

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

RN2112ACT,RN2113ACT

Switching Applications

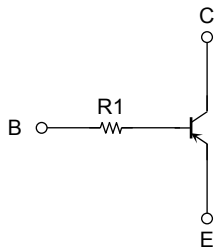
Inverter Circuit Applications

Interface Circuit Applications

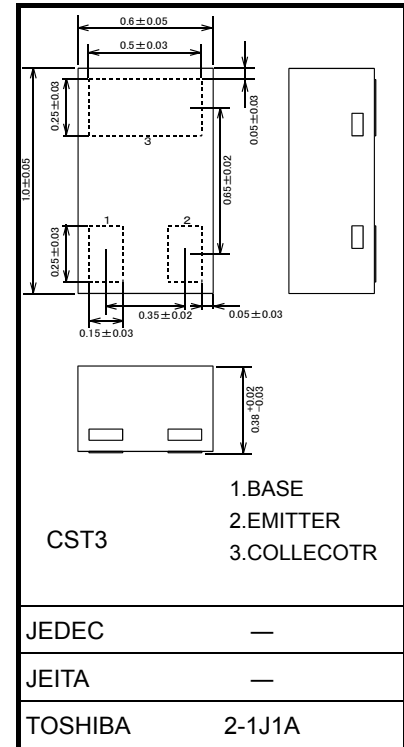
Driver Circuit Applications

- Extra small package (CST3) is applicable for extra high density fabrication.
- 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 RN1112CT, RN1113CT

