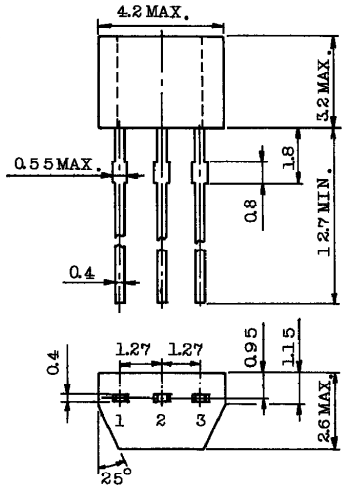
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

RN1201, RN1202, RN1203, RN1204, RN1205, RN1206

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 RN2201~2206

Unit in mm

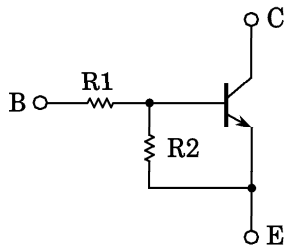


1. EMITTER
2. COLLECTOR
3. BASE

JEDEC	—
EIAJ	—
TOSHIBA	2-4E1A

Weight : 0.13g

EQUIVALENT CIRCUIT AND BIAS RESISTOR VALUES



TYPE No.	R1 (kΩ)	R2 (kΩ)
RN1201	4.7	4.7
RN1202	10	10
RN1203	22	22
RN1204	47	47
RN1205	2.2	47
RN1206	4.7	47

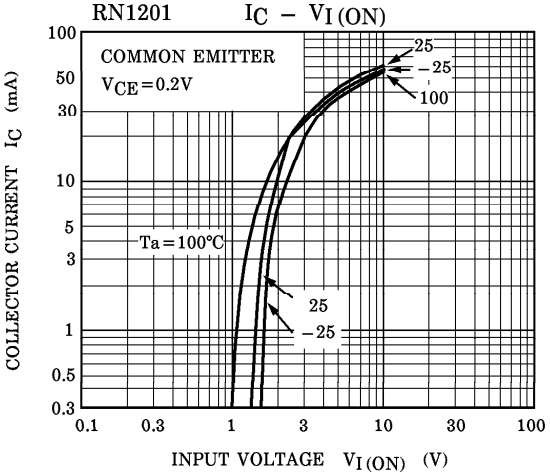
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage	RN1201~1206	V_{CBO}	50	V
Collector-Emitter Voltage		V_{CEO}	50	V
Emitter-Base Voltage	RN1201~1204	V_{EBO}	10	V
	RN1205, 1206		5	V
Collector Current	RN1201~1206	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

