

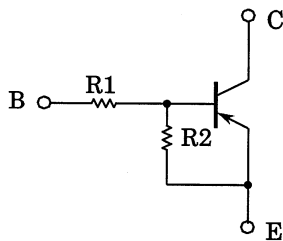
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

## RN2114FV, RN2115FV, RN2116FV RN2117FV, RN2118FV

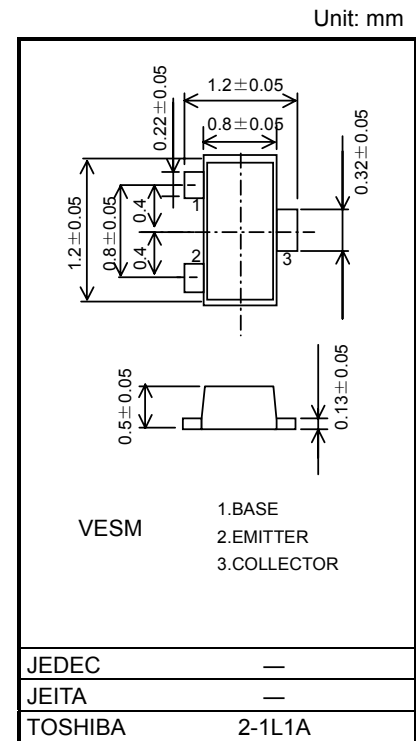
Switching, Inverter Circuit, Interface Circuit  
and Driver Circuit Applications

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

### Equivalent Circuit and Bias Resistor Values



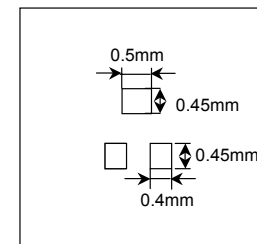
Type No.	R1 (kΩ)	R2 (kΩ)
RN2114FV	1	10
RN2115FV	2.2	10
RN2116FV	4.7	10
RN2117FV	10	4.7
RN2118FV	47	10



Weight: 0.0015g (typ.)

