

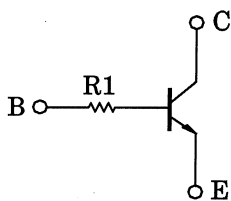
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process) (Bias Resistor built-in Transistor)

RN1112CT,RN1113CT

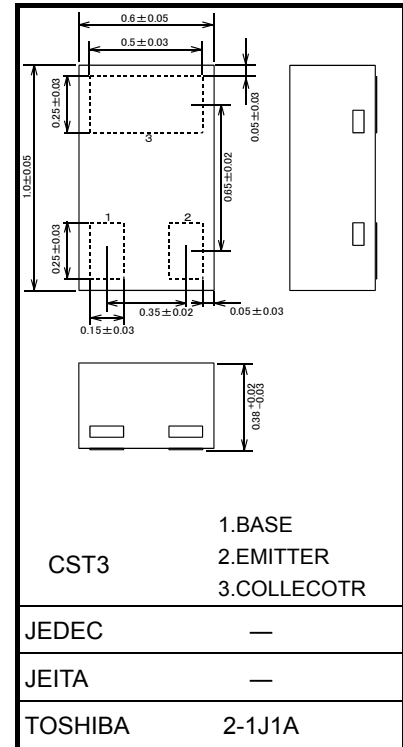
Switching Applications
 Inverter Circuit Applications
 Interface Circuit Applications
 Driver Circuit Applications

- Incorporating a bias resistor into a transistor reduces parts count. Reducing the parts count enable the manufacture of ever more compact equipment and save assembly cost.
- Complementary to RN2112CT, RN2113CT

Equivalent Circuit



Unit: mm



Weight: 0.75 mg (typ.)

Absolute Maximum Ratings (Ta = 25°C)

