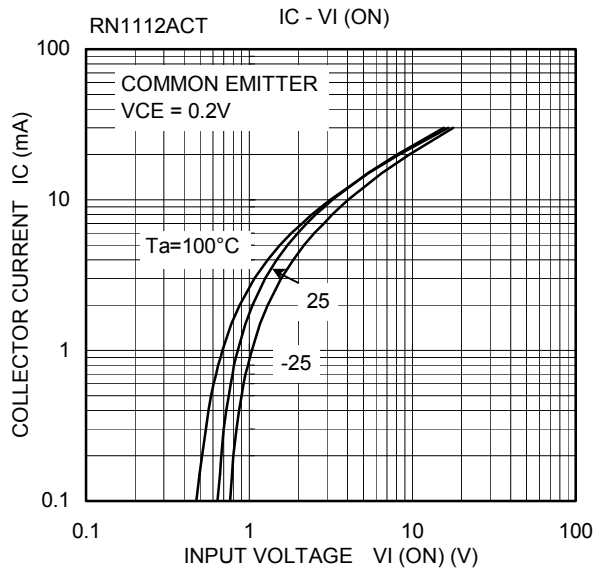
• Unit: mm

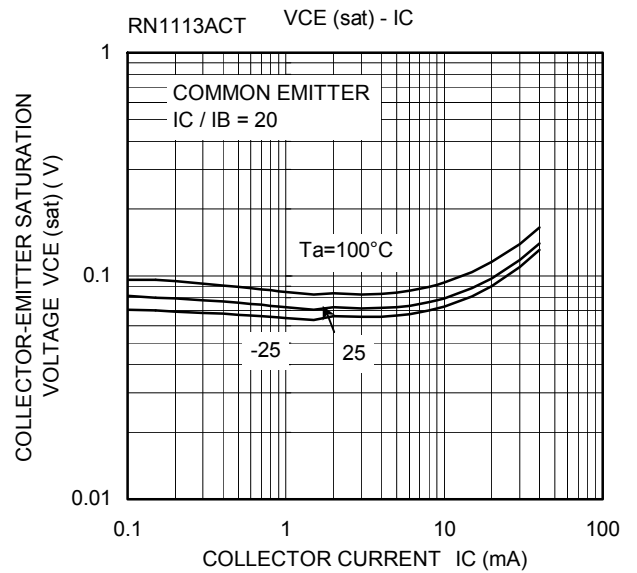
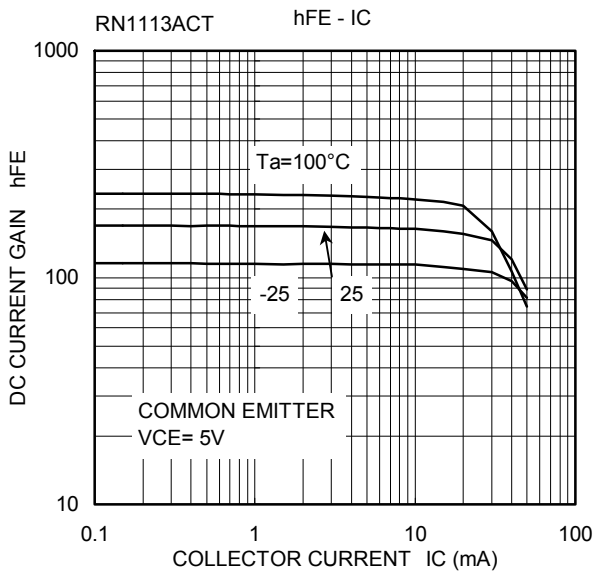
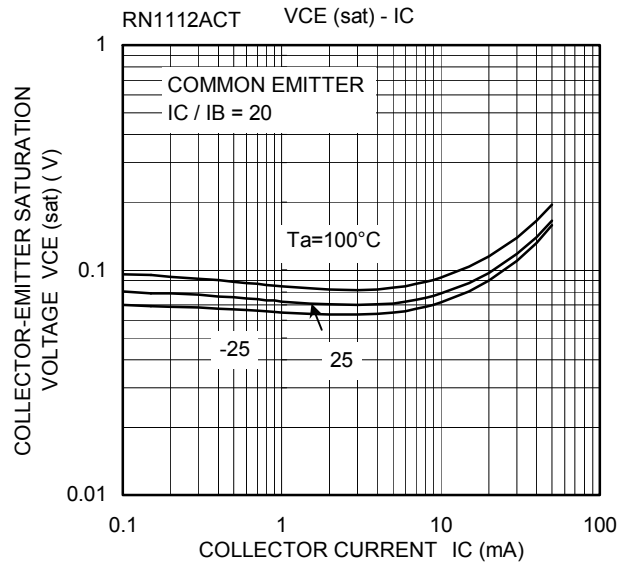
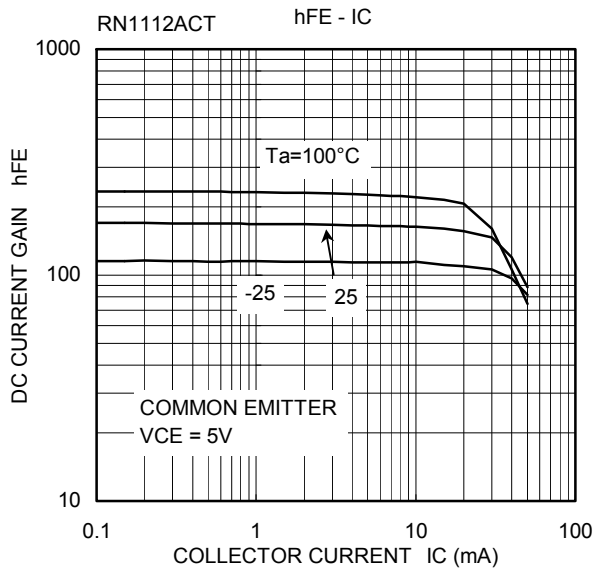


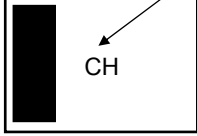
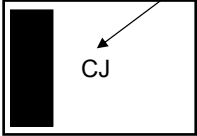
Weight: 0.75 mg (typ.)

Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	$V_{CB} = 50\text{ V}, I_E = 0$	—	—	100	nA
Emitter cut-off current		I_{EBO}	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	100	nA
DC current gain		h_{FE}	$V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$	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	RN112ACT	R1	—	17.6	22	26.4	kΩ
	RN113ACT			37.6	47	56.4	





Type Name	Marking
RN112ACT	 <p>The diagram shows a rectangular marking area. On the left side, there is a solid black vertical bar. To the right of this bar, the letters "CH" are printed. An arrow points from the text "Type Name" (located above and to the right of the diagram) to the "CH" marking.</p>
RN113ACT	 <p>The diagram shows a rectangular marking area. On the left side, there is a solid black vertical bar. To the right of this bar, the letters "CJ" are printed. An arrow points from the text "Type Name" (located above and to the right of the diagram) to the "CJ" marking.</p>

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