

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process) (Bias Resistor built-in Transistor)

## RN2130MFV

Switching Applications

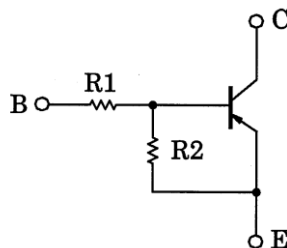
Inverter Circuit Applications

Interface Circuit Applications

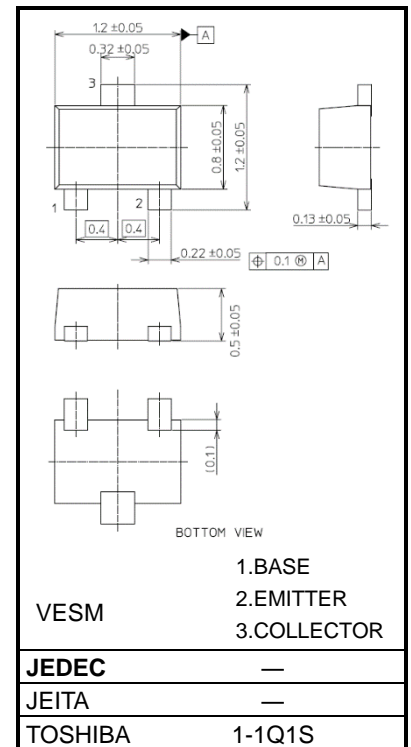
Driver Circuit Applications

- Ultra-small package, suited to very high density mounting
- Incorporating a bias resistor into the transistor reduces the number of parts, so enabling the manufacture of ever more compact equipment and lowering assembly cost.
- A wide range of resistor values is available for use in various circuits.
- Complementary to the RN1130MFV

### Equivalent Circuit



Unit: mm



Weight: 1.5 mg (typ.)

### Absolute Maximum Ratings (Ta = 25°C)

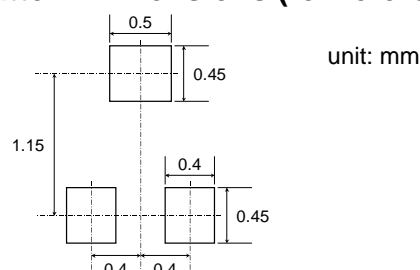
Characteristic	Symbol	Rating	Unit
Collector-base voltage	V <sub>CB0</sub>	-50	V
Collector-emitter voltage	V <sub>CE0</sub>	-50	V
Emitter-base voltage	V <sub>EB0</sub>	-10	V
Collector current	I <sub>C</sub>	-100	mA
Collector power dissipation	P <sub>C</sub> (Note1)	150	mW
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature range	T <sub>stg</sub>	-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).

Note1 : Mounted on FR4 board (25.4 mm × 25.4 mm × 1.6 mm)

