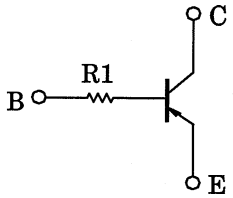
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

RN2010,RN2011

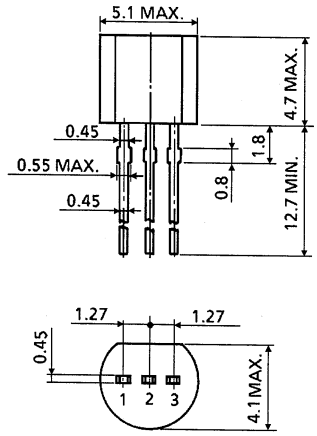
Switching, Inverter Circuit, Interface Circuit
And Driver Circuit Applications

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1010, RN1011

Equivalent Circuit



Unit: mm



1. EMITTER
2. COLLECTPR
3. BASE

JEDEC	TO−92
EIAJ	SC−43
TOSHIBA	2−5F1B

Weight: 0.21g

Maximum Ratings (Ta = 25°C)

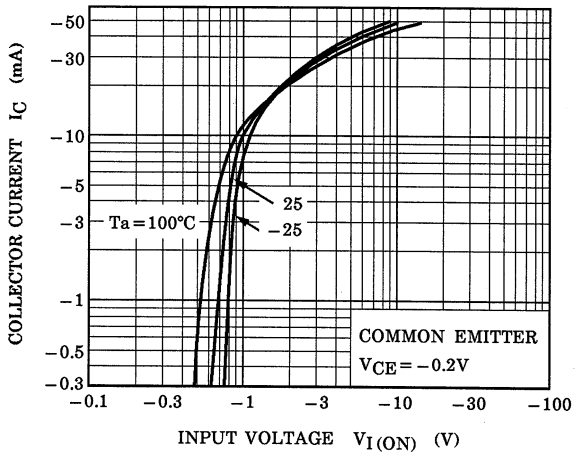
Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	−50	V
Collector-emitter voltage	V_{CEO}	−50	V
Emitter-base voltage	V_{EBO}	−5	V
Collector current	I_C	−100	mA
Collector power dissipation	P_C*	400	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	−55~150	°C

Electrical Characteristics (Ta = 25°C)

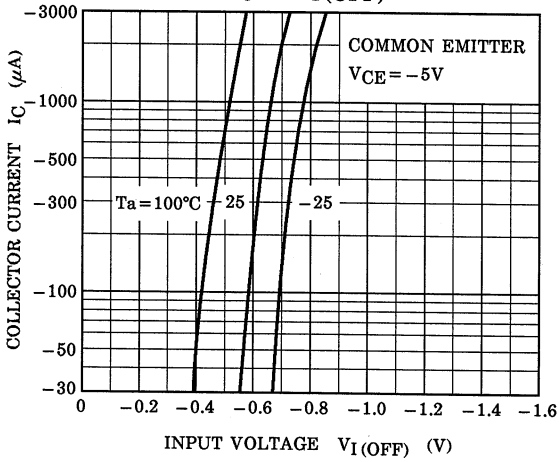
Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	—	V_{CB} = −50V, I_E = 0	—	—	−100	nA
Emitter cut-off current		I_{EBO}	—	V_{EB} = −5V, I_C = 0	—	—	−100	nA
DC current gain		h_{FE}	—	V_{CE} = −5V, I_C = −1mA	120	—	400	
Collector-emitter saturation voltage		$V_{CE\ (sat)}$	—	I_C = −5mA, I_B = −0.25mA	—	−0.1	−0.3	V
Transition frequency		f_T	—	V_{CE} = −10V, I_C = −5mA	—	200	—	MHz
Collector output capacitance		C_{ob}	—	V_{CB} = −10V, I_E = 0, f = 1MHz	—	3	6	pF
Input resistor	RN2010	R1	—		3.29	4.7	6.11	kΩ
	RN2011				7	10	13	

