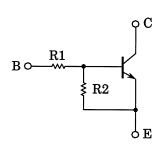
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

RN1101, RN1102, RN1103 RN1104, RN1105, RN1106

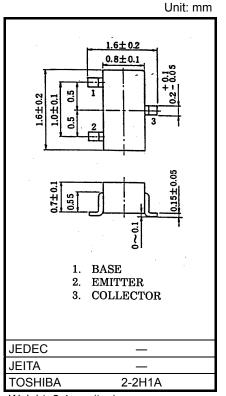
Switching, Inverter Circuit, Interface Circuit and Driver Circuit Applications

- With built-in bias resistors
- Simplified circuit design
- Reduced number of parts and simplified manufacturing process
- Complementary to RN2101 to RN2106

Equivalent Circuit and Bias Resister Values



Type No.	R1 (kΩ)	R2 (kΩ)
RN1101	4.7	4.7
RN1102	10	10
RN1103	22	22
RN1104	47	47
RN1105	2.2	47
RN1106	4.7	47



Weight: 2.4 mg (typ).

Absolute Maximum Ratings (Ta = 25°C)

Characteris	Symbol	Rating	Unit		
Collector-base voltage	RN1101 to 1106	V_{CBO}	50	V	
Collector-emitter voltage	NIVITOTIO 1100	V _{CEO}	50	V	
Emitter hass voltage	RN1101 to 1104	V _{EBO}	10	V	
Emitter-base voltage	RN1105, 1106	vero.	5		
Collector current		IC	100	mA	
Collector power dissipation	RN1101 to 1106	PC	100	mW	
Junction temperature	KNITOTIOTIO	Tj	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.

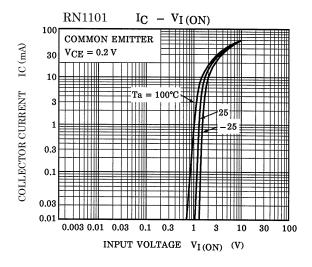
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

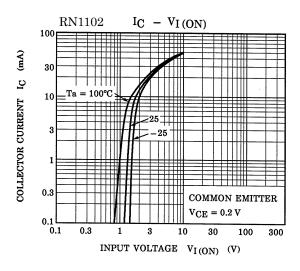
Start of commercial production 1990-12

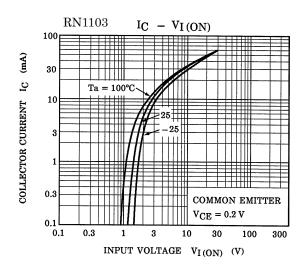


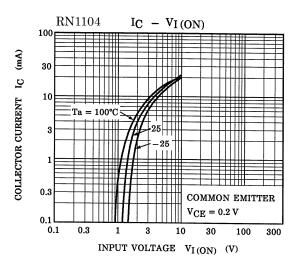
Electrical Characteristics (Ta = 25°C)

