

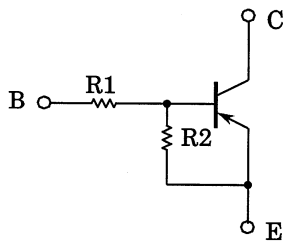
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

## RN2101FV, RN2102FV, RN2103FV RN2104FV, RN2105FV, RN2106FV

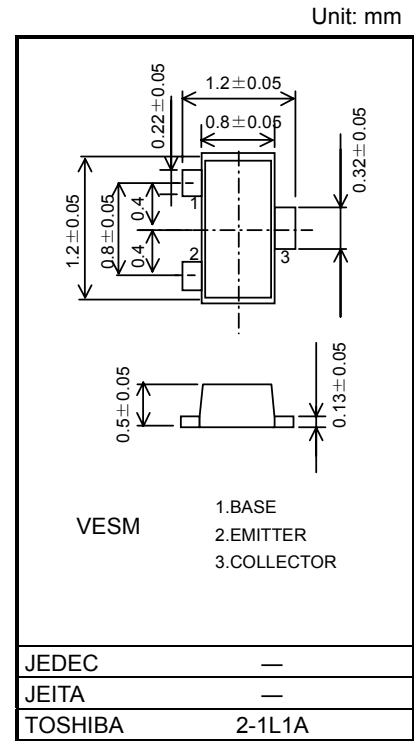
Switching, Inverter Circuit, Interface Circuit  
and Driver Circuit Applications

- Built-in bias resistors
- Simplified circuit design
- Reduced quantity of parts and manufacturing process
- Complementary to RN1101FV~RN1106FV

### Equivalent Circuit and Bias Resister Values



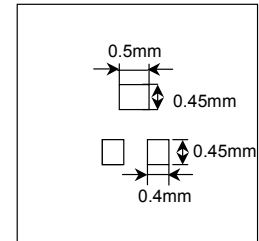
Type No.	R1 (kΩ)	R2 (kΩ)
RN2101FV	4.7	4.7
RN2102FV	10	10
RN2103FV	22	22
RN2104FV	47	47
RN2105FV	2.2	47
RN2106FV	4.7	47



