## TOSHIBA

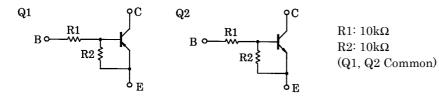
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process) Silicon NPN Epitaxial Type (PCT Process)

# **RN4902**

#### Switching, Inverter Circuit, Interface Circuit And Driver Circuit Applications

- Includeing two devices in US6 (ultra super mini type with 6 leads)
- With built-in bias resistors •
- Simplify circuit design •
- Reduce a quantity of parts and manufacturing process

#### **Equivalent Circuit and Bias Resister Values**

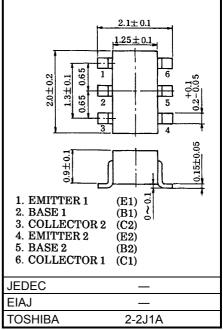


#### Q1 Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V <sub>CBO</sub>	-50	V
Collector-emitter voltage	V <sub>CEO</sub>	-50	V
Emitter-base voltage	V <sub>EBO</sub>	-10	V
Collector current	Ι <sub>C</sub>	-100	mA

#### Q2 Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V <sub>CBO</sub>	50	V
Collector-emitter voltage	V <sub>CEO</sub>	50	V
Emitter-base voltage	V <sub>EBO</sub>	10	V
Collector current	Ι <sub>C</sub>	100	mA



Weight: 6.8mg

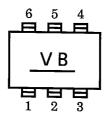
Unit: mm

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

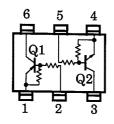
Characteristic	Symbol	Rating	Unit
Collector power dissipation	P <sub>C</sub> *	200	mW
Junction temperature	Tj	150	°C
Storage temperature range	T <sub>stg</sub>	-55~150	°C

\* Total rating

#### Marking



### Equivalent Circuit (Top View)



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

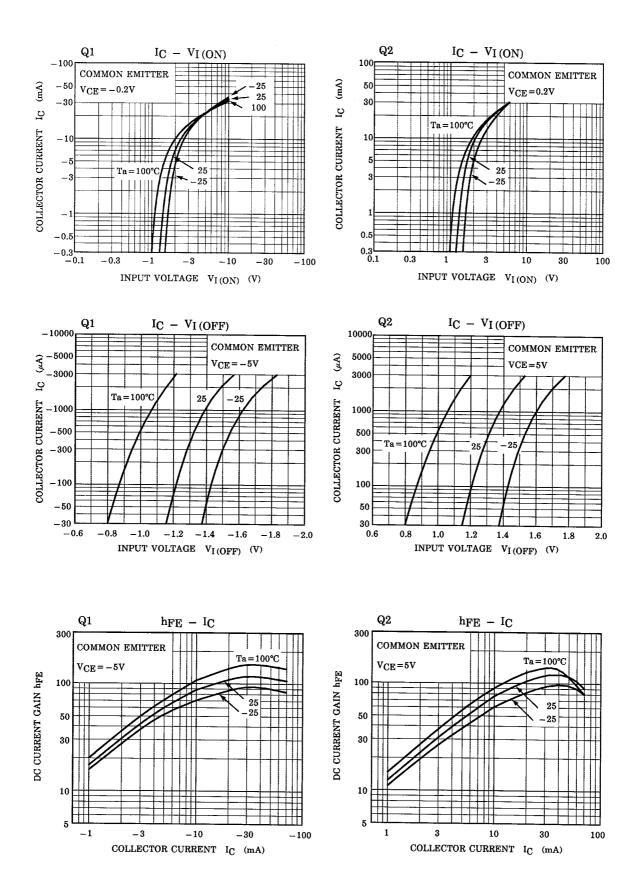
Characteristic	Symbol	Test Circuit	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	I <sub>CBO</sub>	-	$V_{CB} = -50V, I_E = 0$	_	_	-100	nA
	I <sub>CEO</sub>	_	V <sub>CE</sub> = -50V, I <sub>B</sub> = 0	_		-500	ΠA
Emitter cut-off current	I <sub>EBO</sub>	_	V <sub>EB</sub> = −10V, I <sub>C</sub> = 0	-0.38	_	-0.71	mA
DC current gain	h <sub>FE</sub>	_	V <sub>CE</sub> = −5V, I <sub>C</sub> = −10mA	50	_	_	—
Collector-emitter saturation voltage	V <sub>CE (sat)</sub>	_	I <sub>C</sub> = −5mA, I <sub>B</sub> = −0.25mA	_	-0.1	-0.3	V
Input voltage (ON)	V <sub>I (ON)</sub>	_	$V_{CE} = -0.2V, I_{C} = -5mA$	-1.2		-2.4	V
Input voltage (OFF)	VI (OFF)	_	$V_{CE} = -5V, I_C = -0.1mA$	-1.0	_	-1.5	V
Transition frequency	f <sub>T</sub>	-	V <sub>CE</sub> = −10V, I <sub>C</sub> = −5mA	_	200	_	MHz
Collector output capacitance	C <sub>ob</sub>	_	V <sub>CB</sub> = −10V, I <sub>E</sub> = 0, f = 1MHz	—	3	6	pF

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

Characteristic	Symbol	Test Circuit	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	I <sub>CBO</sub>	-	V <sub>CB</sub> = 50V, I <sub>E</sub> = 0	_	_	100	nA
	ICEO	_	V <sub>CE</sub> = 50V, I <sub>B</sub> = 0	_	_	500	ПА
Emitter cut-off current	I <sub>EBO</sub>	_	V <sub>EB</sub> = 10V, I <sub>C</sub> = 0	0.38	_	0.71	mA
DC current gain	h <sub>FE</sub>	_	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA	50	_	_	_
Collector-emitter saturation voltage	V <sub>CE (sat)</sub>	_	I <sub>C</sub> = 5mA, I <sub>B</sub> = 0.25mA	_	0.1	0.3	V
Input voltage (ON)	V <sub>I (ON)</sub>	_	V <sub>CE</sub> = 0.2V, I <sub>C</sub> = 5mA	1.2	_	2.4	V
Input voltage (OFF)	VI (OFF)	_	V <sub>CE</sub> = 5V, I <sub>C</sub> = 0.1mA	1.0	_	1.5	V
Transition frequency	f <sub>T</sub>	-	V <sub>CE</sub> = 10V, I <sub>C</sub> = 5mA	_	250	_	MHz
Collector output capacitance	C <sub>ob</sub>	—	V <sub>CB</sub> = 50V, I <sub>E</sub> = 0	_	3	6	pF

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

Characteristic	Symbol	Test Circuit	Test Condition	Min	Тур.	Max	Unit
Input resistor	R1		—	7	10	13	kΩ
Resistor ratio	R1/R2	—	—	0.9	1.0	1.1	—



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