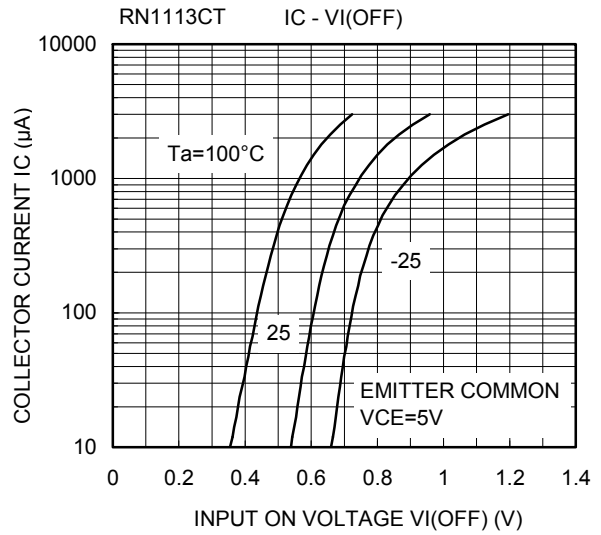
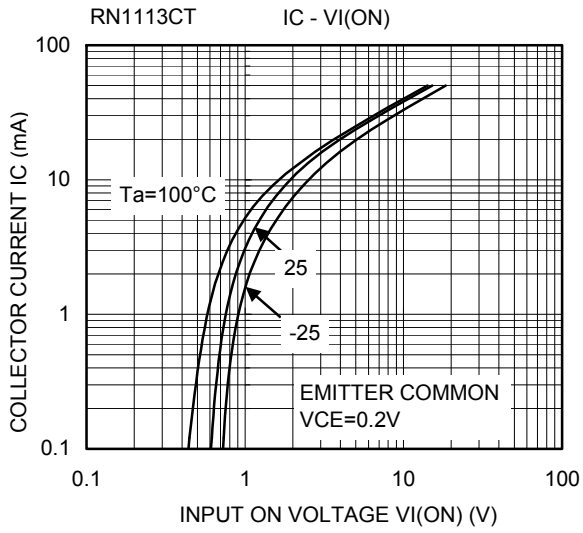
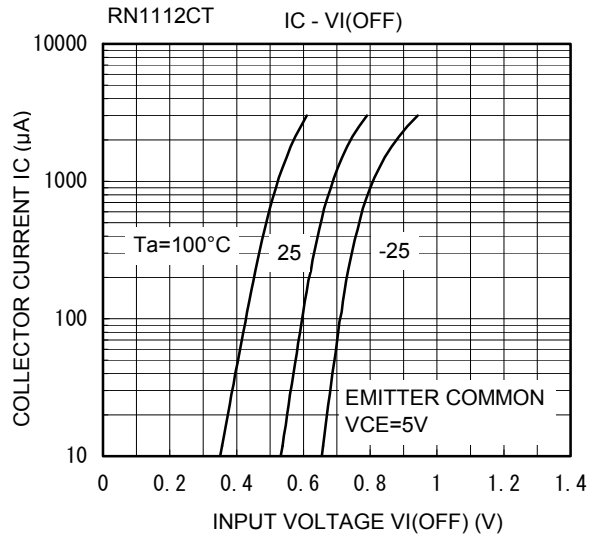
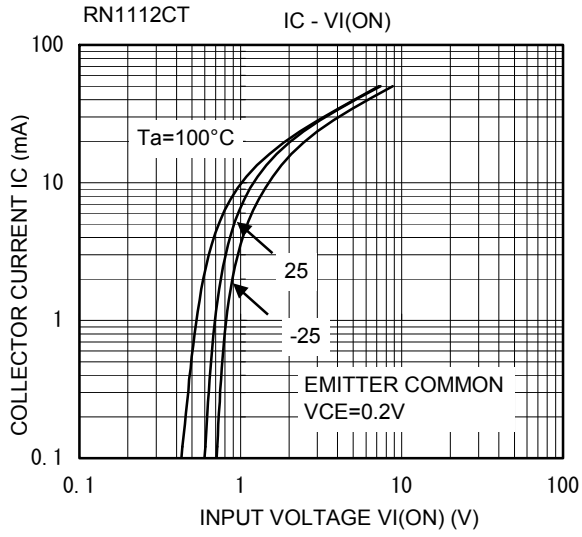
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V _{CBO}	20	V
Collector-emitter voltage	V _{CEO}	20	V
Emitter-base voltage	V _{EBO}	5	V
Collector current	I _C	50	mA
Collector power dissipation	P _C	50	mW
Junction temperature	T _j	150	°C
Storage temperature range	T _{stg}	-55 to 150	°C

