

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

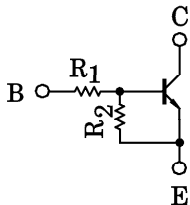
RN1414, RN1415, RN1416, RN1417, RN1418

SWITCHING, INVERTER CIRCUIT, INTERFACE CIRCUIT
AND DRIVER CIRCUIT APPLICATIONS.

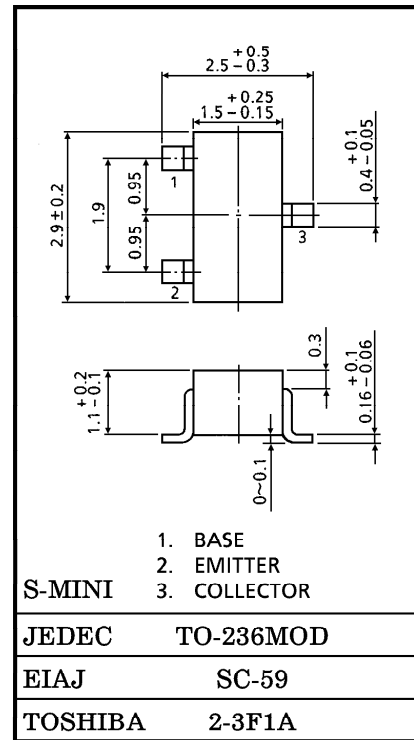
Unit in mm

- With Built-in Bias Resistors
- Simplify Circuit Design
- Reduce a Quantity of Parts and Manufacturing Process
- Complementary to RN2414~RN2418

EQUIVALENT CIRCUIT AND BIAS RESISTOR VALUES



TYPE No.	R ₁ (kΩ)	R ₂ (kΩ)
RN1414	1	10
RN1415	2.2	10
RN1416	4.7	10
RN1417	10	4.7
RN1418	47	10



Weight : 0.012g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage	RN1414~1418	V _{CB0}	50	V
Collector-Emitter Voltage		V _{CE0}	50	V
Emitter-Base Voltage	RN1414	V _{EB0}	5	V
	RN1415		6	
	RN1416		7	
	RN1417		15	
	RN1418		25	
Collector Current	RN1414~1418	I _C	100	mA
Collector Power Dissipation		P _C	200	mW
Junction Temperature		T _j	150	°C
Storage Temperature Range		T _{stg}	-55~150	°C

