

TOSHIBA**RN1107F~RN1109F**

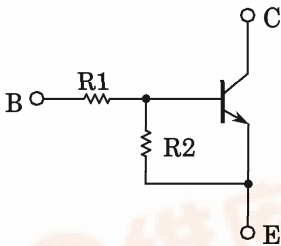
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

RN1107F, RN1108F, RN1109FSWITCHING, INVERTER CIRCUIT, INTERFACE CIRCUIT
AND DRIVER CIRCUIT APPLICATIONS.

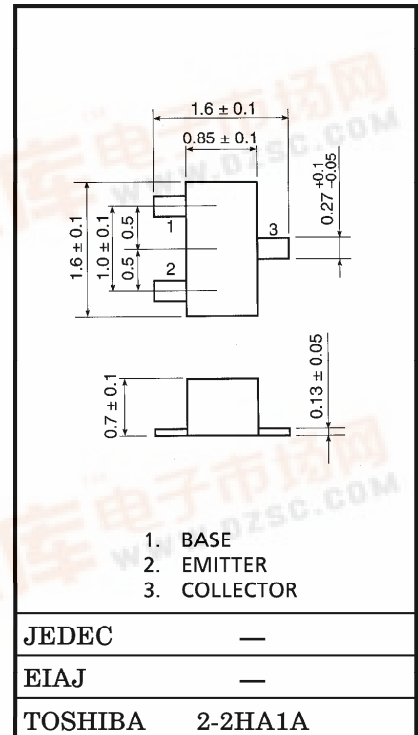
Unit in mm

- With Built-in Bias Resistors
- Simplify Circuit Design
- Reduce a Quantity of Parts and Manufacturing Process
- Complementary to RN2107F~RN2109F

EQUIVALENT CIRCUIT AND BIAS RESISTOR VALUES



TYPE NO.	R1 (kΩ)	R2 (kΩ)
RN1107F	10	47
RN1108F	22	47
RN1109F	47	22



MAXIMUM RATINGS (Ta = 25°C)

