

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process) (Bias Resistor built-in Transistor)

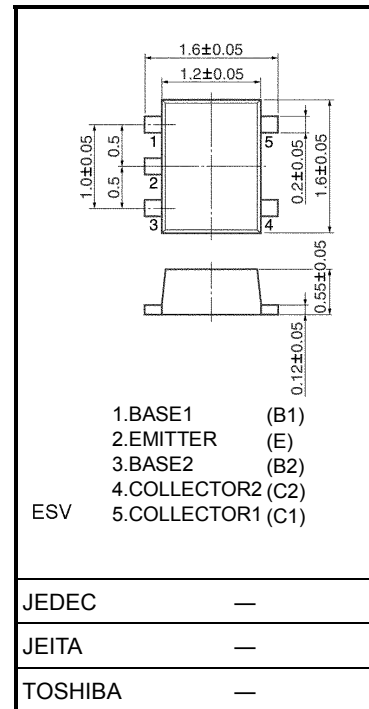
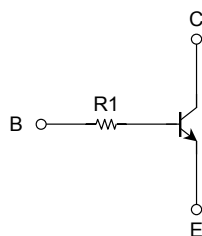
## RN1710JE,RN1711JE

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 enable the manufacture of ever more compact equipment and save assembly cost.
- Wide range of resistor values are available to use in various circuit designs.
- Complementary to RN2710JE~RN2711JE

### Equivalent Circuit and Bias Resistor Values



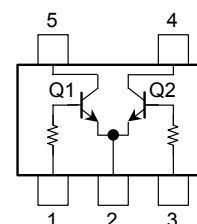
Weight: 0.003 g (typ.)

### Maximum Ratings (Ta = 25°C) (Q1, Q2 common)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CB0}$	50	V
Collector-emitter voltage	$V_{CE0}$	50	V
Emitter-base voltage	$V_{EB0}$	5	V
Collector current	$I_C$	100	mA
Collector power dissipation	$P_C$ (Note)	100	mW
Junction temperature	$T_j$	150	°C
Storage temperature range	$T_{stg}$	-55~150	°C

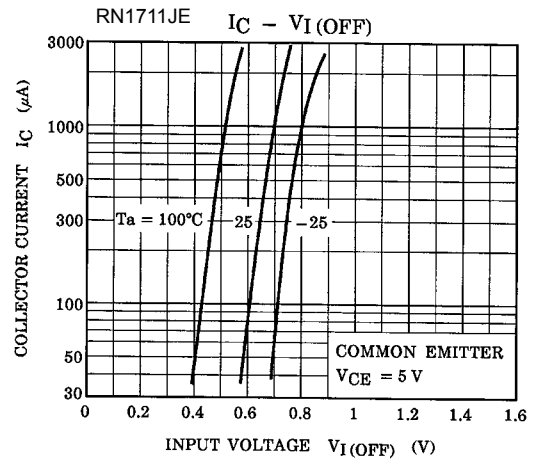
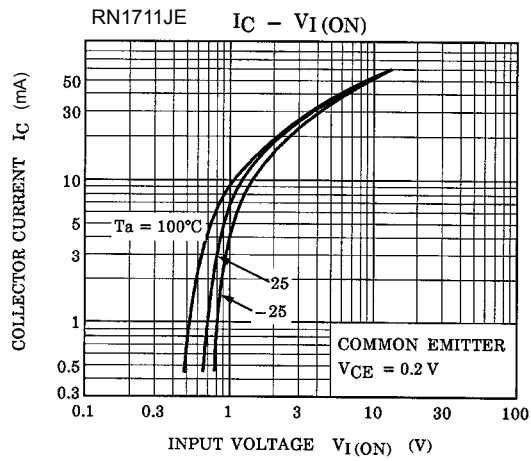
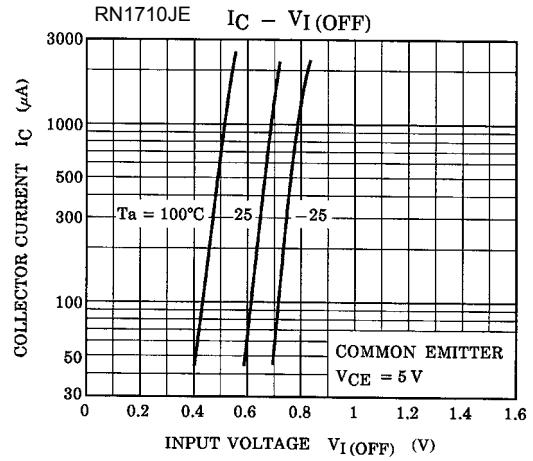
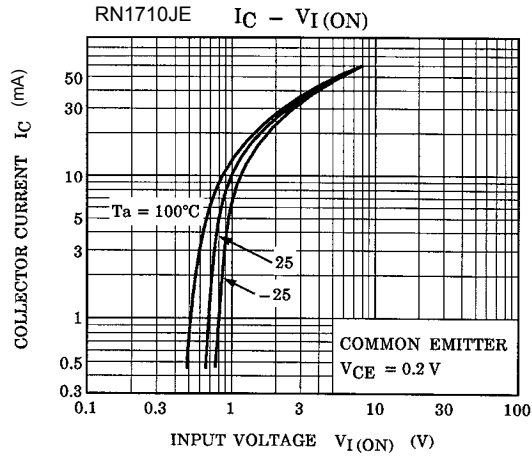
Note: Total rating