### Maximum Ratings (Ta = 25°C)

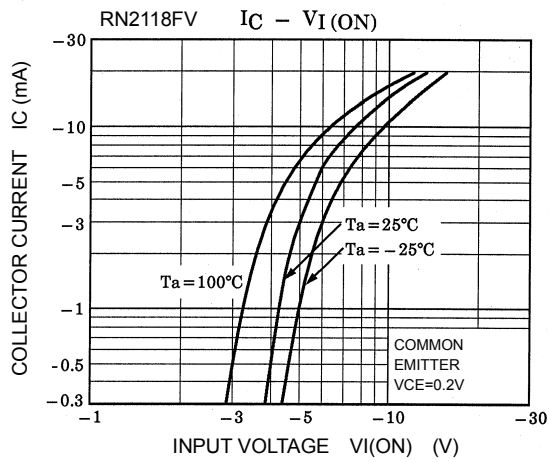
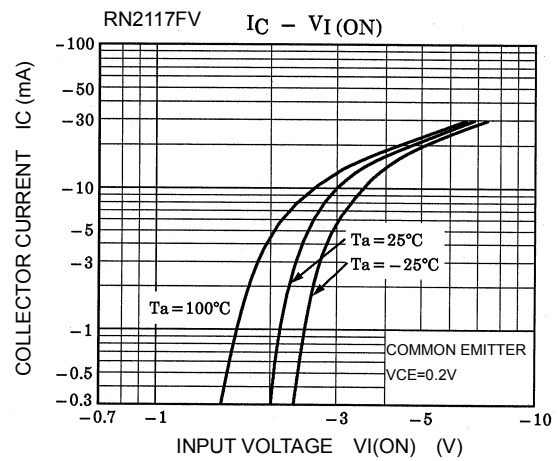
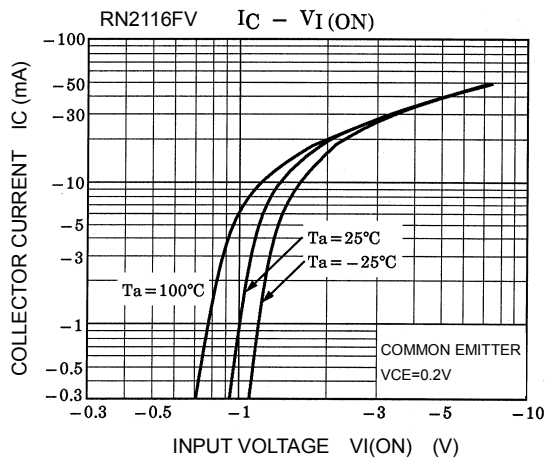
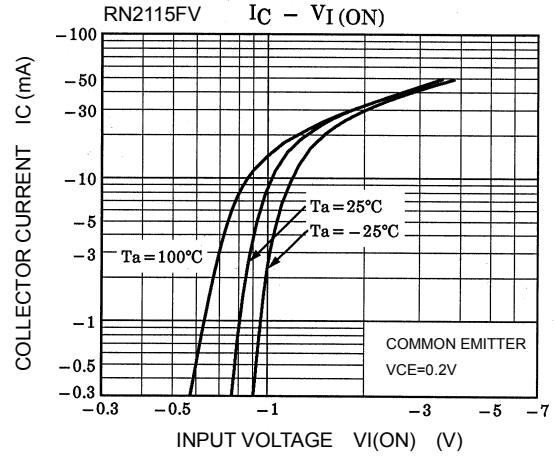
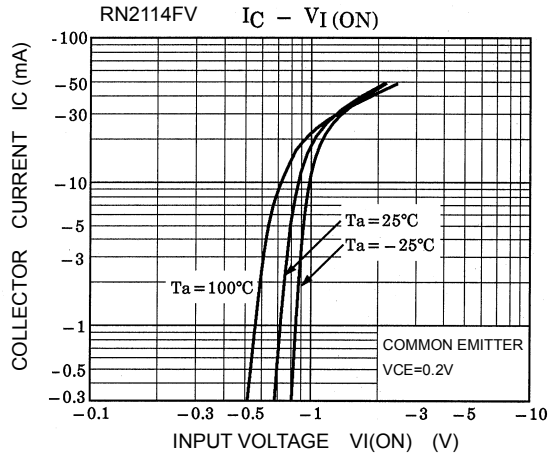
Characteristic	Symbol	Rating	Unit	
Collector-base voltage	RN2114FV~2118FV	$V_{CBO}$	-50	V
Collector-emitter voltage		$V_{CEO}$	-50	V
Emitter-base voltage	RN2114FV	$V_{EBO}$	-5	V
			-6	
			-7	
			-15	
			-25	
Collector current	RN2114FV~2118FV	$I_C$	-100	mA
Collector power dissipation		$P_C$ (Note)	150	mW
Junction temperature		$T_j$	150	°C
Storage temperature range		$T_{stg}$	-55~150	°C

