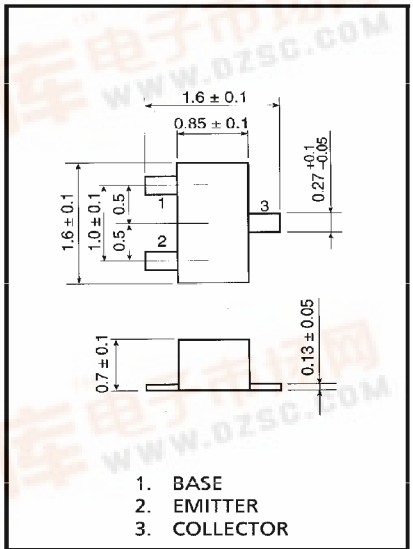
TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

RN2101F, RN2102F, RN2103F RN2104F, RN2105F, RN2106F

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 RN1101F~RN1106F

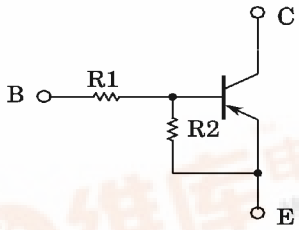
Unit in mm



1. BASE
2. EMITTER
3. COLLECTOR

JEDEC	—
EIAJ	—
TOSHIBA	2-2HA1A

EQUIVALENT CIRCUIT AND BIAS RESISTOR VALUES



TYPE No.	R1 (kΩ)	R2 (kΩ)
RN2101F	4.7	4.7
RN2102F	10	10
RN2103F	22	22
RN2104F	47	47
RN2105F	2.2	47
RN2106F	4.7	47

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage	RN2101F~2106F	V_{CBO}	−50	V
Collector-Emitter Voltage	RN2101F~2106F	V_{CEO}	−50	V
Emitter-Base Voltage	RN2101F~2104F	V_{EBO}	−10	V
	RN2105F, 2106F		−5	
Collector Current	RN2101F~2106F	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

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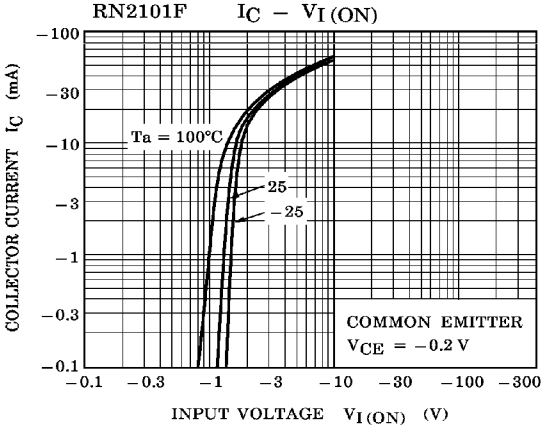
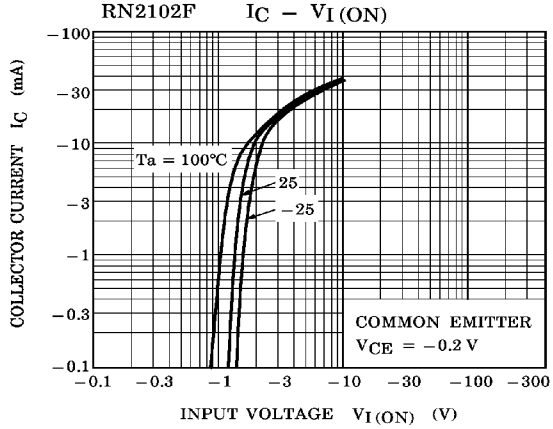
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	RN2101F~2106F	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	RN2101F	I_{EBO}	$V_{EB} = -10$ V, $I_C = 0$	−0.82	—	−1.52	mA
	RN2102F			−0.38	—	−0.71	
	RN2103F			−0.17	—	−0.33	