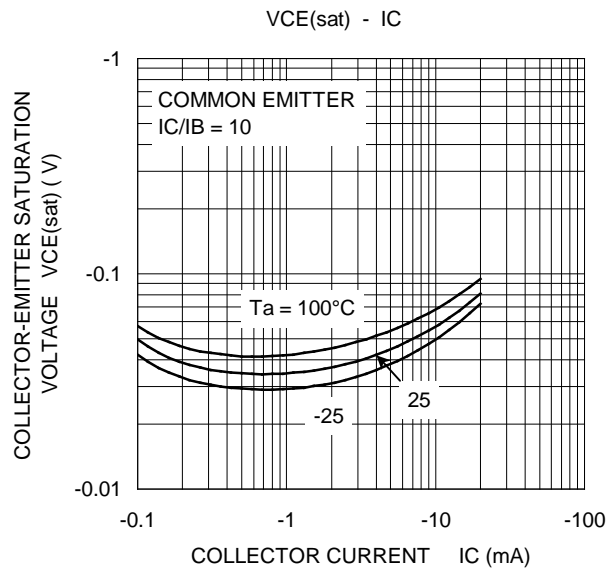
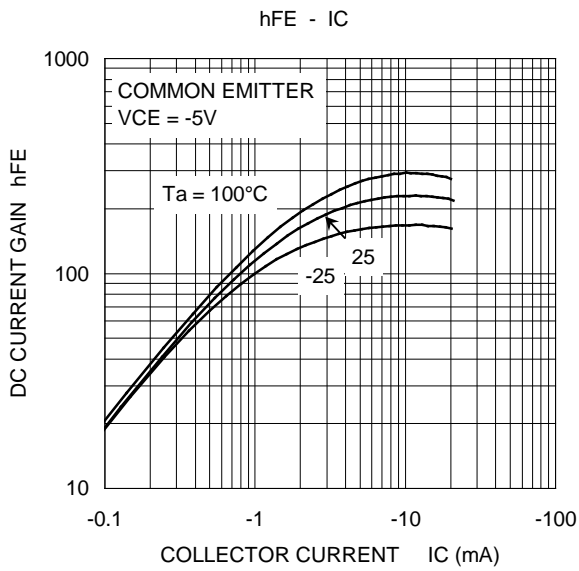
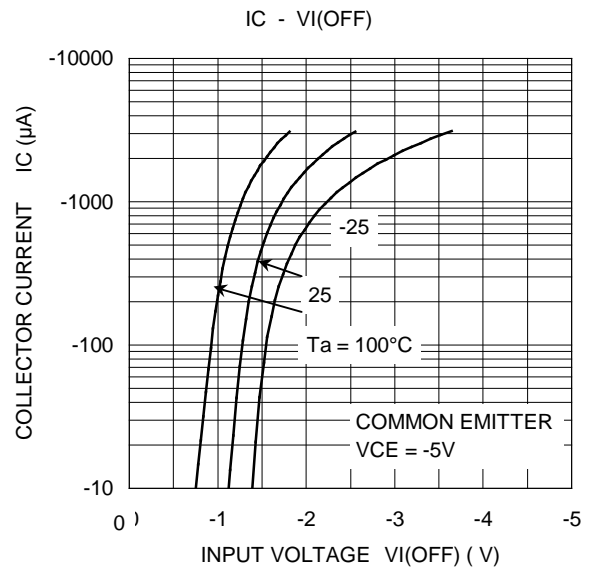
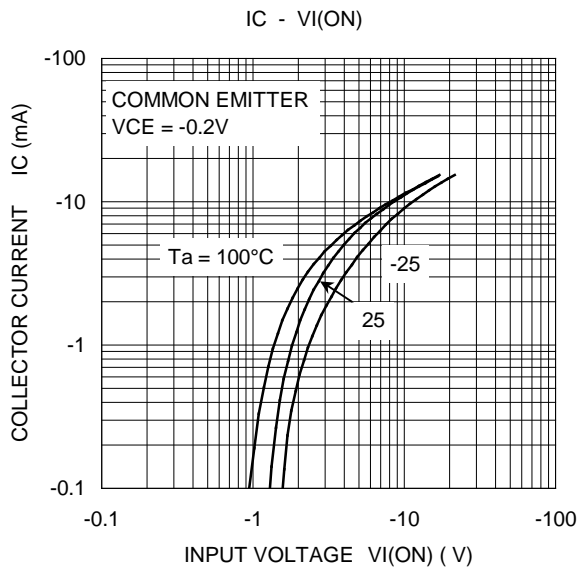
### Land Pattern Dimensions (for reference only)



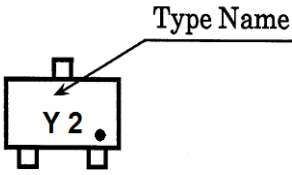
Start of commercial production  
2005-04

### Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	ICBO	V <sub>CB</sub> = -50 V, I <sub>E</sub> = 0 A	—	—	-100	nA
	ICEO	V <sub>CE</sub> = -50 V, I <sub>B</sub> = 0 A	—	—	-500	nA
Emitter cut-off current	IEBO	V <sub>EB</sub> = -10 V, I <sub>C</sub> = 0 A	-38	—	-72	μA
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> = -5 V, I <sub>C</sub> = -10 mA	100	—	—	—
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = -5 mA, I <sub>B</sub> = -0.5 mA	—	-0.1	-0.3	V
Input voltage (ON)	V <sub>I(ON)</sub>	V <sub>CE</sub> = -0.2 V, I <sub>C</sub> = -5 mA	-1.7	—	-8.2	V
Input voltage (OFF)	V <sub>I(OFF)</sub>	V <sub>CE</sub> = -5 V, I <sub>C</sub> = -0.1 mA	-1.0	—	-1.6	V
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = -10 V, I <sub>E</sub> = 0 A, f = 1 MHz	—	0.9	—	pF
Input resistor	R1	—	70	100	130	kΩ
Resistor ratio	R1/R2	—	0.8	1.0	1.2	—



### Marking

Type Name	Marking
RN2130MFV	 <p>The diagram shows a rectangular capacitor with four mounting tabs. The marking 'Y 2 .' is printed on the top surface. An arrow points from the text 'Type Name' to the 'Y' in the marking.</p>

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