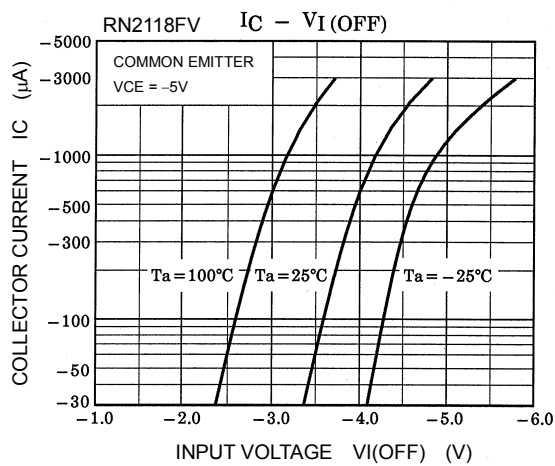
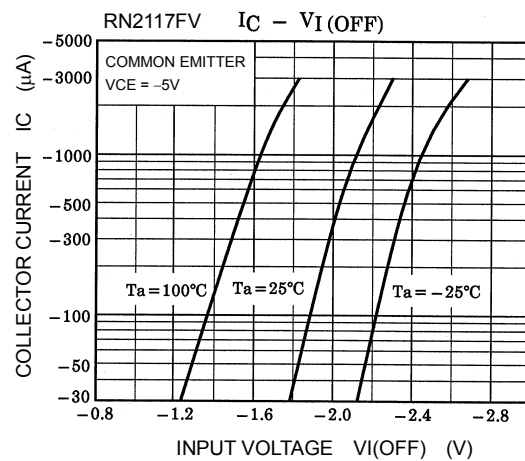
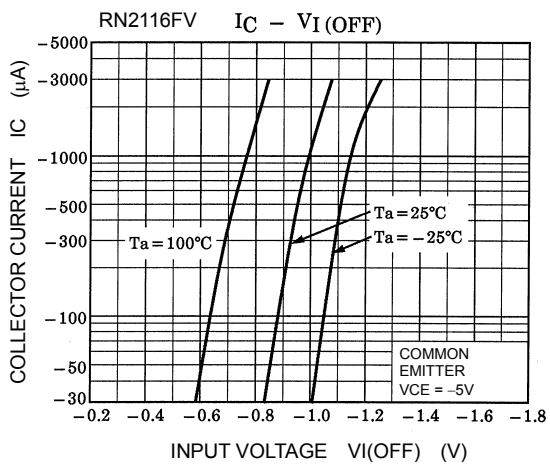
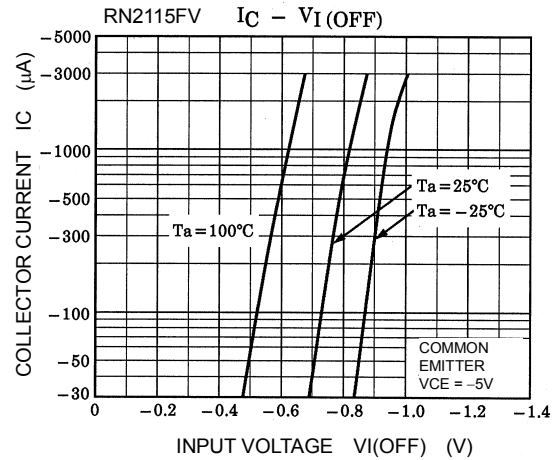
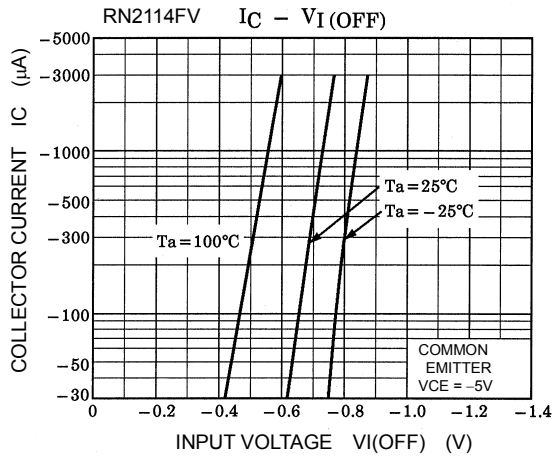


