

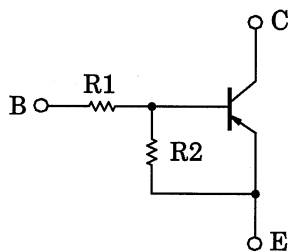
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

RN2107F, RN2108F, RN2109F

Switching, Inverter Circuit, Interface Circuit and Driver Circuit Applications

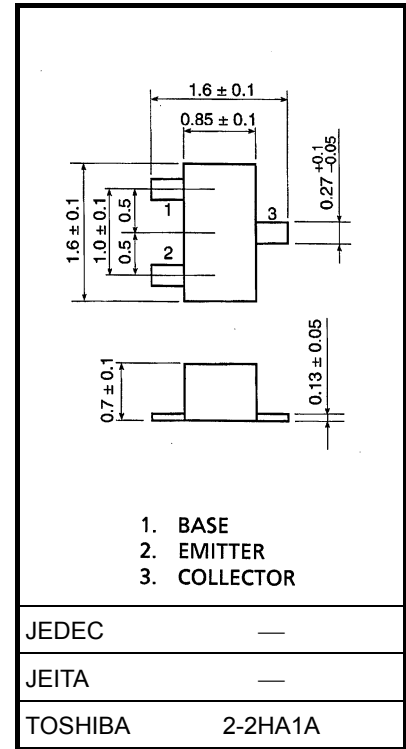
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1107F~RN1109F

Equivalent Circuit and Bias Resistor Values



Type No.	R1 (kΩ)	R2 (kΩ)
RN2107F	10	47
RN2108F	22	47
RN2109F	47	22

Unit: mm



Weight: 2.3 mg (typ.)

Absolute Maximum Ratings (Ta = 25°C)

