

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

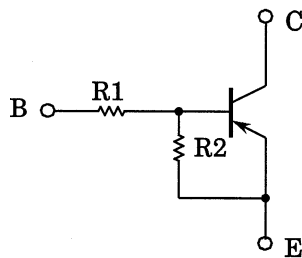
RN2207, RN2208, RN2209

Unit: mm

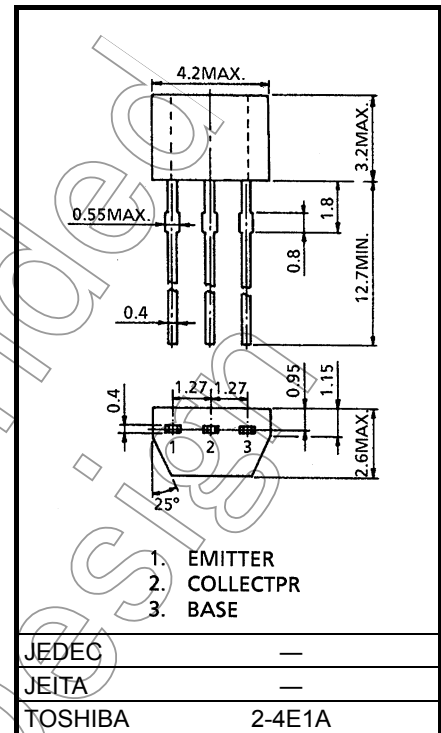
Switching, Inverter Circuit, Interface Circuit and Driver Circuit Applications

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1207~RN1209

Equivalent Circuit and Bias Resistor Values



Type No.	R1 (kΩ)	R2 (kΩ)
RN2207	10	47
RN2208	22	47
RN2209	47	22



Weight: 0.13g (typ.)

Absolute 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}	RN2207	-6
		RN2208	-7
		RN2209	-15
Collector current	I_C	-100	mA
Collector power dissipation	P_C	300	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55~150	°C