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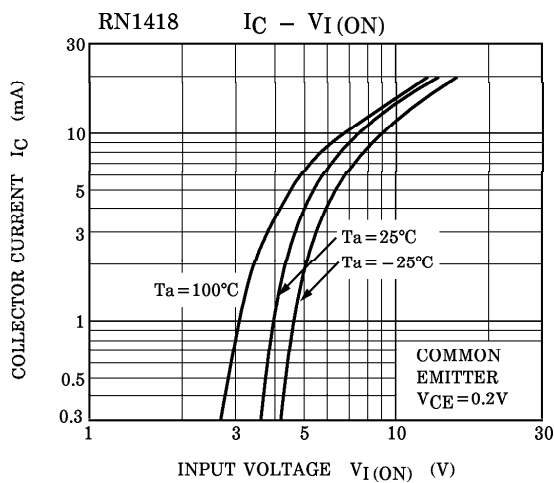
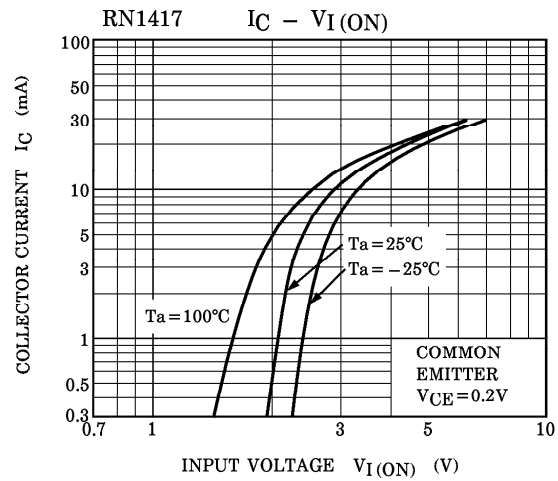
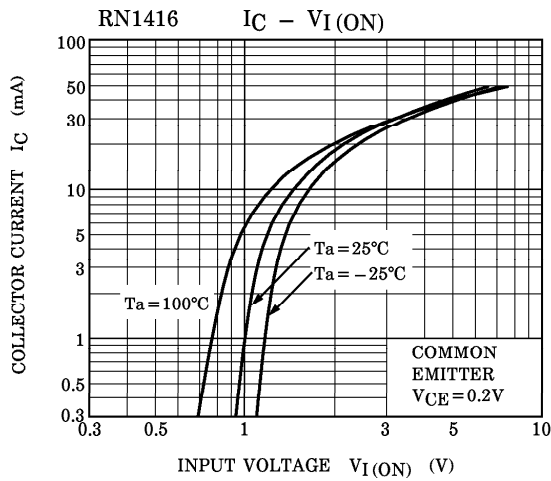
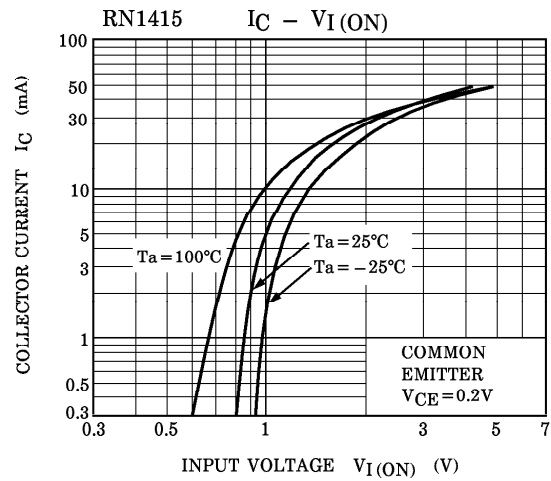
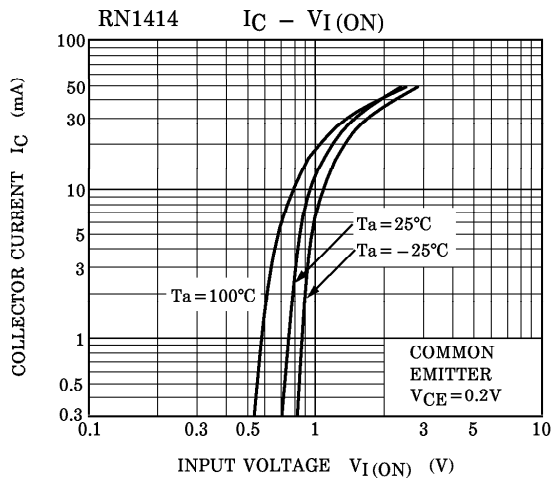
