

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

RN1131MFV, RN1132MFV

Unit: mm

Switching Applications

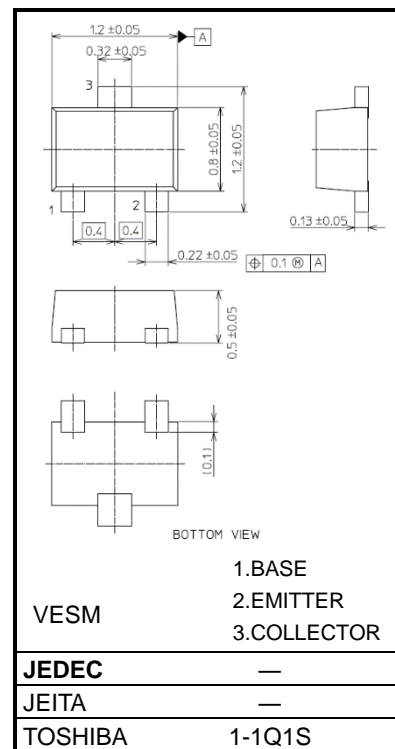
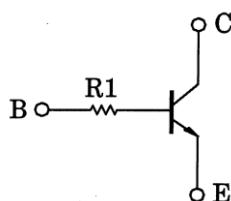
Inverter Circuit Applications

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 RN2131MFV, RN2132MFV

Equivalent Circuit



Weight: 1.5 mg (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characterisitic	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	100	mA
Collector power dissipation	P _C (Note1)	150	mW
Junction temperature	T _j	150	°C
Storage temperature range	T _{stg}	–55 to 150	°C

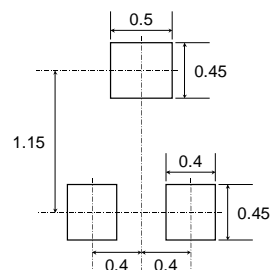
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

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

Land Pattern Dimensions (for reference only)

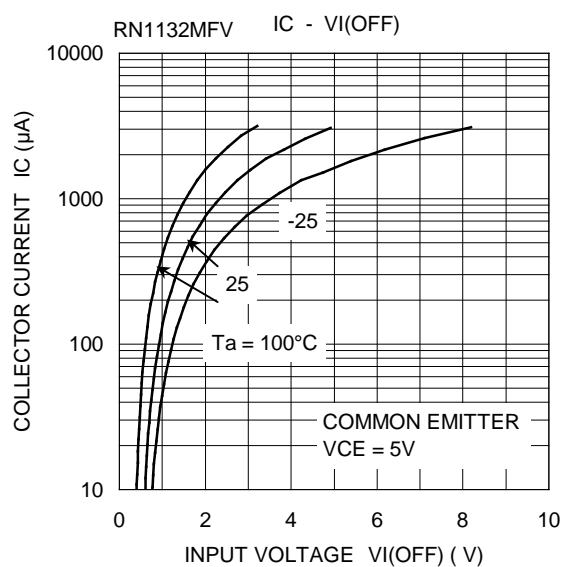
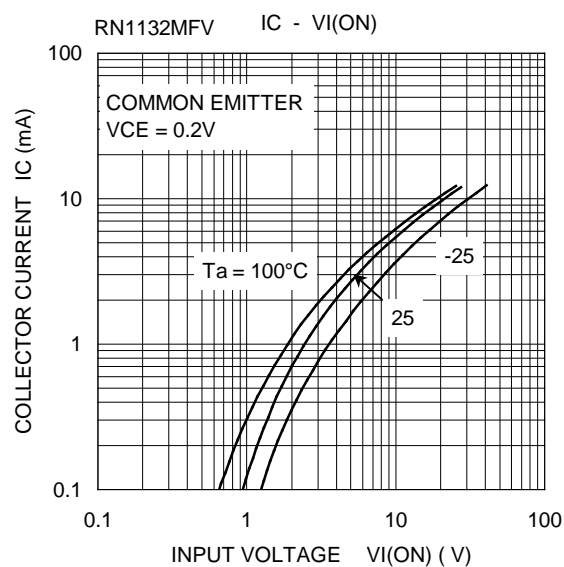
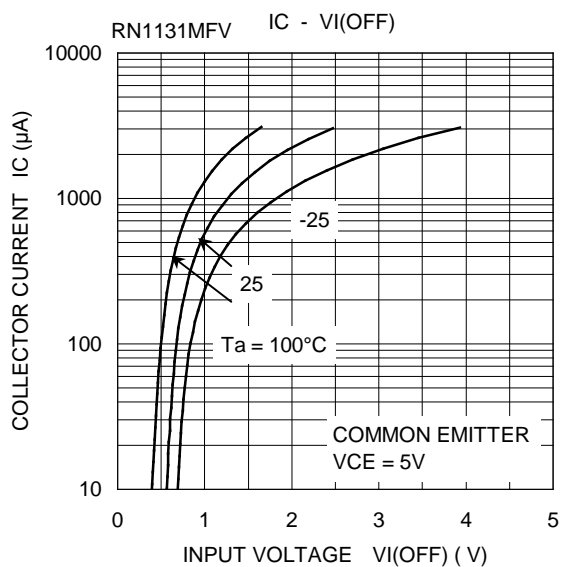
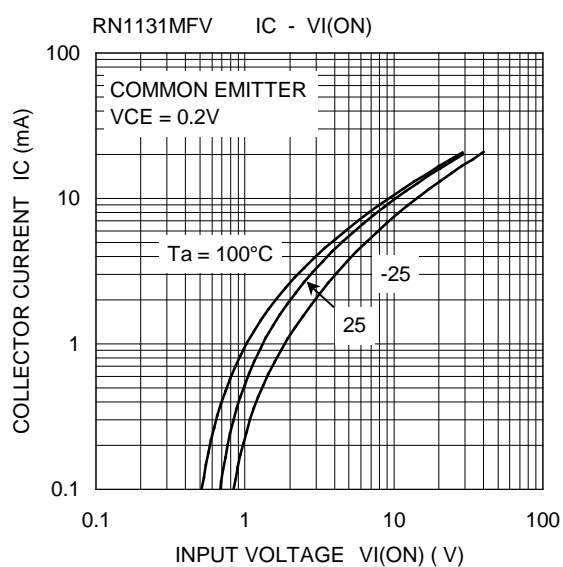
Unit: mm

