TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

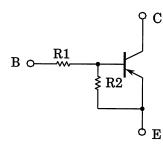
RN2101MFV,RN2102MFV,RN2103MFV RN2104MFV,RN2105MFV,RN2106MFV

Switching, Inverter Circuit, Interface Circuit and Driver Circuit Applications

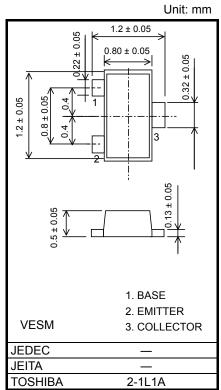
- Ultra-small package, suited to very high density mounting
- Incorporating a bias resistor into the transistor reduces the number of parts, so enabling the manufacture of ever more compact equipment and lowering assembly cost.
- A wide range of resistor values is available for use in various circuits.
- Complementary to the RN1101MFV to RN1106MFV

Absolute Maximum Ratings (Ta = 25°C)

Equivalent Circuit and Bias Resistor Values



Туре No.	R1 (kΩ)	R2 (kΩ)
RN2101MFV	4.7	4.7
RN2102MFV	10	10
RN2103MFV	22	22
RN2104MFV	47	47
RN2105MFV	2.2	47
RN2106MFV	4.7	47



Weight: 1.5 mg (typ.)

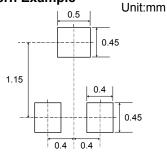
Charac	Symbol	Rating	Unit		
Collector-base voltage	RN2101MFV to 2106MFV	V _{CBO}	-50	V	
Collector-emitter voltage		V _{CEO}	-50	V	
Emitter-base voltage	RN2101MFV to 2104MFV	V _{EBO}	-10	V	
Emiller-base vollage	RN2105MFV, 2106MFV	▲EBO	-5		
Collector current		Ι _C	-100	mA	
Collector power dissipation	RN2101MFV to 2106MFV	P _C (Note 1)	150	mW	
Junction temperature		Тj	150	°C	
Storage temperature range		T _{stg}	–55 to 150	°C	

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

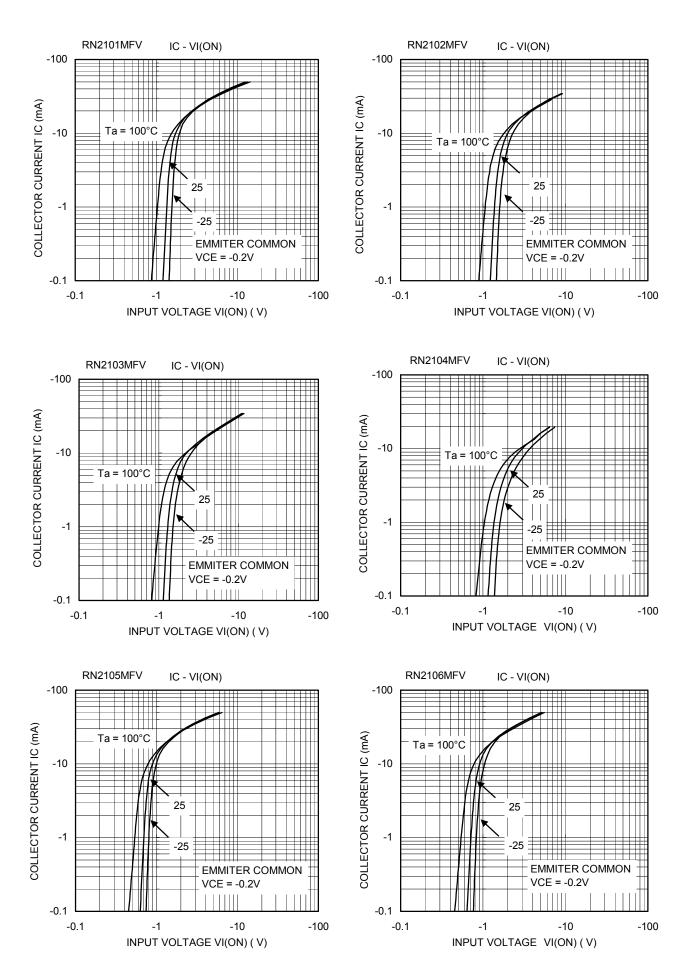
Note 1: Mounted on an FR4 board (25.4 mm \times 25.4 mm \times 1.6 mm)