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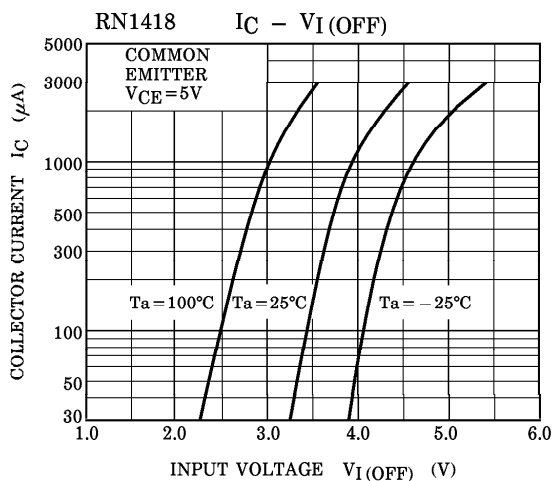
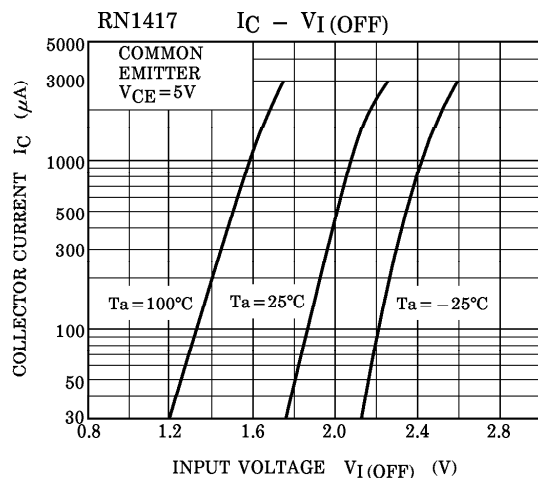
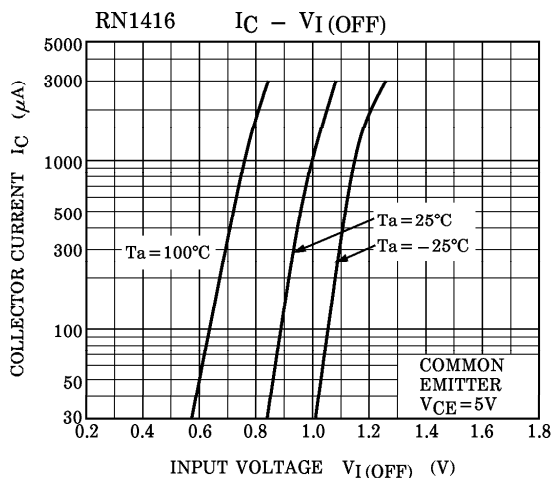
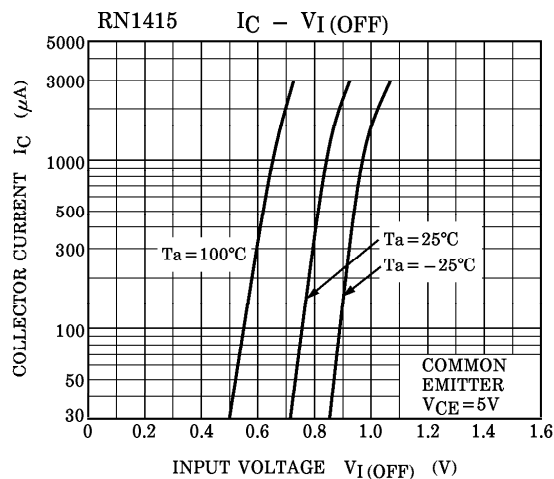
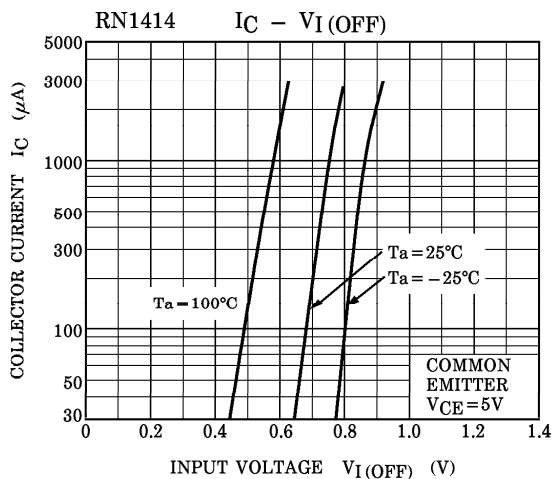
