

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

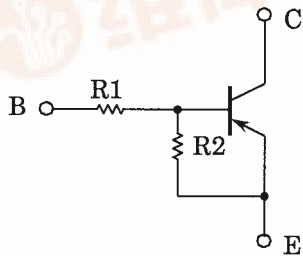
**RN2201,RN2202,RN2203  
RN2204,RN2205,RN2206**

Switching, Inverter Circuit, Interface Circuit  
And Driver Circuit Applications

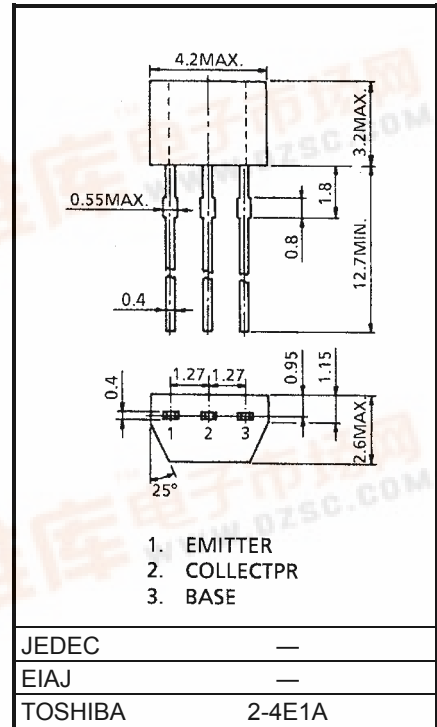
Unit: mm

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1201~RN1206

**Equivalent Circuit and Bias Resistor Values**



Type No.	R1 (kΩ)	R2 (kΩ)
RN2201	4.7	4.7
RN2202	10	10
RN2203	22	22
RN2204	47	47
RN2205	2.2	47
RN2206	4.7	47



