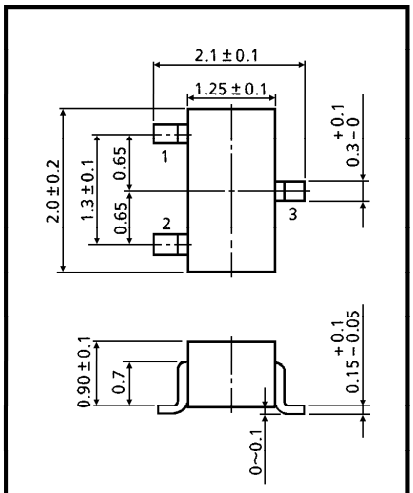
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

RN1314, RN1315, RN1316, RN1317, RN1318

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 RN2314~RN2318

Unit in mm

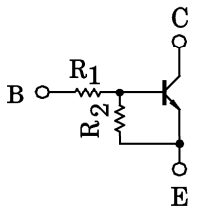


1. BASE
2. EMITTER
3. COLLECTOR

USM	
JEDEC	—
EIAJ	SC-70
TOSHIBA	2-2E1A

Weight : 0.006g

EQUIVALENT CIRCUIT AND BIAS RESISTOR VALUES



TYPE No.	R_1 (kΩ)	R_2 (kΩ)
RN1314	1	10
RN1315	2.2	10
RN1316	4.7	10
RN1317	10	4.7
RN1318	47	10

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage	RN1314~1318	V_{CBO}	50	V
Collector-Emitter Voltage	RN1314~1318	V_{CEO}	50	V
Emitter-Base Voltage	RN1314	V_{EBO}	5	V
	RN1315		6	
	RN1316		7	
	RN1317		15	
	RN1318		25	
Collector Current	RN1314~1318	I_C	100	mA
Collector Power Dissipation	RN1314~1318	P_C	100	mW
Junction Temperature	RN1314~1318	T_j	150	°C
Storage Temperature Range	RN1314~1318	T_{stg}	−55~150	°C