### Maximum Ratings (Ta = 25°C)

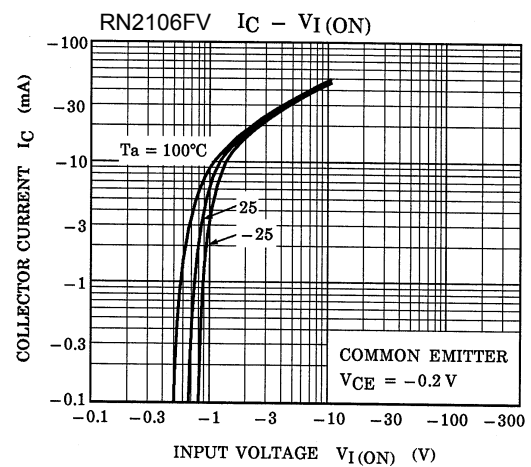
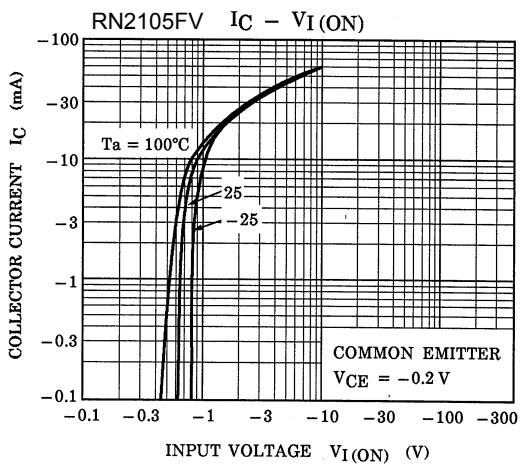
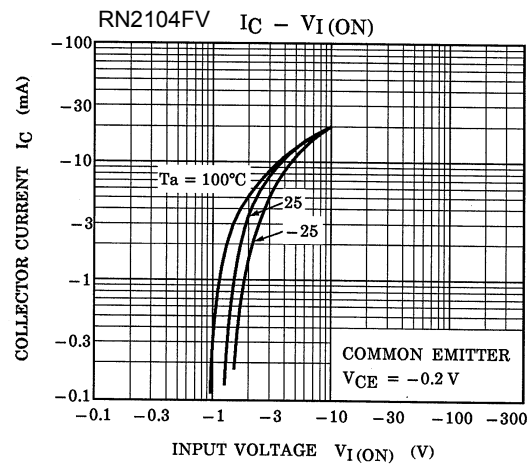
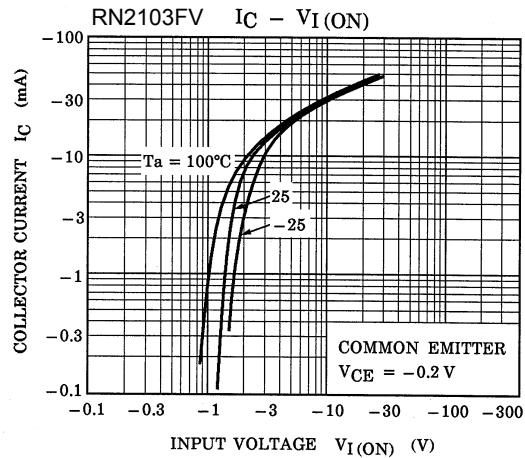
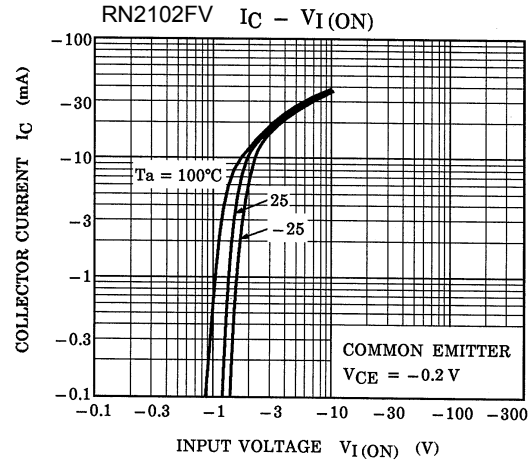
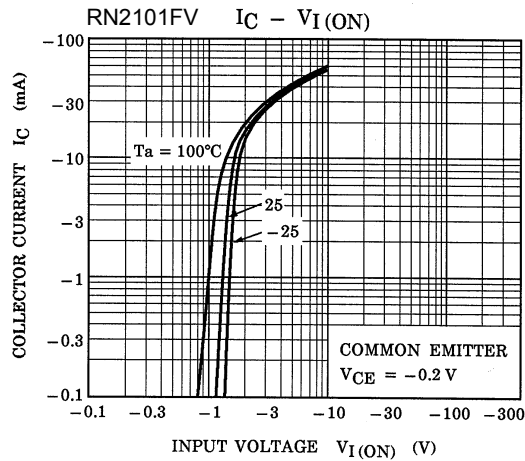
Characteristic	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	-50	V
Collector-emitter voltage	$V_{CEO}$	-50	V
Emitter-base voltage	$V_{EBO}$	-10	V
		-5	V
Collector current	$I_C$	-100	mA
Collector power dissipation	$P_C(\text{Note})$	150	mW
Junction temperature	$T_j$	150	°C
Storage temperature range	$T_{stg}$	-55~150	°C