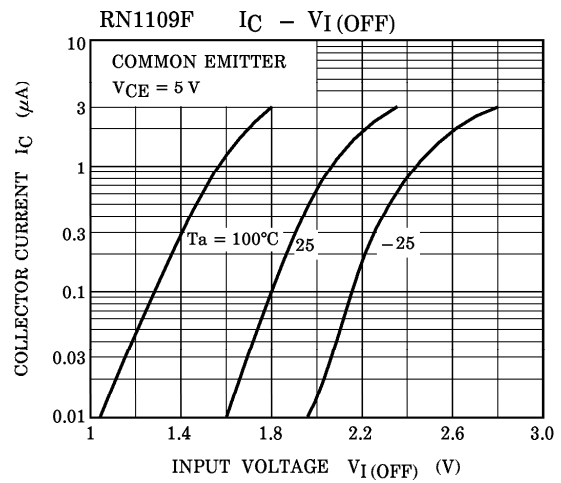
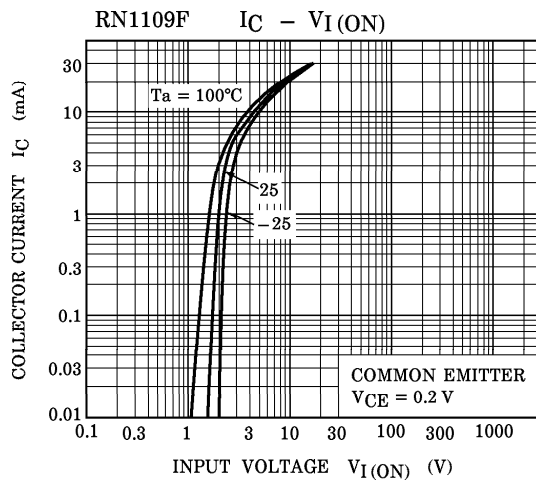
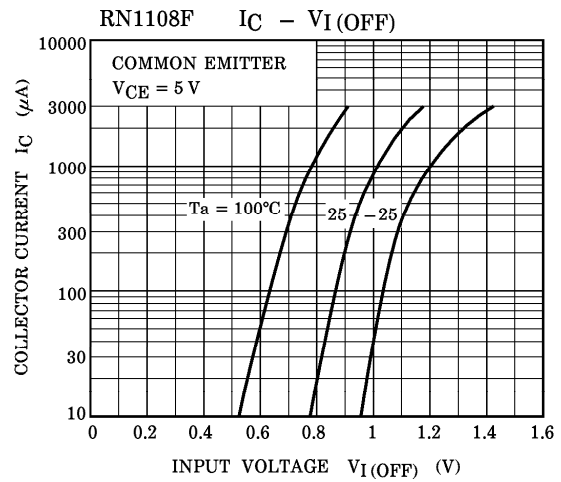
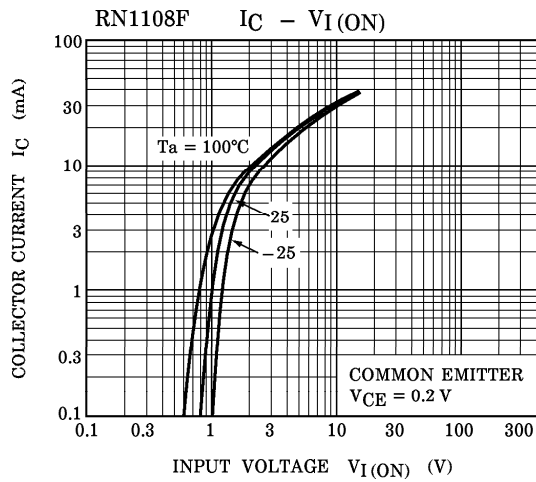
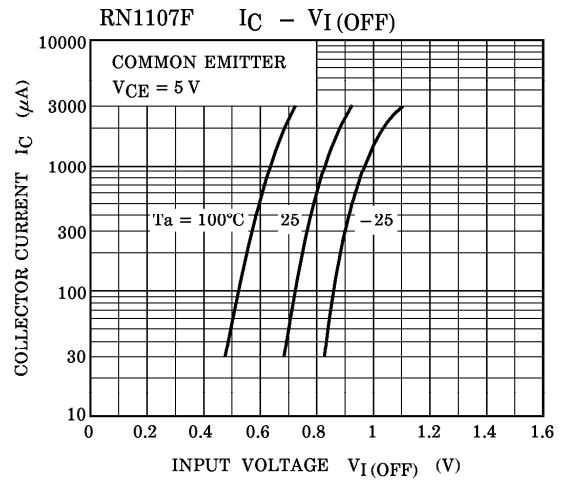
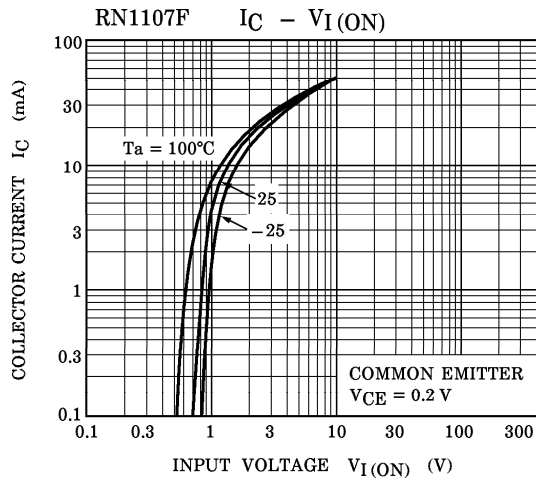
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage	RN1107F~1109F	V _{CBO}	50	V
Collector-Emitter Voltage	RN1107F~1109F	V _{CEO}	50	V
Emitter-Base Voltage	RN1107F	V _{EBO}	6	V
	RN1108F		7	
	RN1109F		15	
Collector Current	RN1107F~1109F	I _C	100	mA
Collector Power Dissipation	RN1107F~1109F	P _C	100	mW
Junction Temperature	RN1107F~1109F	T _j	150	°C
Storage Temperature Range	RN1107F~1109F	T _{stg}	−55~150	°C

