

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

# RN1119MFV

Switching Applications

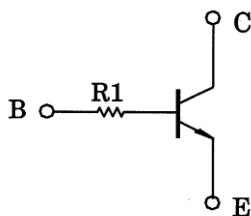
Inverter Circuit Applications

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 RN2119MFV

### Equivalent Circuit



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

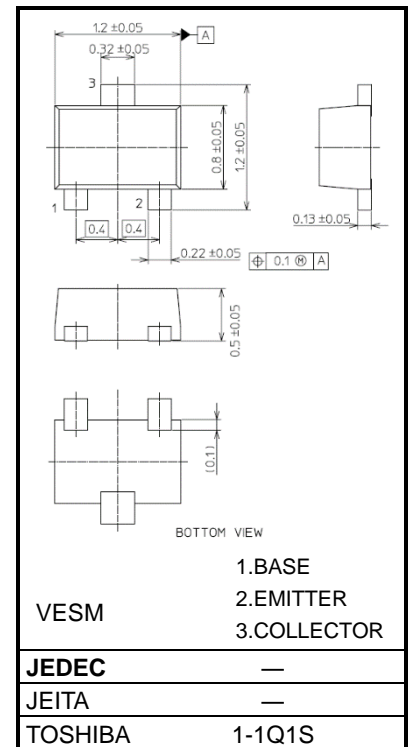
Characteristic	Symbol	Rating	Unit
Collector-base voltage	V <sub>CBO</sub>	50	V
Collector-emitter voltage	V <sub>CEO</sub>	50	V
Emitter-base voltage	V <sub>EBO</sub>	5	V
Collector current	I <sub>C</sub>	100	mA
Collector power dissipation	P <sub>C</sub> (Note1)	150	mW
Junction temperature	T <sub>j</sub>	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)

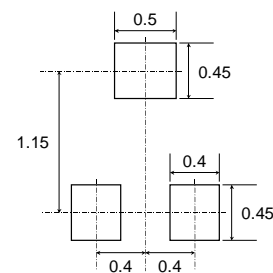
Unit: mm



Weight: 1.5 mg (typ.)

### Land Pattern Dimensions (for reference only)

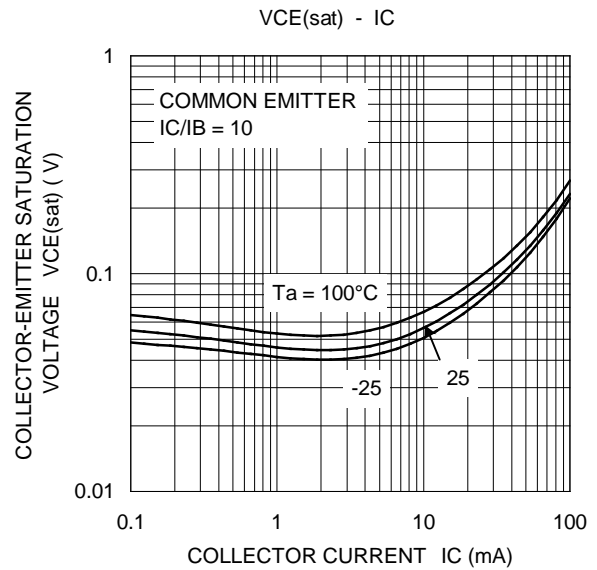
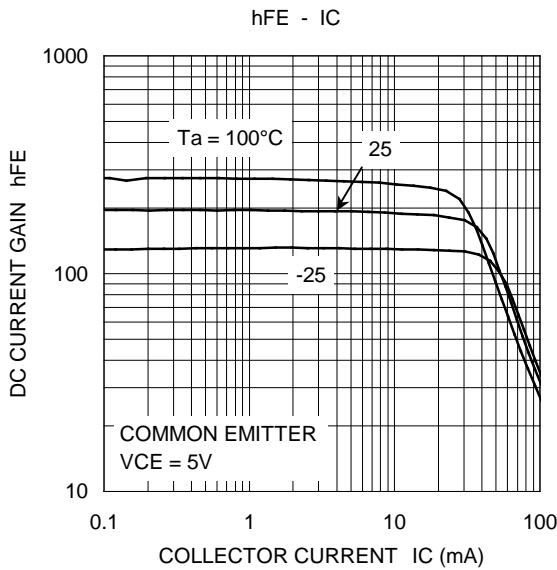
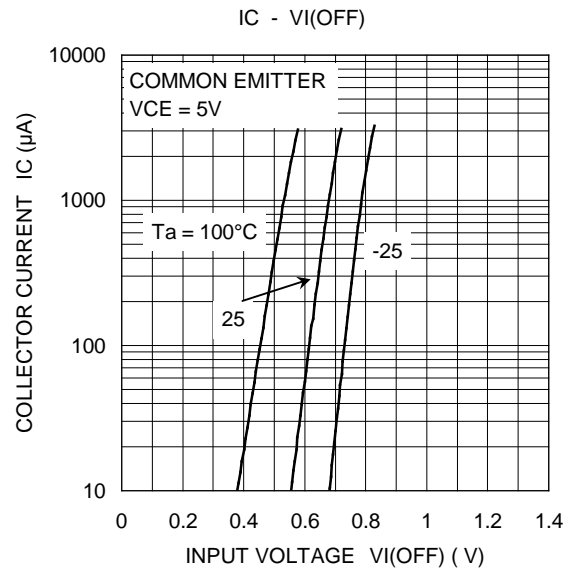
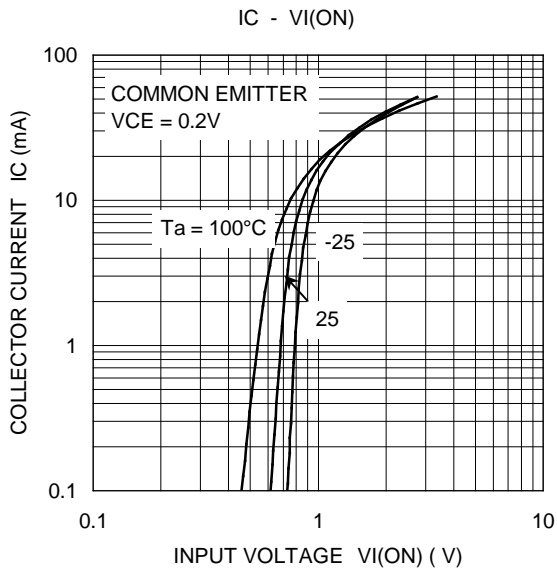
Unit: mm



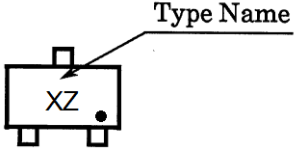
Start of commercial production  
2005-09

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

Characteristic	Symbol	Test Circuit	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
Emitter cut-off current	IEBO	—	VEB = 5 V, I <sub>C</sub> = 0 A	—	—	100	nA
DC current gain	h <sub>FE</sub>	—	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 1 mA	120	—	700	—
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
Collector output capacitance	C <sub>ob</sub>	—	V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0 A, f = 1 MHz	—	0.7	—	pF
Input resistor	R1	—	—	0.7	1.0	1.3	kΩ



### Marking

Type Name	Marking
RN1119MFV	 <p data-bbox="683 309 829 340">Type Name</p>

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