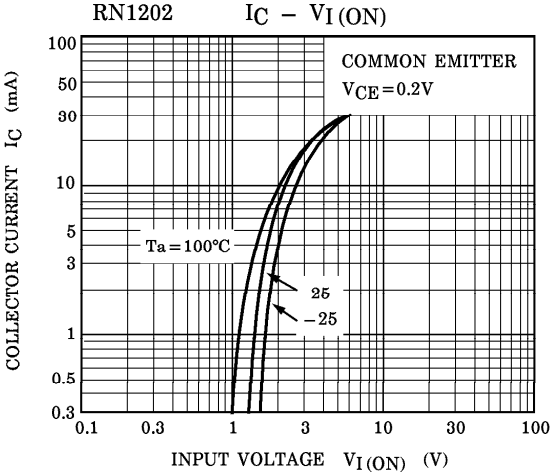
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	RN1201~1206	I_{CBO}	V_{CB} = 50V, I_E = 0	—	—	100	nA
		I_{CEO}	V_{CE} = 50V, I_B = 0	—	—	500	nA
Emitter Cut-off Current	RN1201	I_{EBO}	V_{EB} = 10V, I_C = 0	0.82	—	1.52	mA
	RN1202			0.38	—	0.71	
	RN1203			0.17	—	0.33	
	RN1204			0.082	—	0.15	
	RN1205		V_{EB} = 5V, I_C = 0	0.078	—	0.145	
	RN1206			0.074	—	0.138	
DC Current Gain	RN1201	h_{FE}	V_{CE} = 5V, I_C = 10mA	30	—	—	
	RN1202			50	—	—	
	RN1203			70	—	—	
	RN1204			80	—	—	
	RN1205			80	—	—	
	RN1206			80	—	—	
Collector-Emitter Saturation Voltage	RN1201~1206	$V_{CE(sat)}$	I_C = 5mA, I_B = 0.25mA	—	0.1	0.3	V
Input Voltage (ON)	RN1201	$V_{I(ON)}$	V_{CE} = 0.2V, I_C = 5mA	1.1	—	2.0	V
	RN1202			1.2	—	2.4	
	RN1203			1.3	—	3.0	
	RN1204			1.5	—	5.0	
	RN1205			0.6	—	1.1	
	RN1206			0.7	—	1.3	
Input Voltage (OFF)	RN1201~1204	$V_{I(OFF)}$	V_{CE} = 5V, I_C = 0.1mA	1.0	—	1.5	V
	RN1205~1206			0.5	—	0.8	
Transition Frequency	RN1201~1206	f_T	V_{CE} = 10V, I_C = 5mA	—	250	—	MHz
Collector Output Capacitance	RN1201~1206	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz	—	3	6	pF
Input Resistor	RN1201	R1	—	3.29	4.7	6.11	kΩ
	RN1202			7	10	13	
	RN1203			15.4	22	28.6	
	RN1204			32.9	47	61.1	
	RN1205			1.54	2.2	2.86	
	RN1206			3.29	4.7	6.11	
Resistor Ratio	RN1201~1204	R1 / R2	—	0.9	1.0	1.1	
	RN1205			0.0421	0.0468	0.0515	
	RN1206			0.09	0.1	0.11	