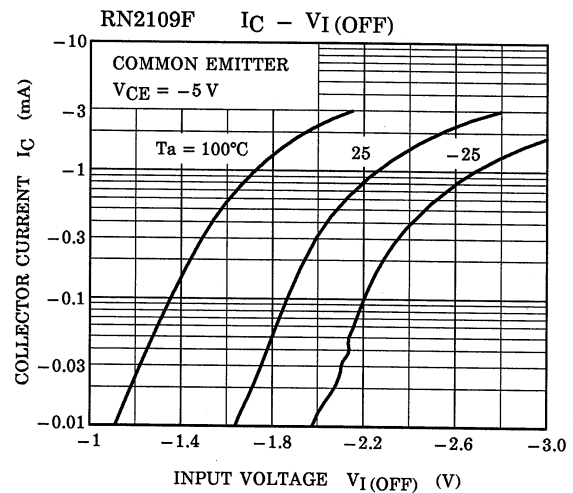
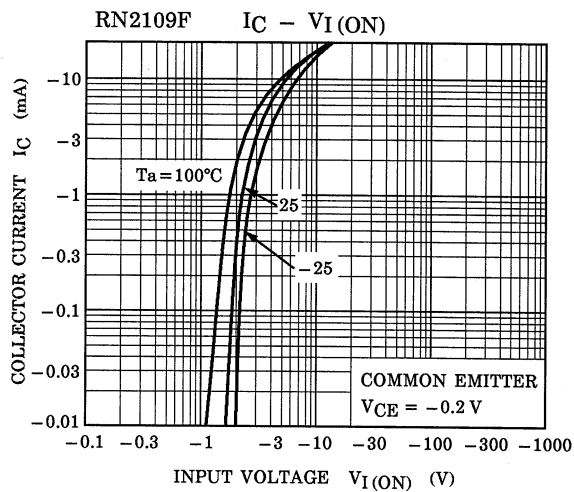
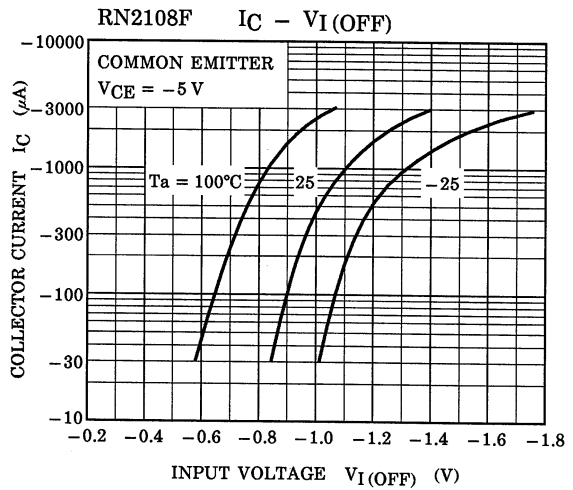
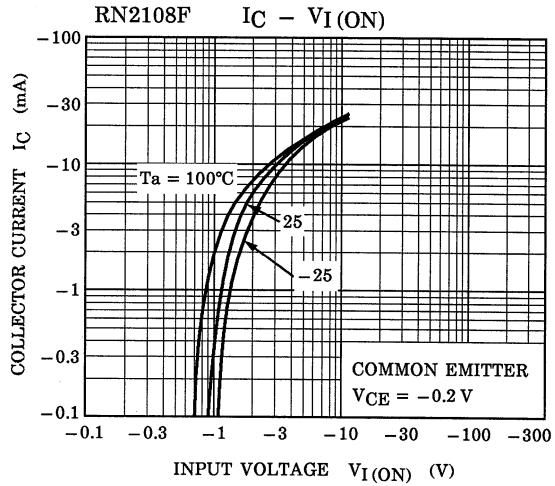
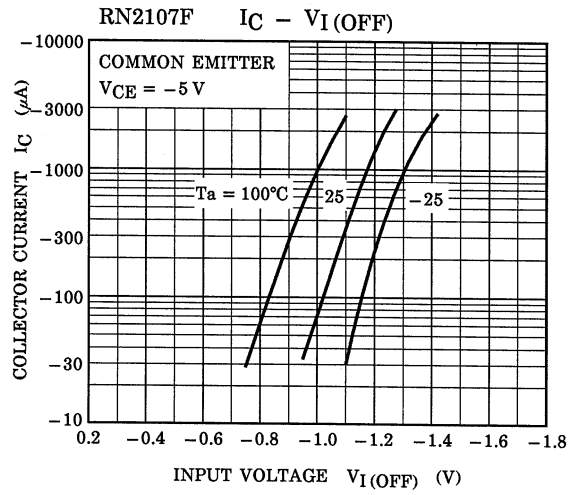
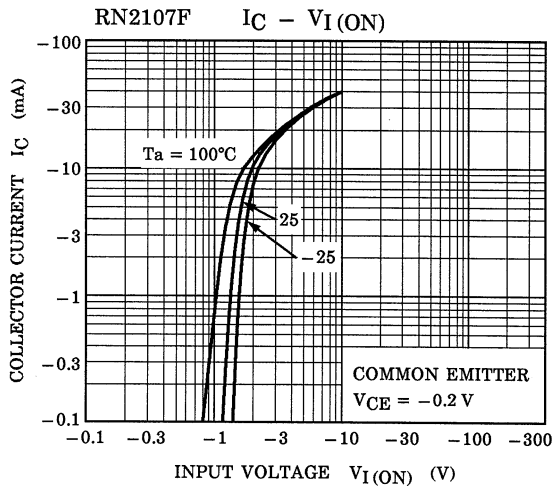
Characteristic	Symbol	Rating	Unit	
Collector-base voltage	RN2107F ~RN2109F	V_{CB0}	-50	V
Collector-emitter voltage		V_{CEO}	-50	V
Emitter-base voltage	RN2107F RN2108F RN2109F	V_{EBO}	-6	V
			-7	
			-15	
Collector current	RN2107F ~RN2109F	I_C	-100	mA
Collector power dissipation		P_C	100	mW
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-55~150	°C

