

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

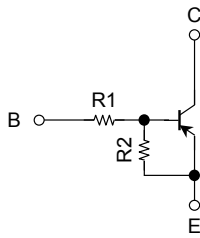
RN2401, RN2402, RN2403 RN2404, RN2405, RN2406

Switching, Inverter Circuit, Interface Circuit
And Driver Circuit Applications

Unit: mm

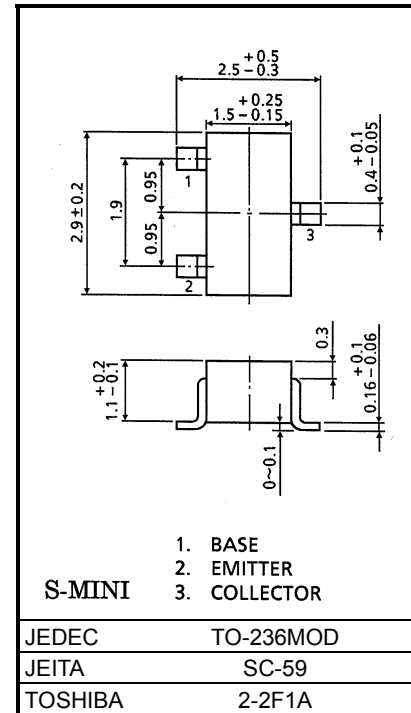
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1401~1406

Equivalent Circuit



Bias Resistor Values

Type No.	R1 (kΩ)	R2 (kΩ)
RN2401	4.7	4.7
RN2402	10	10
RN2403	22	22
RN2404	47	47
RN2405	2.2	47
RN2406	4.7	47



Weight: 0.012g (typ.)

Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V _{CB0}	-50	V
Collector-emitter voltage			
Emitter-base voltage	V _{EB0}	-10	V
		-5	V
Collector current	I _C	-100	mA
Collector power dissipation	P _C	200	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	RN2401~2406	I_{CBO}	—	$V_{CB} = -50V, I_E = 0$	—	—	-100	nA
		I_{CEO}	—	$V_{CE} = -50V, I_B = 0$	—	—	-500	
Emitter cut-off current	RN2401	I_{EBO}	—	$V_{EB} = -10V, I_C = 0$	-0.82	—	-1.52	mA
	RN2402		—		-0.38	—	-0.71	
	RN2403		—		-0.17	—	-0.33	
	RN2404		—	-0.082	—	-0.15		
	RN2405		—	$V_{EB} = -5V, I_C = 0$	-0.078	—	-0.145	
	RN2406		—		-0.074	—	-0.138	
DC current gain	RN2401	h_{FE}	—	$V_{CE} = -5V$ $I_C = -10mA$	30	—	—	—
	RN2402		—		50	—	—	
	RN2403		—		70	—	—	
	RN2404		—		80	—	—	
	RN2405		—		80	—	—	
	RN2406		—		80	—	—	
Collector-emitter saturation voltage	RN2401~2406	$V_{CE(sat)}$	—	$I_C = -5mA$ $I_B = -0.25mA$	—	-0.1	-0.3	V
Input voltage (ON)	RN2401	$V_I(ON)$	—	$V_{CE} = -0.2V$ $I_C = -5mA$	-1.1	—	-2.0	V
	RN2402		—		-1.2	—	-2.4	
	RN2403		—		-1.3	—	-3.0	
	RN2404		—		-1.5	—	-5.0	
	RN2405		—		-0.6	—	-1.1	
	RN2406		—		-0.7	—	-1.3	
Input voltage (OFF)	RN2401~2404	$V_I(OFF)$	—	$V_{CE} = -5V,$ $I_C = -0.1mA$	-1.0	—	-1.5	V
	RN2405, 2406		—		-0.5	—	-0.8	
Translation frequency	RN2401~2406	f_T	—	$V_{CE} = -10V,$ $I_C = -5mA$	—	200	—	MHz
Collector output capacitance	RN2401~2406	C_{ob}	—	$V_{CB} = -10V, I_E = 0$ $f = 1MHz$	—	3	6	pF
Input resistor	RN2401	R1	—	—	3.29	4.7	6.11	kΩ
	RN2402		—		7	10	13	
	RN2403		—		15.4	22	28.6	
	RN2404		—		32.9	47	61.1	
	RN2405		—		1.54	2.2	2.86	
	RN2406		—		3.29	4.7	6.11	
Resistor ratio	RN2401~2404	R1/R2	—	—	0.9	1.0	1.1	—
	RN2405		—		0.0421	0.0468	0.0515	
	RN2406		—		0.09	0.1	0.11	