Weight: 0.13g

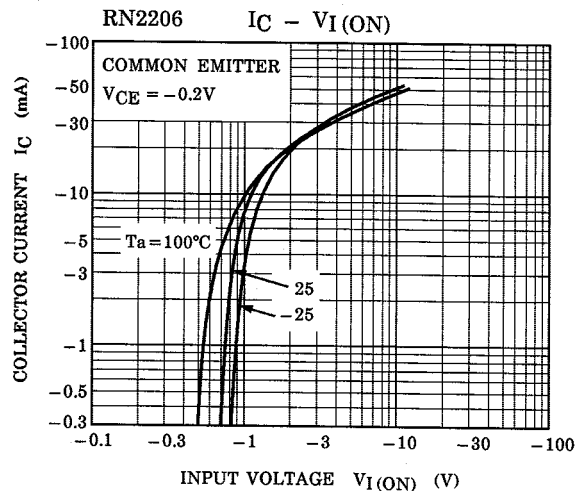
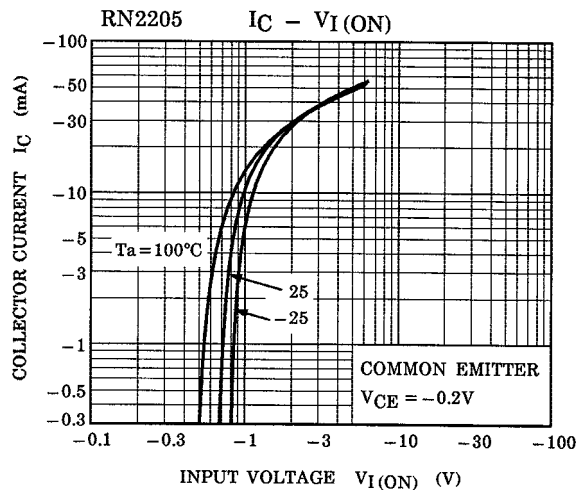
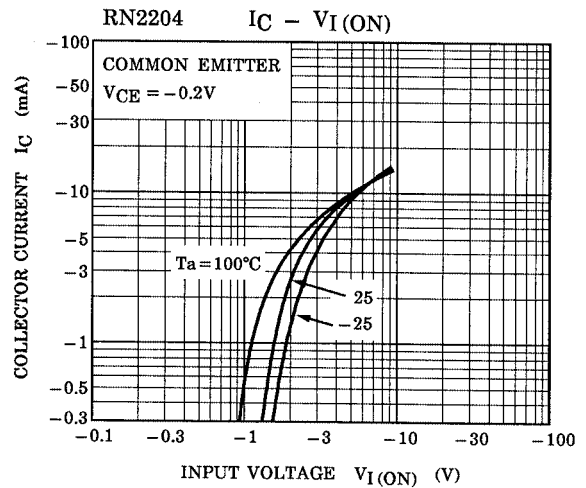
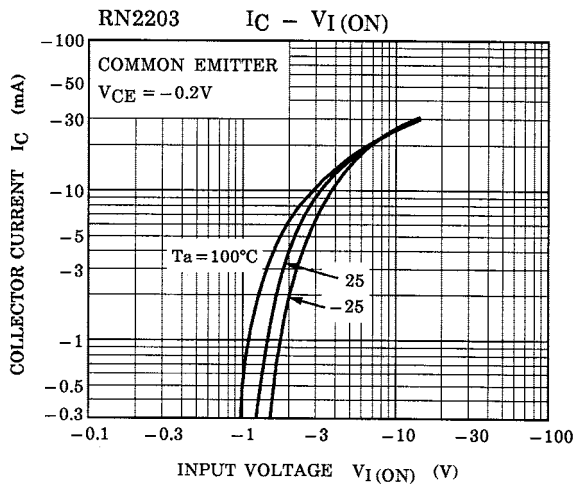
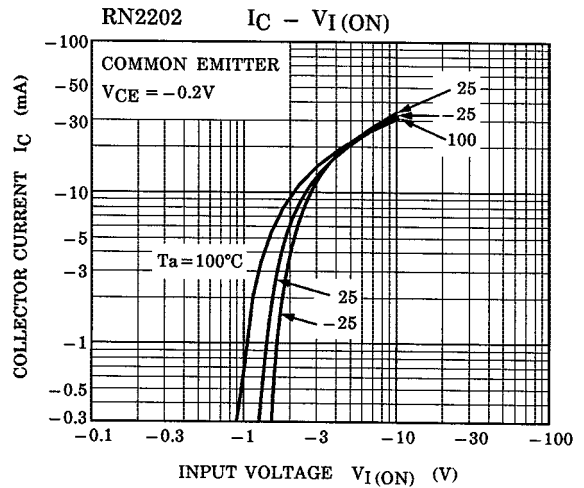
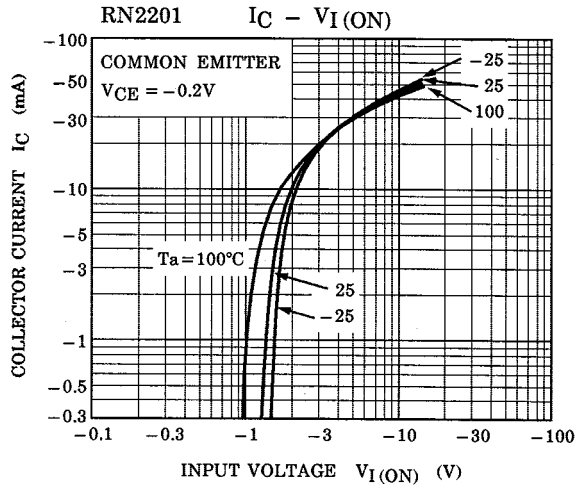
**Maximum Ratings (Ta = 25°C)**

