

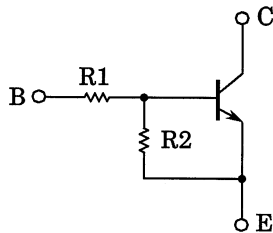
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

RN1114FV, RN1115FV, RN1116FV, RN1117FV, RN1118FV

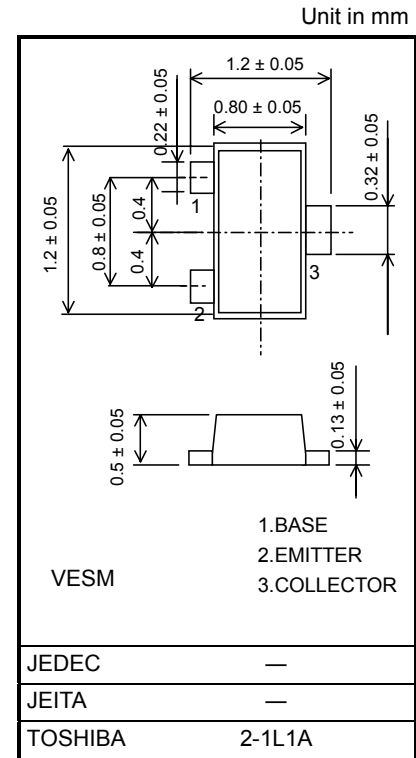
Switching, Inverter Circuit, Interface Circuit
and Driver Circuit Applications

- Built-in bias resistors
- Simplified circuit design
- Reduced quantity of parts and manufacturing process
- Complementary to RN2114FV~RN2118FV

Equivalent Circuit and Bias Resistor Values



Type No.	R1 (kΩ)	R2 (kΩ)
RN1114FV	1	10
RN1115FV	2.2	10
RN1116FV	4.7	10
RN1117FV	10	4.7
RN1118FV	47	10

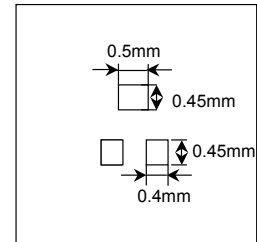


Weight: 0.0015 g (typ.)

Maximum Ratings (Ta = 25°C)

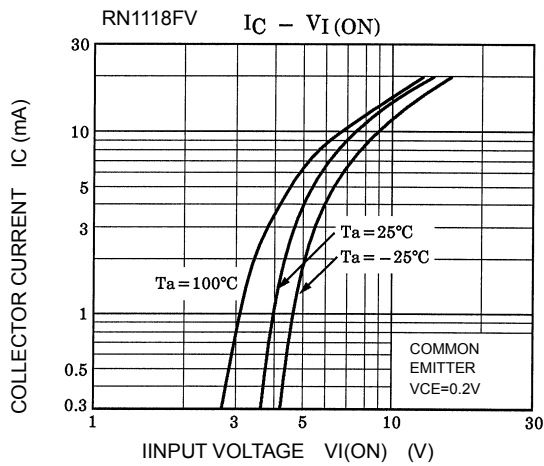
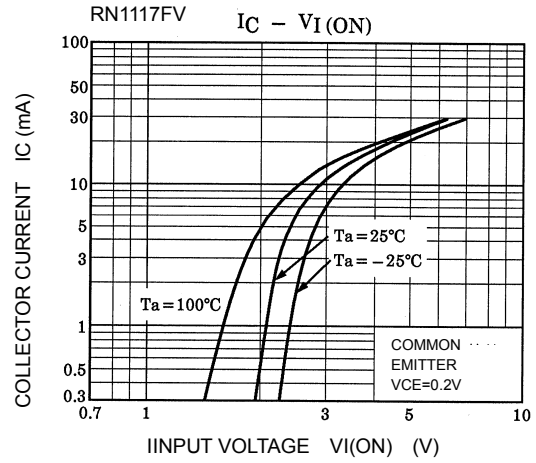
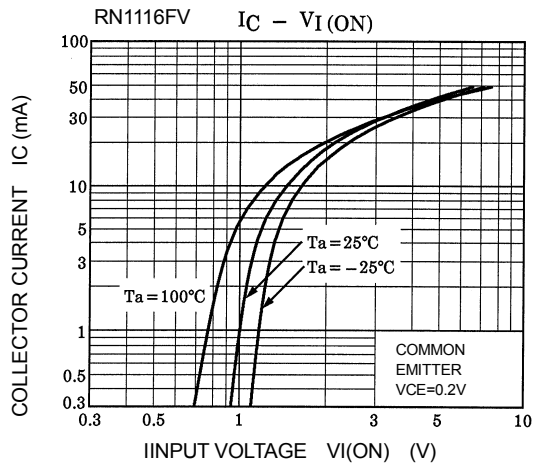
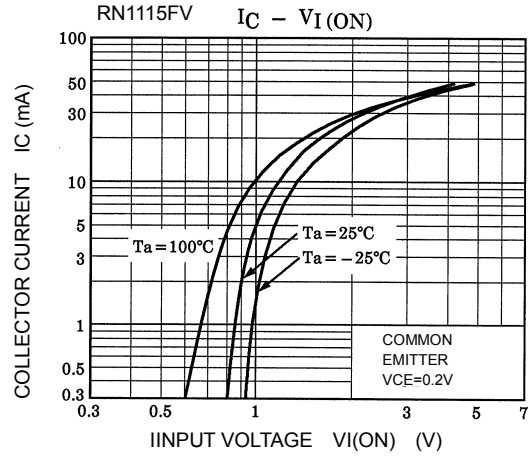
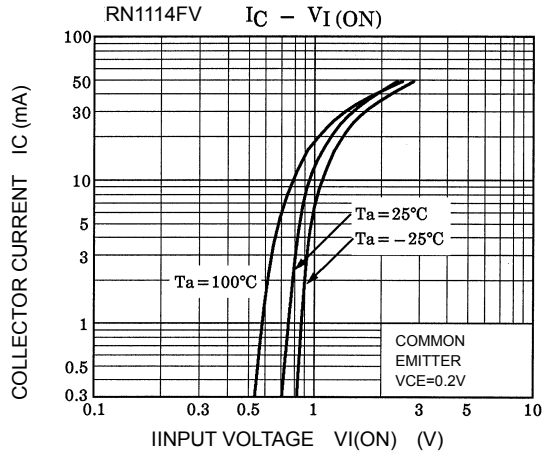
Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	50	V
Collector-emitter voltage	V_{CEO}	50	V
Emitter-base voltage	RN1114FV	5	V
	RN1115FV	6	
	RN1116FV	7	
	RN1117FV	15	
	RN1118FV	25	
Collector current	I_C	100	mA
Collector power dissipation	P_C (Note)	150	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	−55~150	°C

