

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

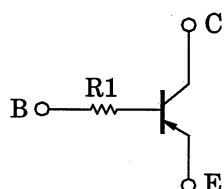
RN2712JE, RN2713JE

Switching, Inverter Circuit, Interface Circuit and Driver Circuit Applications

Unit : mm

- Two devices are incorporated into an Extreme-Super-Mini (5 pin) package.
- Incorporating a bias resistor into a transistor reduces parts count.
Reducing the parts count enables the manufacture of ever more compact equipment and lowers assembly cost.
- A wide range of resistor values is available for use in various circuits.

Equivalent Circuit



Absolute Maximum Ratings (Ta = 25°C)

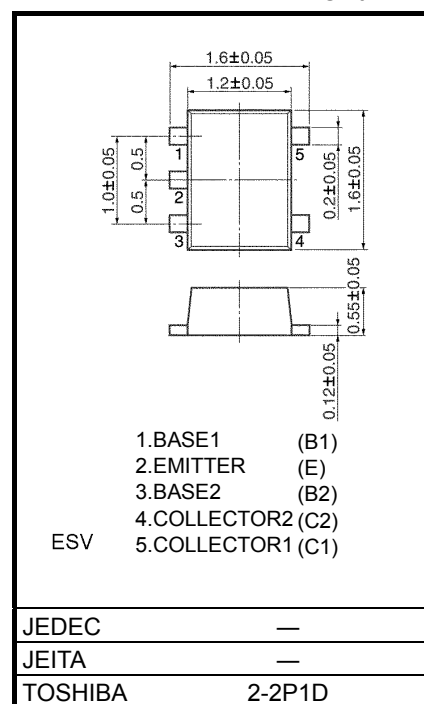
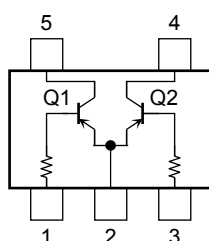
Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-50	V
Collector-emitter voltage	V_{CEO}	-50	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current	I_C	-100	mA
Collector power dissipation	P_C *	100	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55~150	°C

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).

*: Total rating

Equivalent Circuit (top view)

