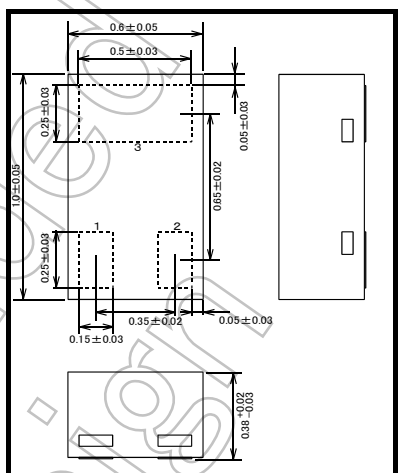
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process) (Bias Resistor Built-in Transistor)

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

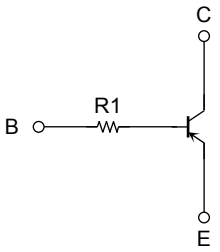
Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-1J1A

Weight: 0.75 mg (typ.)

Equivalent Circuit



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 mmt)

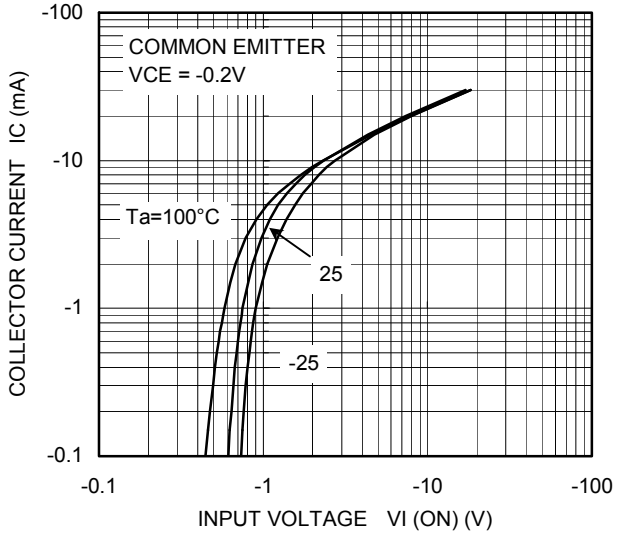
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e.operatingtemperature/current/voltage, etc.) are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

Start of commercial production
2004-08

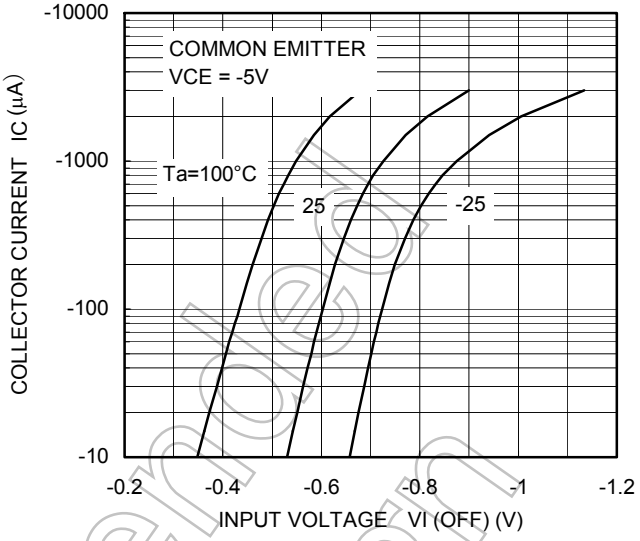
Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	V_{CB} = −50 V, I_E = 0	—	—	−100	nA
Emitter cut-off current		I_{EBO}	V_{EB} = −5 V, I_C = 0	—	—	−100	nA
DC current gain		h_{FE}	V_{CE} = −5 V, I_C = −1 mA	120	—	400	
Collector-emitter saturation voltage		$V_{CE\ (sat)}$	I_C = −5 mA, I_B = −0.25 mA	—		−0.15	V
Collector output capacitance		C_{ob}	V_{CB} = −10 V, I_E = 0, f = 1 MHz	—	0.9	—	pF
Input resistor	RN2112ACT	R1	—	17.6	22	26.4	kΩ
	RN2113ACT			37.6	47	56.4	