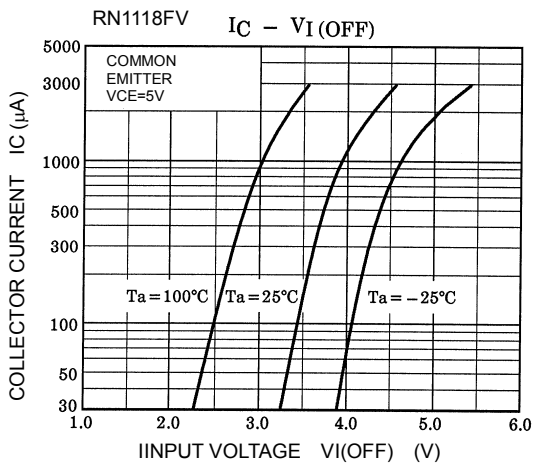
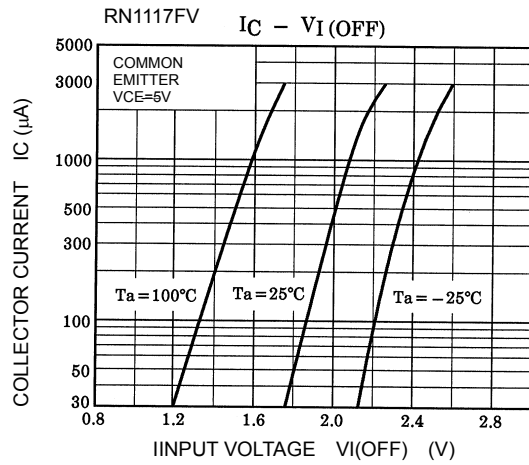
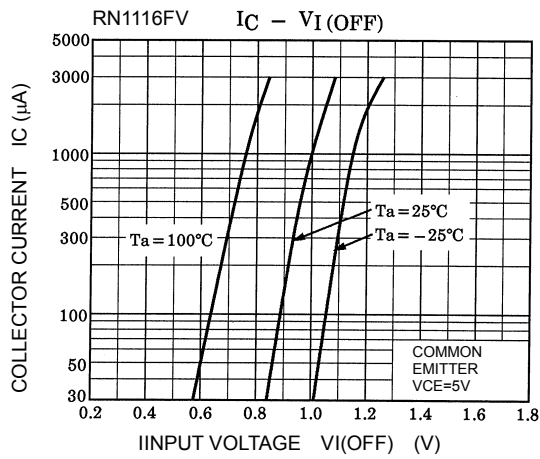
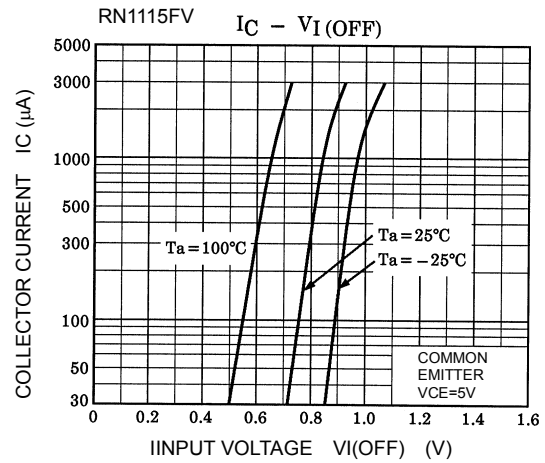
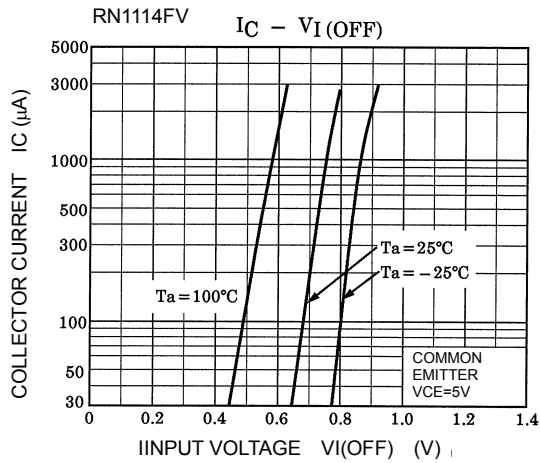
Note: Mounted on FR4 board (25.4 mm × 25.4 mm × 1.6 mm)