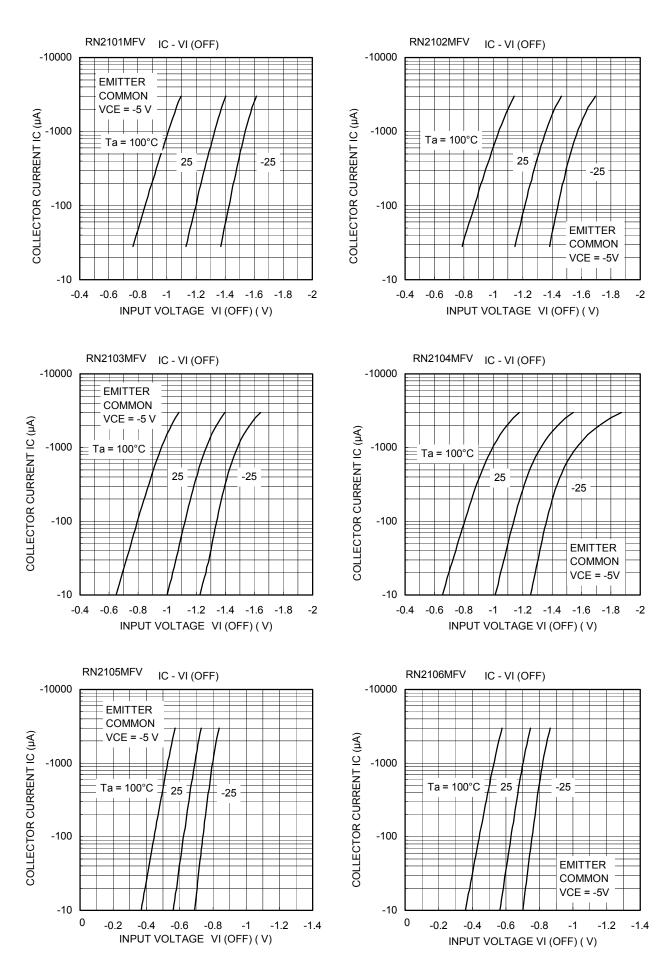
Land Pattern Example

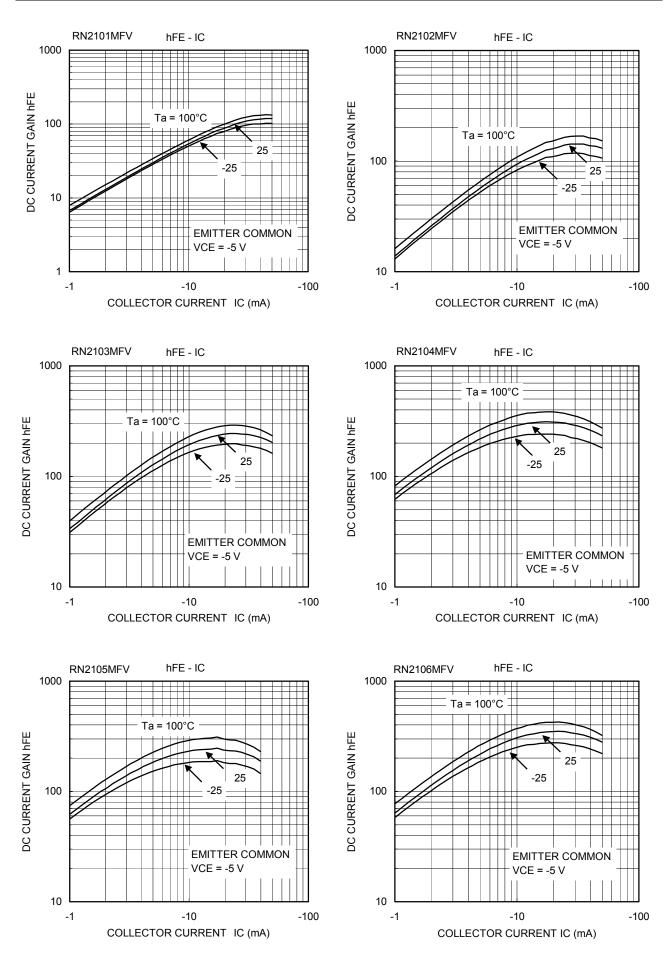


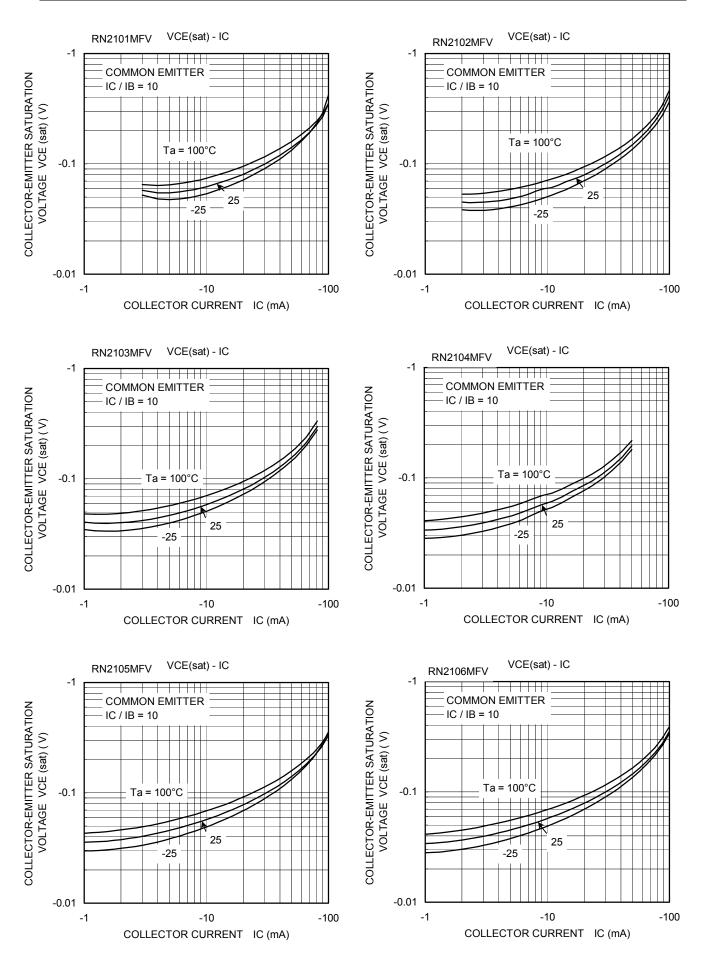
Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Circuit	Test Condition	Min	Тур.	Мах	Unit
Collector cutoff	RN2101MFV to	I _{CBO} I _{CEO}		V_{CB} = -50 V, I _E = 0	-	—	-100	n۸
current	2106MFV			V _{CE} = -50 V, I _B = 0	_	_	-500	nA
	RN2101MFV	- IEBO	_	V _{EB} = -10 V, I _C = 0	-0.82	—	-1.52	mA
	RN2102MFV				-0.38	—	-0.71	
Emitter cutoff current	RN2103MFV				-0.17	_	-0.33	
	RN2104MFV				-0.082	—	-0.15	
	RN2105MFV			V _{EB} = -5 V, I _C = 0	-0.078	_	-0.145	
	RN2106MFV				-0.074	_	-0.138	
	RN2101MFV	-			30	—	—	
	RN2102MFV				50	—	_	
DC current gain	RN2103MFV	b		V _{CE} = -5 V, I _C = -10 mA	70	—	-	
DC current gain	RN2104MFV	h _{FE}	_	$I_{C} = -10 \text{ mA}$	80	_	_	
	RN2105MFV	-			80	_	_	
	RN2106MFV				80	—	_	
Collector-emitter saturation voltage	RN2101MFV to 2106MFV	V _{CE (sat)}	_	I _C = -5 mA, I _B = -0.5 mA	_	-0.1	-0.3	V
	RN2101MFV			V _{CE} = -0.2 V, I _C = -5 mA	-1.1	—	-2.0	V
	RN2102MFV	- V _{I (ON)}	_		-1.2	_	-2.4	