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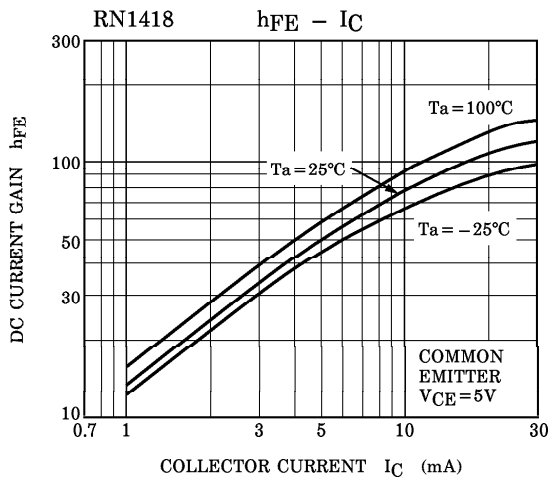
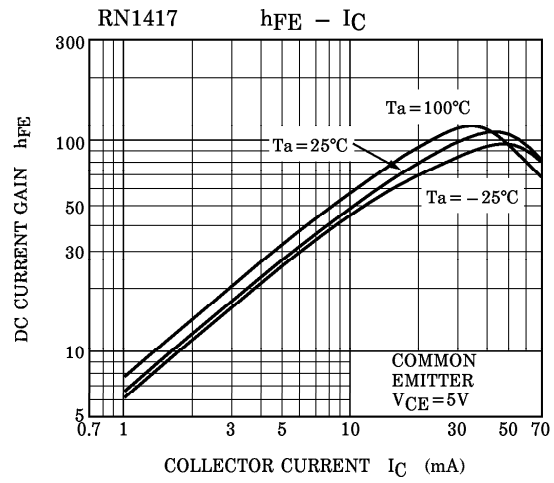
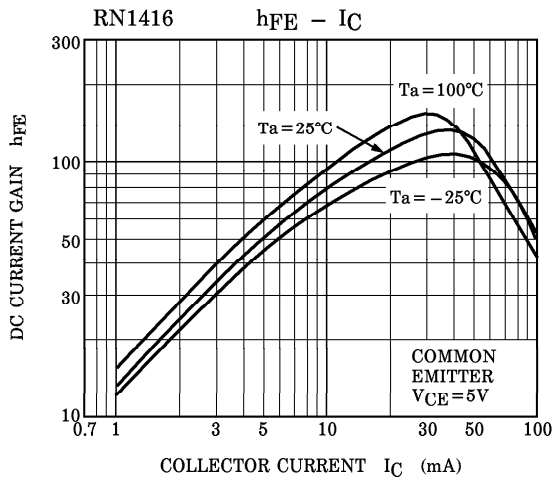
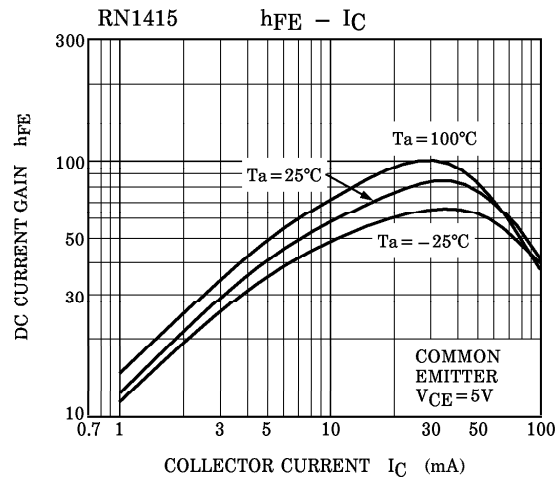
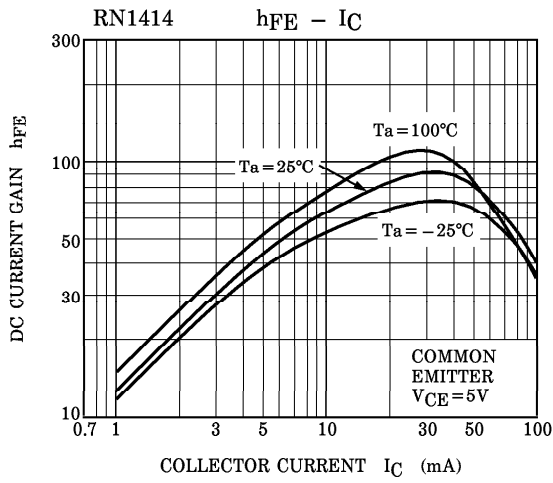
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