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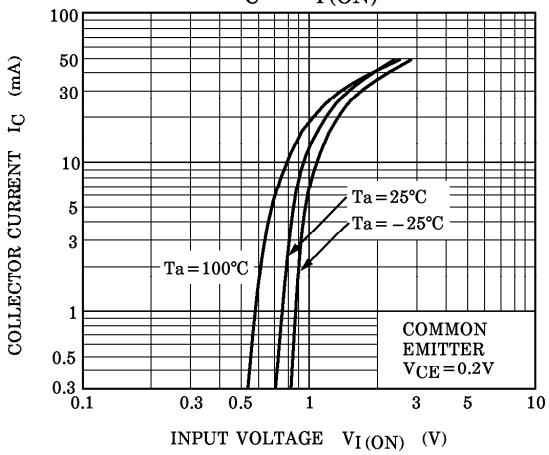
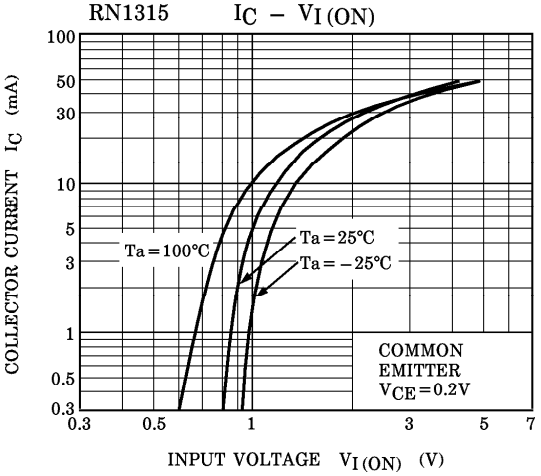
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	RN1314~1318	I_{CBO}	V_{CB} = 50V, I_E = 0	—	—	100	nA
	RN1314~1318	I_{CEO}	V_{CE} = 50V, I_B = 0	—	—	500	nA
Emitter Cut-off Current	RN1314	I_{EBO}	V_{EB} = 5V, I_C = 0	0.35	—	0.65	mA
	RN1315		V_{EB} = 6V, I_C = 0	0.37	—	0.71	
	RN1316		V_{EB} = 7V, I_C = 0	0.36	—	0.68	
	RN1317		V_{EB} = 15V, I_C = 0	0.78	—	1.46	
	RN1318		V_{EB} = 25V, I_C = 0	0.33	—	0.63	
DC Current Gain	RN1314~16, 18	h_{FE}	V_{CE} = 5V, I_C = 10mA	50	—	—	
	RN1317			30	—	—	
Collector-Emitter Saturation Voltage	RN1314~1318	$V_{CE\ (sat)}$	I_C = 5mA, I_B = 0.25mA	—	0.1	0.3	V
Input Voltage (ON)	RN1314	$V_{I\ (ON)}$	V_{CE} = 0.2V, I_C = 5mA	0.6	—	2.0	V
	RN1315			0.7	—	2.5	
	RN1316			0.8	—	2.5	
	RN1317			1.5	—	3.5	
	RN1318			2.5	—	10.0	
Input Voltage (OFF)	RN1314	$V_{I\ (OFF)}$	V_{CE} = 5V, I_C = 0.1mA	0.3	—	0.9	V
	RN1315			0.3	—	1.0	
	RN1316			0.3	—	1.1	
	RN1317			0.3	—	2.3	
	RN1318			0.5	—	5.7	
Transition Frequency	RN1314~1318	f_T	V_{CE} = 10V, I_C = 5mA	—	250	—	MHz
Collector Output Capacitance	RN1314~1318	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz	—	3.0	6.0	pF
Input Resistor	RN1314	R_1	—	0.7	1.0	1.3	kΩ
	RN1315			1.54	2.2	2.86	
	RN1316			3.29	4.7	6.11	
	RN1317			7.0	10.0	13.0	
	RN1318			32.9	47.0	61.1	
Resistor Ratio	RN1314	R_1 / R_2	—	—	0.1	—	
	RN1315			—	0.22	—	
	RN1316			—	0.47	—	
	RN1317			—	2.13	—	
	RN1318			—	4.7	—	