	RN2104F			−0.082	—	−0.15	
	RN2105F		$V_{EB} = -5$ V, $I_C = 0$	−0.078	—	−0.145	
	RN2106F			−0.074	—	−0.138	
DC Current Gain	RN2101F	h_{FE}	$V_{CE} = -5$ V, $I_C = -10$ mA	30	—	—	
	RN2102F			50	—	—	
	RN2103F			70	—	—	
	RN2104F			80	—	—	
	RN2105F			80	—	—	
	RN2106F			80	—	—	
Collector-Emitter Saturation Voltage	RN2101F~2106F	$V_{CE\ (sat)}$	$I_C = -5$ mA, $I_B = -0.25$ mA	—	−0.1	−0.3	V
Input Voltage (ON)	RN2101F	$V_{I\ (ON)}$	$V_{CE} = -0.2$ V, $I_C = -5$ mA	−1.1	—	−2.0	V
	RN2102F			−1.2	—	−2.4	
	RN2103F			−1.3	—	−3.0	
	RN2104F			−1.5	—	−5.0	
	RN2105F			−0.6	—	−1.1	
	RN2106F			−0.7	—	−1.3	
Input Voltage (OFF)	RN2101F~2104F	$V_{I\ (OFF)}$	$V_{CE} = -5$ V, $I_C = -0.1$ mA	−1.0	—	−1.5	V
	RN2105F, 2106F			−0.5	—	−0.8	
Transition Frequency	RN2101F~2106F	f_T	$V_{CE} = -10$ V, $I_C = -5$ mA	—	200	—	MHz
Collector Output Capacitance	RN2101F~2106F	C_{ob}	$V_{CB} = -10$ V, $I_E = 0$, f = 1 MHz	—	3	6	pF
Input Resistor	RN2101F	R1		3.29	4.7	6.11	kΩ
	RN2102F			7	10	13	
	RN2103F			15.4	22	28.6	
	RN2104F			32.9	47	61.1	
	RN2105F			1.54	2.2	2.86	
	RN2106F			3.29	4.7	6.11	
Resistor Ratio	RN2101F~2104F	R1 / R2		0.9	1.0	1.1	
	RN2105F			0.0421	0.0468	0.0515	
	RN2106F			0.09	0.1	0.11	