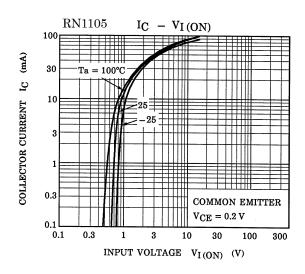
Character	ristic	Symbol	Test Circuit	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	RN1101 to 1106	I _{CBO}	_	V _{CB} = 50 V, I _E = 0	_	_	100	nA
	KINTIOT TO TTOO			V _{CE} = 50 V, I _B = 0	_	_	500	
	RN1101	I _{EBO}	_	V _{EB} = 10 V, I _C = 0	0.82	_	1.52	mA
	RN1102				0.38	_	0.71	
Emitter out off ourrent	RN1103				0.17	_	0.33	
Emitter cut-off current	RN1104				0.082	_	0.15	
	RN1105			V - 5 V I - 0	0.078	_	0.145	
	RN1106			$V_{EB} = 5 \text{ V}, I_{C} = 0$	0.074	_	0.138	
	RN1101				30	_	_	
	RN1102				50	_	_	
DC aumant main	RN1103	L		\\ -5\\ -40 m \	70	_	_	
DC current gain	RN1104	h _{FE}	_	V _{CE} = 5 V, I _C = 10 mA	80	_	_	_
	RN1105				80	_	_	
	RN1106	:			80	_	_	
Collector-emitter saturation voltage	RN1101 to 1106	V _{CE} (sat)	_	I _C = 5 mA, I _B = 0.25 mA	_	0.1	0.3	٧
Input voltage (ON)	RN1101	V _I (ON)		V _{CE} = 0.2 V, I _C = 5 mA	1.1	_	2.0	V
	RN1102		_		1.2	_	2.4	
	RN1103				1.3	_	3.0	
	RN1104				1.5	_	5.0	
	RN1105				0.6	_	1.1	
	RN1106				0.7	_	1.3	
Innut valtage (OFF)	RN1101 to 1104	V _I (OFF)	_	V _{CE} = 5 V, I _C = 0.1 mA	1.0	_	1.5	٧
Input voltage (OFF)	RN1105, 1106				0.5	_	0.8	
Transition frequency	RN1101 to 1106	f _T	_	V _{CE} = 10 V, I _C = 5 mA	_	250	_	MH_z
Collector output capacitance	RN1101 to 1106	C _{ob}	_	V _{CB} = 10 V, I _E = 0, f = 1 MH _z	_	3	6	pF
Input resistor	RN1101		_		3.29	4.7	6.11	kΩ
	RN1102	R1			7	10	13	
	RN1103				15.4	22	28.6	
	RN1104				32.9	47	61.1	
	RN1105				1.54	2.2	2.86	
	RN1106				3.29	4.7	6.11	
Resistor ratio	RN1101 to 1104				0.9	1.0	1.1	
	RN1105	R1/R2	_		0.0421	0.0468	0.0515	_
	RN1106				0.09	0.1	0.11	