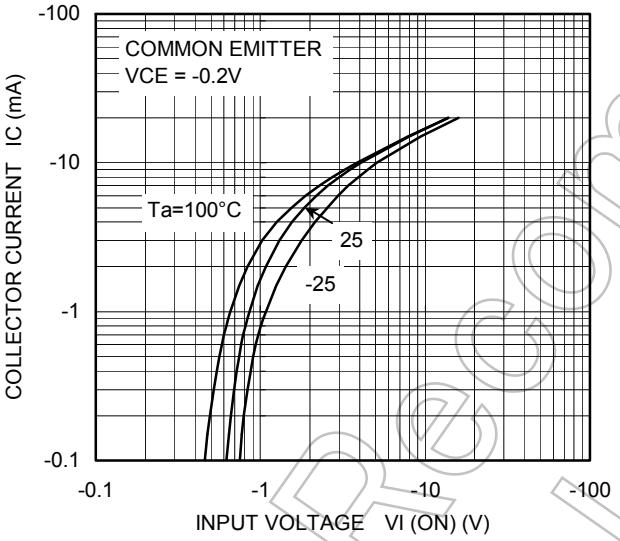
RN2112ACT IC - VI (ON)



RN2112ACT IC - VI (OFF)



RN2113ACT IC - VI (ON)



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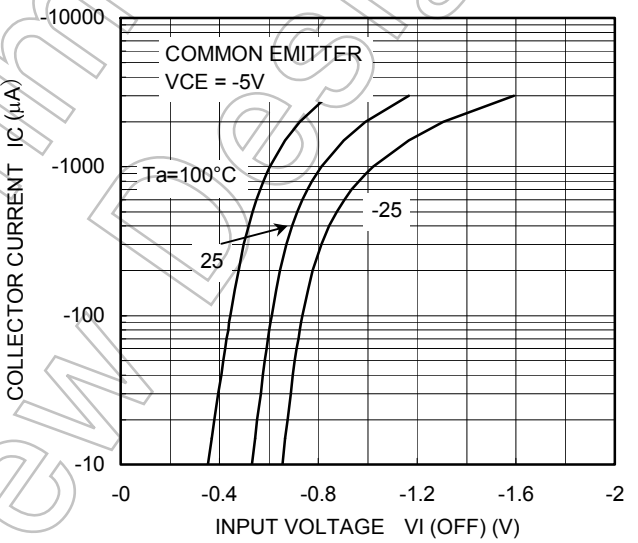
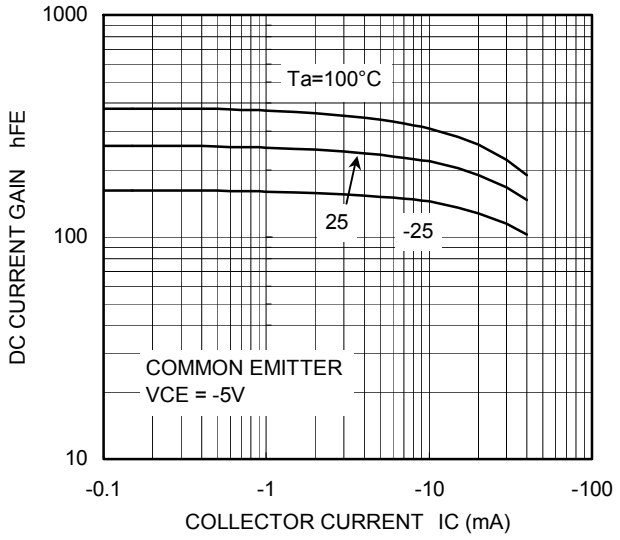
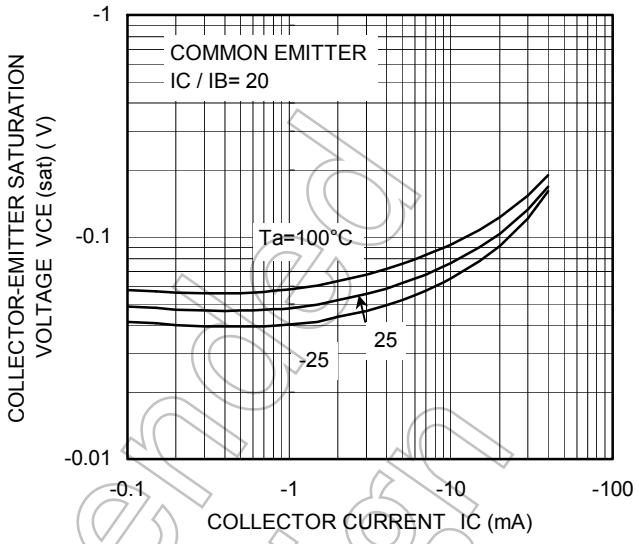