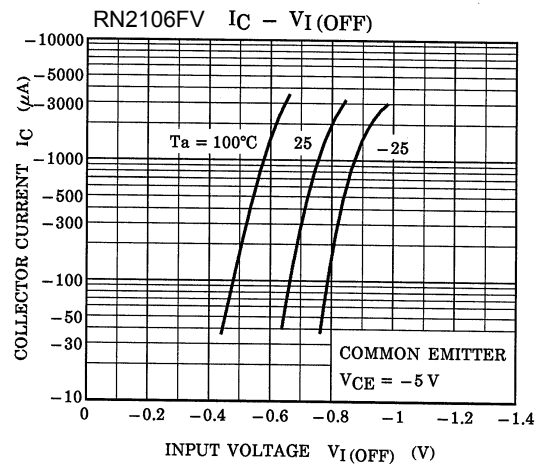
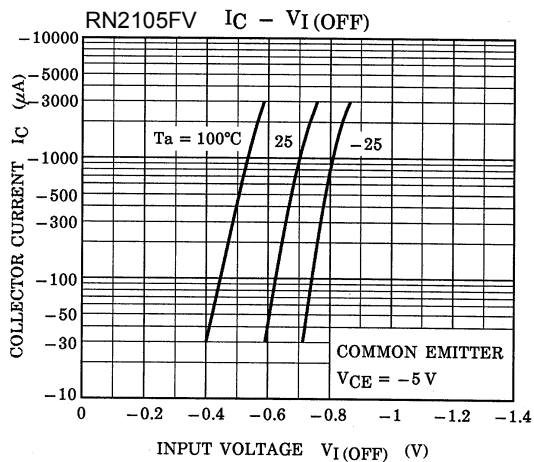
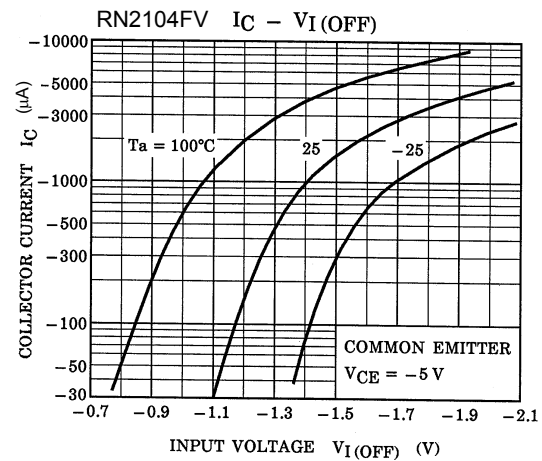
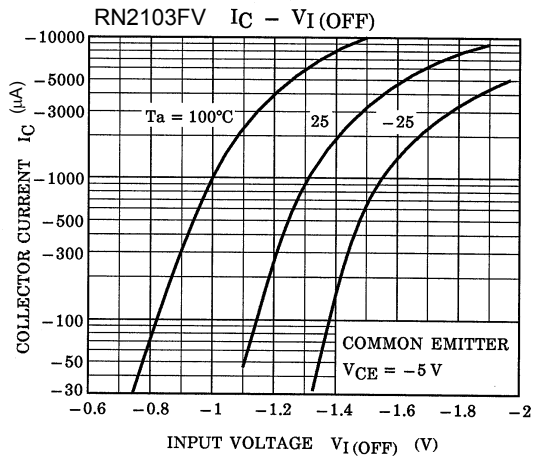
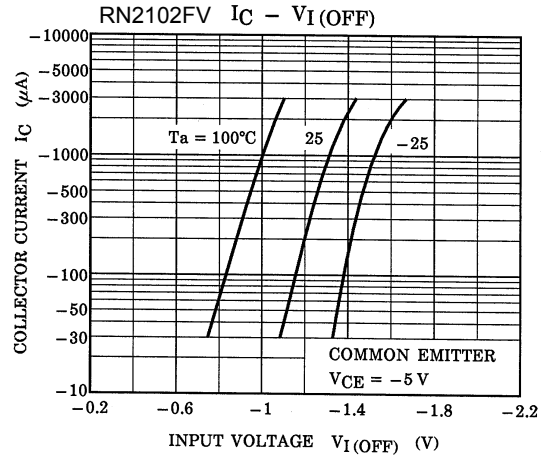
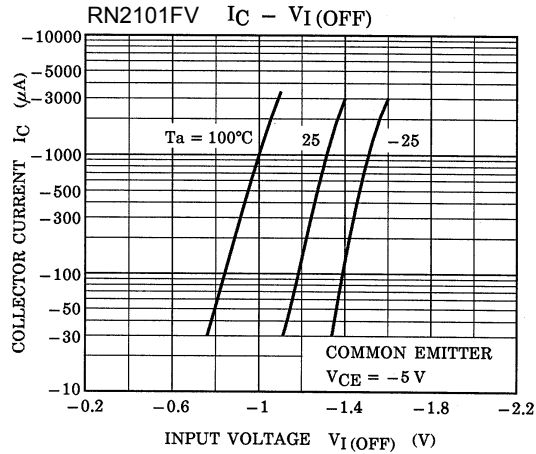
Note: Mounted on FR4 board (25.4 mm × 25.4 mm × 1.6 mm)