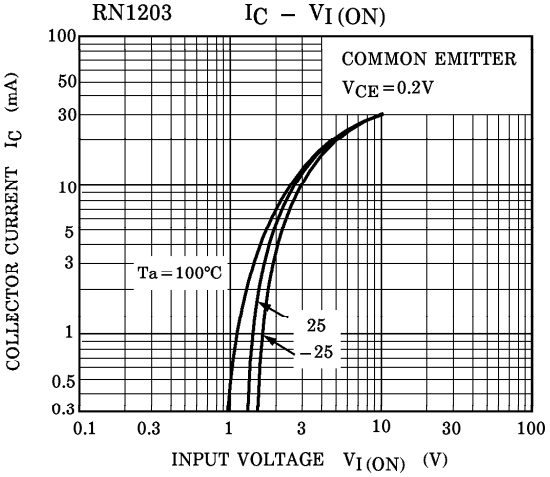
RN1201 $I_C - V_{I(ON)}$



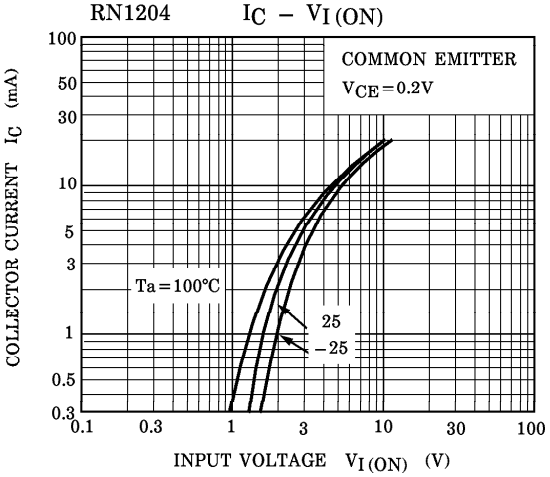
RN1202 $I_C - V_{I(ON)}$



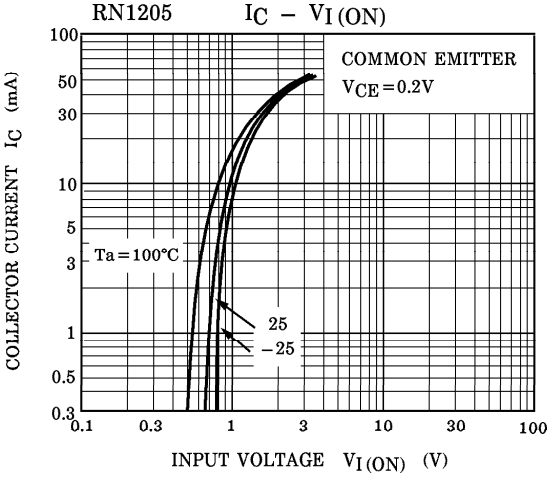
RN1203 $I_C - V_{I(ON)}$



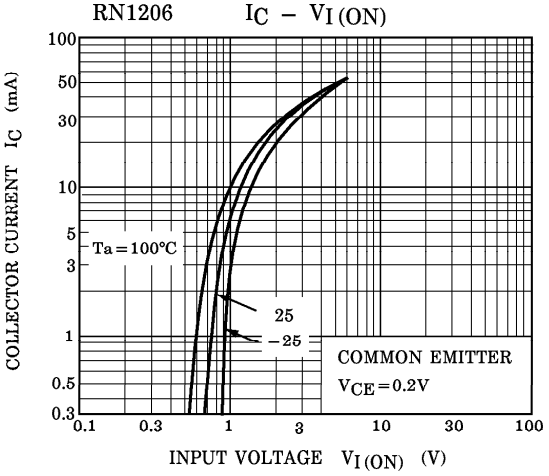
RN1204 $I_C - V_{I(ON)}$



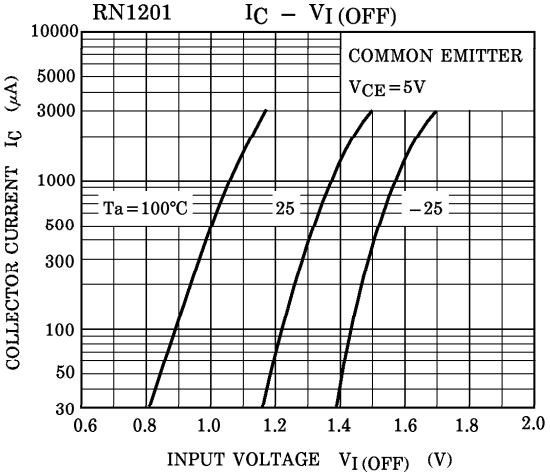
RN1205 $I_C - V_{I(ON)}$