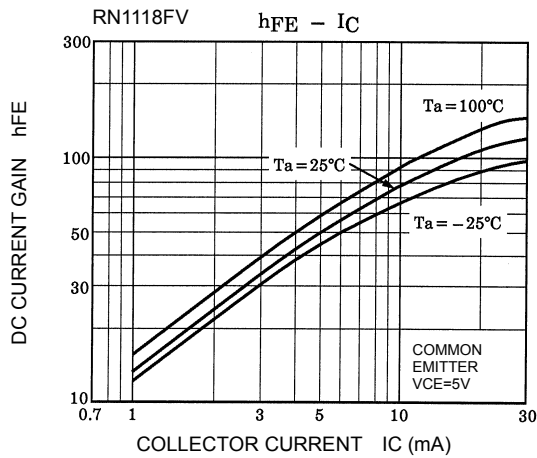
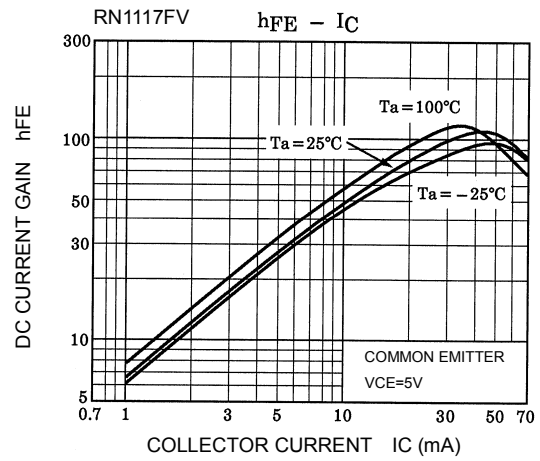
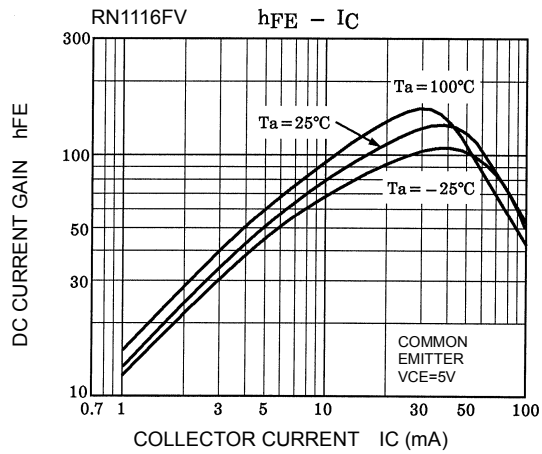
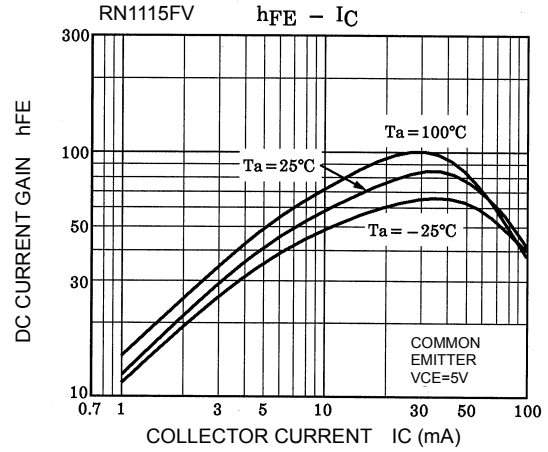
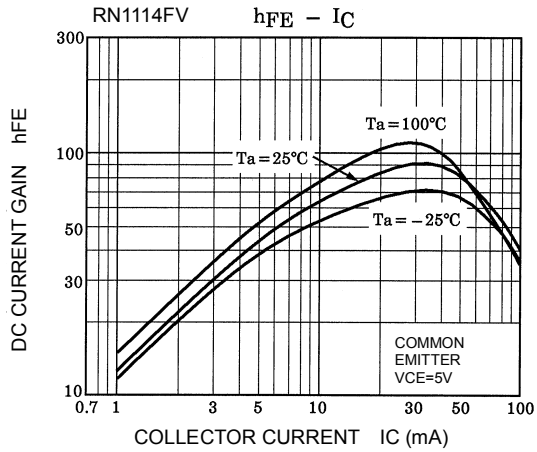