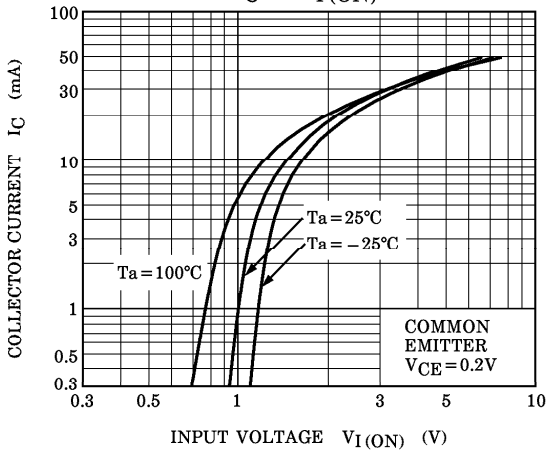
RN1314 I_C – $V_{I(ON)}$



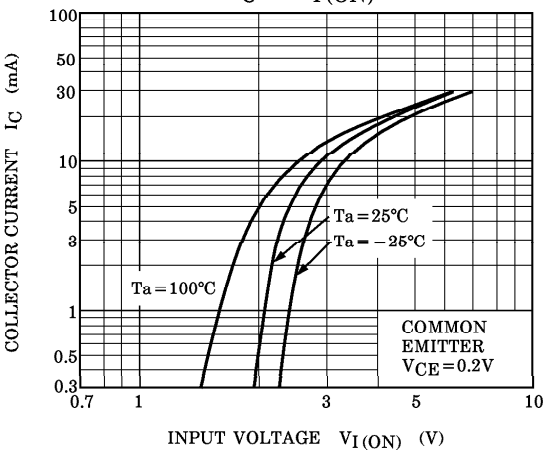
RN1315 I_C – $V_{I(ON)}$



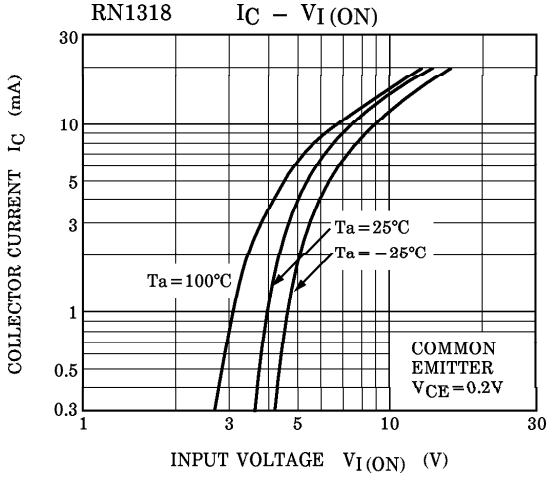
RN1316 I_C – $V_{I(ON)}$



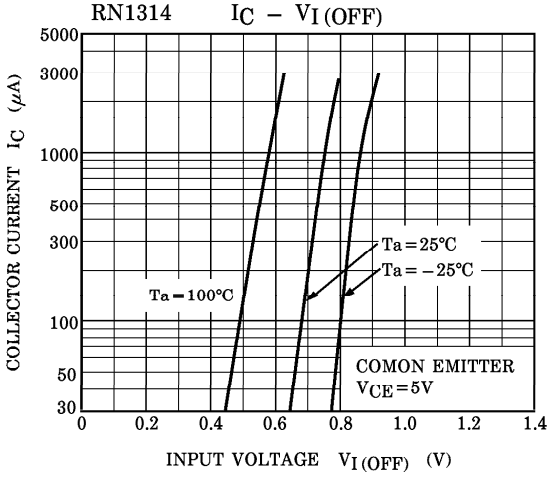
RN1317 I_C – $V_{I(ON)}$



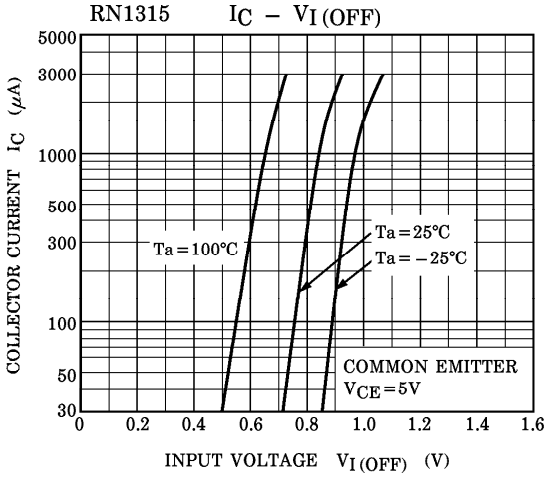
RN1318 I_C – $V_{I(ON)}$



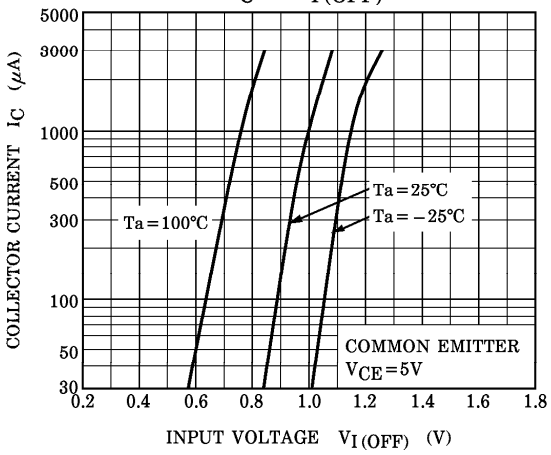