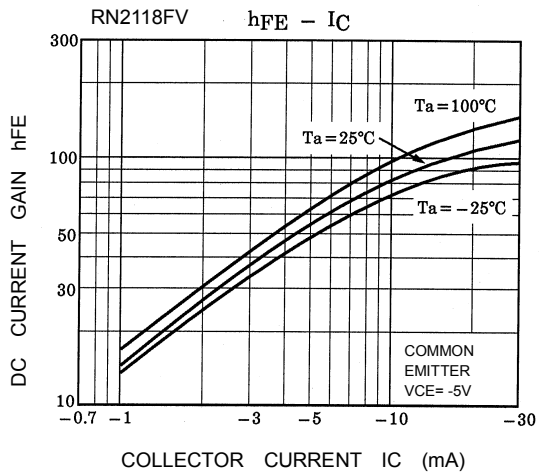
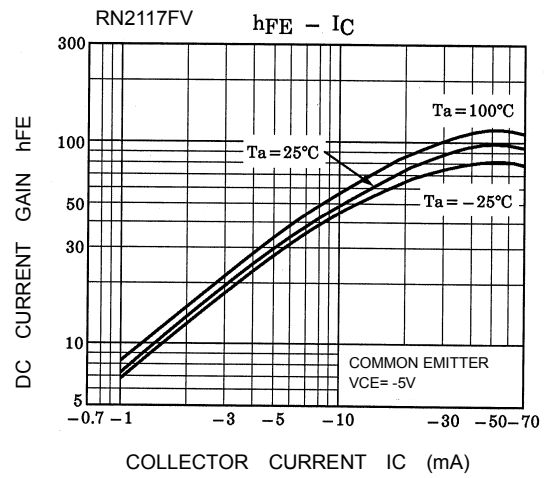
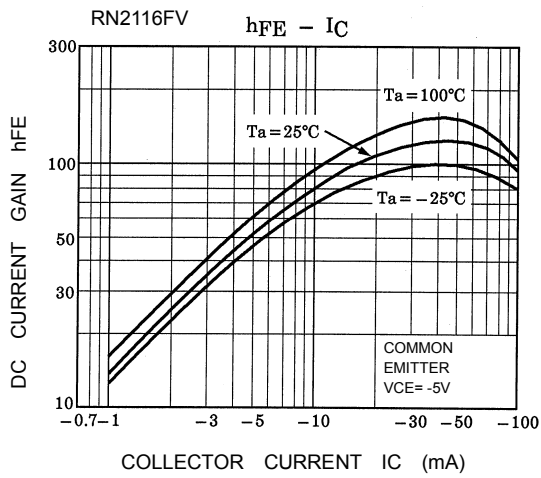
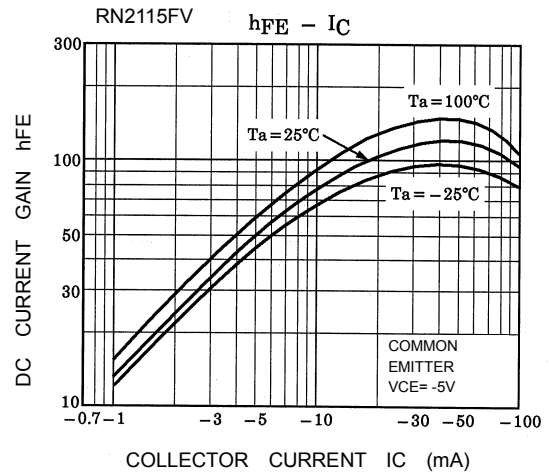
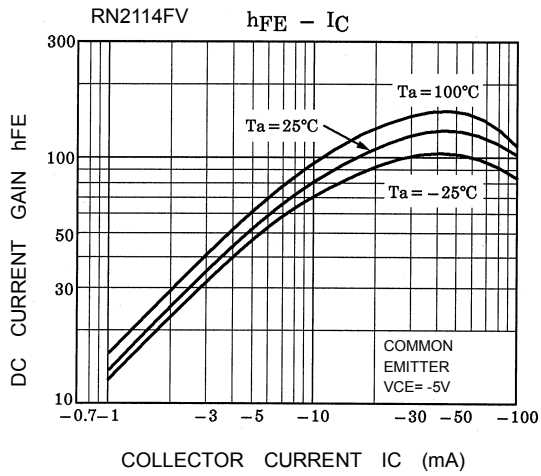
Note: Mounted on FR4 board (25.4 mm × 25.4 mm × 1.6mmt)