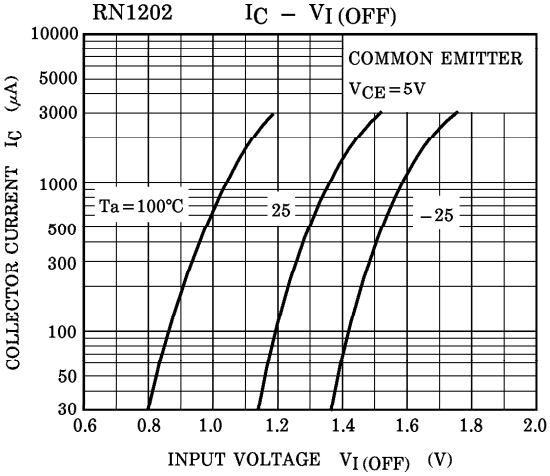
RN1206 $I_C - V_{I(ON)}$



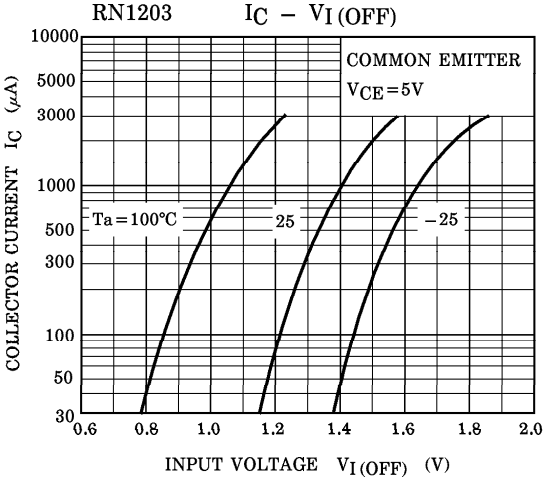
RN1201 I_C – $V_{I(OFF)}$



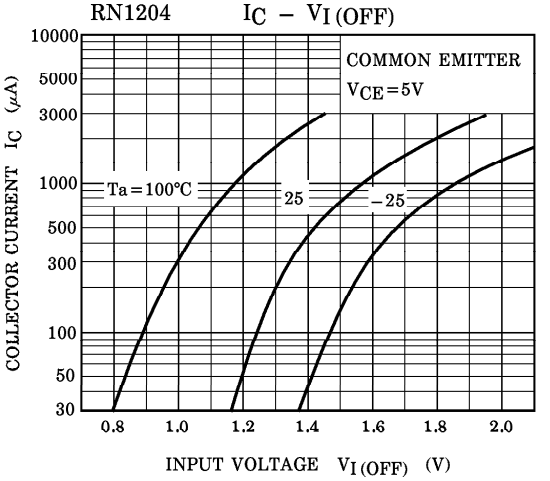
RN1202 I_C – $V_{I(OFF)}$



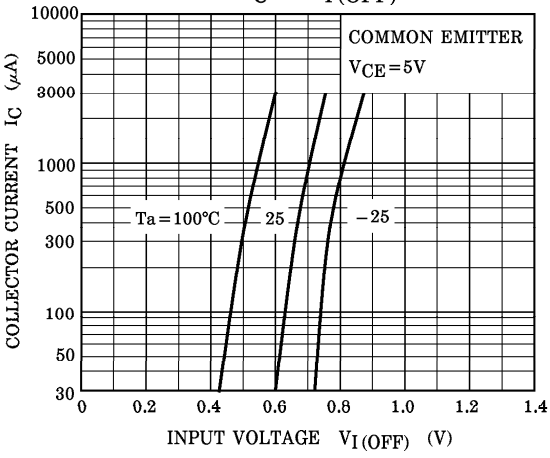
RN1203 I_C – $V_{I(OFF)}$



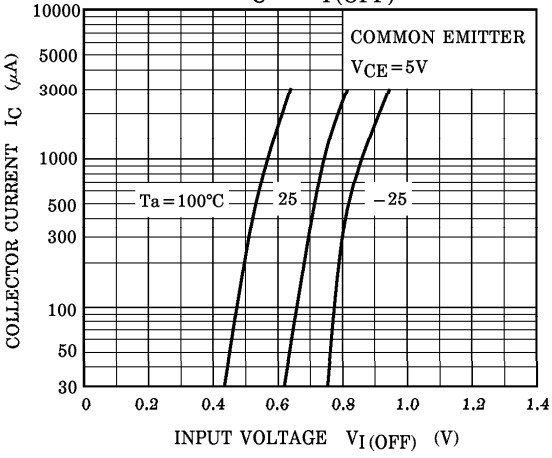
RN1204 I_C – $V_{I(OFF)}$



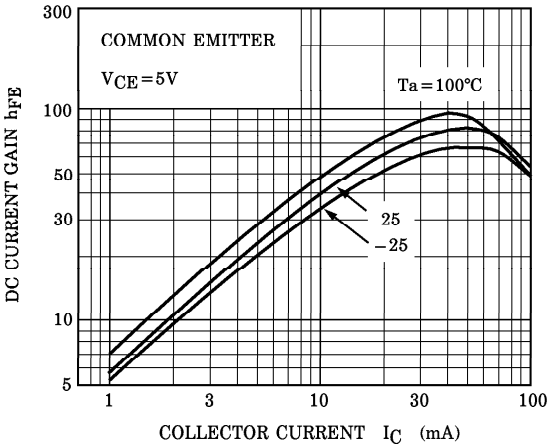