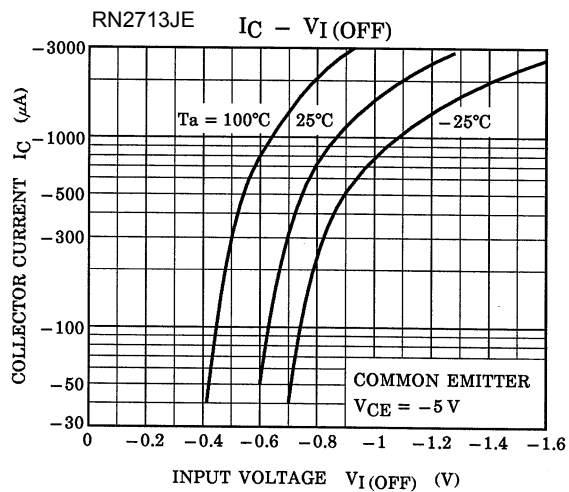
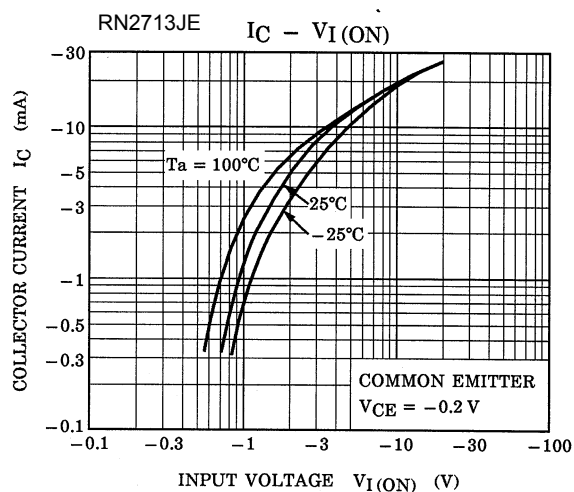
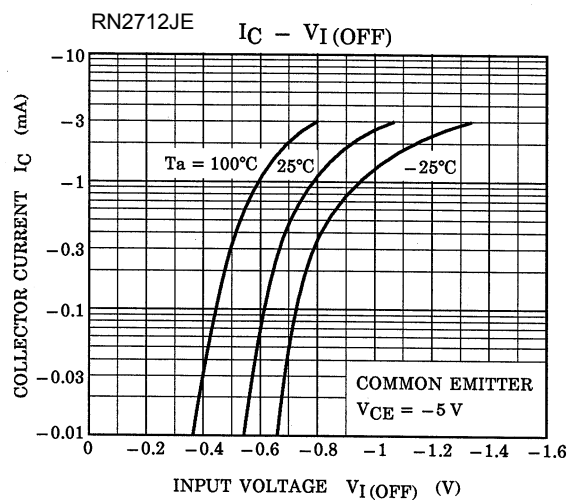
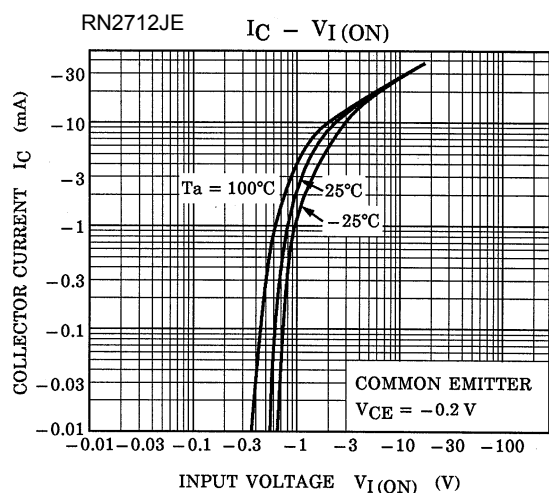