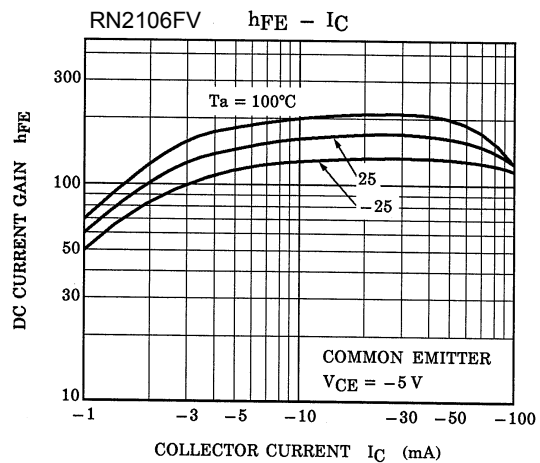
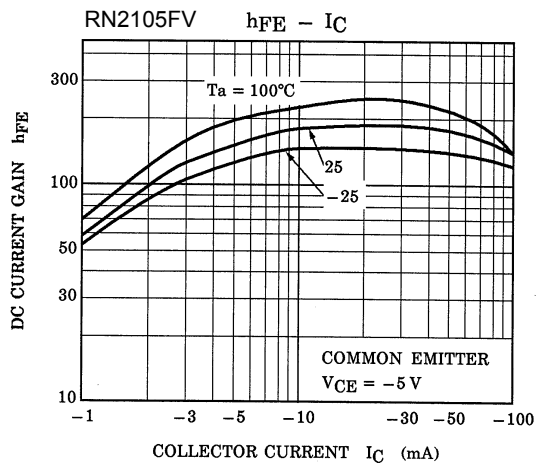
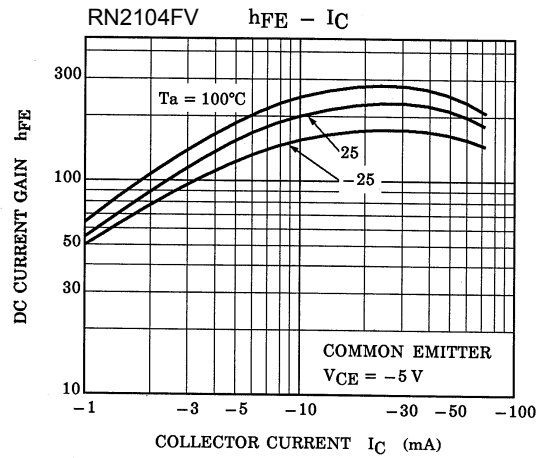
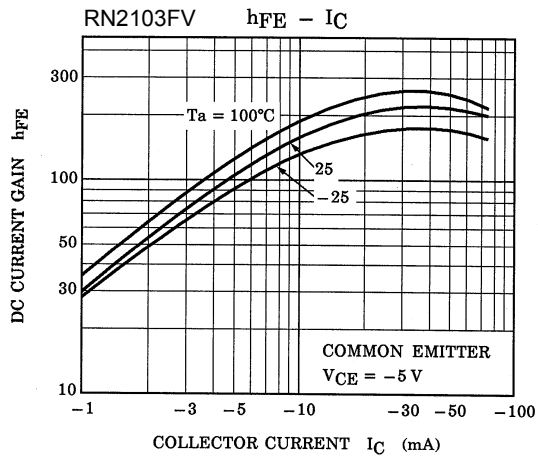
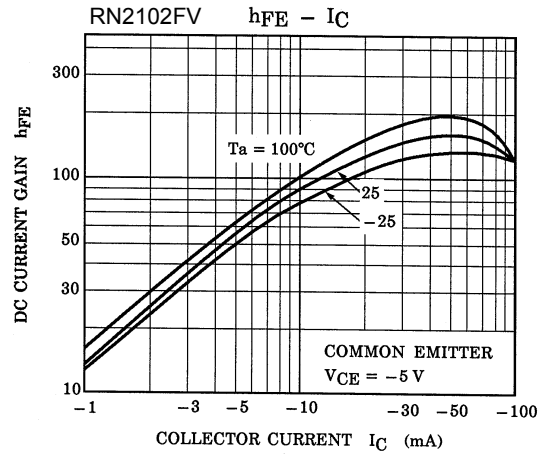
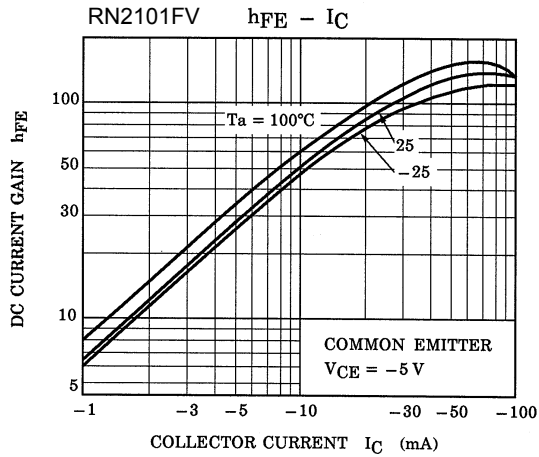