Equivalent Circuit



Unit: mm



Weight: 0.75 mg (typ.)

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	100 *	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55 to 150	°C

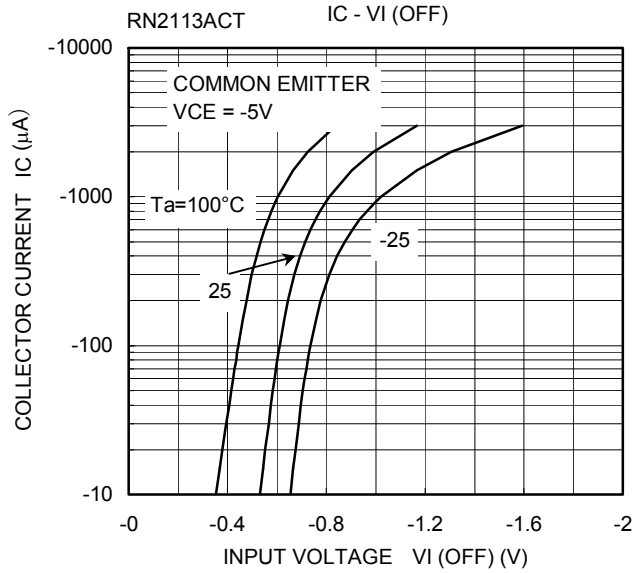
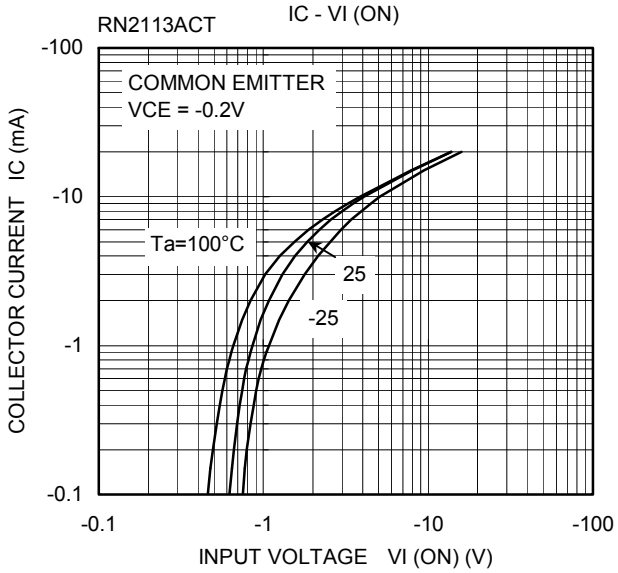
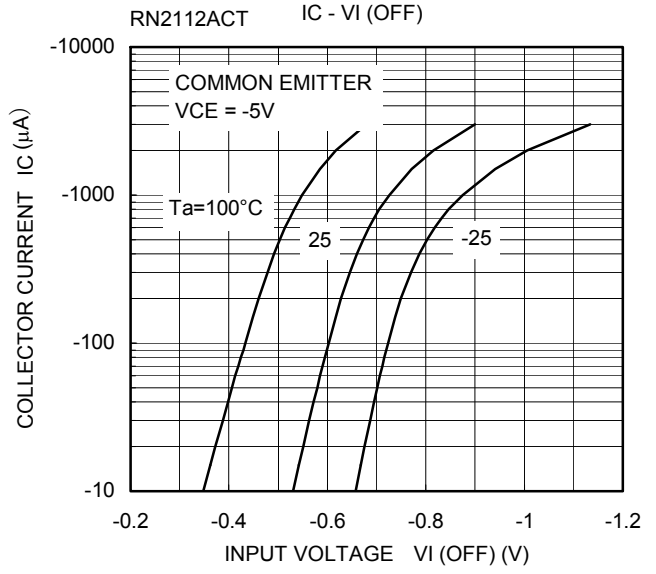
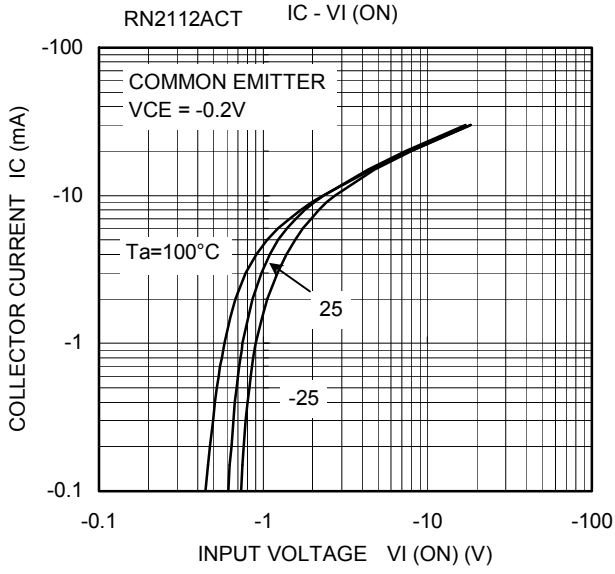
* : Mounted on FR4 board (10 mm × 10 mm × 1 mm)