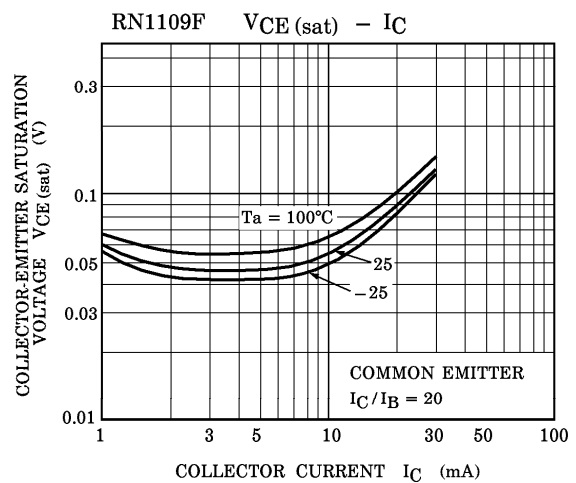
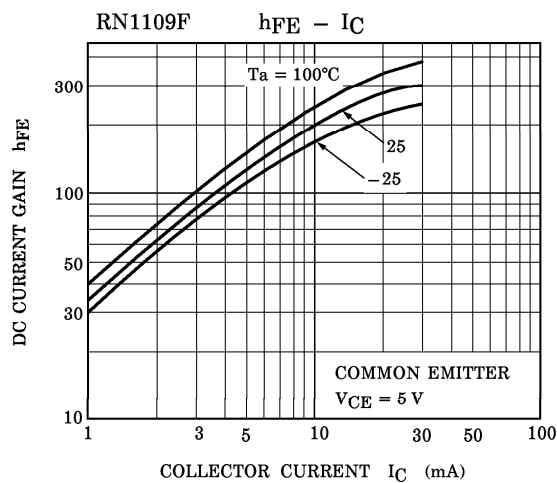
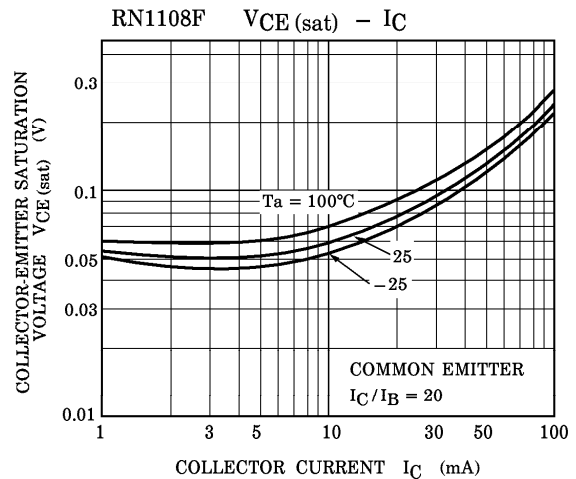
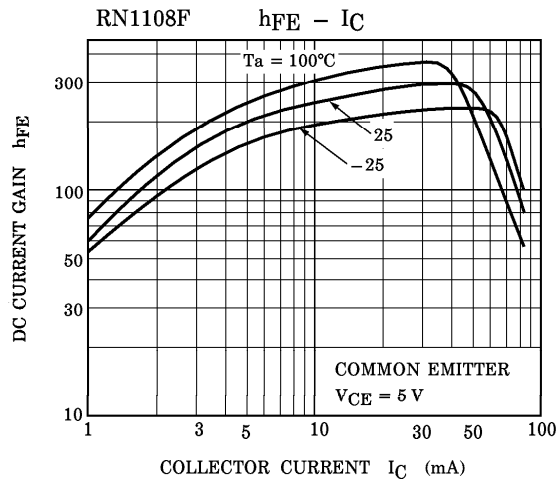
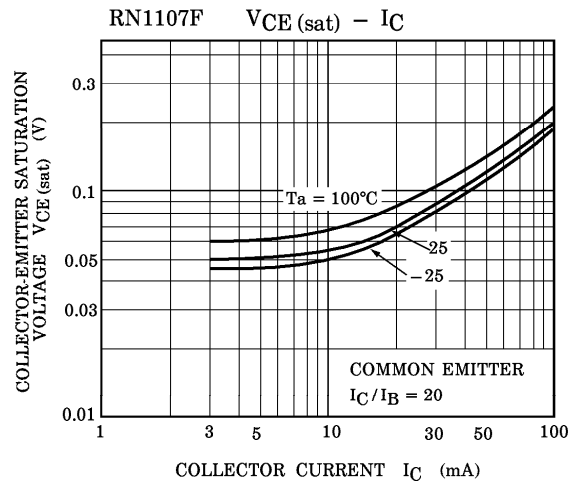
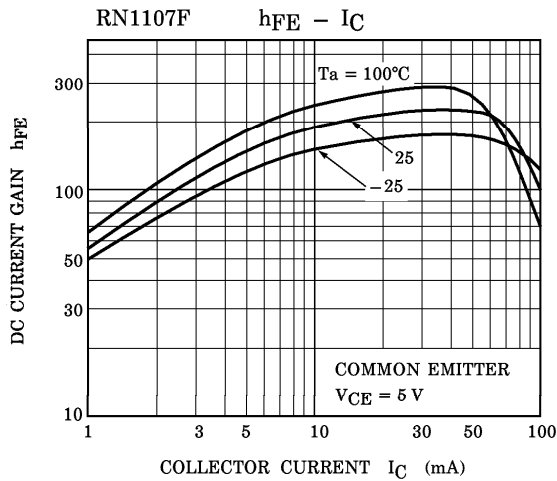
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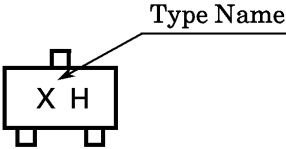
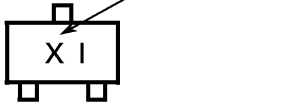
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	RN1107F~1109F	I_{CBO}	$V_{CB} = 50\text{ V}, I_E = 0$	—	—	100	nA
		I_{CEO}	$V_{CE} = 50\text{ V}, I_B = 0$	—	—	500	
Emitter Cut-off Current	RN1107F	I_{EBO}	$V_{EB} = 6\text{ V}, I_C = 0$	0.081	—	0.15	mA
	RN1108F		$V_{EB} = 7\text{ V}, I_C = 0$	0.078	—	0.145	
	RN1109F		$V_{EB} = 15\text{ V}, I_C = 0$	0.167	—	0.311	
DC Current Gain	RN1107F	h_{FE}	$V_{CE} = 5\text{ V}, I_C = 10\text{ mA}$	80	—	—	
	RN1108F			80	—	—	
	RN1109F			70	—	—	