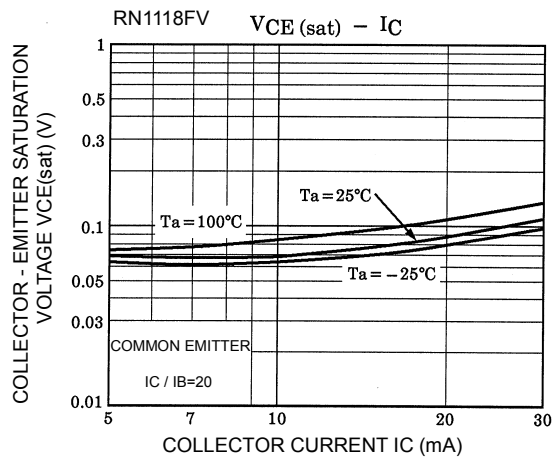
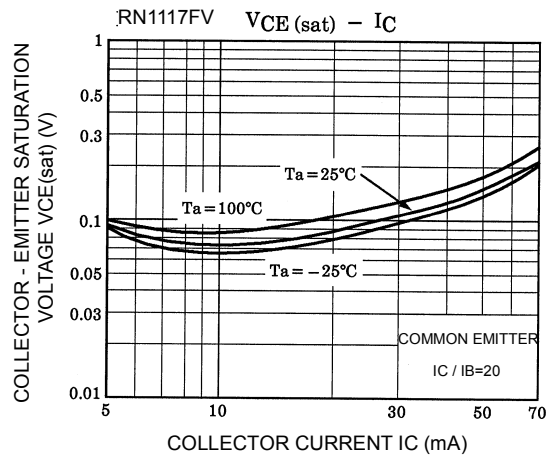
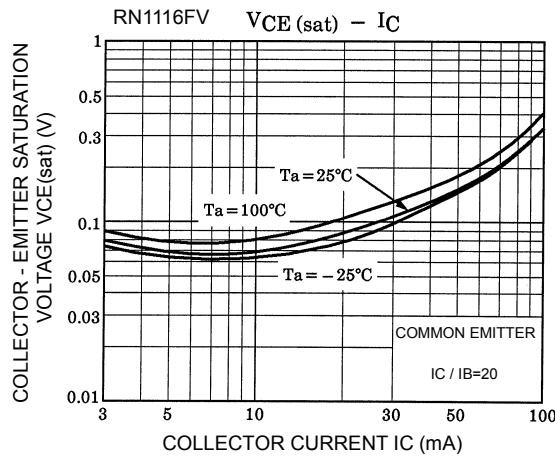
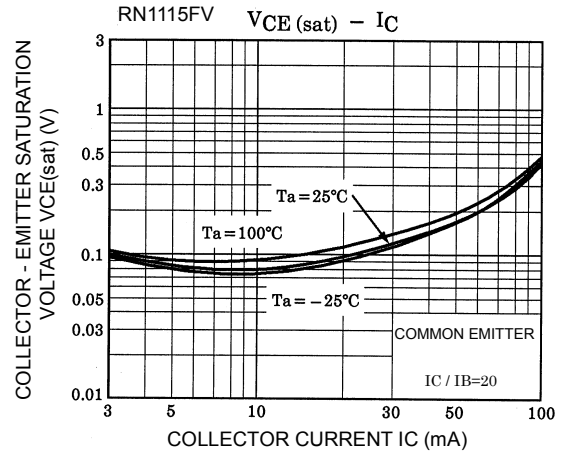
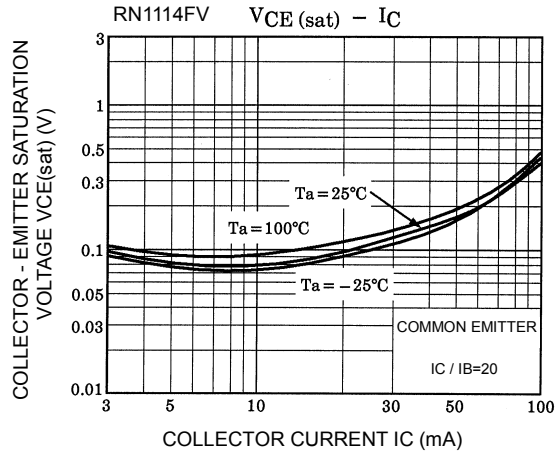
Electrical Characteristics (Ta = 25°C)