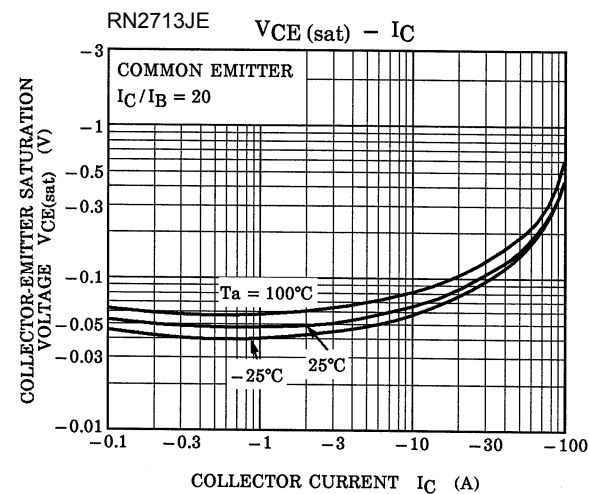
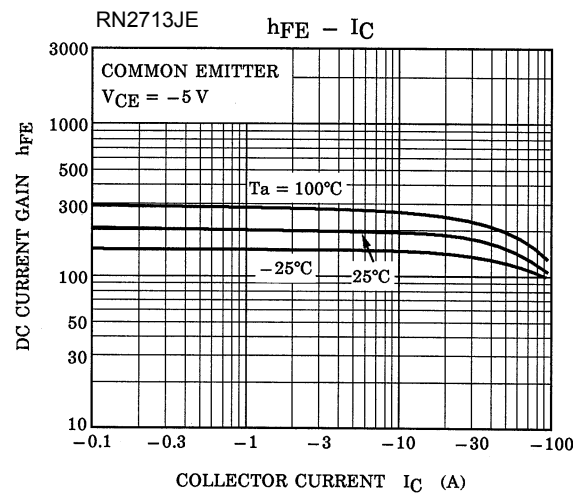
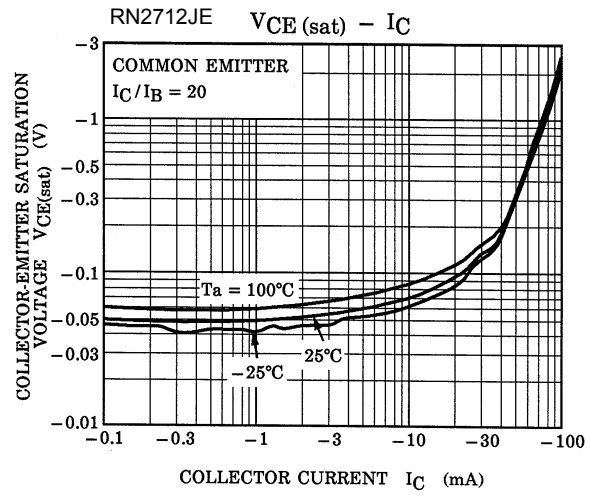
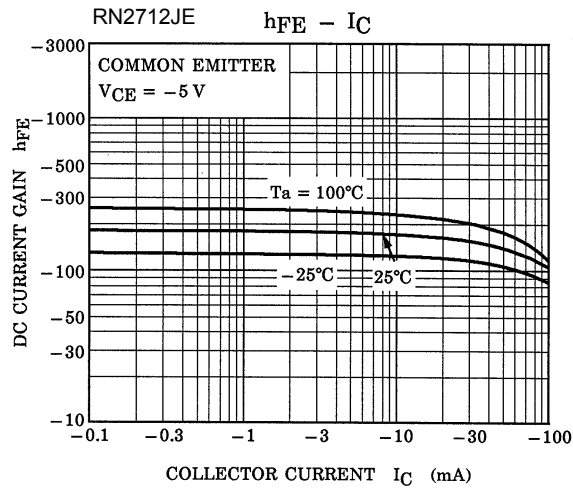
JEDEC	—
JEITA	—
TOSHIBA	2-2P1D

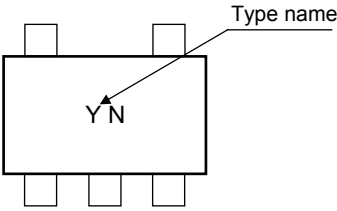
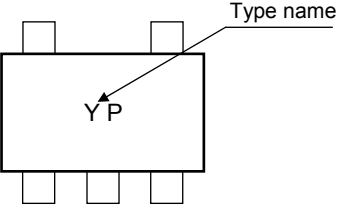
Weight: 0.003g(typ.)

Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	—	$V_{CB} = -50V, I_E = 0$	—	—	-100	nA
Emitter cut-off current		I_{EBO}	—	$V_{EB} = -5V, I_C = 0$	—	—	-100	nA
DC current gain		h_{FE}	—	$V_{CE} = -5V, I_C = -1mA$	120	—	400	—
Collector-emitter saturation voltage		$V_{CE(sat)}$	—	$I_C = -5mA, I_B = -0.25mA$	—	-0.1	-0.3	V
Transition frequency		f_T	—	$V_{CE} = -10V, I_C = -5mA$	—	200	—	MHz
Collector output capacitance		C_{ob}	—	$V_{CB} = -10V, I_E = 0, f = 1MHz$	—	3	6	pF
Input resistor	RN2712JE	R1	—	—	15.4	22	28.6	kΩ
	RN2713JE				32.9	47	61.1	





Type Name	Marking
RN2712JE	 The diagram shows a rectangular component with four pins (two on top, two on bottom). An arrow points from the text 'Type name' to the top-right pin. The marking 'Y N' is located in the center of the component.
RN2713JE	 The diagram shows a rectangular component with four pins (two on top, two on bottom). An arrow points from the text 'Type name' to the top-right pin. The marking 'Y P' is located in the center of the component.

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