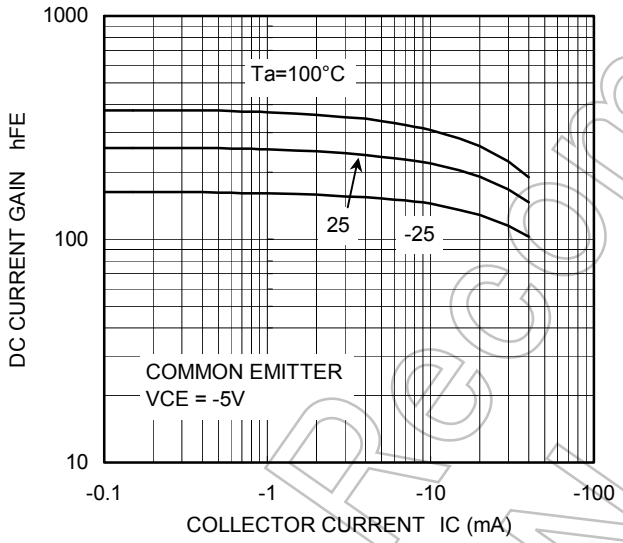
RN2112ACT hFE - IC



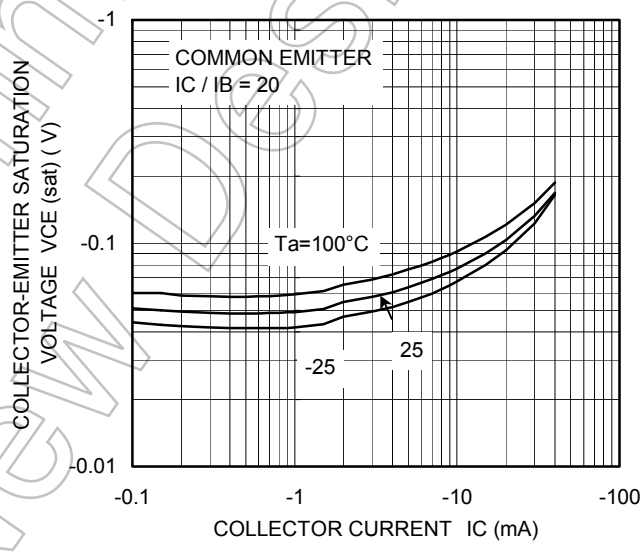
RN2112ACT VCE (sat) - IC

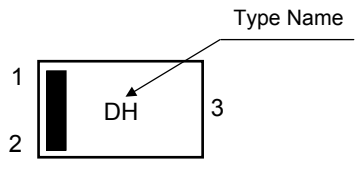
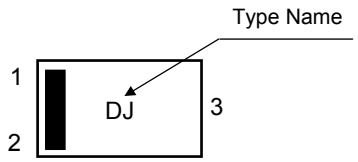


RN2113ACT hFE- IC



RN2113ACT VCE(sat) - IC



Type Name	Marking
RN2112ACT	
RN2113ACT	

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