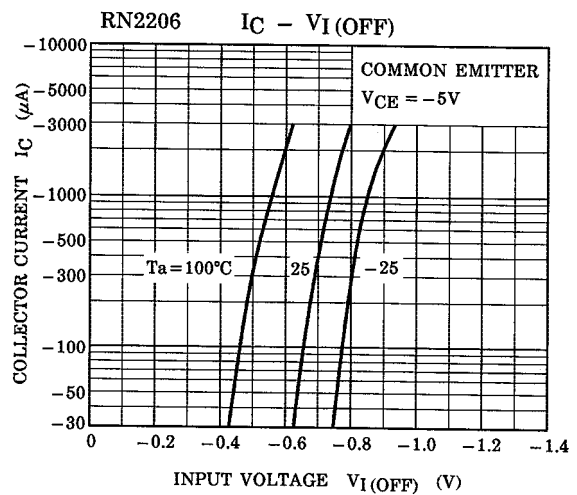
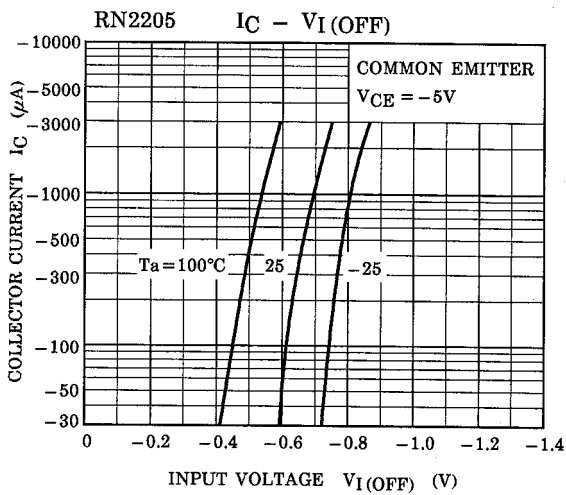
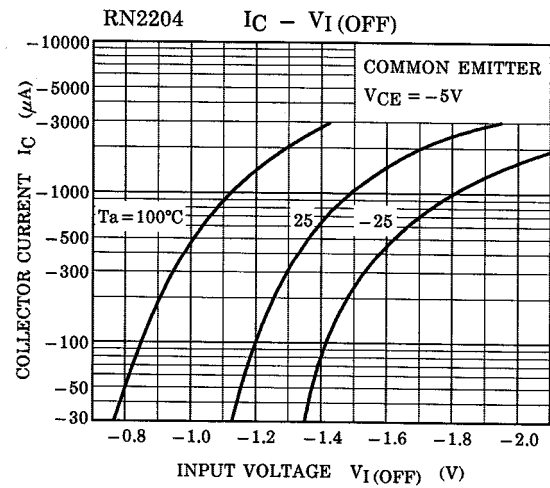
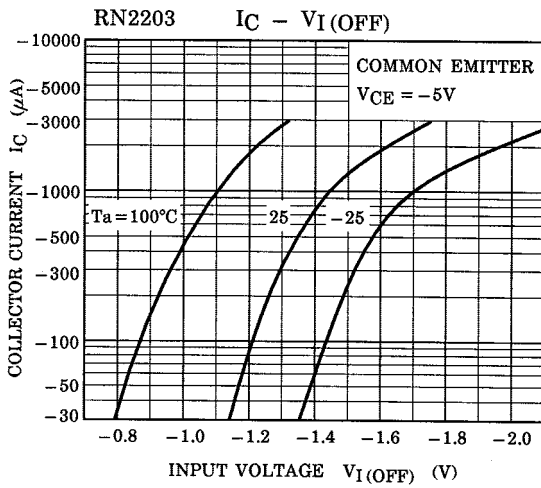
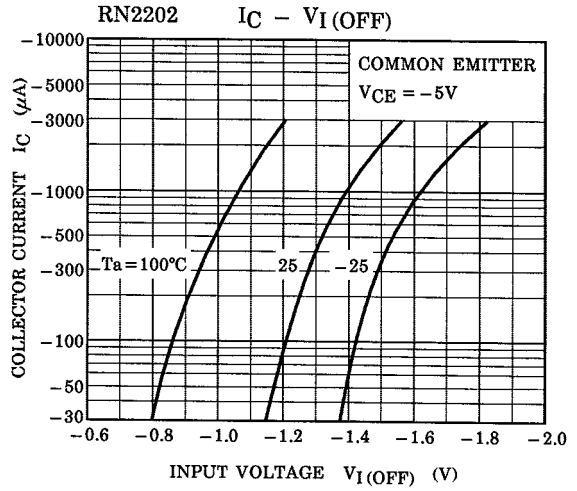
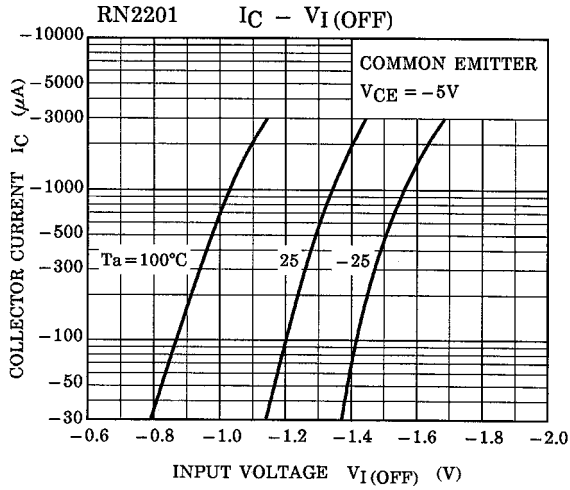
Characteristic	Symbol	Rating	Unit		
Collector-base voltage	RN2201~2206	V <sub>CB0</sub>	-50		
Collector-emitter voltage				V <sub>CE0</sub>	-50
Emitter-base voltage	RN2201~2204	V <sub>EBO</sub>	-10		
	RN2205, 2206		-5		
Collector current	I <sub>C</sub>	-100	mA		
Collector power dissipation	RN2201~2206	P <sub>C</sub>	300		
Junction temperature				T <sub>j</sub>	150
Storage temperature range				T <sub>stg</sub>	-55~150