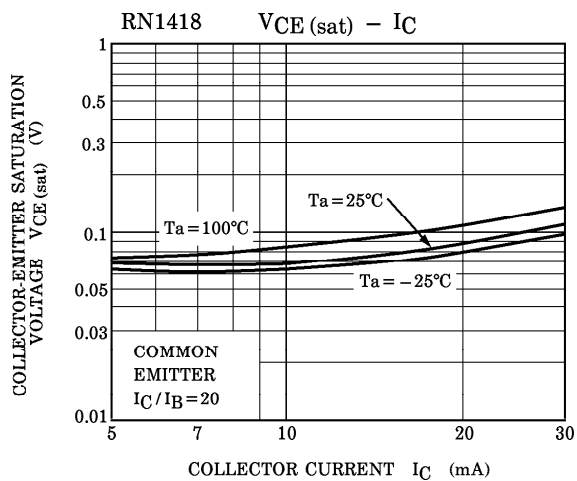
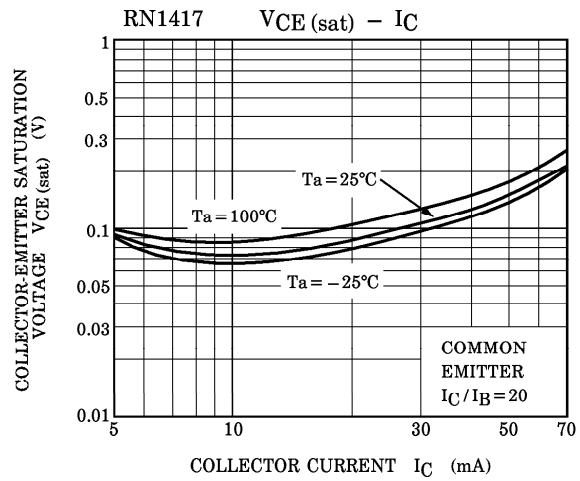
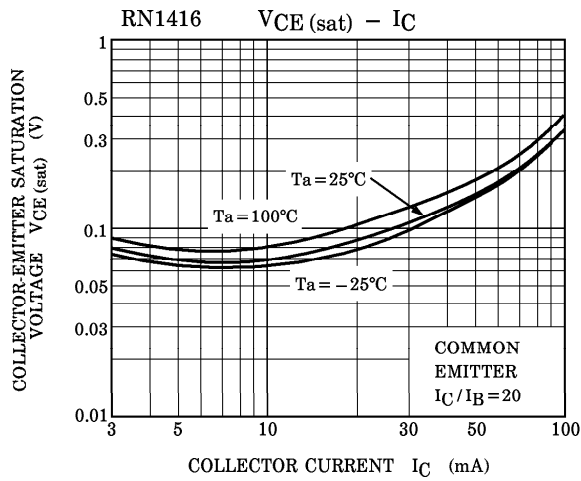
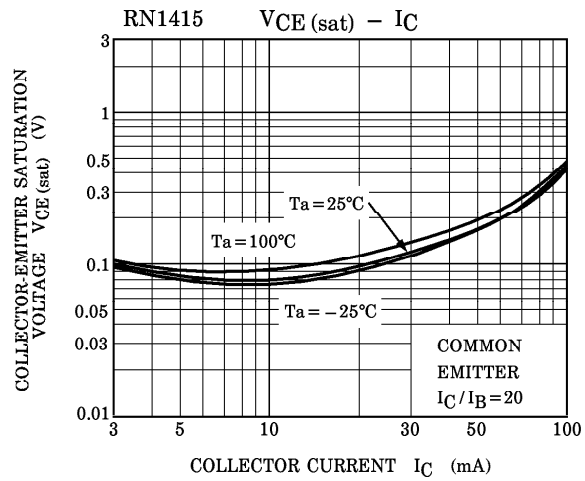
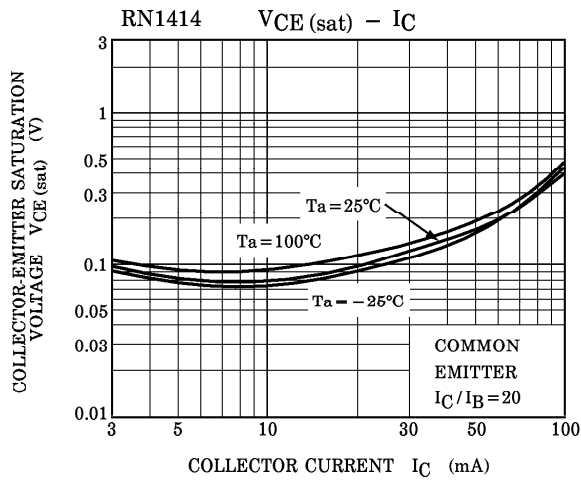
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