Collector-Emitter Saturation Voltage	RN1107F~1109F	$V_{CE(sat)}$	$I_C = 5\text{ mA}, I_B = 0.25\text{ mA}$	—	0.1	0.3	V
Input Voltage (ON)	RN1107F	$V_{I(ON)}$	$V_{CE} = 0.2\text{ V}, I_C = 5\text{ mA}$	0.7	—	1.8	V
	RN1108F			1.0	—	2.6	
	RN1109F			2.2	—	5.8	
Input Voltage (OFF)	RN1107F	$V_{I(OFF)}$	$V_{CE} = 5\text{ V}, I_C = 0.1\text{ mA}$	0.5	—	1.0	V
	RN1108F			0.6	—	1.16	
	RN1109F			1.5	—	2.6	
Transition Frequency	RN1107F~1109F	f_T	$V_{CE} = 10\text{ V}, I_C = 5\text{ mA}$	—	250	—	MHz
Collector Output Capacitance	RN1107F~1109F	C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0,$ $f = 1\text{ MHz}$	—	3	6	pF
Input Resistor	RN1107F	R1	—	7	10	13	k Ω
	RN1108F			15.4	22	28.6	
	RN1109F			32.9	47	61.1	
Resistor Ratio	RN1107F	R1 / R2	—	0.191	0.213	0.232	
	RN1108F			0.421	0.468	0.515	
	RN1109F			1.92	2.14	2.35	





TYPE NAME	MARKING
RN1107F	
RN1108F	
RN1109F	