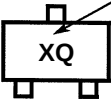
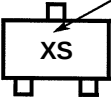
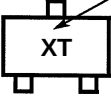
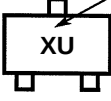
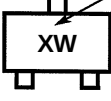
Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	RN1114FV~1118FV	I_{CBO}	—	$V_{CB} = 50V, I_E = 0$	—	—	100	nA
		I_{CEO}		$V_{CE} = 50V, I_B = 0$	—	—	500	
Emitter cut-off current	RN1114FV	I_{EBO}	—	$V_{EB} = 5V, I_C = 0$	0.35	—	0.65	mA
	RN1115FV			$V_{EB} = 6V, I_C = 0$	0.37	—	0.71	
	RN1116FV			$V_{EB} = 7V, I_C = 0$	0.36	—	0.68	
	RN1117FV			$V_{EB} = 15V, I_C = 0$	0.78	—	1.46	
	RN1118FV			$V_{EB} = 25V, I_C = 0$	0.33	—	0.63	
DC current gain	RN1114FV~16FV, 18FV	h_{FE}	—	$V_{CE} = 5V, I_C = 10mA$	50	—	—	—
	RN1117FV				30	—	—	
Collector-emitter saturation voltage	RN1114FV~1118FV	$V_{CE(sat)}$	—	$I_C = 5mA, I_B = 0.25mA$	—	0.1	0.3	V
Input voltage (ON)	RN1114FV	$V_{I(ON)}$	—	$V_{CE} = 0.2V, I_C = 5mA$	0.6	—	2.0	V
	RN1115FV				0.7	—	2.5	
	RN1116FV				0.8	—	2.5	
	RN1117FV				1.5	—	4.0	
	RN1118FV				2.5	—	10	
Input voltage (OFF)	RN1114FV	$V_{I(OFF)}$	—	$V_{CE} = 5V, I_C = 0.1mA$	0.3	—	0.9	V
	RN1115FV				0.3	—	1.0	
	RN1116FV				0.3	—	1.1	
	RN1117FV				0.3	—	2.3	
	RN1118FV				0.5	—	5.7	
Transition frequency	RN1114FV~1118FV	f_T	—	$V_{CE} = 10V, I_C = 5mA$	—	250	—	MHz
Collector Output capacitance	RN1114FV~1118FV	C_{ob}	—	$V_{CB} = 10V, I_E = 0, f = 1MHz$	—	3	—	pF
Input resistor	RN1114FV	R1	—	—	0.7	1.0	1.3	kΩ
	RN1115FV				1.54	2.2	2.86	
	RN1116FV				3.29	4.7	6.11	
	RN1117FV				7	10	13	
	RN1118FV				32.9	47	61.1	
Resistor ratio	RN1114FV	R1/R2	—	—	—	0.1	—	
	RN1115FV				—	0.22	—	
	RN1116FV				—	0.47	—	
	RN1117FV				—	2.13	—	
	RN1118FV				—	4.7	—	









Type Name	Marking
RN1114FV	
RN1115FV	
RN1116FV	
RN1117FV	
RN1118FV	

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