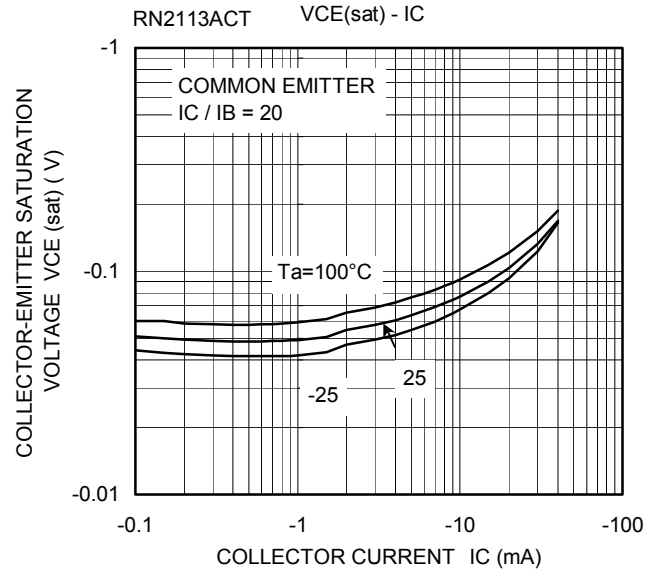
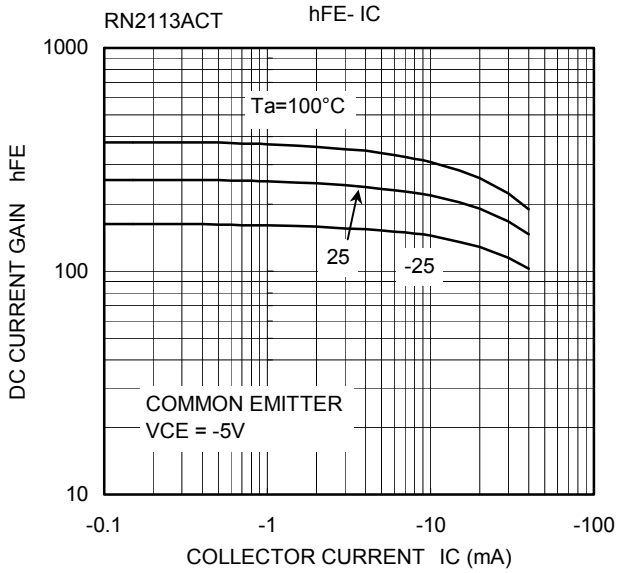
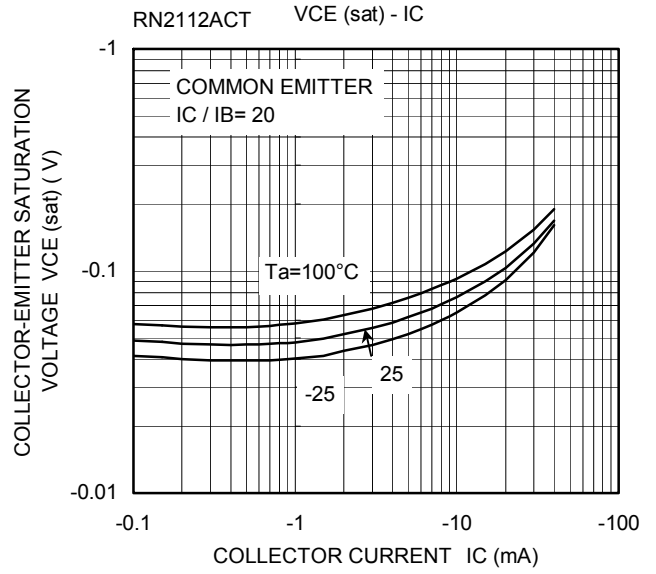
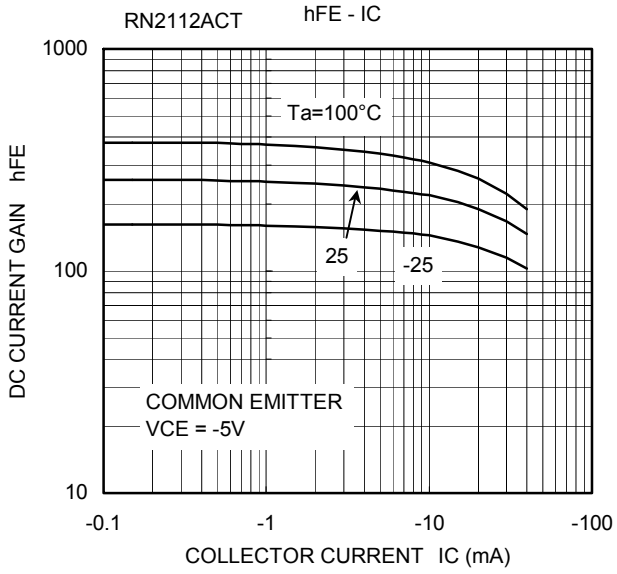
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

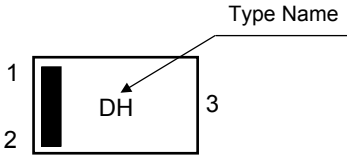
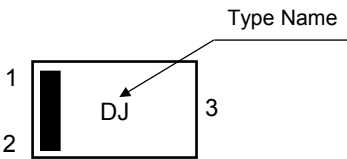
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

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	—	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	RN2112ACT	R1	—	17.6	22	26.4	kΩ
	RN2113ACT			37.6	47	56.4	





Type Name	Marking
RN2112ACT	 <p>The diagram shows a rectangular marking area with a vertical bar on the left side. The bar is divided into two sections, labeled '1' (top) and '2' (bottom). The letters 'DH' are printed in the center of the rectangle. A line labeled 'Type Name' points to the 'DH' text. The number '3' is located at the bottom right corner of the rectangle.</p>
RN2113ACT	 <p>The diagram shows a rectangular marking area with a vertical bar on the left side. The bar is divided into two sections, labeled '1' (top) and '2' (bottom). The letters 'DJ' are printed in the center of the rectangle. A line labeled 'Type Name' points to the 'DJ' text. The number '3' is located at the bottom right corner of the rectangle.</p>

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