RN1205 I_C – $V_{I(OFF)}$



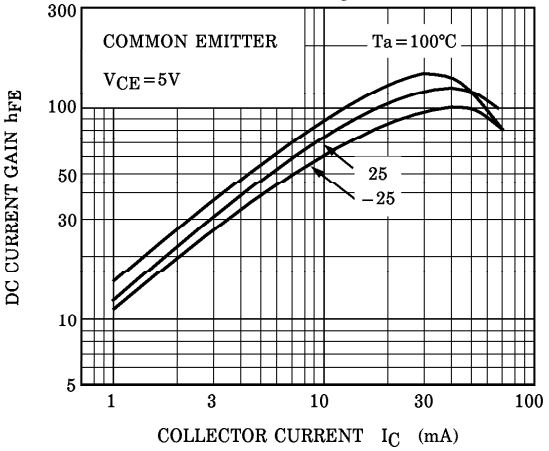
RN1206 I_C – $V_{I(OFF)}$



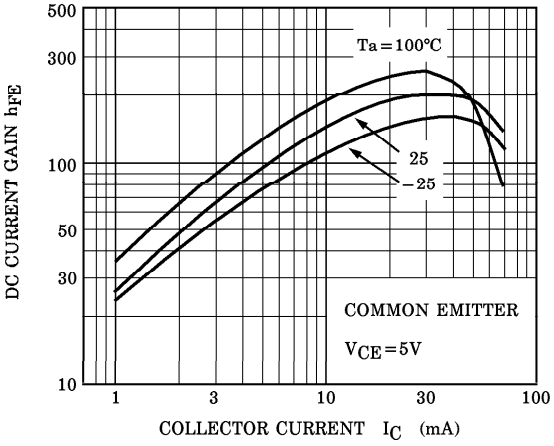
RN1201 h_{FE} – I_C



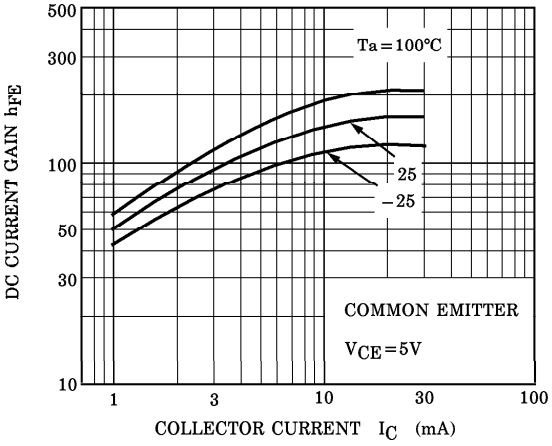
RN1202 h_{FE} – I_C



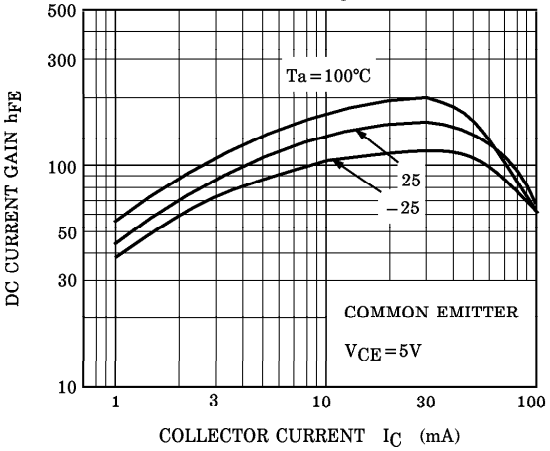
RN1203 h_{FE} – I_C



RN1204 h_{FE} – I_C



RN1205 h_{FE} – I_C



RN1206 h_{FE} – I_C