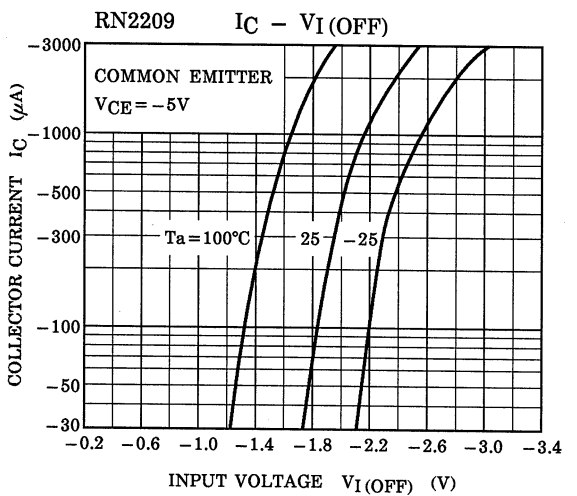
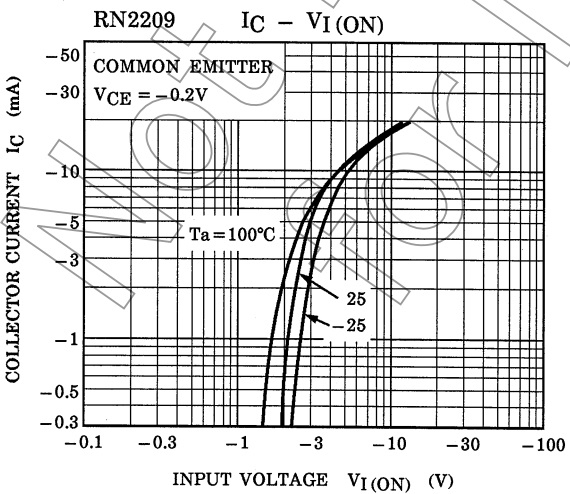
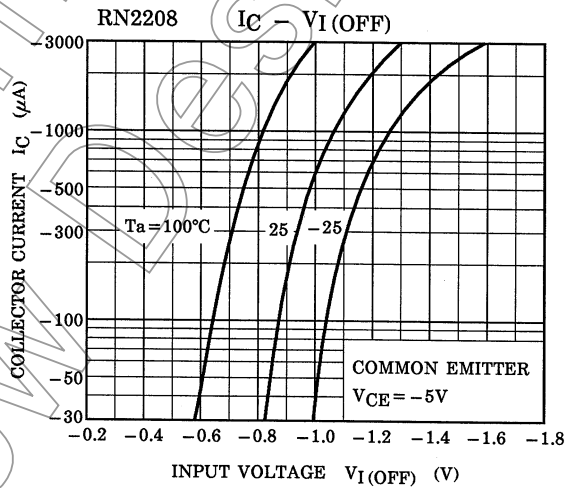
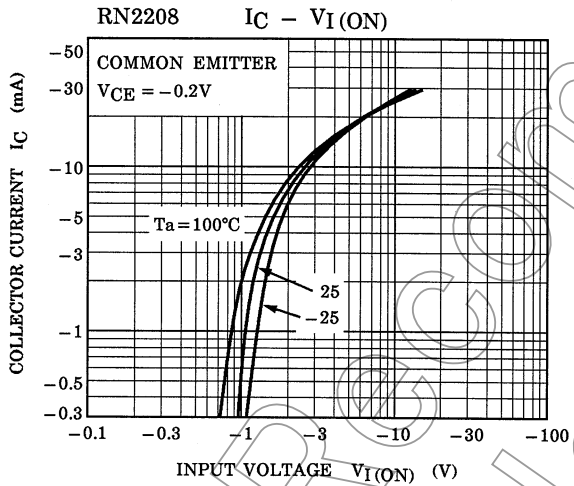
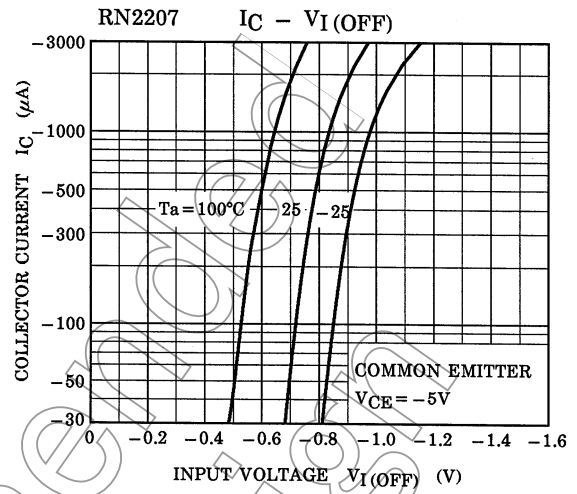
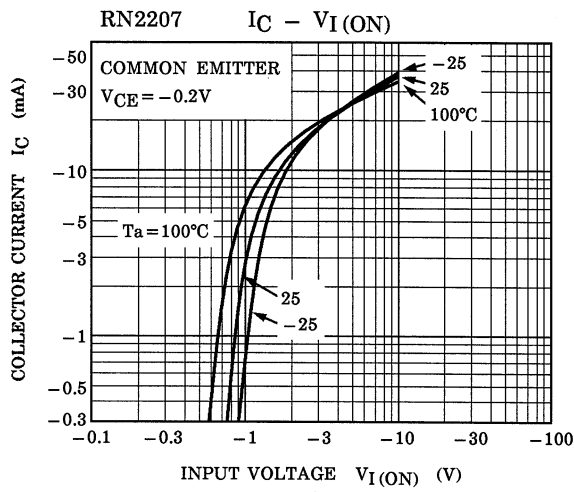
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

