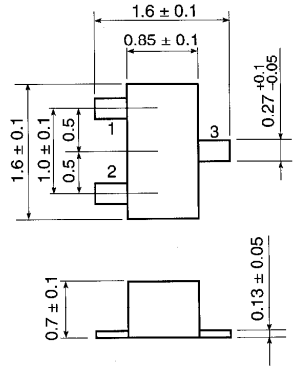
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

RN1107F, RN1108F, RN1109F

SWITCHING, INVERTER CIRCUIT, INTERFACE CIRCUIT

AND DRIVER CIRCUIT APPLICATIONS.

Unit in mm

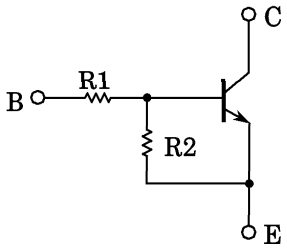


1. BASE
2. EMITTER
3. COLLECTOR

JEDEC	—
EIAJ	—
TOSHIBA	2-2HA1A

- 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

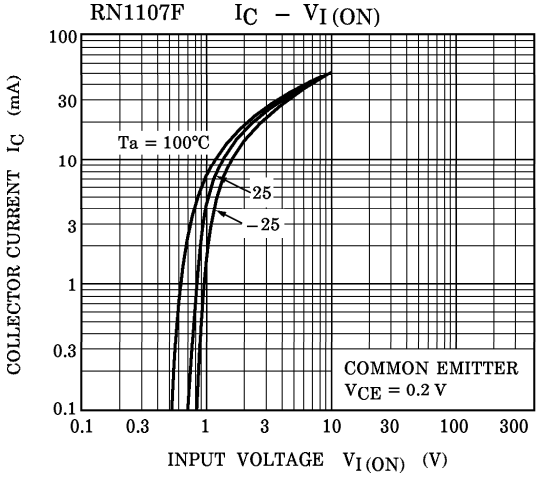
MAXIMUM RATINGS (Ta = 25°C)

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

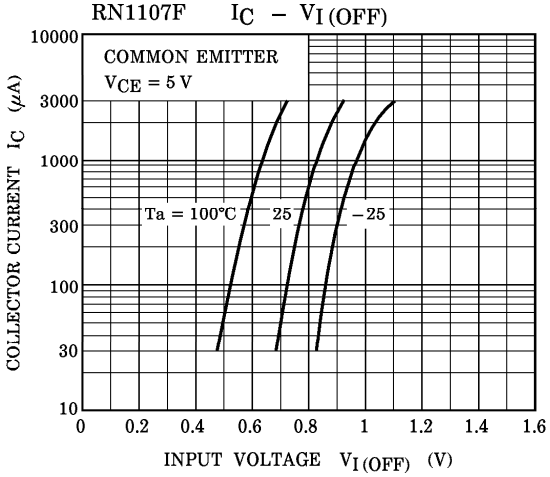
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	RN1107F~1109F	I_{CBO}	V_{CB} = 50 V, I_E = 0	—	—	100	nA
		I_{CEO}	V_{CE} = 50 V, I_B = 0	—	—	500	
Emitter Cut-off Current	RN1107F	I_{EBO}	V_{EB} = 6 V, I_C = 0	0.081	—	0.15	mA
	RN1108F		V_{EB} = 7 V, I_C = 0	0.078	—	0.145	
	RN1109F		V_{EB} = 15 V, I_C = 0	0.167	—	0.311	
DC Current Gain	RN1107F	h_{FE}	V_{CE} = 5 V, I_C = 10 mA	80	—	—	
	RN1108F			80	—	—	
	RN1109F			70	—	—	
Collector-Emitter Saturation Voltage	RN1107F~1109F	$V_{CE\ (sat)}$	I_C = 5 mA, I_B = 0.25 mA	—	0.1	0.3	V
Input Voltage (ON)	RN1107F	$V_{I\ (ON)}$	V_{CE} = 0.2 V, I_C = 5 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 V, I_C = 0.1 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 V, I_C = 5 mA	—	250	—	MHz
Collector Output Capacitance	RN1107F~1109F	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	3	6	pF
Input Resistor	RN1107F	R1	—	7	10	13	kΩ
	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	