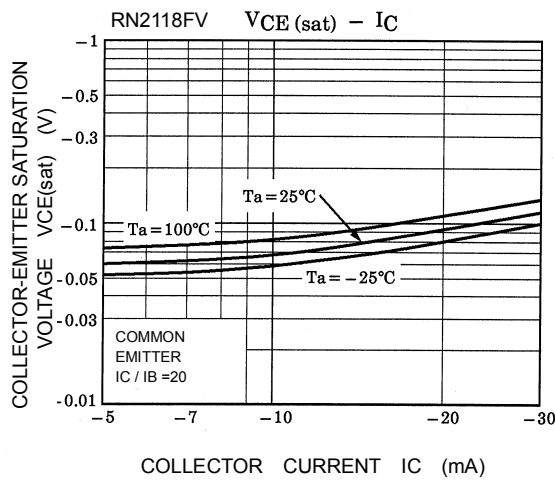
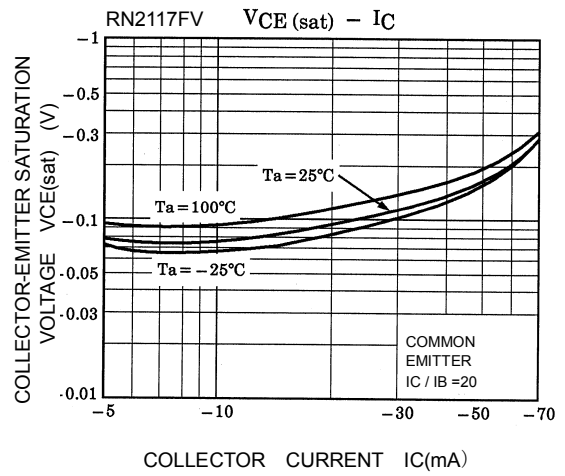
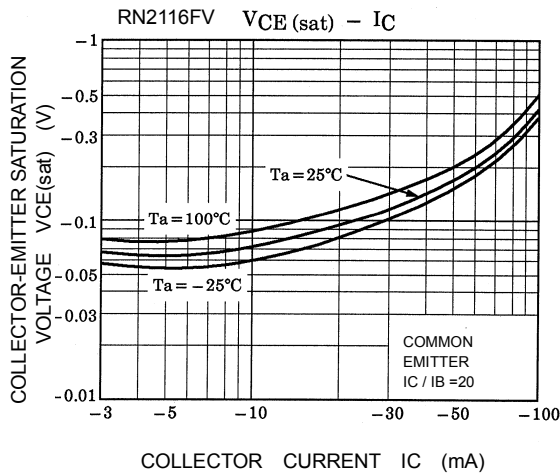
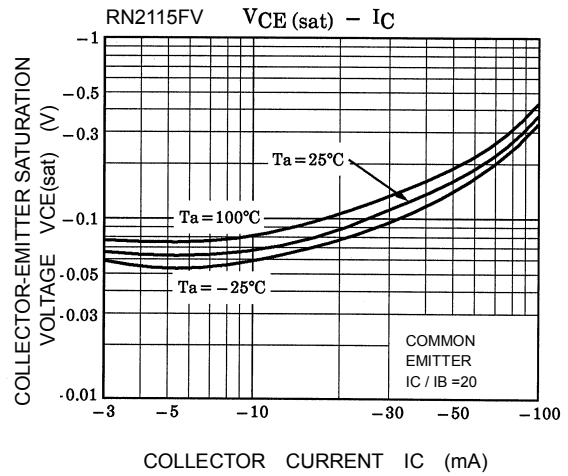
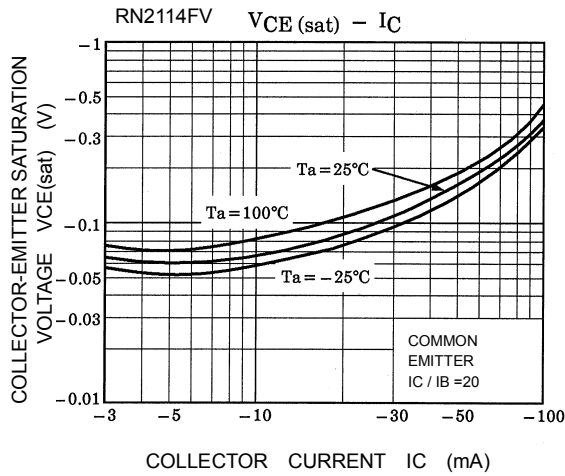
## Electrical Characteristics (Ta = 25°C)

