

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

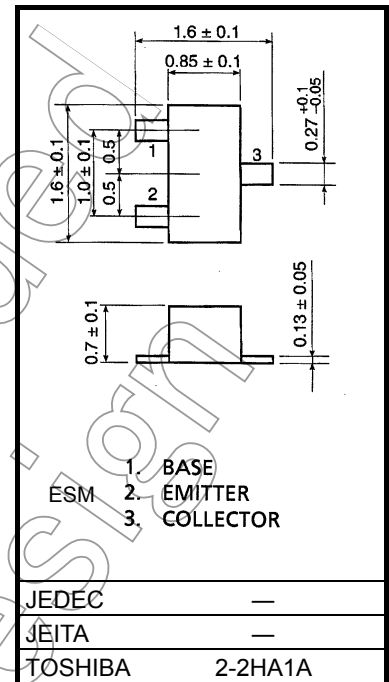
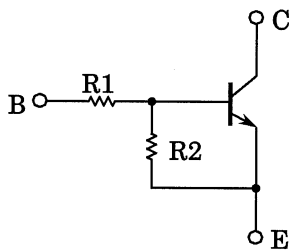
RN1130F

Switching, Inverter Circuit, Interface Circuit and Driver Circuit Applications

Unit: mm

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN2130F

Equivalent Circuit



Weight : 2.3mg(typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CB0}	50	V
Collector-emitter voltage	V_{CE0}	50	V
Emitter-base voltage	V_{EB0}	10	V
Collector current	I_C	100	mA
Collector power dissipation	P_C	100	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55 to 150	°C

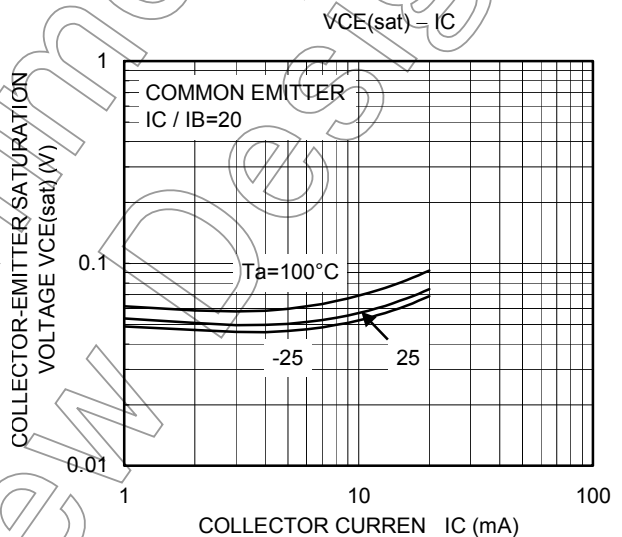
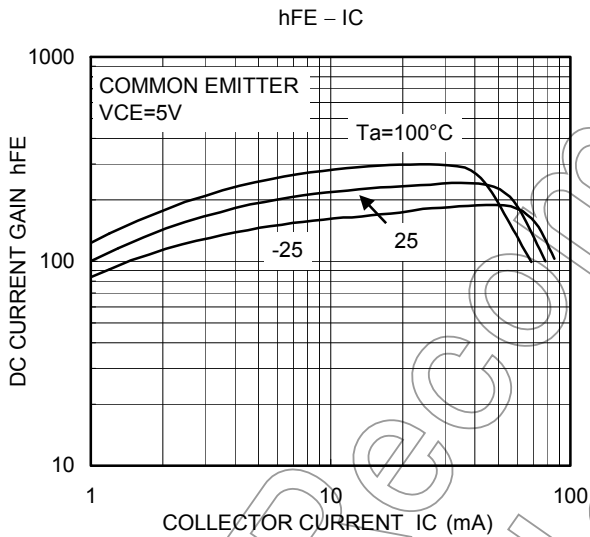
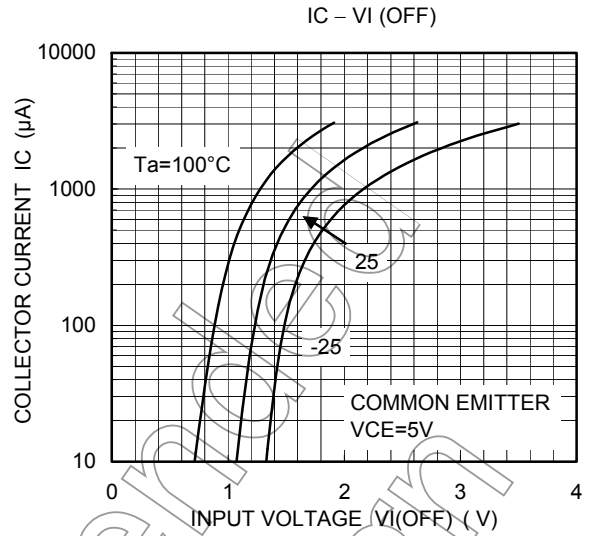
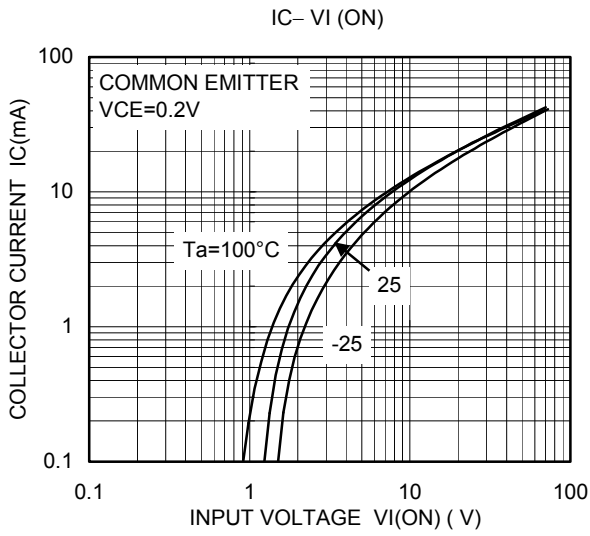
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

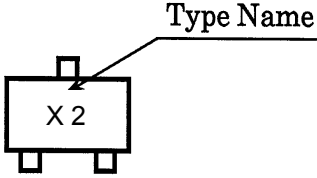
Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 50V, I_E = 0$	—	—	100	nA
	I_{CEO}	$V_{CE} = 50V, I_B = 0$	—	—	500	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 10V, I_C = 0$	38	—	72	μA
DC current gain	h_{FE}	$V_{CE} = 5V, I_C = 10mA$	100	—	—	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 5mA, I_B = 0.25mA$	—	0.1	0.3	V
Input voltage (ON)	$V_{I(ON)}$	$V_{CE} = 0.2V, I_C = 5mA$	1.7	—	8.2	V
Input voltage (OFF)	$V_{I(OFF)}$	$V_{CE} = 5V, I_C = 0.1mA$	1.0	—	1.6	V
Transition frequency	f_T	$V_{CE} = 10V, I_C = 5mA$	—	250	—	MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10V, I_E = 0, f = 1MHz$	—	3	—	pF
Input resistor	R1	—	70	100	130	$k\Omega$
Resistance ratio	R1/ R2	—	0.8	1.0	1.2	

Not Recommended for New Design



Not for New

Type Name	Marking
RN1130F	 <p>The diagram shows a rectangular component with a small protrusion on top and two small protrusions on the bottom. The text 'X 2' is printed inside the rectangle. A line with an arrow points from the text 'Type Name' to the top protrusion.</p>

Not Recommended
for New Design

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