RN1314 I_C – $V_{I(OFF)}$



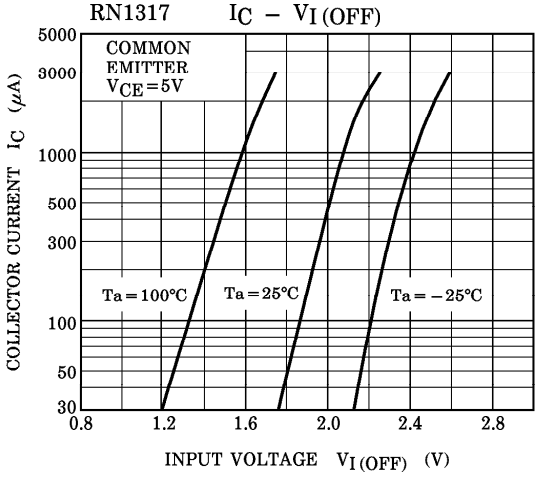
RN1315 I_C – $V_{I(OFF)}$



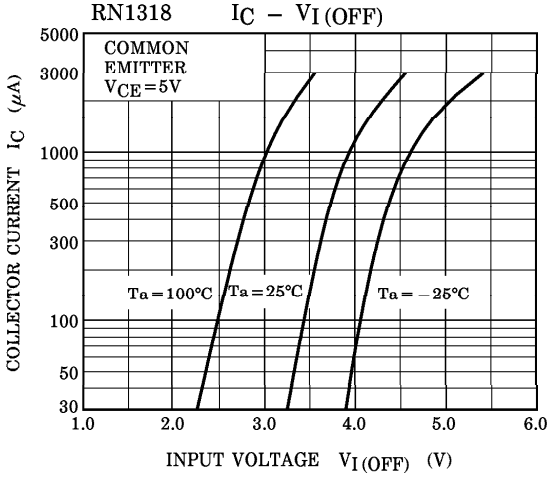
RN1316 I_C – $V_{I(OFF)}$



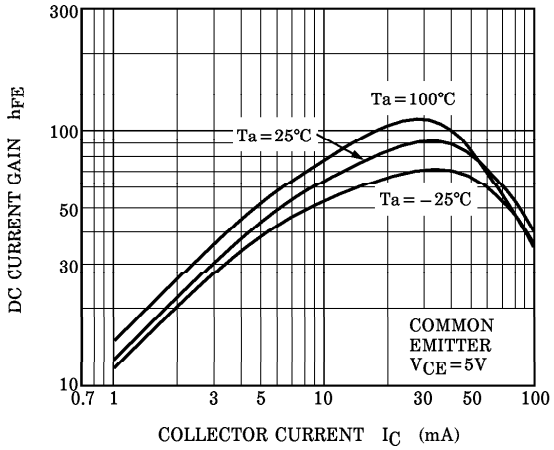
RN1317 I_C – $V_{I(OFF)}$



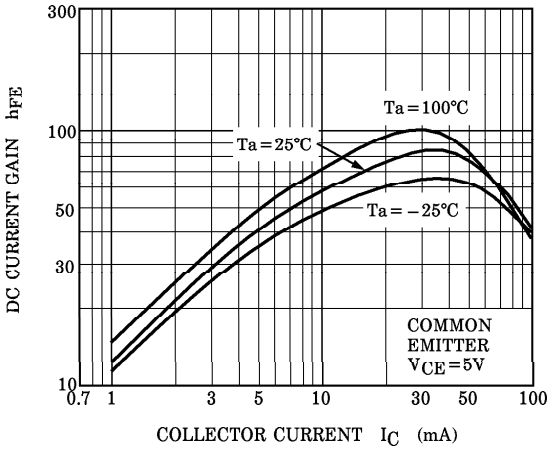
RN1318 I_C – $V_{I(OFF)}$



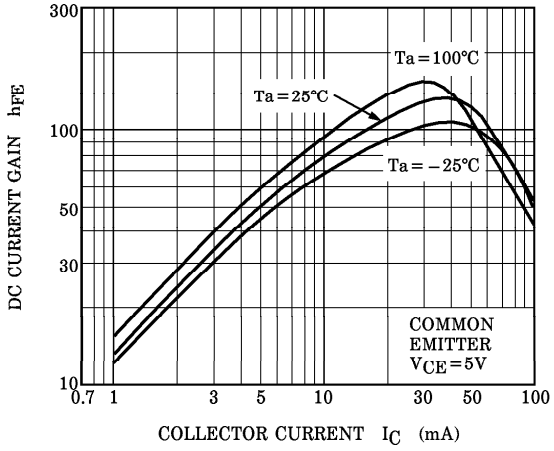
RN1314 h_{FE} – I_C