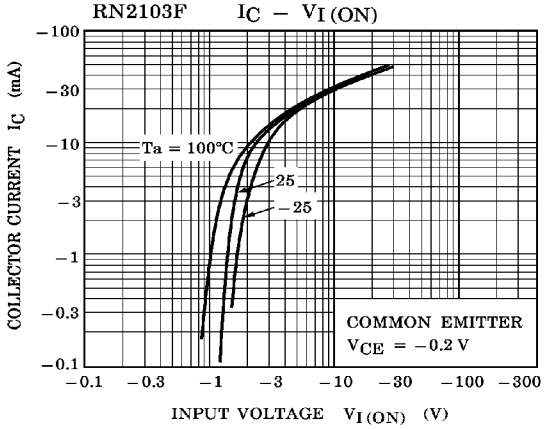
RN2101F I_C – $V_{I(ON)}$



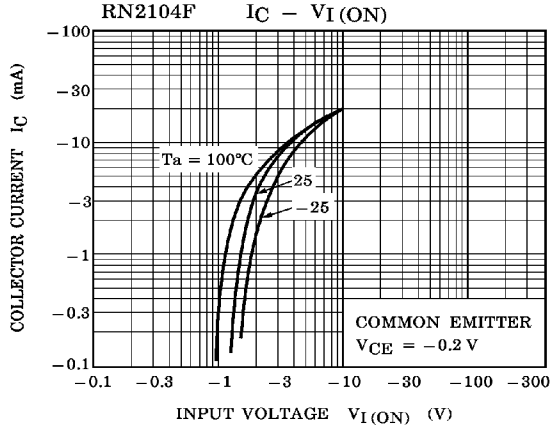
RN2102F I_C – $V_{I(ON)}$



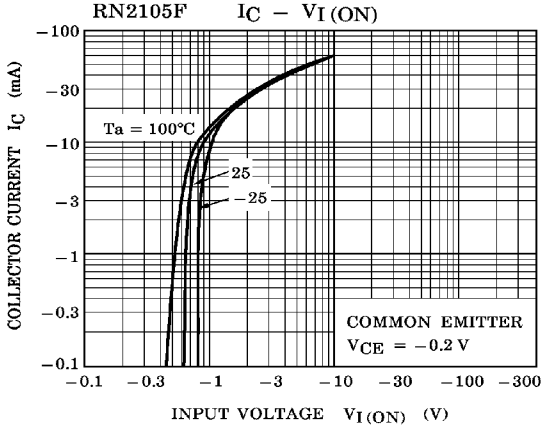
RN2103F I_C – $V_{I(ON)}$



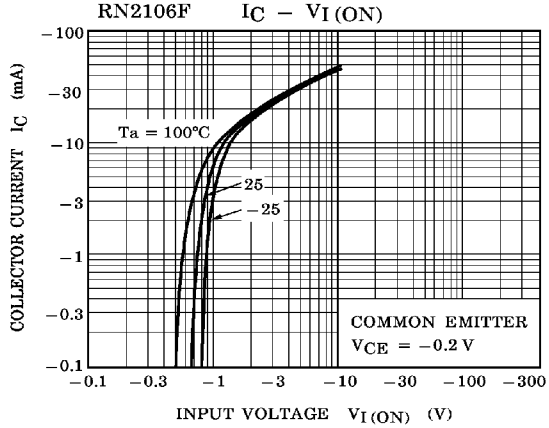
RN2104F I_C – $V_{I(ON)}$



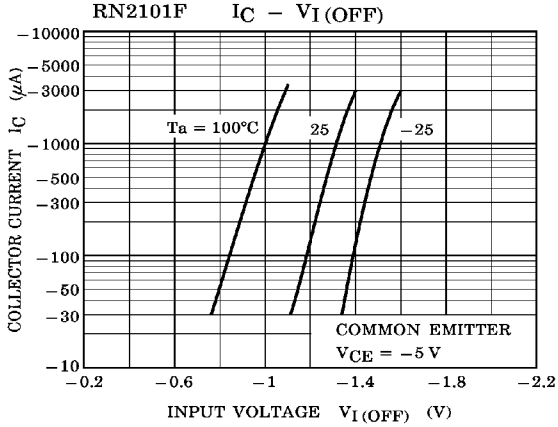
RN2105F I_C – $V_{I(ON)}$



RN2106F I_C – $V_{I(ON)}$



RN2101F $I_C - V_{I(OFF)}$



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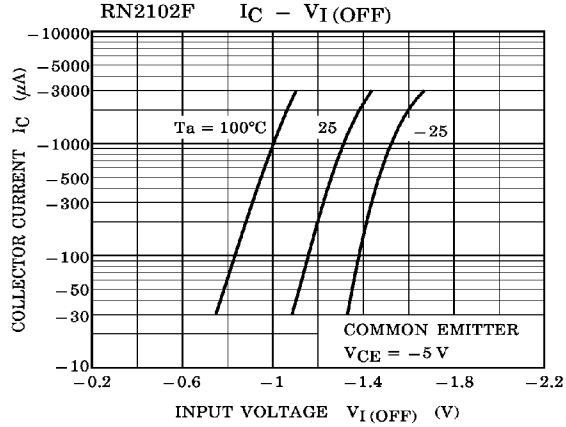

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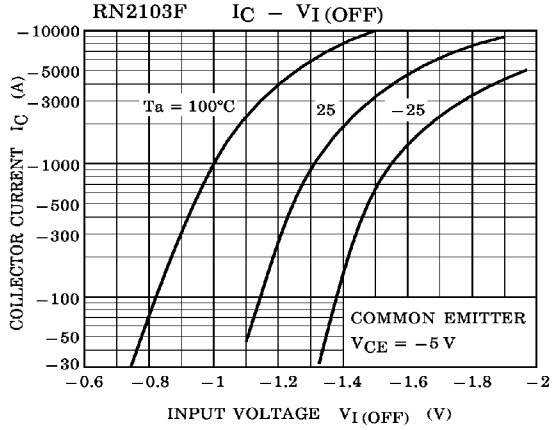

