Unit: mm

0.1±0.05

 0.15 ± 0.05

5

1±0.05

1.0±0.05

0.8±0.05

0.1±0.05

8

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0.7±0.05

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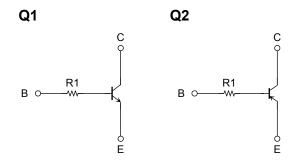
TOSHIBA Transistor Silicon NPN/PNP Epitaxial Type (PCT Process) (Transistor with Built-in Bias Resistor)

RN4992AFS

Switching, Inverter Circuit, Interface Circuit and Driver Circuit Applications

- Two devices are incorporated into a fine-pitch, small-mold (6-pin) package.
- 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.

Equivalent Circuit and Bias Resistor Values



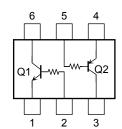
R1: 22 kΩ

(Q1, Q2 common)

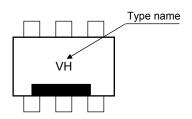
1. EMITTER1 2. BASE1 3. COLLECTOR2 4. EMITTER2 5. BASE2 fS6 6. COLLECTOR1 JEDEC — JEITA — TOSHIBA 2-1F1D

Weight: 0.001 g (typ.)

Equivalent Circuit (top view)



Marking





Absolute Maximum Ratings (Ta = 25°C) (Q1)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V _{CBO}	50	V
Collector-emitter voltage	V _{CEO}	50	٧
Emitter-base voltage	V _{EBO}	5	٧
Collector current	IC	80	mA

Absolute Maximum Ratings (Ta = 25°C) (Q2)

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	IC	-80	mA

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

Characteristic	Symbol	Rating	Unit
Collector power dissipation	P _C (Note 1)	50	mW
Junction temperature	Tj	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).

Note 1: Total rating

RN4992AFS



Electrical Characteristics (Ta = 25°C) (Q1)

Characteristic	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector cutoff current	I _{CBO}	$V_{CB} = 50 \text{ V}, I_{E} = 0$	_	_	100	nA
Emitter cutoff current	I _{EBO}	V _{EB} = 5 V, I _C = 0	_	_	100	nA
DC current gain	h _{FE}	V _{CE} = 5 V, I _C = 1 mA	120	_	700	
Collector-emitter saturation voltage	V _{CE} (sat)	$I_C = 5 \text{ mA}, I_B = 0.25 \text{ mA}$	_	_	0.15	V
Collector output capacitance	C _{ob}	V _{CB} = 10 V, I _E = 0, f = 1 MHz	_	0.7	_	pF

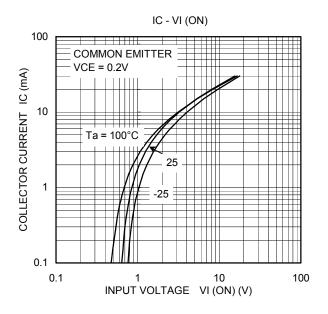
Electrical Characteristics (Ta = 25°C) (Q2)

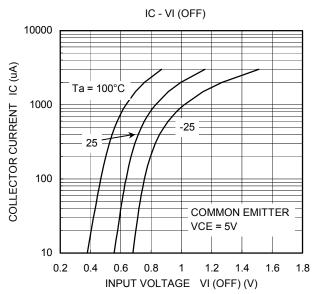
Characteristic	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector cutoff current	I _{CBO}	$V_{CB} = -50 \text{ V}, I_E = 0$	_	_	-100	nA
Emitter cutoff current	I _{EBO}	$V_{EB} = -5 \text{ V}, I_{C} = 0$	_	_	-100	nA
DC current gain	h _{FE}	V _{CE} = -5 V, I _C =- 1 mA	120	_	400	
Collector-emitter saturation voltage	V _{CE} (sat)	$I_C = -5 \text{ mA}, I_B = -0.25 \text{ mA}$	_	_	-0.15	V
Collector output capacitance	C _{ob}	$V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		0.9	_	pF

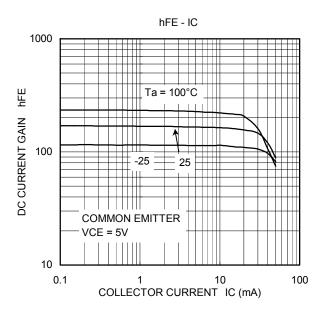
Electrical Characteristics (Ta = 25°C) (Q1, Q2 common)

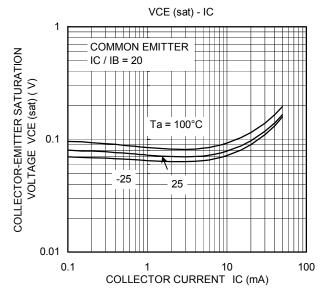
Characteristic	Symbol	Test Condition	Min	Тур.	Max	Unit
Input resistor	R1	_	17.6	22	26.4	kΩ

Q1

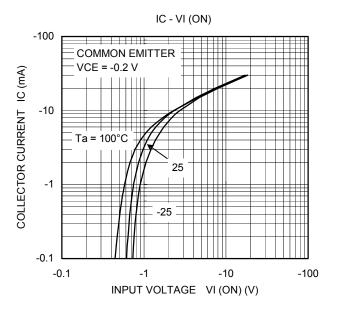


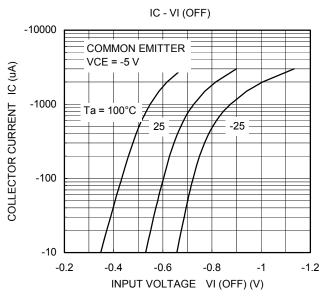


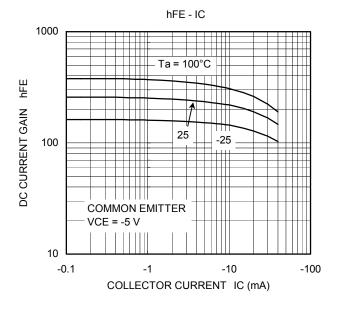


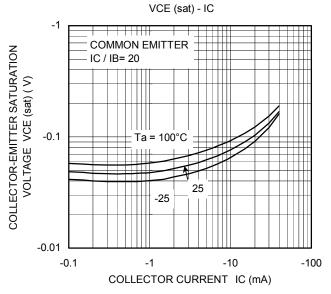


Q2









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