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

RN2130MFV

Switching Applications

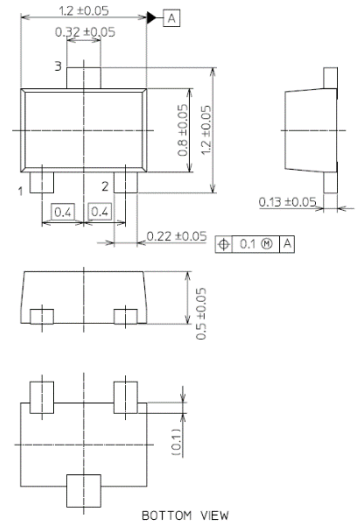
Inverter Circuit Applications

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

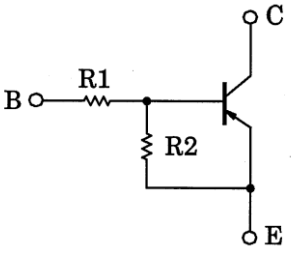
Unit: mm



VESM	1.BASE 2.EMITTER 3.COLLECTOR
JEDEC	—
JEITA	—
TOSHIBA	1-1Q1S

Weight: 1.5 mg (typ.)

Equivalent Circuit



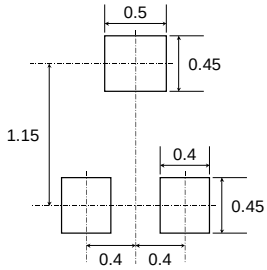
Absolute Maximum Ratings (Ta = 25°C)

Characterisstic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	−50	V
Collector-emitter voltage	V_{CEO}	−50	V
Emitter-base voltage	V_{EBO}	−10	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)



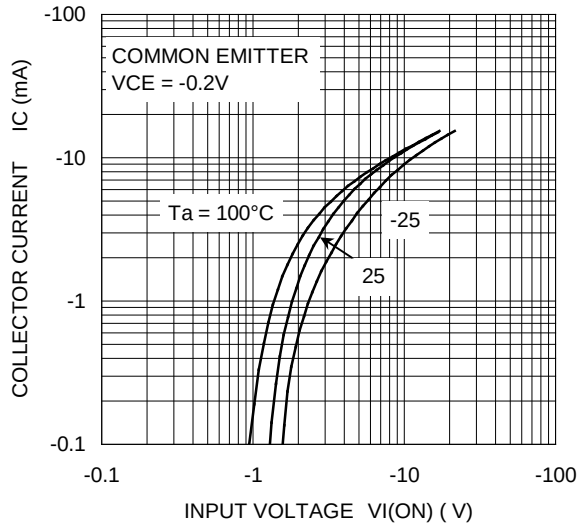
unit: mm

Start of commercial production
2005-04

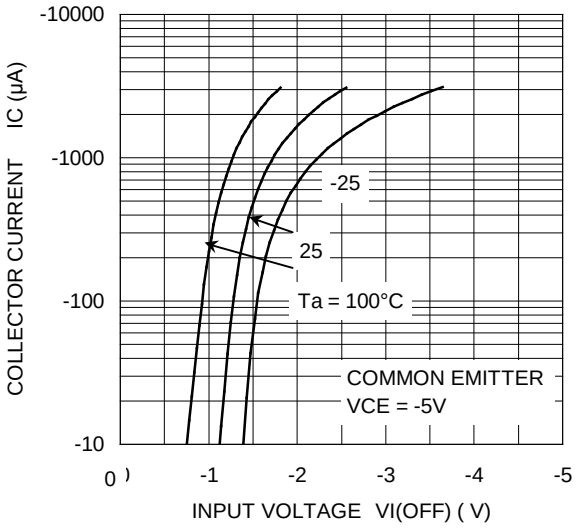
Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = –50 V, I_E = 0 A	—	—	–100	nA
	I_{CEO}	V_{CE} = –50 V, I_B = 0 A	—	—	–500	nA
Emitter cut-off current	I_{EBO}	V_{EB} = –10 V, I_C = 0 A	–38	—	–72	μA
DC current gain	h_{FE}	V_{CE} = –5 V, I_C = –10 mA	100	—	—	—
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	I_C = –5 mA, I_B = –0.5 mA	—	–0.1	–0.3	V
Input voltage (ON)	$V_{I(ON)}$	V_{CE} = –0.2 V, I_C = –5 mA	–1.7	—	–8.2	V
Input voltage (OFF)	$V_{I(OFF)}$	V_{CE} = –5 V, I_C =– 0.1 mA	–1.0	—	–1.6	V
Collector output capacitance	C_{ob}	V_{CB} = –10 V, I_E = 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	—

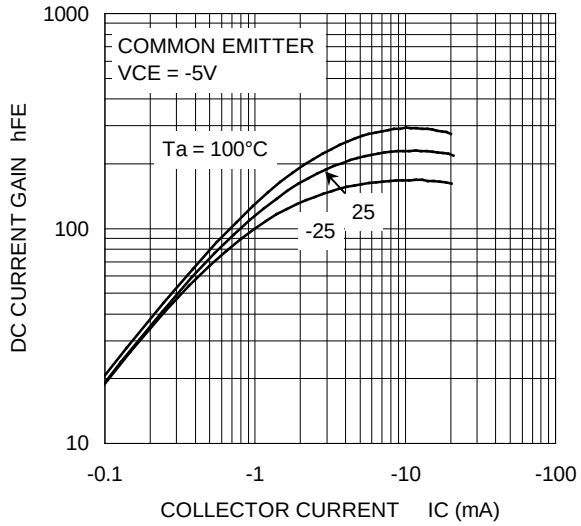
IC - VI(ON)



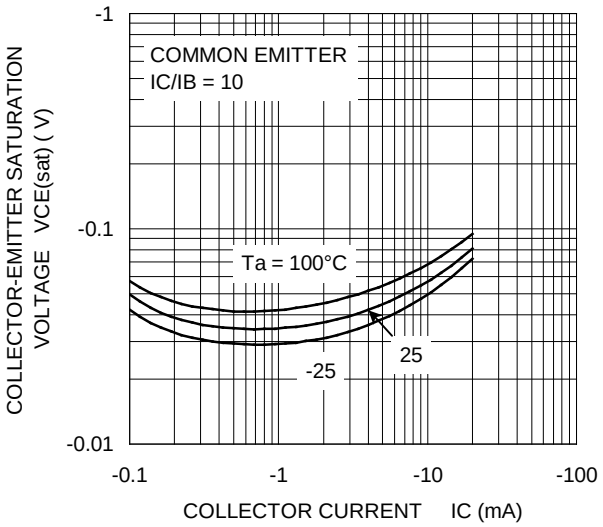
IC - VI(OFF)



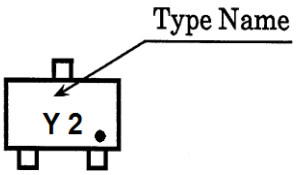
hFE - IC



VCE(sat) - IC



Marking

Type Name	Marking
RN2130MFV	

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