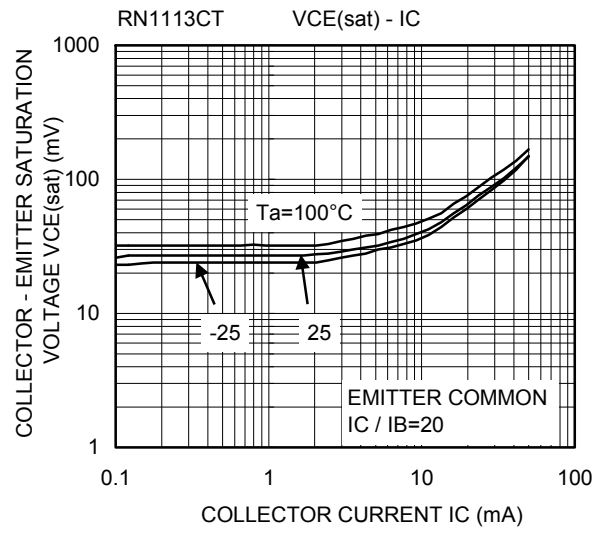
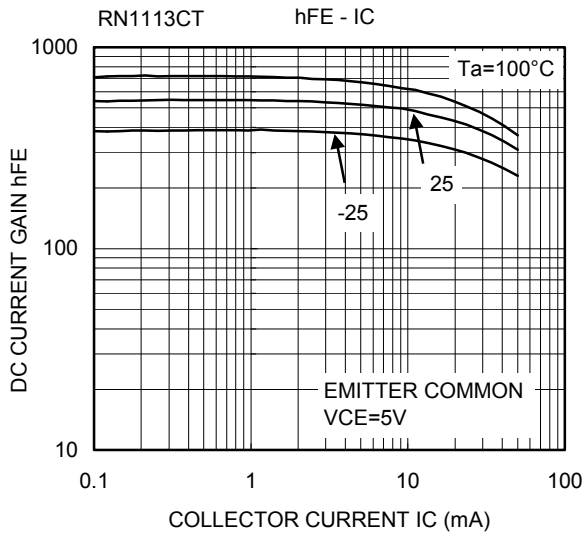
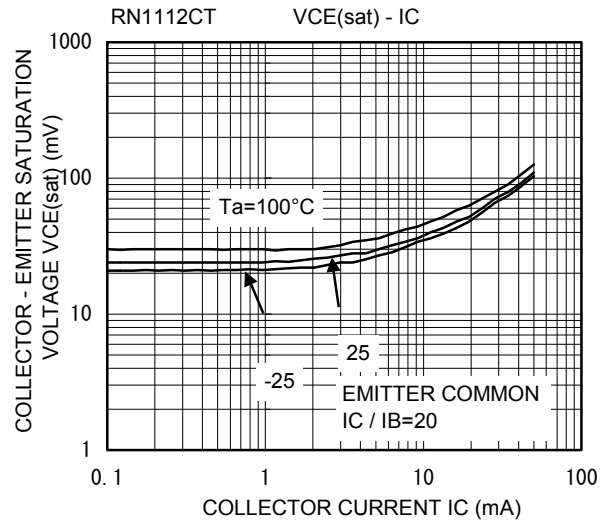
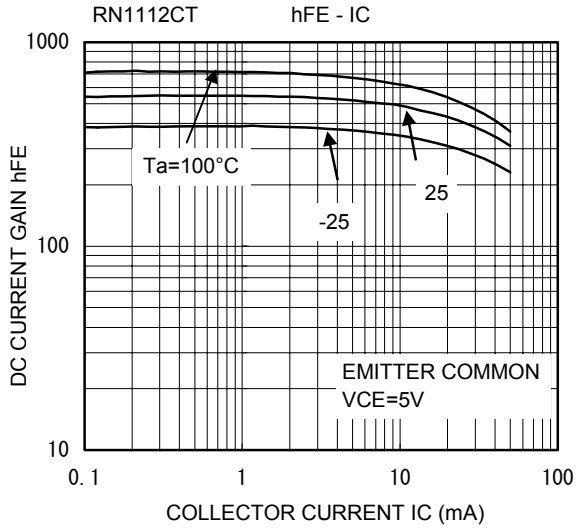
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

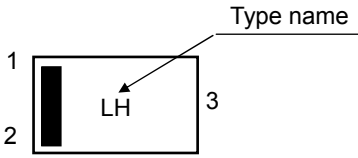
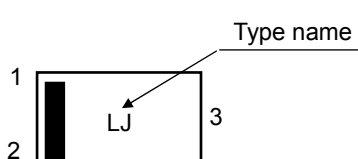
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc.).

Electrical Characteristics (Ta = 25°C)

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	RN1112CT	R1	—	17.6	22	26.4	kΩ
	RN1113CT			37.6	47	56.4	





Type Name	Marking
RN1112CT	 <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 'LH' are printed in the center. A line labeled 'Type name' points to the 'LH' text. The number '3' is located at the bottom right corner of the rectangle.</p>
RN1113CT	 <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 'LJ' are printed in the center. A line labeled 'Type name' points to the 'LJ' text. The number '3' is located at the bottom right corner of the rectangle.</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 electricity. 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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