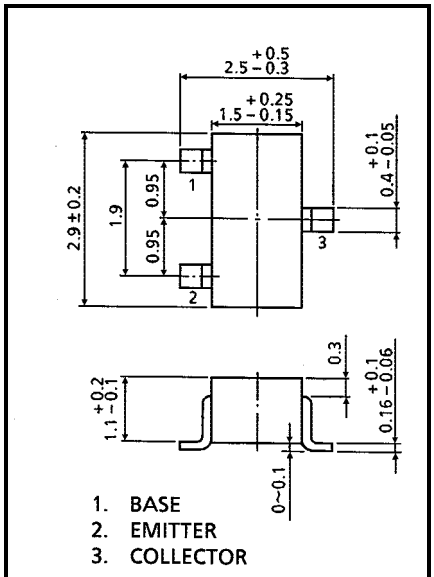
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

RN2414,RN2415,RN2416,RN2417,RN2418

Switching, Inverter Circuit, Interface Circuit
And Driver Circuit Applications

Unit: mm

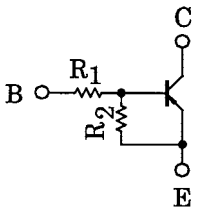
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1414~RN1418



JEDEC	TO-236MOD
EIAJ	SC-59
TOSHIBA	2-3F1A

Weight: 0.012g

Equivalent Circuit and Bias Resistor Values



Type No.	R_1 (kΩ)	R_2 (kΩ)
RN2414	1	10
RN2415	2.2	10
RN2416	4.7	10
RN2417	10	4.7
RN2418	47	10

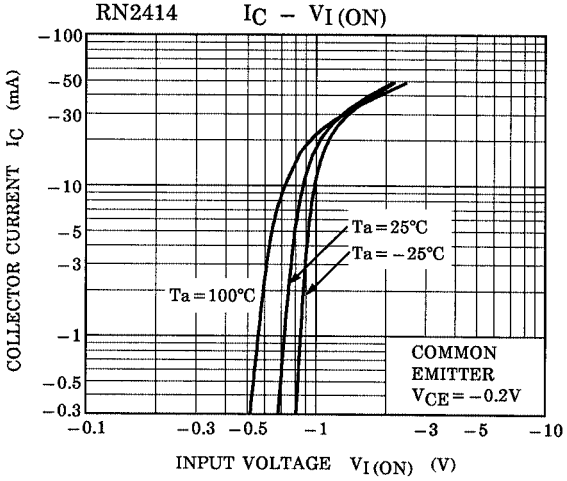
Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit
Collector-base voltage	RN2414~2418	V_{CBO}	−50	V
Collector-emitter voltage		V_{CEO}	−50	V
Emitter-base voltage	RN2414	V_{EBO}	−5	V
	RN2415		−6	
	RN2416		−7	
	RN2417		−15	
	RN2418		−25	
Collector current	RN2414~2418	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

