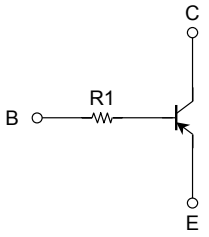
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process) (Bias Resistor built-in Transistor)

RN2110FT,RN2111FT

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 RN1110FT, RN1111FT

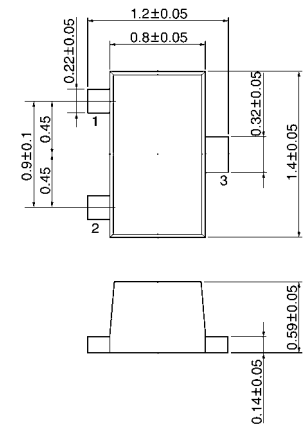
Equivalent Circuit and Bias Resistor Values



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	100	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	−55~150	°C

Unit: mm



1. BASE
2. EMITTER
3. COLLECTOR

TESM

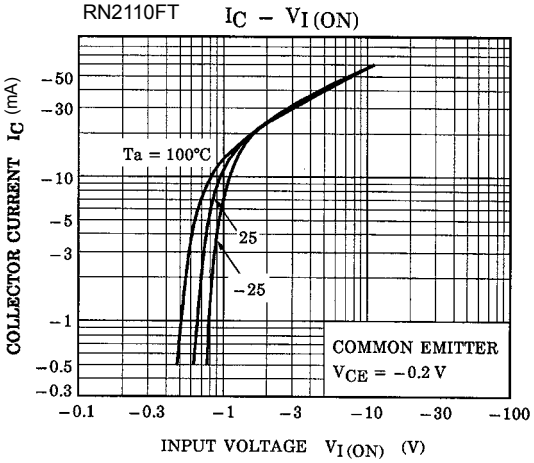
JEDEC	—
JEITA	—
TOSHIBA	2-1B1A

Weight: 0.0022 g (typ.)

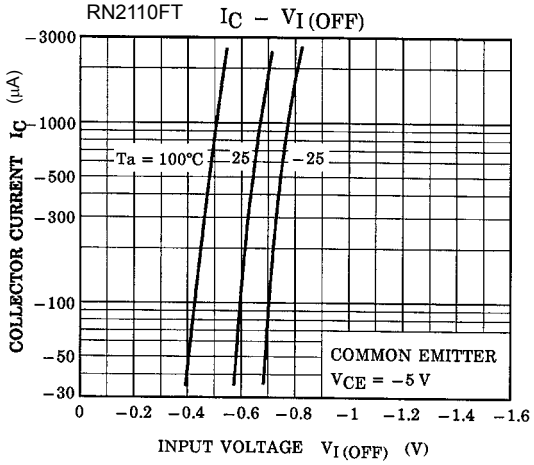
Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	V_{CB} = −50 V, I_E = 0	—	—	−100	nA
Emitter cut-off current		I_{EBO}	V_{EB} = −5 V, I_C = 0	—	—	−100	nA
DC current gain		h_{FE}	V_{CE} = −5 V, I_C = −1 mA	120	—	400	
Collector-emitter saturation voltage		$V_{CE\ (sat)}$	I_C = −5 mA, I_B = −0.25 mA	—	−0.1	−0.3	V
Transition frequency		f_T	V_{CE} = −10 V, I_C = −5 mA	—	200	—	MHz
Collector output capacitance		C_{ob}	V_{CB} = −10 V, I_E = 0, f = 1 MHz	—	3	6	pF
Input resistor	RN2110FT	R1	—	3.29	4.7	6.11	kΩ
	RN2111FT			7	10	13	

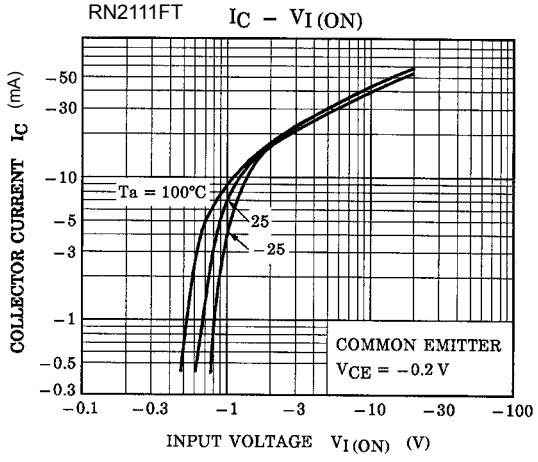
RN2110FT $I_C - V_{I(ON)}$



RN2110FT $I_C - V_{I(OFF)}$



RN2111FT $I_C - V_{I(ON)}$



RN2111FT $I_C - V_{I(OFF)}$