Input voltage (ON)	RN2103MFV				-1.3	_	-3.0	
input voltage (ON)	RN2104MFV				-1.5	_	-5.0	
	RN2105MFV				-0.6	_	-1.1	
	RN2106MFV				-0.7	_	-1.3	
Input voltage (OFF)	RN2101MFV to 2104MFV			$V_{CE} = -5 V,$ $I_{C} = -0.1 mA$	-1.0	_	-1.5	v
input voltage (OFF)	RN2105MFV, 2106MFV	VI (OFF)			-0.5	_	-0.8	
Transition frequency	RN2101MFV to 2106MFV	fT	_	V _{CE} = -10V, I _C = -5mA	_	250	_	MHz
Collector output capacitance	RN2101MFV to 2106MFV	C _{ob}	_	V _{CB} = -10 V, I _E = 0, f = 1 MHz	_	0.9	_	pF
	RN2101MFV				3.29	4.7	6.11	- kΩ
	RN2102MFV	- R1 -	_		7	10	13	
lana da na sistem	RN2103MFV				15.4	22	28.6	
Input resistor	RN2104MFV				32.9	47	61.1	
	RN2105MFV				1.54	2.2	2.86	
	RN2106MFV	1			3.29	4.7	6.11	
	RN2101MFV to 2104MFV				0.8	1.0	1.2	_
Resistor ratio	RN2105MFV	R1/R2 -	—		0.0376	0.0468	0.0562	
	RN2106MFV	1			0.08	0.1	0.12	









Type Name	Marking
RN2101MFV	Type Name Y A
RN2102MFV	Type Name Y B
RN2103MFV	Type Name Y C
RN2104MFV	Type Name Y D
RN2105MFV	Type Name Y E
RN2106MFV	Type Name Y F

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