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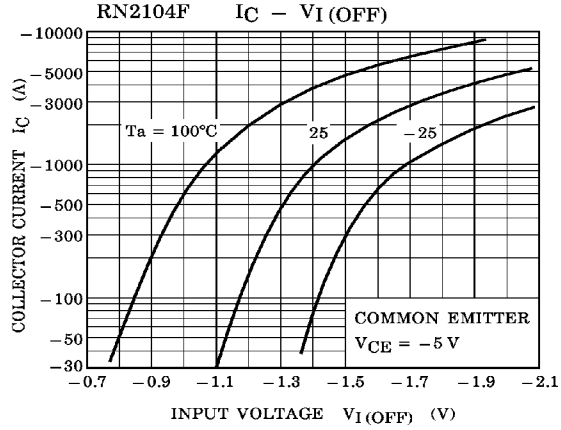
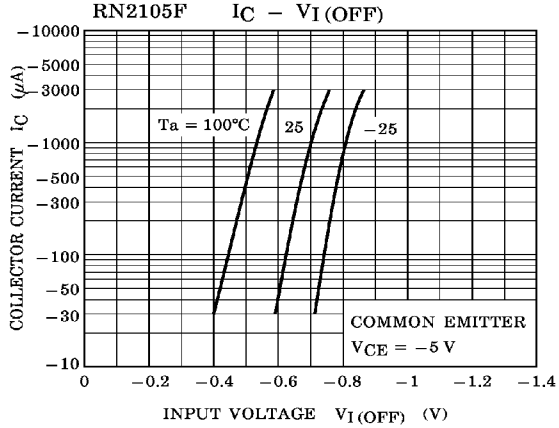


RN2105F $I_C - V_{I(OFF)}$



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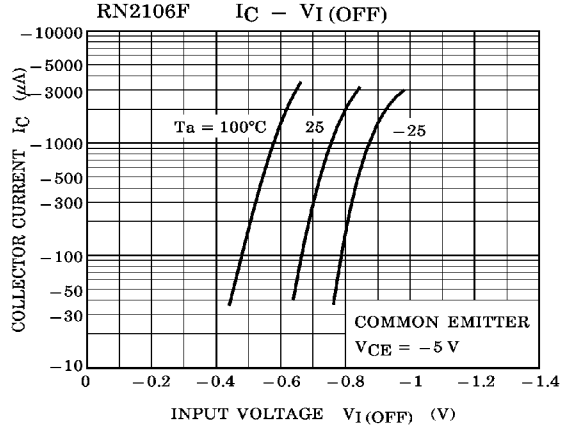
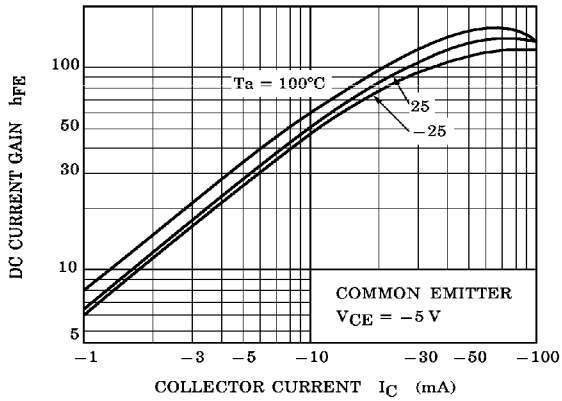


RN2101F h_{FE} – I_C



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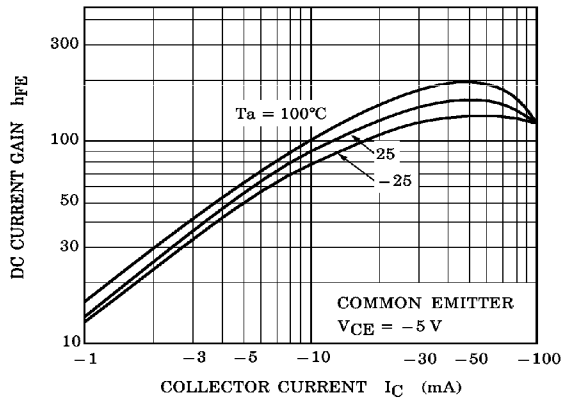

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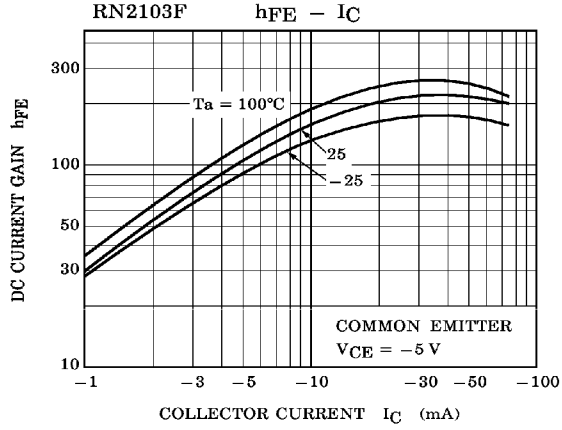