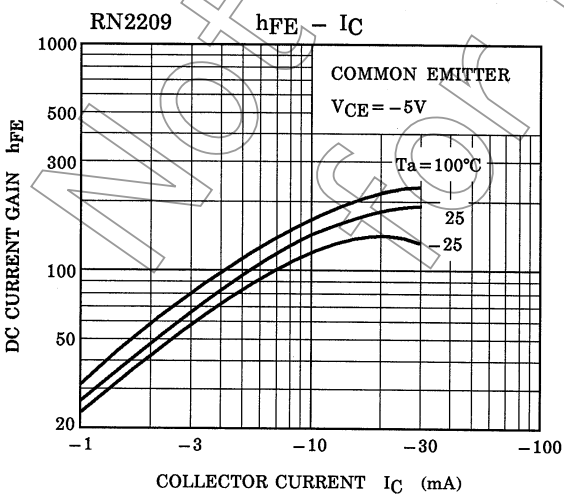
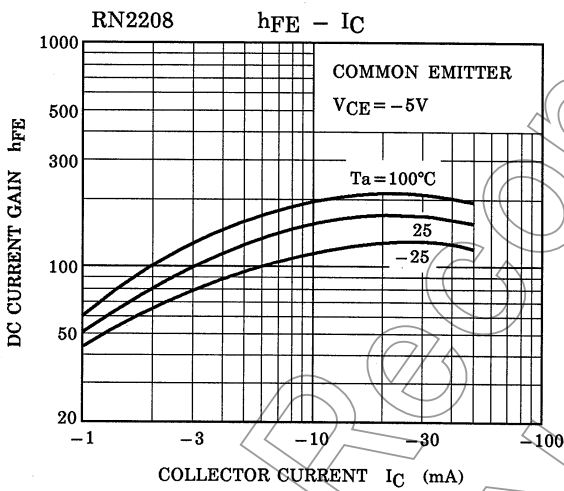
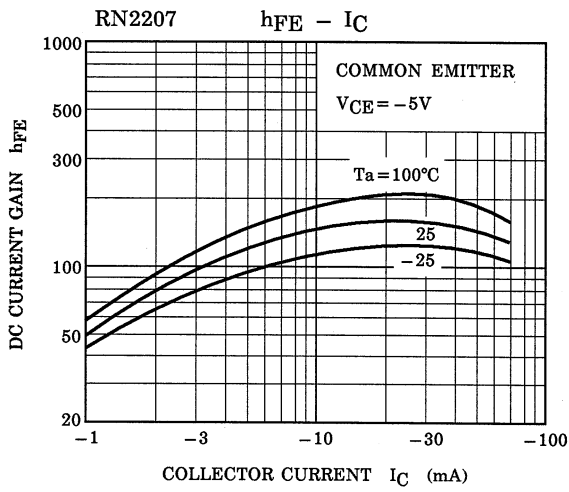
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

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
		I_{CEO}	—	$V_{CE} = -50V, I_B = 0$	—	—	-500	
Emitter cut-off current		RN2207	—	$V_{EB} = -6V, I_C = 0$	-0.081	—	-0.15	mA
		RN2208			-0.078	—	-0.145	
		RN2209			-0.167	—	-0.311	
DC current gain		RN2207	—	$V_{CE} = -5V, I_C = -10mA$	80	—	—	—
		RN2208			80	—	—	
		RN2209			70	—	—	
Collector-emitter saturation voltage		$V_{CE(sat)}$	—	$I_C = -5mA, I_B = -0.25mA$	—	-0.1	-0.3	V
Input voltage (ON)		RN2207	—	$V_{CE} = -0.2V, I_C = -5mA$	-0.7	—	-1.8	V
		RN2208			-1.0	—	-2.6	
		RN2209			-2.2	—	-5.8	
Input voltage (OFF)		RN2207	—	$V_{CE} = -5V, I_C = -0.1mA$	-0.5	—	-1.0	V
		RN2208			-0.6	—	-1.16	
		RN2209			-1.5	—	-2.6	
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		RN2207	—	—	7	10	13	kΩ
		RN2208			15.4	22	28.6	
		RN2209			32.9	47	61.1	
Resistor ratio		RN2207	—	—	0.191	0.213	0.232	—
		RN2208			0.421	0.468	0.515	
		RN2209			1.92	2.14	2.35	

Not Recommended for New





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