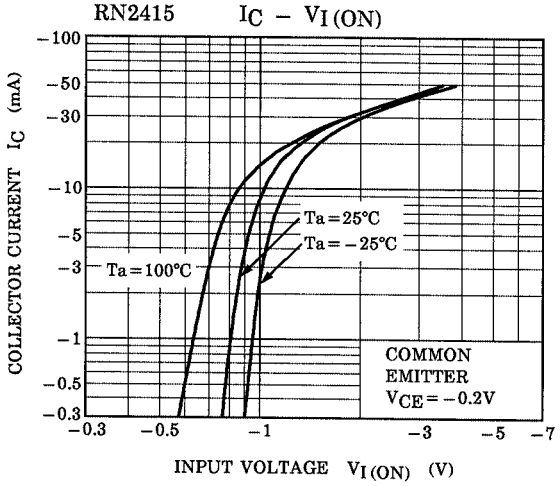
Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	RN2414~2418	I_{CBO}	—	V_{CB} = −50V, I_E = 0	—	—	−100	nA
	RN2414~2418	I_{CEO}	—	V_{CE} = −50V, I_B = 0	—	—	−500	nA
Emitter cut-off current	RN2414	I_{EBO}	—	V_{EB} = −5V, I_C = 0	−0.35	—	−0.65	mA
	RN2415		—	V_{EB} = −6V, I_C = 0	−0.37	—	−0.71	
	RN2416		—	V_{EB} = −7V, I_C = 0	−0.36	—	−0.68	
	RN2417		—	V_{EB} = −15V, I_C = 0	−0.78	—	−1.46	
	RN2418		—	V_{EB} = −25V, I_C = 0	−0.33	—	−0.63	
DC current gain	RN2414~16, 18	h_{FE}	—	V_{CE} = −5V, I_C = −10mA	50	—	—	—
	RN2417		—		30	—	—	
Collector-emitter saturation voltage	RN2414~2418	$V_{CE\ (sat)}$	—	I_C = −5mA, I_B = −0.25mA	—	−0.1	−0.3	V
Input voltage (ON)	RN2414	$V_{I\ (ON)}$	—	V_{CE} = −0.2V, I_C = −5mA	−0.5	—	−2.0	V
	RN2415		—		−0.6	—	−2.5	
	RN2416		—		−0.7	—	−2.5	
	RN2417		—		−1.5	—	−3.5	
	RN2418		—		−2.5	—	−10.0	
Input voltage (OFF)	RN2414	$V_{I\ (OFF)}$	—	V_{CE} = −5V, I_C = −0.1mA	−0.3	—	−0.9	V
	RN2415		—		−0.3	—	−1.0	
	RN2416		—		−0.3	—	−1.1	
	RN2417		—		−0.3	—	−3.0	
	RN2418		—		−0.5	—	−5.7	
Translation frequency	RN2414~2418	f_T	—	V_{CE} =−10V, I_C = −5mA	—	200	—	MHz
Collector output capacitance	RN2414~2418	C_{ob}	—	V_{CB} = −10V, I_E = 0, f = 1MHz	—	3.0	6.0	pF
Input resistor	RN2414	R_1	—	—	0.7	1.0	1.3	kΩ
	RN2415		—		1.54	2.2	2.86	
	RN2416		—		3.29	4.7	6.11	
	RN2417		—		7.0	10.0	13.0	
	RN2418		—		32.9	47.0	61.1	
Resistor ratio	RN2414	R_1/R_2	—	—	—	0.1	—	—
	RN2415		—		—	0.22	—	
	RN2416		—		—	0.47	—	
	RN2417		—		—	2.13	—	
	RN2418		—		—	4.7	—	