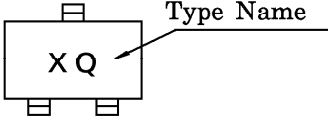
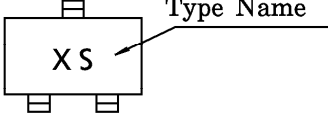
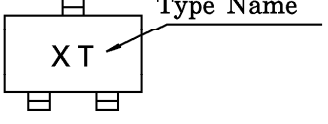
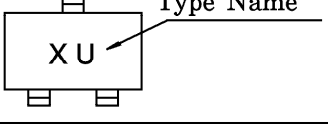
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	RN1414~1418	I_{CBO}	$V_{CB}=50V, I_E=0$	—	—	100	nA
	RN1414~1418	I_{CEO}	$V_{CE}=50V, I_B=0$	—	—	500	nA
Emitter Cut-off Current	RN1414	I_{EBO}	$V_{EB}=5V, I_C=0$	0.35	—	0.65	mA
	RN1415		$V_{EB}=6V, I_C=0$	0.37	—	0.71	
	RN1416		$V_{EB}=7V, I_C=0$	0.36	—	0.68	
	RN1417		$V_{EB}=15V, I_C=0$	0.78	—	1.46	
	RN1418		$V_{EB}=25V, I_C=0$	0.33	—	0.63	
DC Current Gain	RN1414~16, 18	h_{FE}	$V_{CE}=5V, I_C=10mA$	50	—	—	
	RN1417			30	—	—	
Collector-Emitter Saturation Voltage	RN1414~1418	$V_{CE(sat)}$	$I_C=5mA, I_B=0.25mA$	—	0.1	0.3	V
Input Voltage (ON)	RN1414	$V_{I(ON)}$	$V_{CE}=0.2V, I_C=5mA$	0.6	—	2.0	V
	RN1415			0.7	—	2.5	
	RN1416			0.8	—	2.5	
	RN1417			1.5	—	3.5	
	RN1418			2.5	—	10.0	
Input Voltage (OFF)	RN1414	$V_{I(OFF)}$	$V_{CE}=5V, I_C=0.1mA$	0.3	—	0.9	V
	RN1415			0.3	—	1.0	
	RN1416			0.3	—	1.1	
	RN1417			0.3	—	2.3	
	RN1418			0.5	—	5.7	
Transition Frequency	RN1414~1418	f_T	$V_{CE}=10V, I_C=5mA$	—	250	—	MHz
Collector Output Capacitance	RN1414~1418	C_{ob}	$V_{CB}=10V, I_E=0, f=1MHz$	—	3.0	6.0	pF
Input Resistor	RN1414	R_1	—	0.7	1.0	1.3	kΩ
	RN1415			1.54	2.2	2.86	
	RN1416			3.29	4.7	6.11	
	RN1417			7.0	10.0	13.0	
	RN1418			32.9	47.0	61.1	
Resistor Ratio	RN1414	R_1/R_2	—	—	0.1	—	
	RN1415			—	0.22	—	
	RN1416			—	0.47	—	
	RN1417			—	2.13	—	
	RN1418			—	4.7	—	









TYPE NAME	MARKING
RN1414	
RN1415	
RN1416	
RN1417	
RN1418	