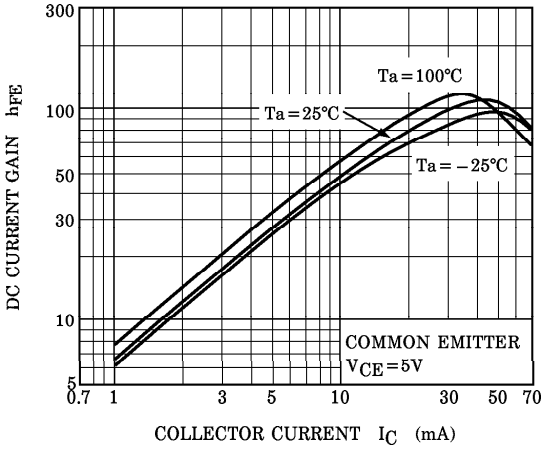
RN1315 h_{FE} – I_C



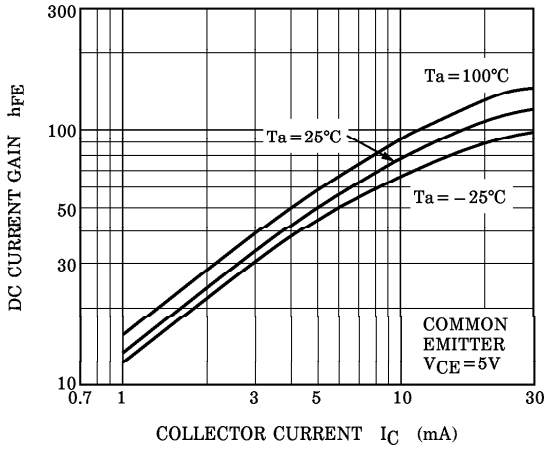
RN1316 h_{FE} – I_C



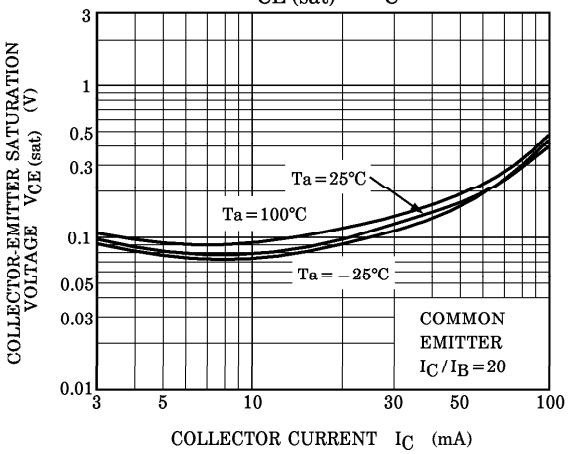
RN1317 h_{FE} – I_C



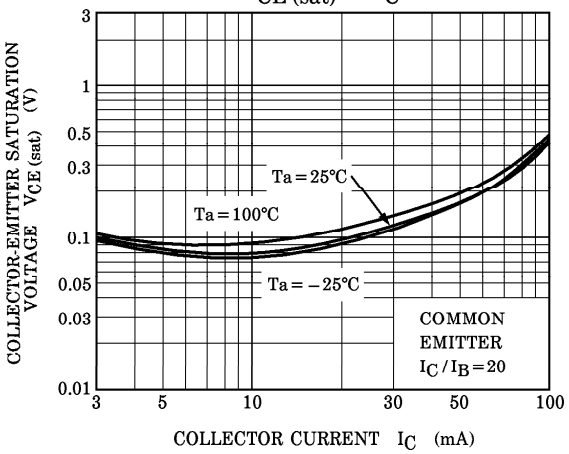
RN1318 h_{FE} – I_C



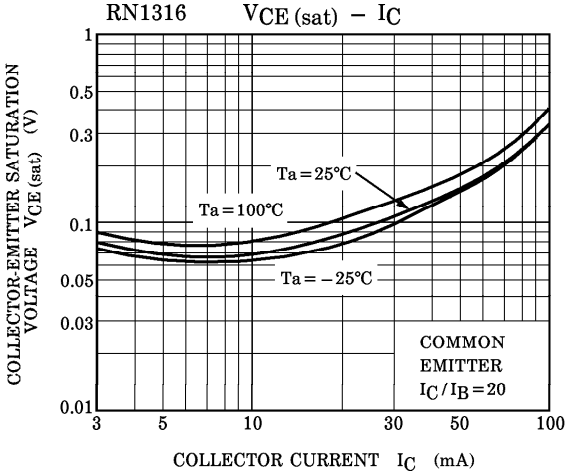
RN1314 $V_{CE\,(sat)}$ – I_C



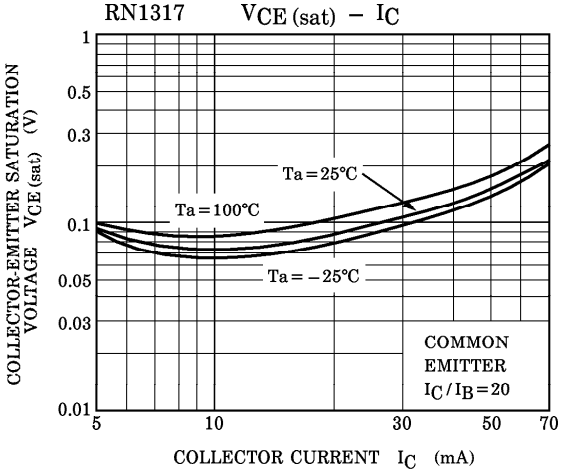