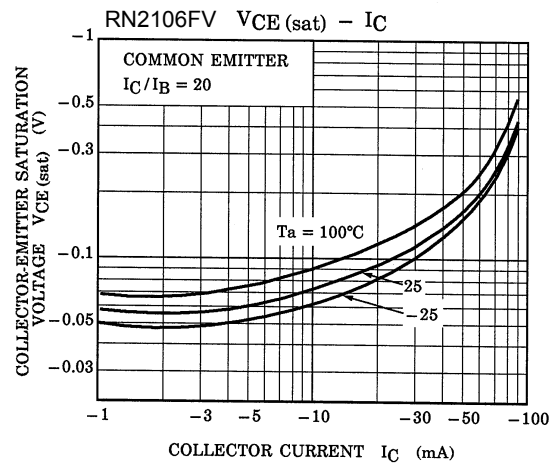
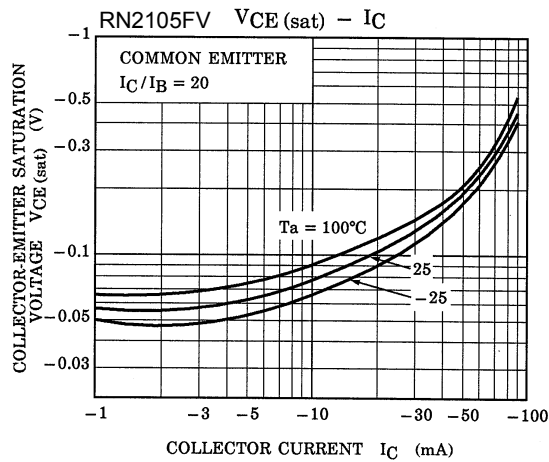
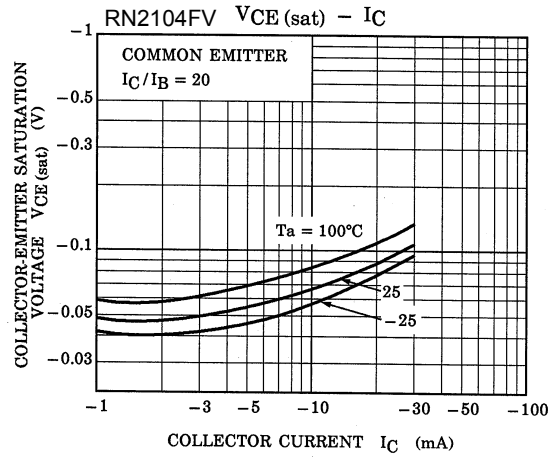
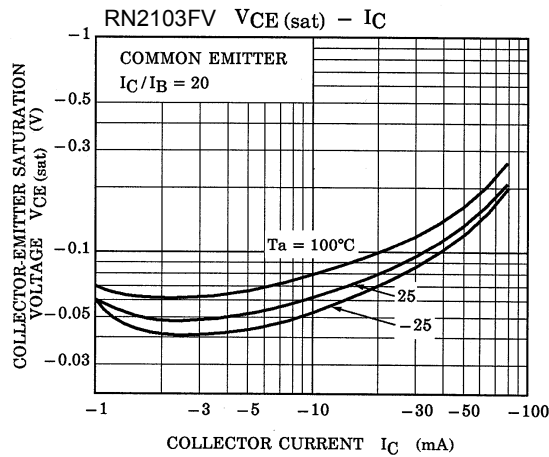
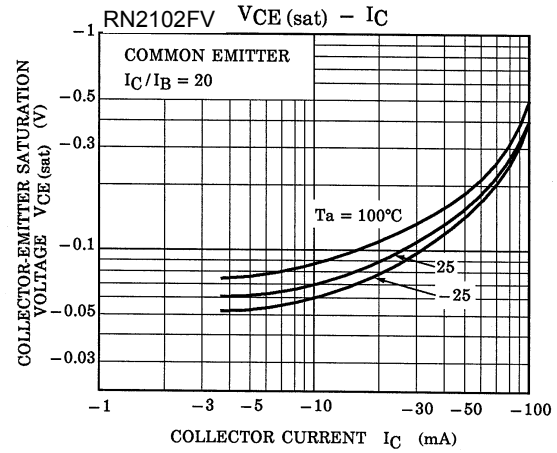
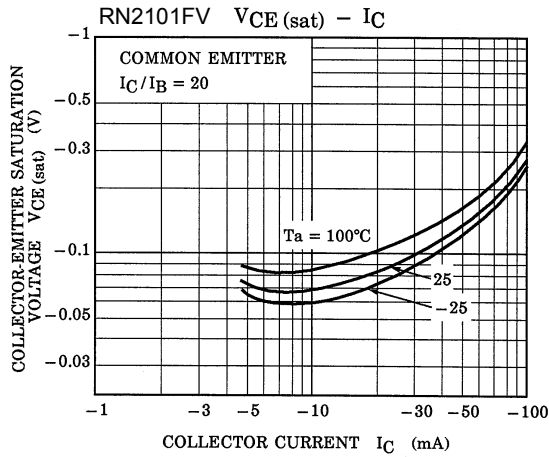
## Electrical Characteristics (Ta = 25°C)