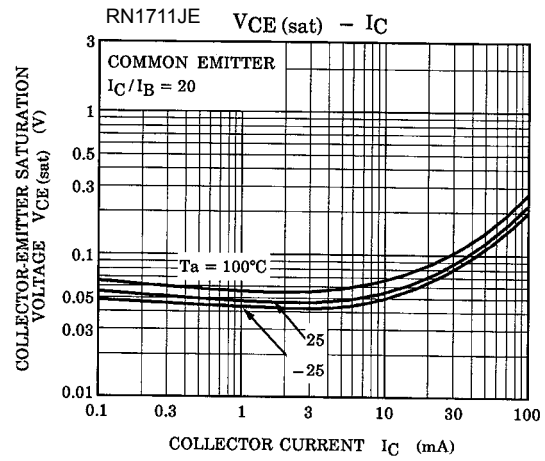
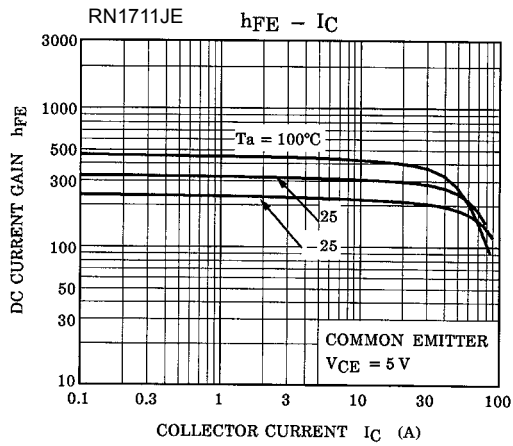
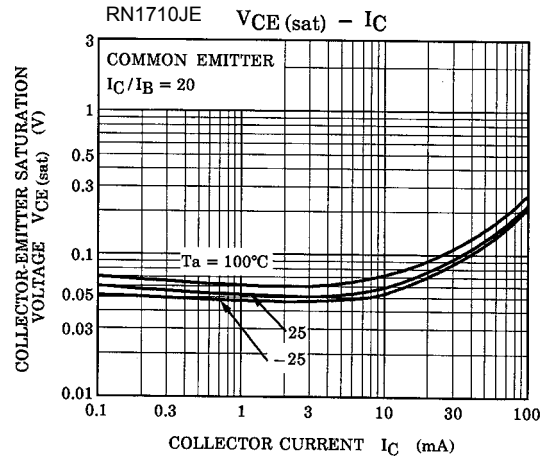
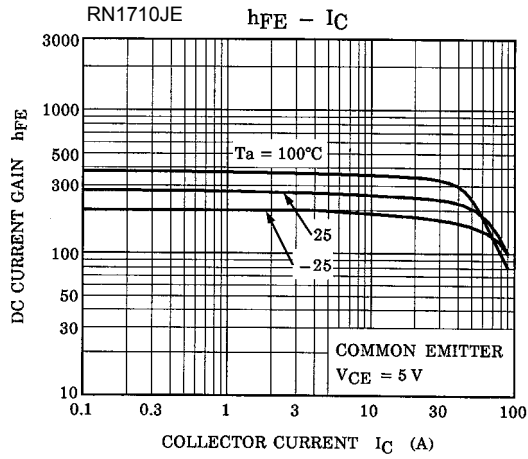
### Equivalent Circuit (top view)

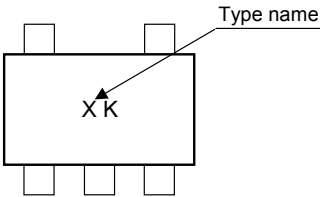
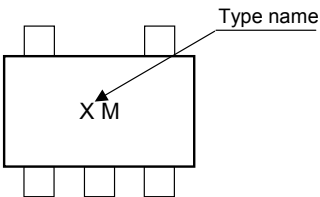


**Electrical Characteristics (Ta = 25°C) (Q1, Q2 common)**

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		$I_{CBO}$	$V_{CB} = 50\text{ V}, I_E = 0$	—	—	100	nA
Emitter cut-off current		$I_{EBO}$	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	100	nA
DC current gain		$h_{FE}$	$V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$	120	—	700	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 5\text{ mA}, I_B = 0.25\text{ mA}$	—	0.1	0.3	V
Transition frequency		$f_T$	$V_{CE} = 10\text{ V}, I_C = 5\text{ mA}$	—	250	—	MHz
Collector output capacitance		$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	3	6	pF
Input resistor	RN1710JE	R1	—	3.29	4.7	6.11	kΩ
	RN1711JE			7	10	13	





Type Name	Marking
RN1710JE	 <p>The diagram shows a rectangular component with four pins: two on the top edge and two on the bottom edge. In the center of the rectangle, the characters 'X K' are printed. An arrow points from the text 'Type name' to the 'K' in 'X K'.</p>
RN1711JE	 <p>The diagram shows a rectangular component with four pins: two on the top edge and two on the bottom edge. In the center of the rectangle, the characters 'X M' are printed. An arrow points from the text 'Type name' to the 'M' in 'X M'.</p>

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