RN1315 $V_{CE\,(sat)}$ – I_C



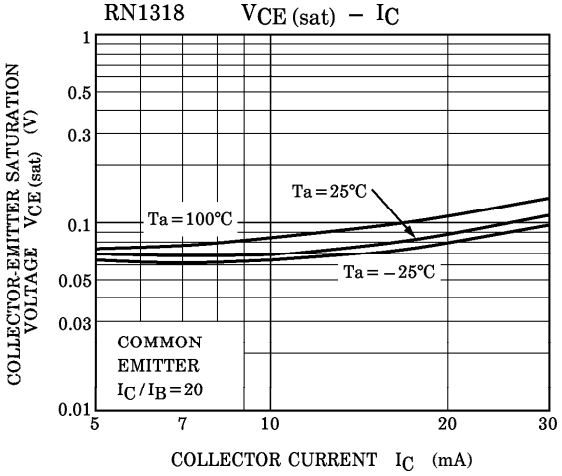
RN1316 $V_{CE\,(sat)}$ – I_C

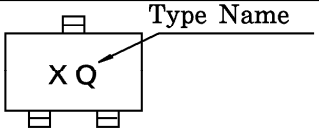
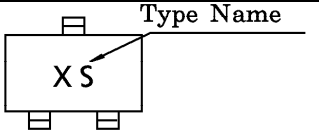
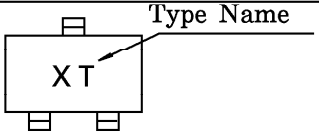
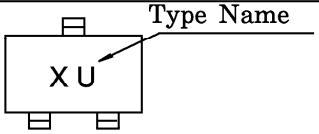


RN1317 $V_{CE\,(sat)}$ – I_C



RN1318 $V_{CE\,(sat)}$ – I_C



TYPE NAME	MARKING
RN1314	
RN1315	
RN1316	
RN1317	
RN1318