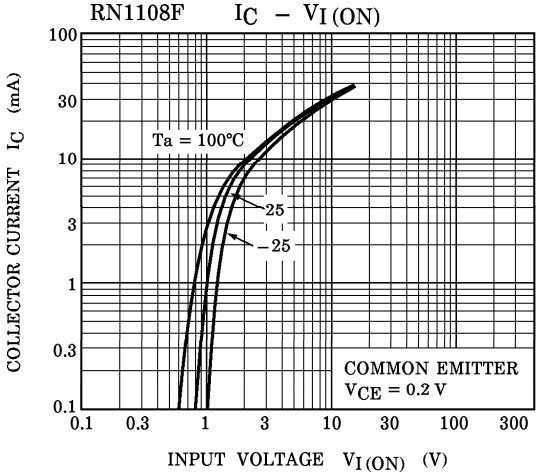
RN1107F I_C – $V_{I(ON)}$



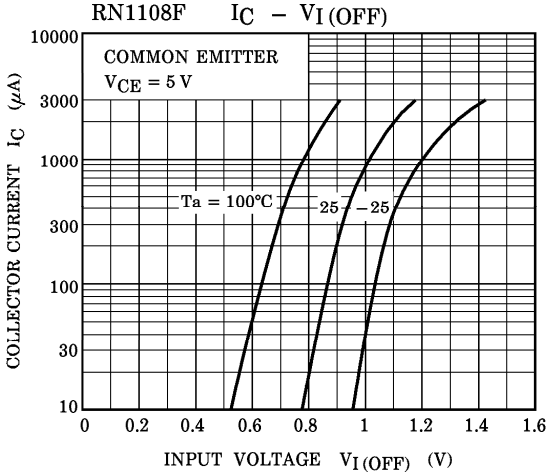
RN1107F I_C – $V_{I(OFF)}$



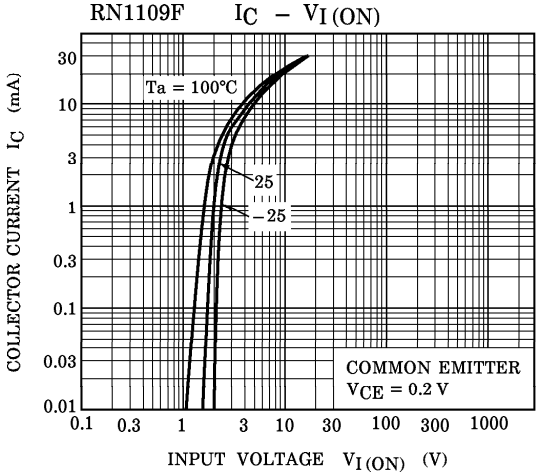
RN1108F I_C – $V_{I(ON)}$



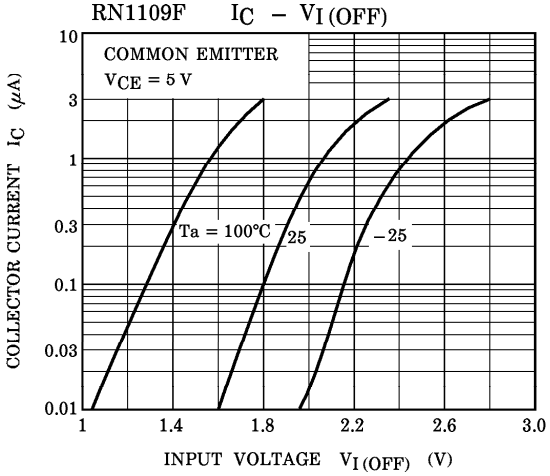
RN1108F I_C – $V_{I(OFF)}$



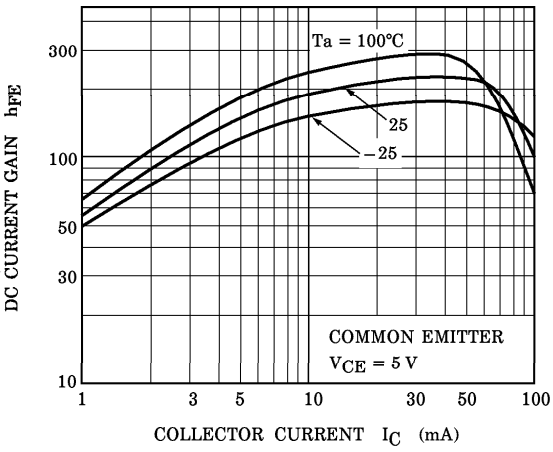
RN1109F I_C – $V_{I(ON)}$



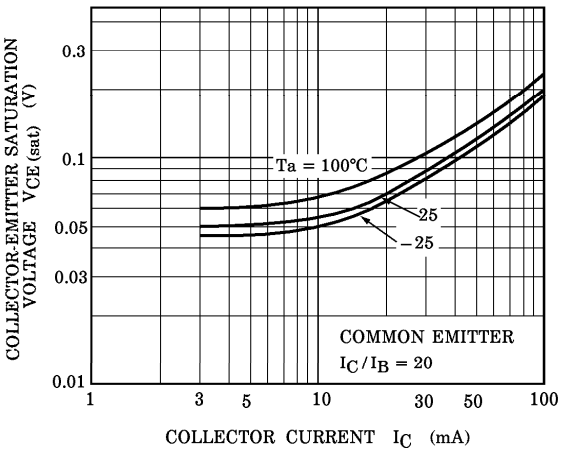
RN1109F I_C – $V_{I(OFF)}$