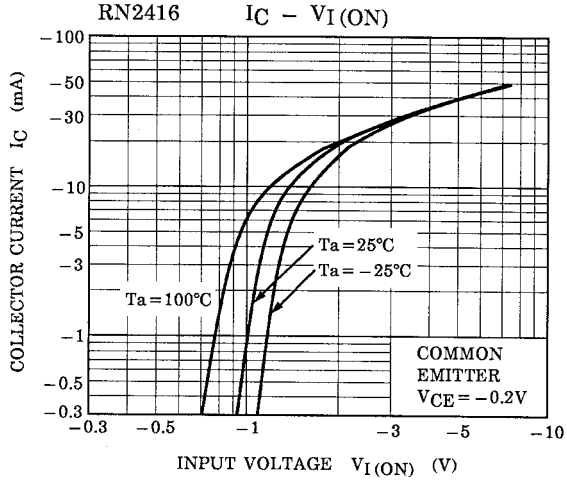
RN2414 $I_C - V_{I(ON)}$



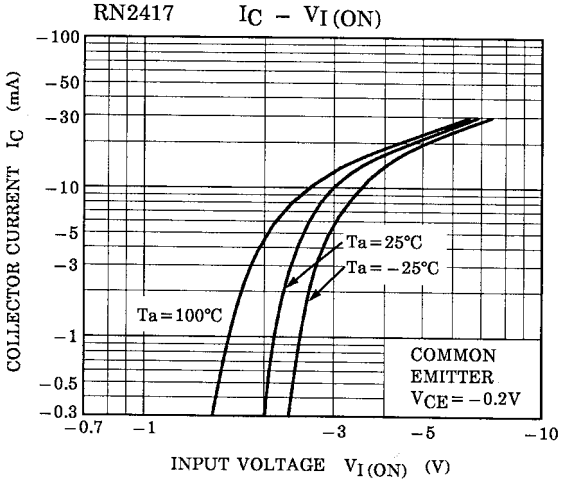
RN2415 $I_C - V_{I(ON)}$



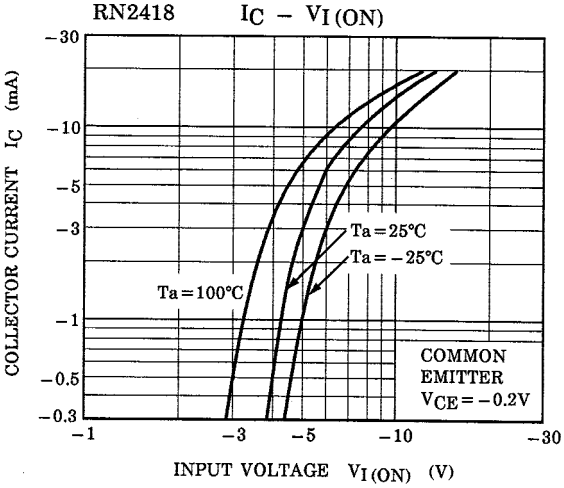
RN2416 $I_C - V_{I(ON)}$



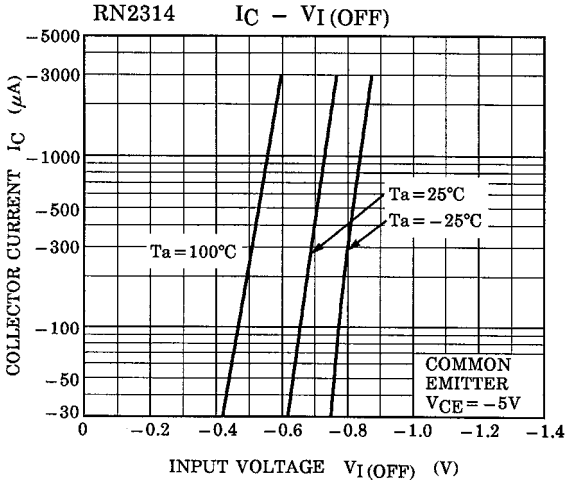
RN2417 $I_C - V_{I(ON)}$



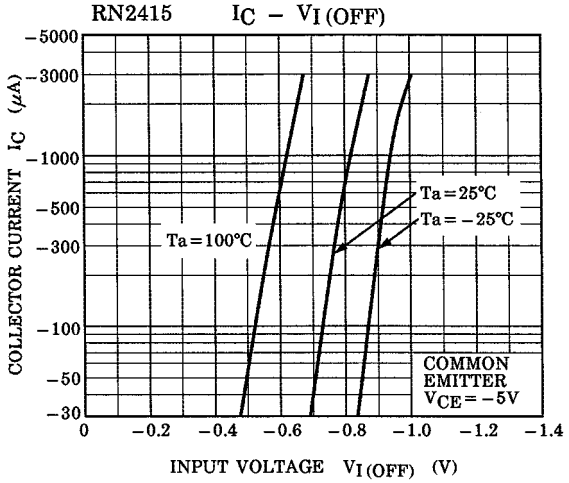
RN2418 $I_C - V_{I(ON)}$



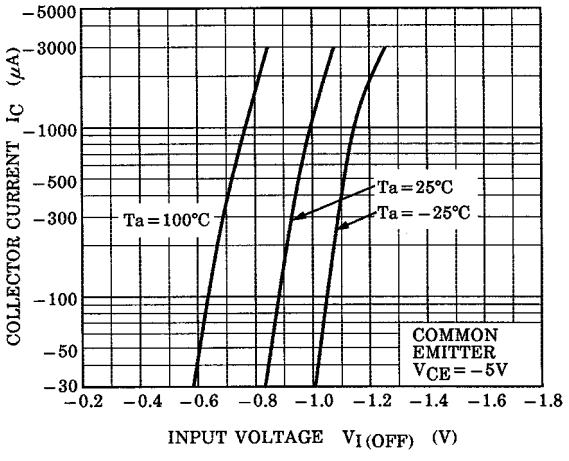
RN2314 I_C – $V_{I(OFF)}$



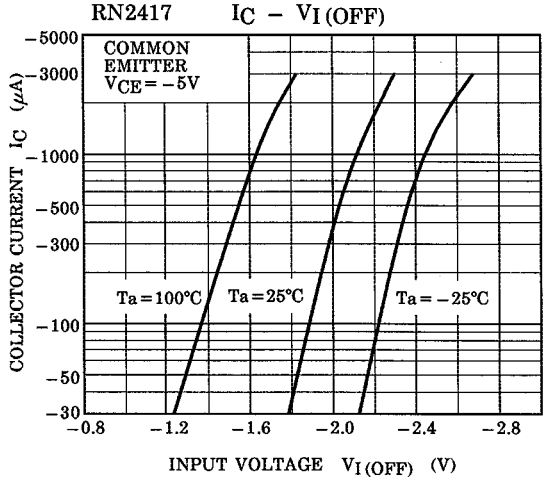
RN2415 I_C – $V_{I(OFF)}$



RN2416 I_C – $V_{I(OFF)}$



RN2417 I_C – $V_{I(OFF)}$



RN2418 I_C – $V_{I(OFF)}$