

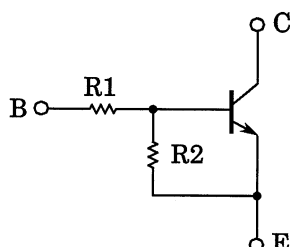
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

RN1130MFV

Switching Applications
Inverter Circuit Applications
Interface Circuit Applications
Driver Circuit Applications

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN2130MFV

Equivalent Circuit



Absolute Maximum Ratings (Ta = 25°C)

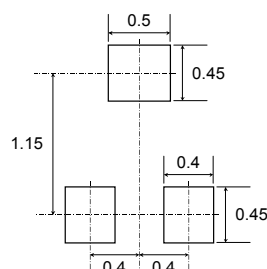
Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	50	V
Collector-emitter voltage	V_{CEO}	50	V
Emitter-base voltage	V_{EBO}	10	V
Collector current	I_C	100	mA
Collector power dissipation	P_C (Note 1)	150	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55 to 150	°C

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.

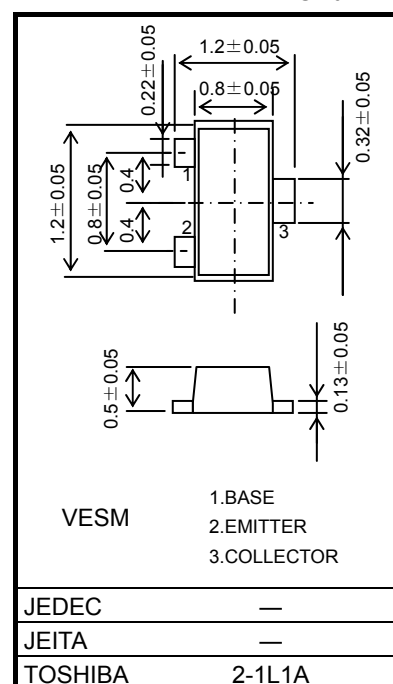
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note 1: Mounted on FR4 board (25.4 mm × 25.4 mm × 1.6 mm)

Land Pattern Example (unit: mm)



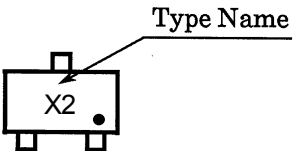
Unit: mm

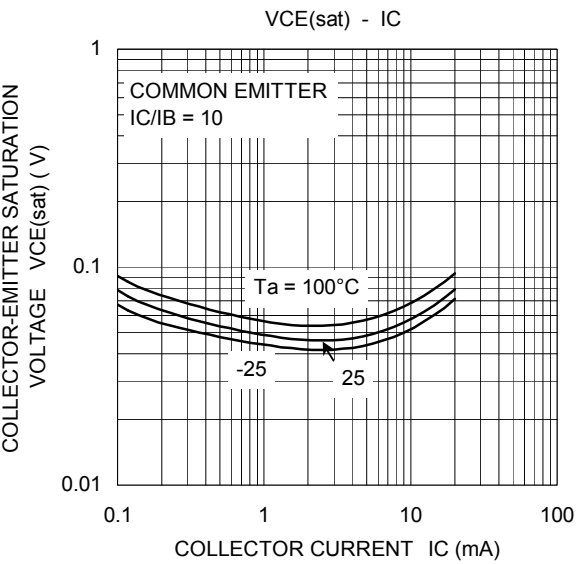
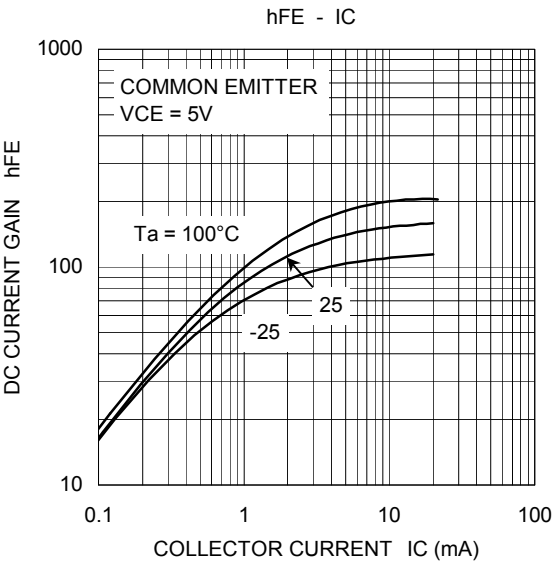
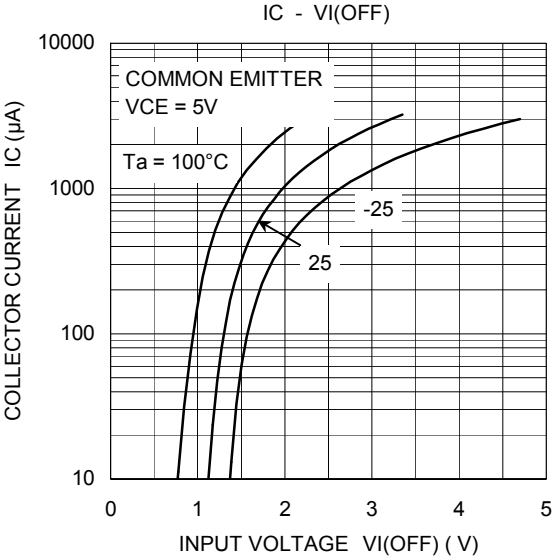
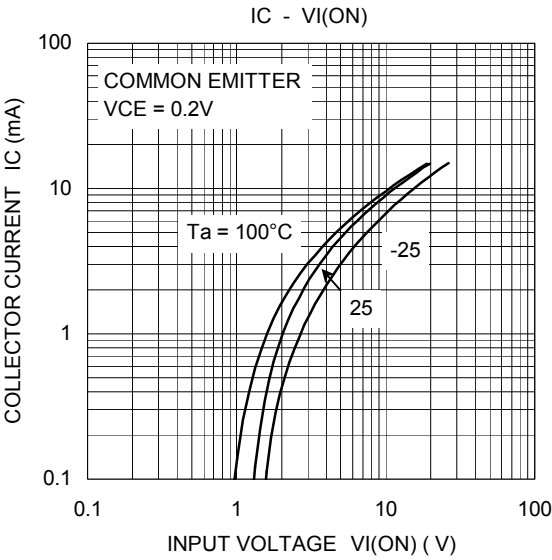


Weight: 1.5 mg (typ.)

Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 50\text{ V}, I_E = 0$	—	—	100	nA
	I_{CEO}	$V_{CE} = 50\text{ V}, I_B = 0$	—	—	500	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 10\text{ V}, I_C = 0$	38	—	72	μA
DC current gain	h_{FE}	$V_{CE} = 5\text{ V}, I_C = 10\text{ mA}$	100	—	—	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 5\text{ mA}, I_B = 0.5\text{ mA}$	—	0.1	0.3	V
Input voltage(ON)	$V_{I(ON)}$	$V_{CE} = 0.2\text{ V}, I_C = 5\text{ mA}$	1.7	—	8.2	V
Input voltage(OFF)	$V_{I(OFF)}$	$V_{CE} = 5\text{ V}, I_C = 0.1\text{ mA}$	1.0	—	1.6	V
Transition Frequency	f_T	$V_{CE} = 10\text{ V}, I_C = 5\text{ mA}$		250		MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	0.7	—	pF
Input resistance	R_1	—	70	100	130	$k\Omega$
Resistance ratio	R_1/R_2	—	0.8	1.0	1.2	

Type Name	Marking
RN1130MFV	



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