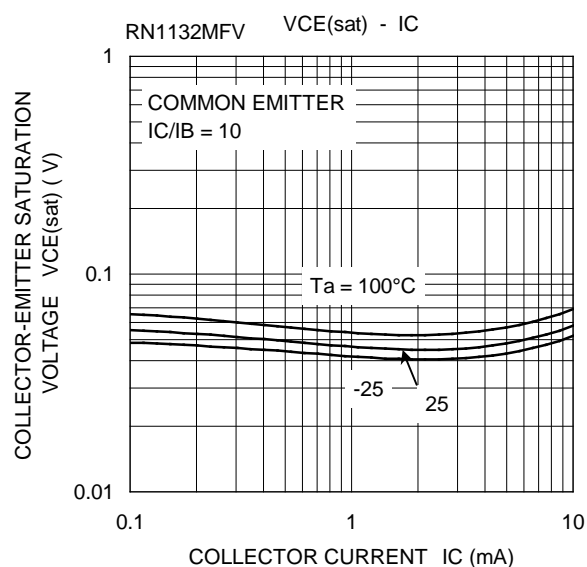
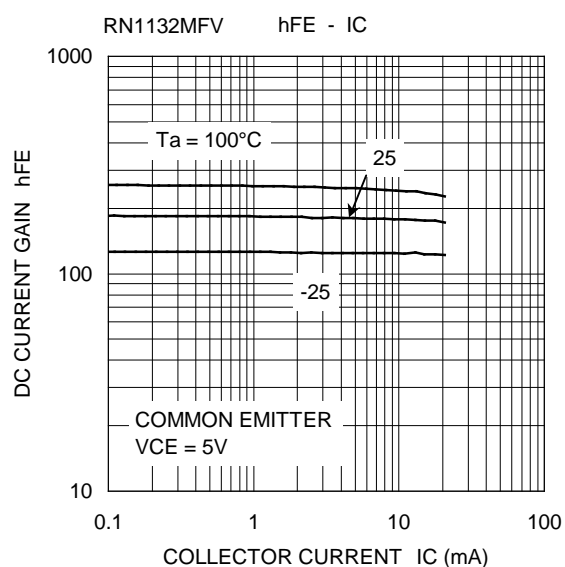
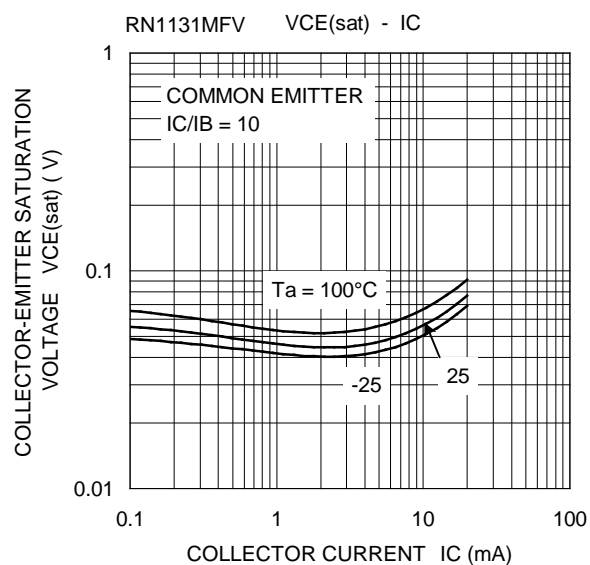
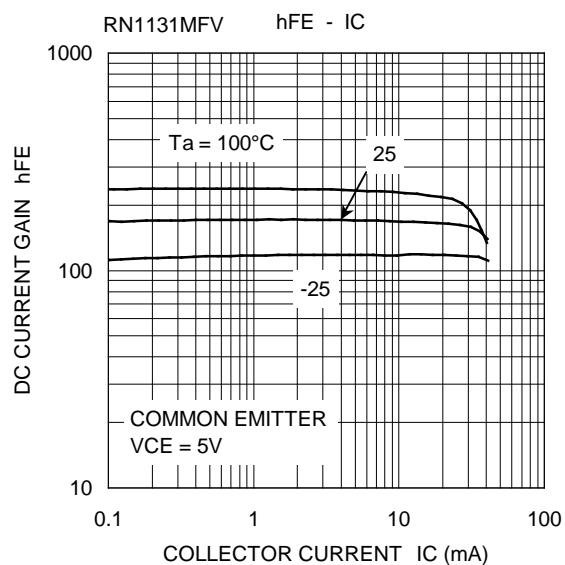