961001EAA1

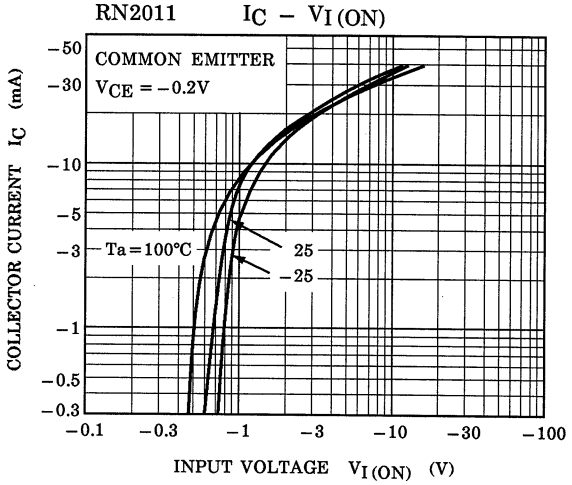
RN2010 $I_C - V_{I(ON)}$



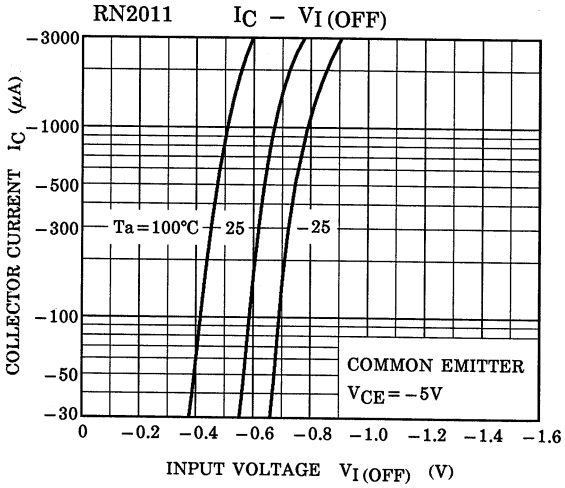
RN2010 $I_C - V_{I(OFF)}$



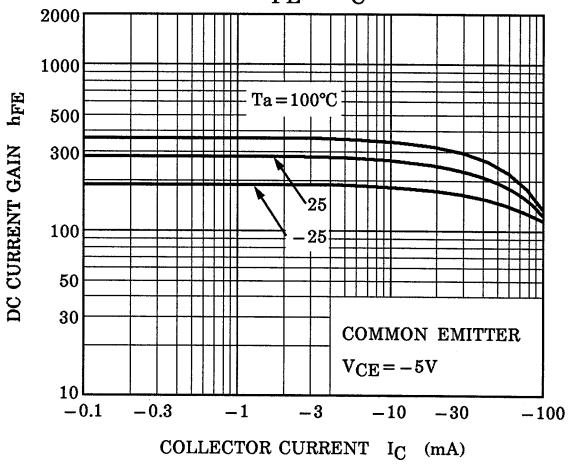
RN2011 $I_C - V_{I(ON)}$



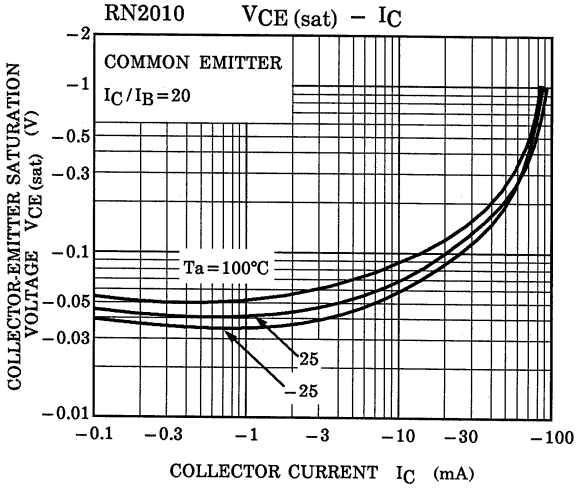
RN2011 $I_C - V_{I(OFF)}$



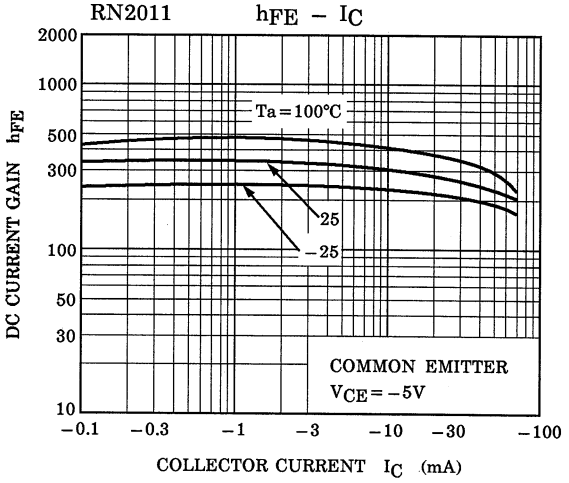
RN2010 h_{FE} – I_C



RN2010 $V_{CE\,(sat)}$ – I_C



RN2011 h_{FE} – I_C



RN2011 $V_{CE\,(sat)}$ – I_C