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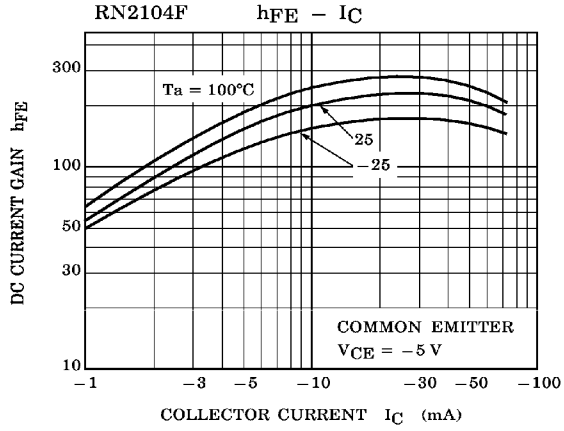
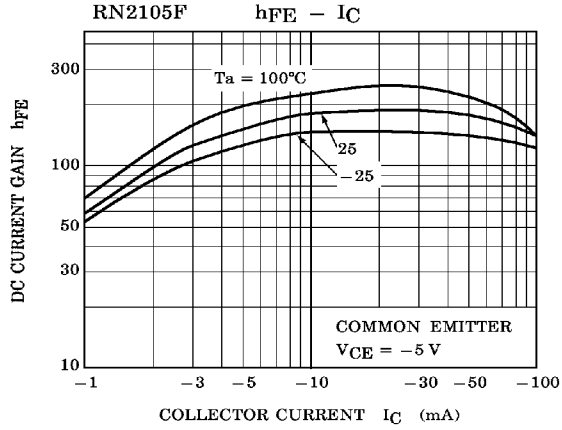
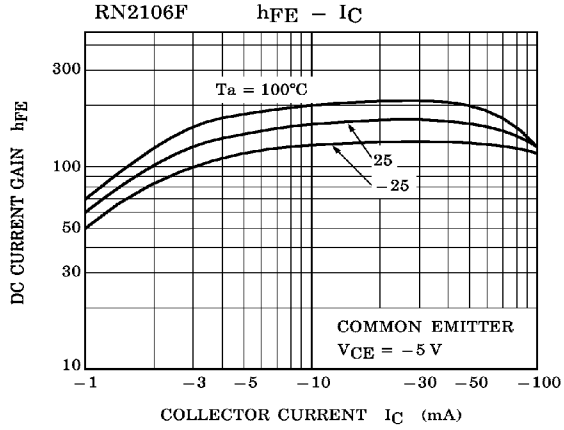


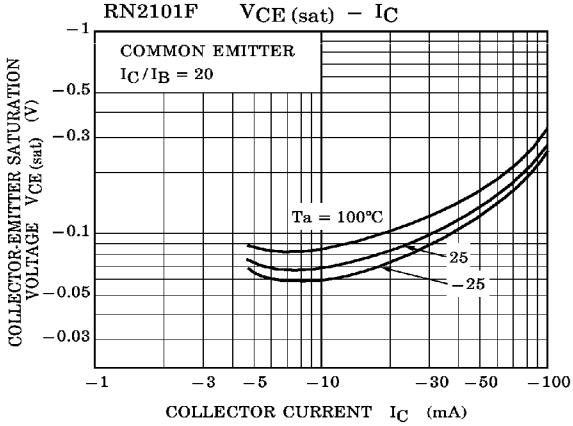
RN2105F h_{FE} – I_C



RN2106F h_{FE} – I_C



RN2101F $V_{CE\,(sat)}$ – I_C



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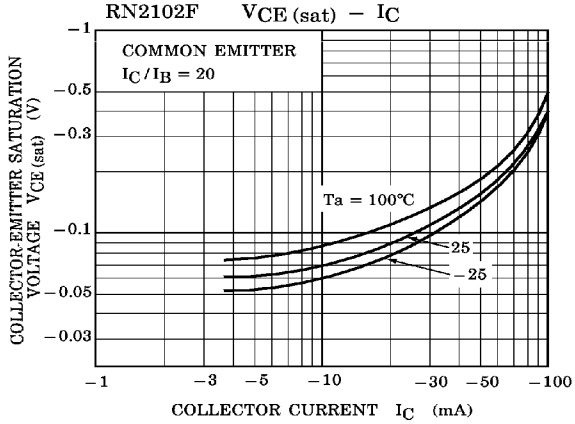