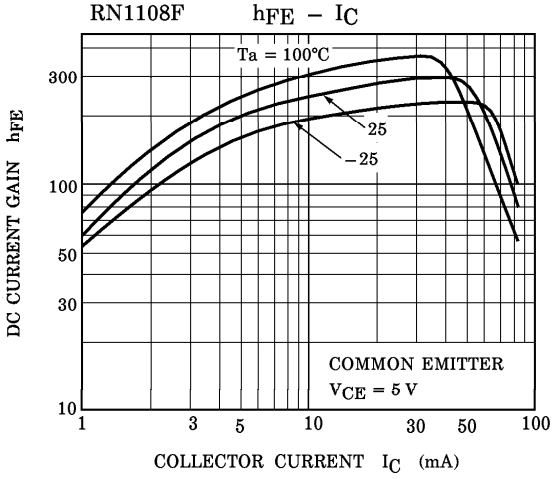
RN1107F h_{FE} – I_C



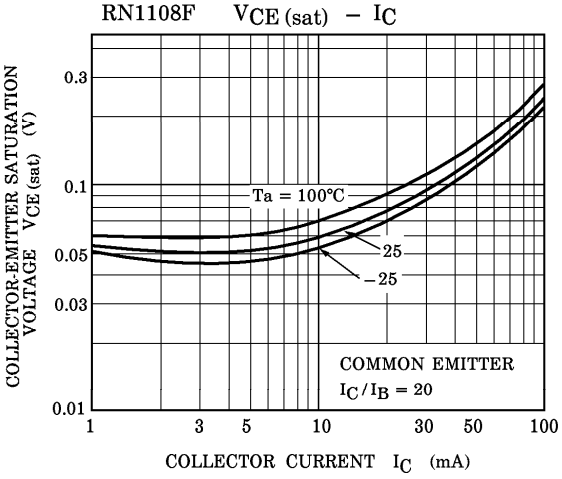
RN1107F $V_{CE\,(sat)}$ – I_C



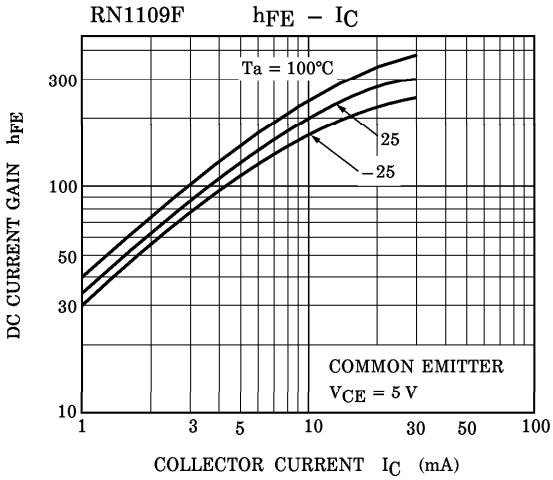
RN1108F h_{FE} – I_C



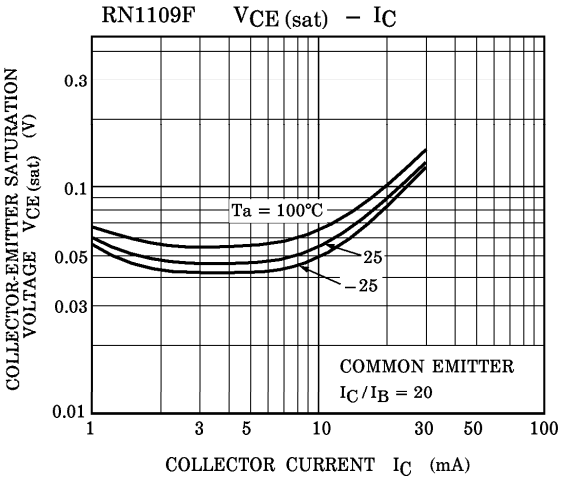
RN1108F $V_{CE\,(sat)}$ – I_C

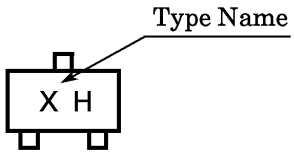
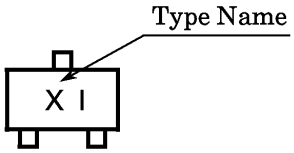


RN1109F h_{FE} – I_C



RN1109F $V_{CE\,(sat)}$ – I_C



TYPE NAME	MARKING
RN1107F	
RN1108F	
RN1109F