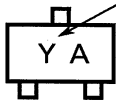
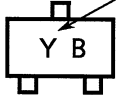
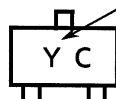
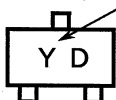
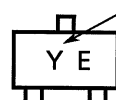
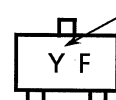
Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	RN2101FV~2106FV	$I_{CBO}$	—	$V_{CB} = -50V, I_E = 0$	—	—	-100	nA
		$I_{CEO}$		$V_{CE} = -50V, I_B = 0$	—	—	-500	
Emitter cut-off current	RN2101FV	$I_{EBO}$	—	$V_{EB} = -10V, I_C = 0$	-0.82	—	-1.52	mA
	RN2102FV				-0.38	—	-0.71	
	RN2103FV				-0.17	—	-0.33	
	RN2104FV				-0.082	—	-0.15	
	RN2105FV			$V_{EB} = -5V, I_C = 0$	-0.078	—	-0.145	
	RN2106FV				-0.074	—	-0.138	
DC current gain	RN2101FV	$h_{FE}$	—	$V_{CE} = -5V, I_C = -10mA$	30	—	—	
	RN2102FV				50	—	—	
	RN2103FV				70	—	—	
	RN2104FV				80	—	—	
	RN2105FV				80	—	—	
	RN2106FV				80	—	—	
Collector-emitter saturation voltage	RN2101FV~2106FV	$V_{CE(sat)}$	—	$I_C = -5mA, I_B = -0.25mA$	—	-0.1	-0.3	V
Input voltage (ON)	RN2101FV	$V_{I(ON)}$	—	$V_{CE} = -0.2V, I_C = -5mA$	-1.1	—	-2.0	V
	RN2102FV				-1.2	—	-2.4	
	RN2103FV				-1.3	—	-3.0	
	RN2104FV				-1.5	—	-5.0	
	RN2105FV				-0.6	—	-1.1	
	RN2106FV				-0.7	—	-1.3	
Input voltage (OFF)	RN2101FV~2104FV	$V_{I(OFF)}$	—	$V_{CE} = -5V, I_C = -0.1mA$	-1.0	—	-1.5	V
	RN2105FV, 2106FV				-0.5	—	-0.8	
Transition frequency	RN2101FV~2106FV	$f_T$	—	$V_{CE} = -10V, I_C = -5mA$	—	200	—	MHz
Collector output capacitance	RN2101FV~2106FV	$C_{ob}$	—	$V_{CB} = -10V, I_E = 0, f = 1MHz$	—	3	—	pF
Input resistor	RN2101FV	R1	—		3.29	4.7	6.11	kΩ
	RN2102FV				7	10	13	
	RN2103FV				15.4	22	28.6	
	RN2104FV				32.9	47	61.1	
	RN2105FV				1.54	2.2	2.86	
	RN2106FV				3.29	4.7	6.11	
Resistor ratio	RN2101FV~2104FV	R1/R2	—		0.9	1.0	1.1	
	RN2105FV				0.0421	0.0468	0.0515	
	RN2106FV				0.09	0.1	0.11	









Type Name	Marking
RN2101FV	
RN2102FV	
RN2103FV	
RN2104FV	
RN2105FV	
RN2106FV	

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