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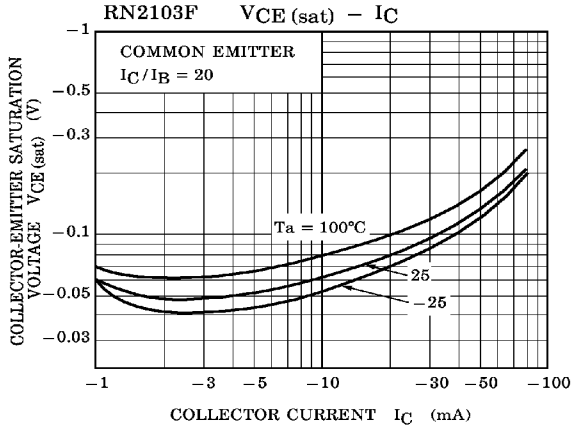

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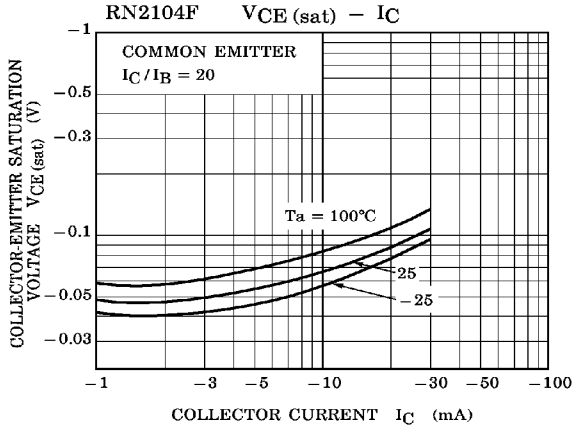

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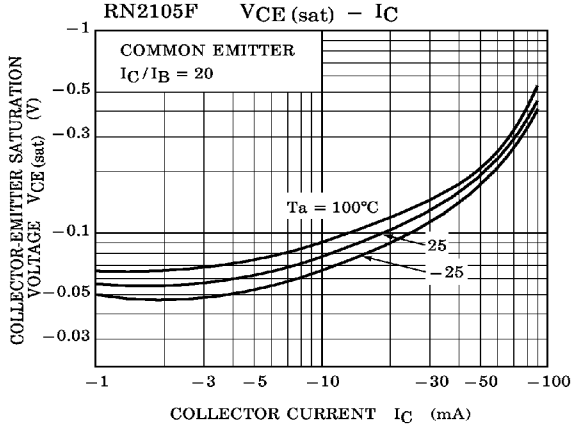

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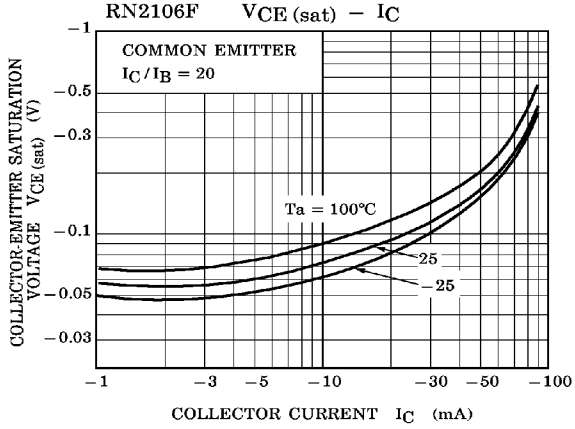
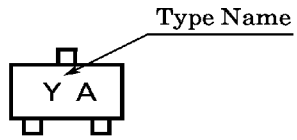
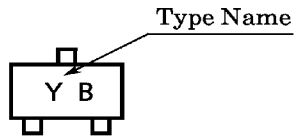
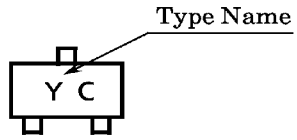
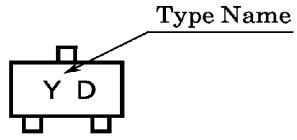
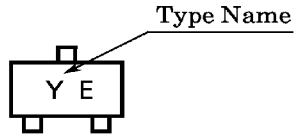


TYPE NAME	MARKING
RN2101F	
RN2102F	
RN2103F	
RN2104F	
RN2105F	
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