

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

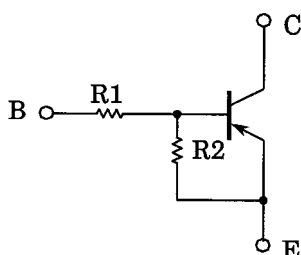
RN2101F, RN2102F, RN2103F RN2104F, RN2105F, RN2106F

Switching, Inverter Circuit, Interface Circuit
And Driver Circuit Applications

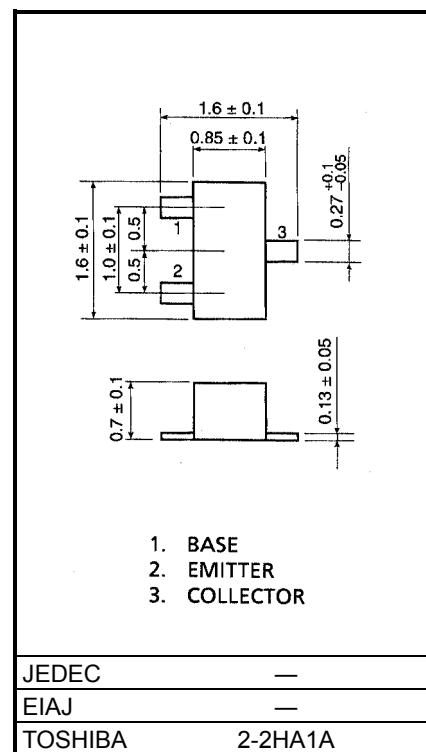
Unit: mm

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1101F~RN1106F

Equivalent Circuit and Bias Resister Values



Type No.	R1 (kΩ)	R2 (kΩ)
RN2101F	4.7	4.7
RN2102F	10	10
RN2103F	22	22
RN2104F	47	47
RN2105F	2.2	47
RN2106F	4.7	47



Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit
Collector-base voltage	RN2101F~2106F	V _{CBO}	−50	V
Collector-emitter voltage		V _{CEO}	−50	V
Emitter-base voltage	RN2101F~2104F	V _{EBO}	−10	V
	RN2105F, 2106F		−5	
Collector current	RN2101F~2106F	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

Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	RN2101F ~2106F	I_{CBO}	—	$V_{CB} = -50V, I_E = 0$	—	—	-100	nA
		I_{CEO}		$V_{CE} = -50V, I_B = 0$	—	—	-500	
Emitter cut-off current	RN2101F	I_{EBO}	—	$V_{EB} = -10V, I_C = 0$	-0.82	—	-1.52	mA
	RN2102F				-0.38	—	-0.71	
	RN2103F				-0.17	—	-0.33	
	RN2104F				-0.082	—	-0.15	
	RN2105F			$V_{EB} = -5V, I_C = 0$	-0.078	—	-0.145	
	RN2106F				-0.074	—	-0.138	
DC current gain	RN2101F	h_{FE}	—	$V_{CE} = -5V,$ $I_C = -10mA$	30	—	—	
	RN2102F				50	—	—	
	RN2103F				70	—	—	
	RN2104F				80	—	—	
	RN2105F				80	—	—	
	RN2106F				80	—	—	
Collector-emitter saturation voltage	RN2101F ~2106F	$V_{CE(sat)}$	—	$I_C = -5mA,$ $I_B = -0.25mA$	—	-0.1	-0.3	V
Input voltage (ON)	RN2101F	$V_{I(ON)}$	—	$V_{CE} = -0.2V,$ $I_C = -5mA$	-1.1	—	-2.0	V
	RN2102F				-1.2	—	-2.4	
	RN2103F				-1.3	—	-3.0	
	RN2104F				-1.5	—	-5.0	
	RN2105F				-0.6	—	-1.1	
	RN2106F				-0.7	—	-1.3	
Input voltage (OFF)	RN2101F ~2104F	$V_{I(OFF)}$	—	$V_{CE} = -5V,$ $I_C = -0.1mA$	-1.0	—	-1.5	V
	RN2105F, 2106F				-0.5	—	-0.8	
Transition frequency	RN2101F ~2106F	f_T	—	$V_{CE} = -10V,$ $I_C = -5mA$	—	200	—	MHz
Collector Output capacitance	RN2101F ~2106F	C_{ob}	—	$V_{CB} = -10V, I_E = 0,$ $f = 1MHz$	—	3	6	pF
Input resistor	RN2101F	R1	—		3.29	4.7	6.11	kΩ
	RN2102F				7	10	13	
	RN2103F				15.4	22	28.6	
	RN2104F				32.9	47	61.1	
	RN2105F				1.54	2.2	2.86	
	RN2106F				3.29	4.7	6.11	
Resistor ratio	RN2101F ~2104F	R1/R2	—		0.9	1.0	1.1	
	RN2105F				0.0421	0.0468	0.0515	
	RN2106F				0.09	0.1	0.11	