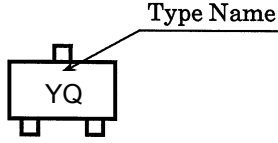
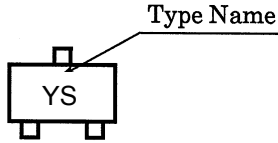
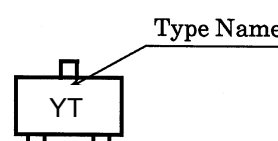
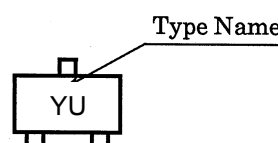
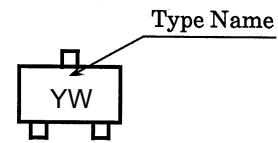
Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	RN2114FV~2118FV	$I_{CBO}$	—	$V_{CB} = -50V, I_E = 0$	—	—	-100	nA
		$I_{CEO}$		$V_{CE} = -50V, I_B = 0$	—	—	-500	
Emitter cut-off current	RN2114FV	$I_{EBO}$	—	$V_{EB} = -5V, I_C = 0$	-0.35	—	-0.65	mA
	RN2115FV			$V_{EB} = -6V, I_C = 0$	-0.37	—	-0.71	
	RN2116FV			$V_{EB} = -7V, I_C = 0$	-0.36	—	-0.68	
	RN2117FV			$V_{EB} = -15V, I_C = 0$	-0.78	—	-1.46	
	RN2118FV			$V_{EB} = -25V, I_C = 0$	-0.33	—	-0.63	
DC current gain	RN2114FV~16FV,18FV	$h_{FE}$	—	$V_{CE} = -5V, I_C = -10mA$	50	—	—	
	RN2117FV				30	—	—	
Collector-emitter saturation voltage	RN2114FV~2118FV	$V_{CE(sat)}$	—	$I_C = -5mA, I_B = -0.25mA$	—	-0.1	-0.3	V
Input voltage (ON)	RN2114FV	$V_{I(ON)}$	—	$V_{CE} = -0.2V, I_C = -5mA$	-0.5	—	-2.0	V
	RN2115FV				-0.6	—	-2.5	
	RN2116FV				-0.7	—	-2.5	
	RN2117FV				-1.5	—	-3.5	
	RN2118FV				-2.5	—	-10.0	
Input voltage (OFF)	RN2114FV	$V_{I(OFF)}$	—	$V_{CE} = -5V, I_C = -0.1mA$	-0.3	—	-0.9	V
	RN2115FV				-0.3	—	-1.0	
	RN2116FV				-0.3	—	-1.1	
	RN2117FV				-0.3	—	-3.0	
	RN2118FV				-0.5	—	-5.7	
Transition frequency	RN2114FV~2118FV	$f_T$	—	$V_{CE} = -10V, I_C = -5mA$	—	200	—	MHz
Collector output capacitance	RN2114FV~2118FV	$C_{ob}$	—	$V_{CB} = -10V, I_E = 0, f = 1MHz$	—	3.0	—	pF
Input resistor	RN2114FV	R1	—	—	0.7	1.0	1.3	kΩ
	RN2115FV				1.54	2.2	2.86	
	RN2116FV				3.29	4.7	6.11	
	RN2117FV				7	10	13	
	RN2118FV				32.9	47	61.1	
Resistor ratio	RN2114FV	R1/R2	—	—	—	0.1	—	
	RN2115FV				—	0.22	—	
	RN2116FV				—	0.47	—	
	RN2117FV				—	2.13	—	
	RN2118FV				—	4.7	—	









Type Name	Marking
RN2114FV	
RN2115FV	
RN2116FV	
RN2117FV	
RN2118FV	

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