Start of commercial production
2005-04

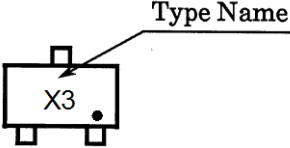
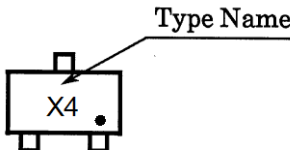
Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		ICBO	—	V _{CB} = 50 V, I _E = 0 A	—	—	100	nA
Emitter cut-off current		IEBO	—	V _{EB} = 5 V, I _C = 0 A	—	—	100	nA
DC current gain		h _{FE}	—	V _{CE} = 5 V, I _C = 1 mA	120	—	700	—
Collector-emitter saturation voltage		V _{CE (sat)}	—	I _C = 5 mA, I _B = 0.5 mA	—	0.1	0.3	V
Collector output capacitance		C _{ob}	—	V _{CB} = 10 V, I _E = 0 A, f = 1 MHz	—	0.7	—	pF
Input resistor	RN1131MFV	R1	—	—	70	100	130	kΩ
	RN1132MFV				140	200	260	





Marking

Type Name	Marking
RN1131MFV	 <p>The diagram shows a rectangular component with a small square tab at the top center and two small square feet at the bottom. Inside the rectangle, the text 'X3' is printed, followed by a small dot. A line points from the text 'Type Name' to the 'X3' marking.</p>
RN1132MFV	 <p>The diagram shows a rectangular component with a small square tab at the top center and two small square feet at the bottom. Inside the rectangle, the text 'X4' is printed, followed by a small dot. A line points from the text 'Type Name' to the 'X4' marking.</p>

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