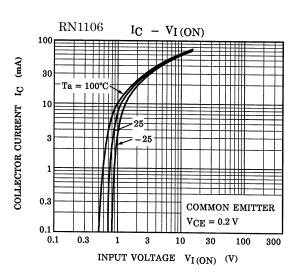


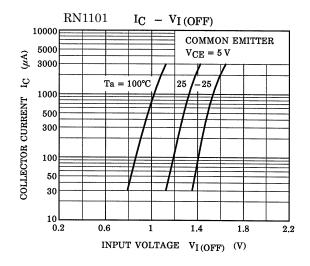


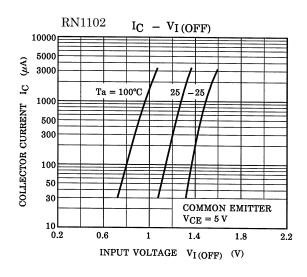


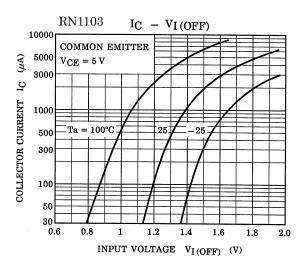


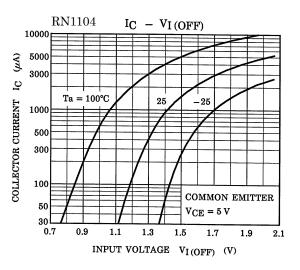


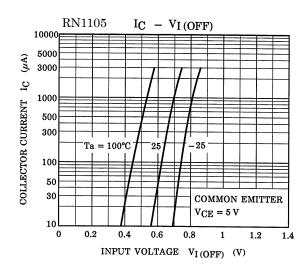


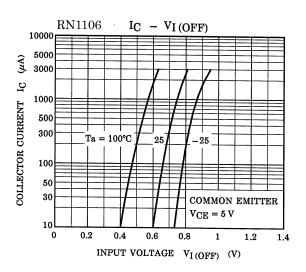


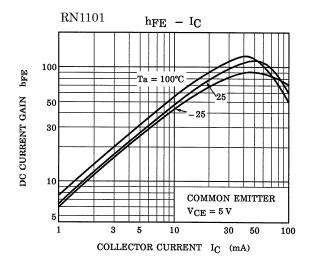


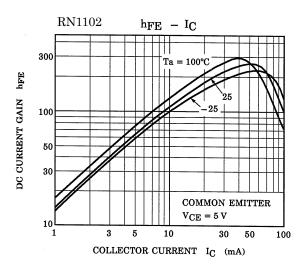


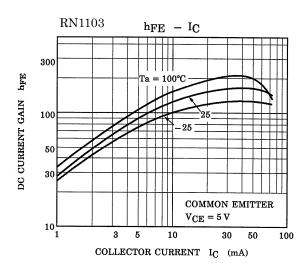


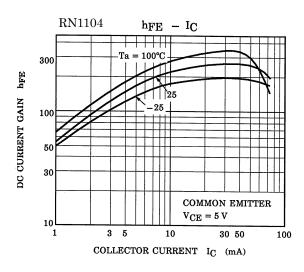


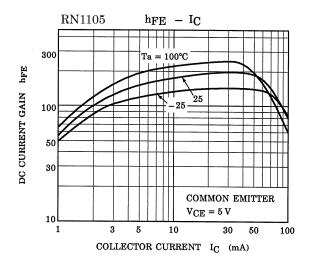


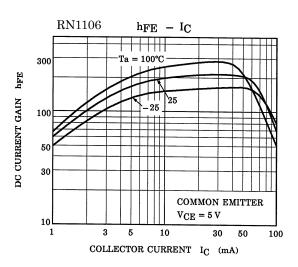


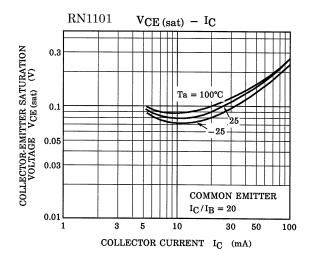


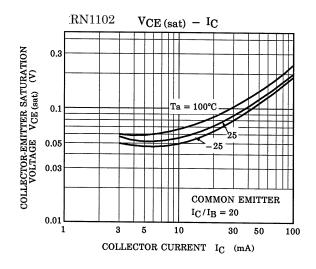


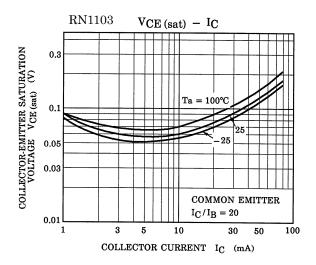


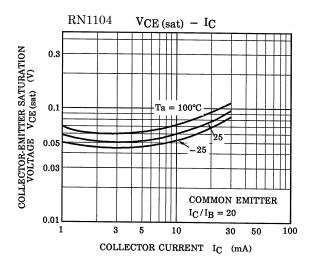


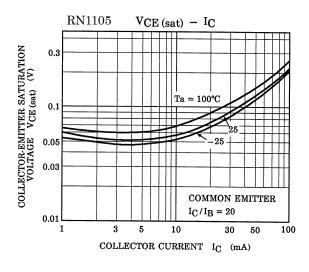


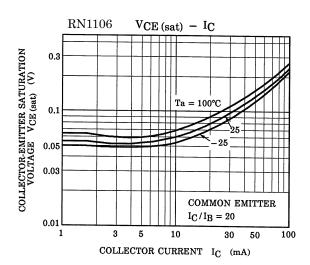












Type Name	Marking
RN1101	Type Name
RN1102	Type Name X B
RN1103	Type Name X C
N1104	Type Name X D
RN1105	Type Name X E
RN1106	Type Name X F

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