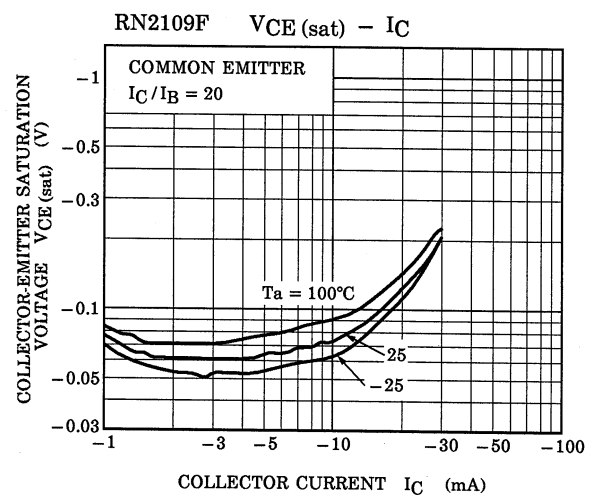
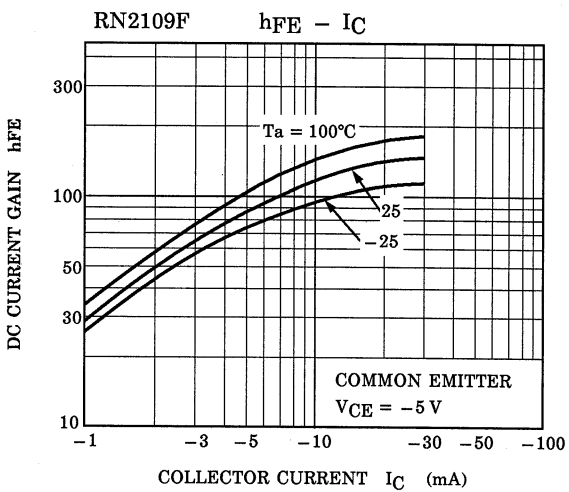
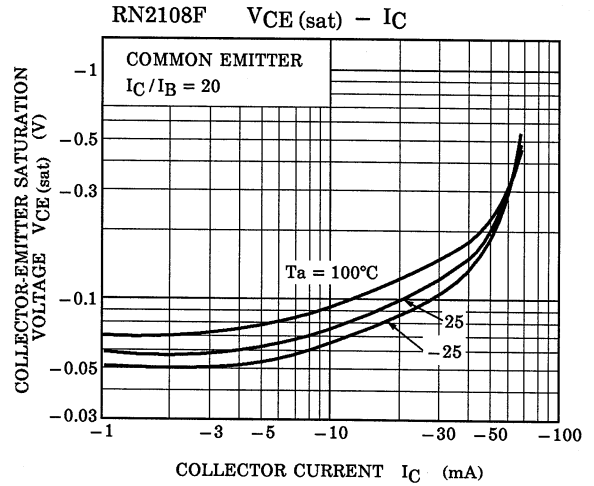
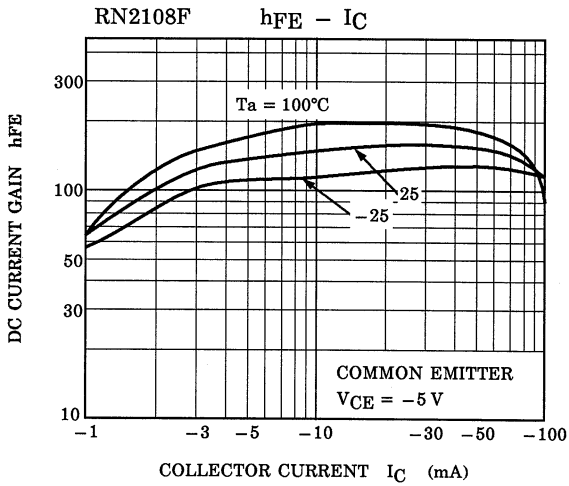
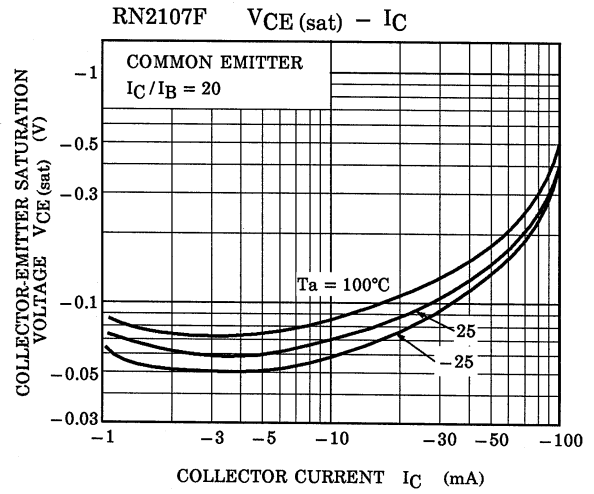
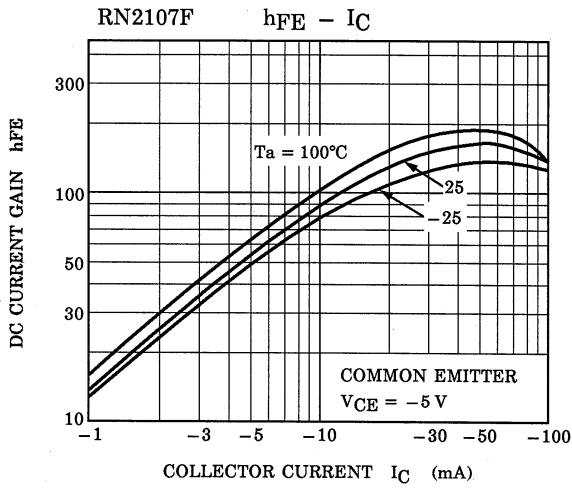
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

