

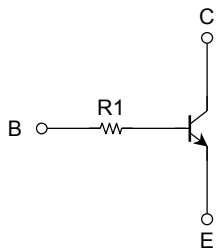
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process) (Bias Resistor built-in Transistor)

## RN110FT, RN111FT

Switching, Inverter Circuit, Interface Circuit and Driver Circuit Applications.

- High-density mount is possible because of devices housed in very thin TESM packages.
- Incorporating a bias resistor into a transistor reduces parts count. Reducing the parts count enable the manufacture of ever more compact equipment and save assembly cost.
- Wide range of resistor values are available to use in various circuit designs.
- Complementary to RN2110FT, RN2111FT

### Equivalent Circuit and Bias Resistor Values

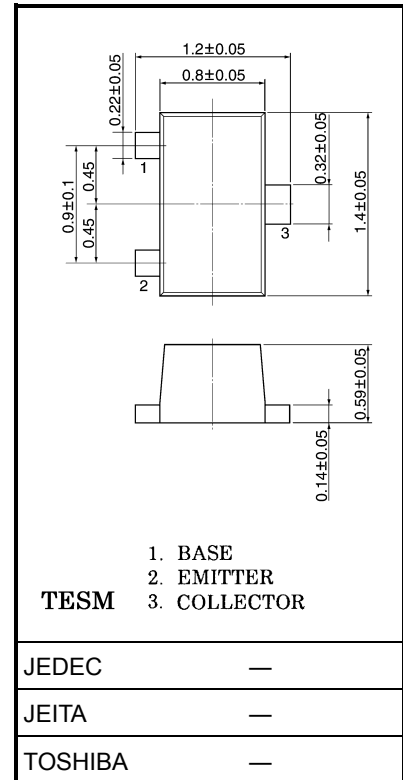


### Maximum Ratings (Ta = 25°C)

Characteristics	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	$P_C$ (Note)	100	mW
Junction temperature	$T_j$	150	°C
Storage temperature range	$T_{stg}$	-55~150	°C

Note: Total rating

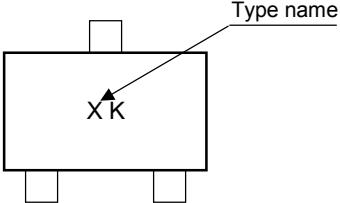
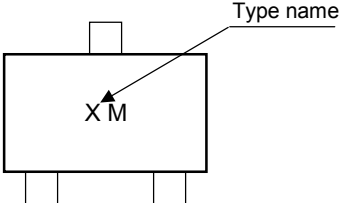
Unit: mm



Weight: g (typ.)

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit	
Collector cut-off current	$I_{CBO}$	$V_{CB} = 50\text{ V}, I_E = 0$	—	—	100	nA	
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	100	nA	
DC current gain	$h_{FE}$	$V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$	120	—	700		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 5\text{ mA}, I_B = 0.25\text{ mA}$	—	0.1	0.3	V	
Transition frequency	$f_T$	$V_{CE} = 10\text{ V}, I_C = 5\text{ mA}$	—	250	—	MHz	
Collector output capacitance	$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	3	6	pF	
Input resistor	RN1110FT	R1	—	3.29	4.7	6.11	kΩ
	RN1111FT			7	10	13	

Type Name	Marking
RN1110FT	
RN1111FT	

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