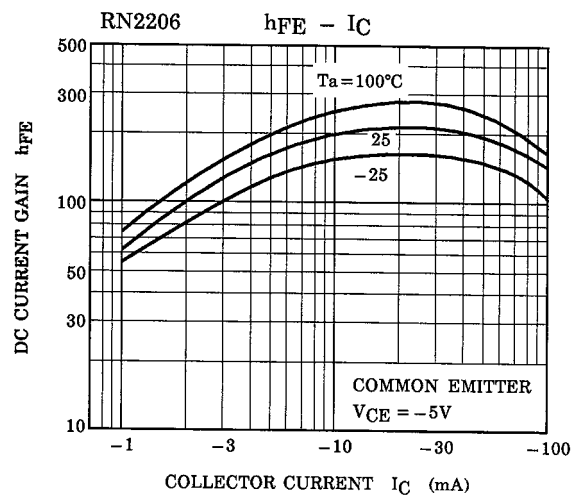
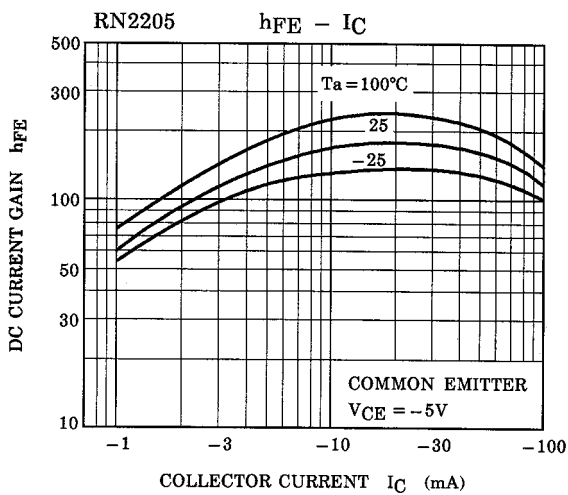
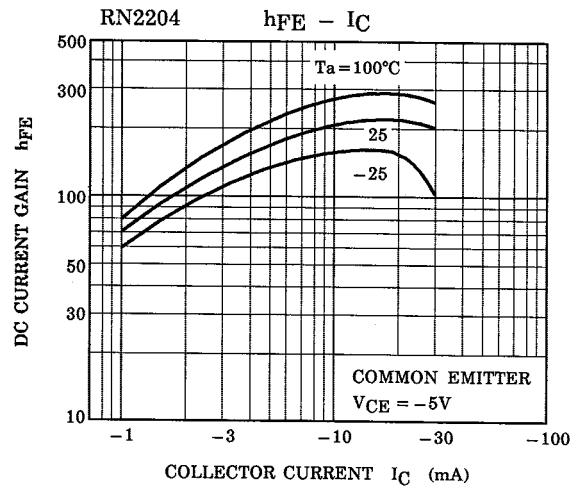
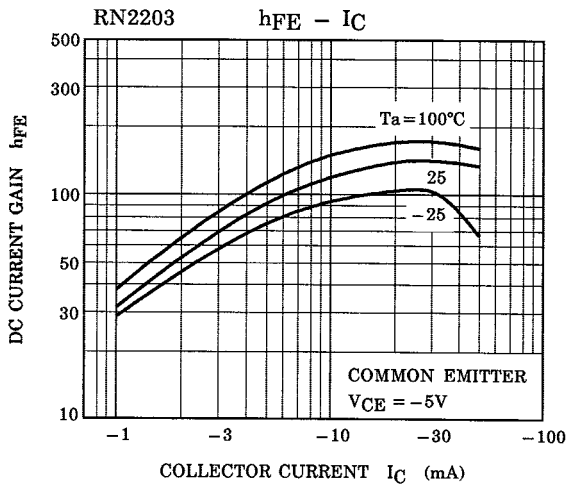
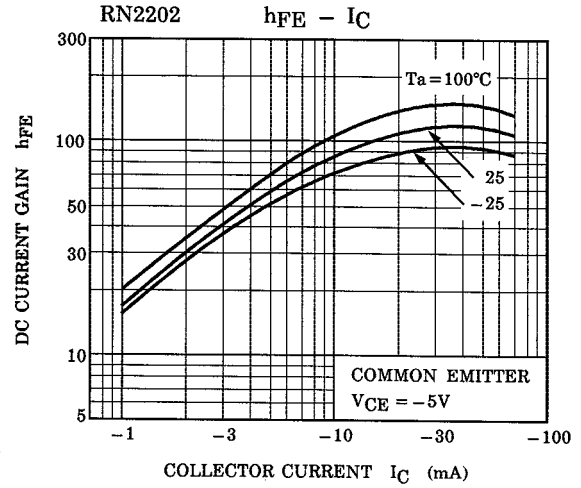
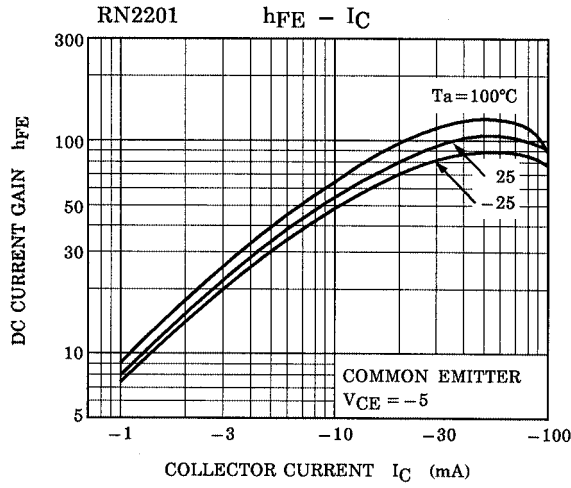


## Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	RN2201~2206	$I_{CBO}$	—	$V_{CB} = -50V, I_E = 0$	—	—	-100	nA
		$I_{CEO}$	—	$V_{CE} = -50V, I_B = 0$	—	—	-500	
Emitter cut-off current	RN2201	$I_{EBO}$	—	$V_{EB} = -10V, I_C = 0$	-0.82	—	-1.52	mA
	RN2202		—		-0.38	—	-0.71	
	RN2203		—		-0.17	—	-0.33	
	RN2204		—	-0.082	—	-0.15		
	RN2205		—	$V_{EB} = -5V, I_C = 0$	-0.078	—	-0.145	
	RN2206		—		-0.074	—	-0.138	
DC current gain	RN2201	$h_{FE}$	—	$V_{CE} = -5V, I_C = -10mA$	30	—	—	—
	RN2202		—		50	—	—	
	RN2203		—		70	—	—	
	RN2204		—		80	—	—	
	RN2205		—		80	—	—	
	RN2206		—		80	—	—	
Collector-emitter saturation voltage	RN2201~2206	$V_{CE(sat)}$	—	$I_C = -5mA, I_B = -0.25mA$	—	-0.1	-0.3	V
Input voltage (ON)	RN2201	$V_{I(ON)}$	—	$V_{CE} = -0.2V, I_C = -5mA$	-1.1	—	-2.0	V
	RN2202		—		-1.2	—	-2.4	
	RN2203		—		-1.3	—	-3.0	
	RN2204		—		-1.5	—	-5.0	
	RN2205		—		-0.6	—	-1.1	
	RN2206		—		-0.7	—	-1.3	
Input voltage (OFF)	RN2201~2204	$V_{I(OFF)}$	—	$V_{CE} = -5V, I_C = -0.1mA$	-1.0	—	-1.5	V
	RN2205, 2206		—		-0.5	—	-0.8	
Transition frequency	RN2201~2206	$f_T$	—	$V_{CE} = -10V, I_C = -5mA$	—	200	—	MHz
Collector output capacitance	RN2201~2206	$C_{ob}$	—	$V_{CB} = -10V, I_E = 0, f = 1MHz$	—	3	6	pF
Input resistor	RN2201	R1	—	—	3.29	4.7	6.11	kΩ
	RN2202		—		7	10	13	
	RN2203		—		15.4	22	28.6	
	RN2204		—		32.9	47	61.1	
	RN2205		—		1.54	2.2	2.86	
	RN2206		—		3.29	4.7	6.11	
Resistor ratio	RN2201~2204	R1/R2	—	—	0.9	1.0	1.1	—
	RN2205		—		0.0421	0.0468	0.0515	
	RN2206		—		0.09	0.1	0.11	







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