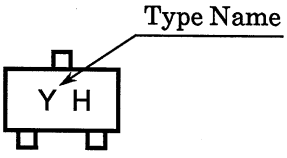
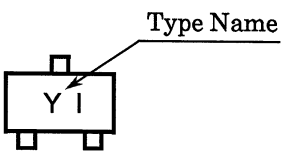
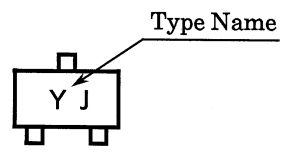
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	RN2107F	I _{CBO}	—	V _{CB} = -50V, I _E = 0	—	—	-100	nA
	~RN2109F			I _{CEO}	V _{CE} = -50V, I _B = 0	—	—	-500
Emitter cut-off current	RN2107F	I _{EBO}	—	V _{EB} = -6V, I _C = 0	-0.081	—	-0.15	mA
	RN2108F			V _{EB} = -7V, I _C = 0	-0.078	—	-0.145	
	RN2109F			V _{EB} = -15V, I _C = 0	-0.167	—	-0.311	
DC current gain	RN2107F	h _{FE}	—	V _{CE} = -5V, I _C = -10mA	80	—	—	—
	RN2108F				80	—	—	
	RN2109F				70	—	—	
Collector-emitter saturation voltage	RN2107F ~RN2109F	V _{CE (sat)}	—	I _C = -5mA, I _B = -0.25mA	—	-0.1	-0.3	V
Input voltage (ON)	RN2107F	V _{I (ON)}	—	V _{CE} = -0.2V, I _C = -5mA	-0.7	—	-1.8	V
	RN2108F				-1.0	—	-2.6	
	RN2109F				-2.2	—	-5.8	
Input voltage (OFF)	RN2107F	V _{I (OFF)}	—	V _{CE} = -5V, I _C = -0.1mA	-0.5	—	-1.0	V
	RN2108F				-0.6	—	-1.16	
	RN2109F				-1.5	—	-2.6	
Transition frequency	RN2107F ~RN2109F	f _T	—	V _{CE} = -10V, I _C = -5mA	—	200	—	MHz
Collector Output capacitance	RN2107F ~RN2109F	C _{ob}	—	V _{CB} = -10V, I _E = 0, f = 1MHz	—	3	6	pF
Input resistor	RN2107F	R ₁	—	—	7	10	13	kΩ
	RN2108F				15.4	22	28.6	
	RN2109F				32.9	47	61.1	
Resistor ratio	RN2107F	R _{1/R2}	—	—	0.191	0.213	0.232	—
	RN2108F				0.421	0.468	0.515	
	RN2109F				1.92	2.14	2.35	





Type Name	Marking
RN2107F	
RN2108F	
RN2109F	

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