Unit: mm

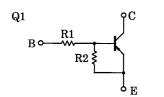
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process) Silicon NPN Epitaxial Type (PCT Process)

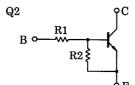
RN4909

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





R1: $47k\Omega$ R2: $22k\Omega$ (Q1, Q2 Common)

1

Q1 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}	-15	V
Collector current	IC	-100	mA

2.1 ± 0.1 1.25 ± 0.1 $0 \sim 0.1$ EMITTER 1 (E1) BASE 1 (B1) COLLECTOR 2 (C2)EMITTER 2 (E2)BASE 2 (B2)6. COLLECTOR 1 (C1) JEDEC EIAJ **TOSHIBA** 2-2J1A

Weight: 6.8mg

Q2 Maximum Ratings (Ta = 25°C)

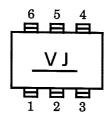
Characteristic	Symbol	Rating	Unit
Collector-base voltage	V _{CBO}	50	V
Collector-emitter voltage	V _{CEO}	50	V
Emitter-base voltage	V _{EBO}	15	V
Collector current	Ic	100	mA

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

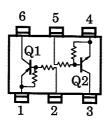
Characteristic	Symbol	Rating	Unit
Collector power dissipation	P _C * 200		mW
Junction temperature	Tj	150	°C
Storage temperature range	T _{stg}	-55~150	°C

^{*} Total rating

Marking



Equivalent Circuit (Top View)



2

Q1 Electrical Characteristics (Ta = 25°C)

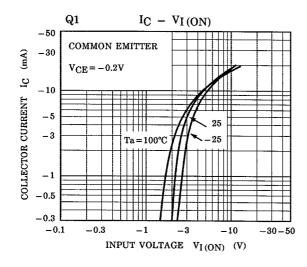
Characteristic	Symbol	Test Circuit	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	I _{CBO}	_	$V_{CB} = -50V, I_{E} = 0$	_	_	-100	nA
Collector cut-on current	I _{CEO}	_	$V_{CE} = -50V, I_B = 0$	_	1	-500	ш
Emitter cut-off current	I _{EBO}	_	$V_{EB} = -15V, I_C = 0$	-0.167	-	-0.311	mA
DC current gain	h _{FE}	_	V _{CE} = -5V, I _C = -10mA	70	_	_	_
Collector-emitter saturation voltage	V _{CE (sat)}	_	I _C = -5mA, I _B = -0.25mA	_	-0.1	-0.3	V
Input voltage (ON)	V _{I (ON)}	_	V _{CE} = −0.2V, I _C = −5mA	-2.2	_	-5.8	V
Input voltage (OFF)	V _{I (OFF)}	_	V _{CE} = -5V, I _C = -0.1mA	-1.5	_	-2.6	V
Transition frequency	f⊤	_	$V_{CE} = -10V, I_{C} = -5mA$	_	200	_	MHz
Collector output capacitance	C _{ob}	_	V _{CB} = −10V, I _E = 0	_	3	6	pF

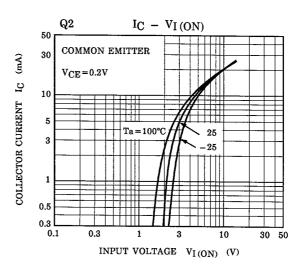
Q2 Electrical Characteristics (Ta = 25°C)

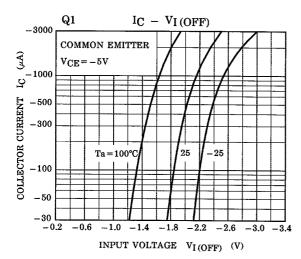
Characteristic	Symbol	Test Circuit	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	I _{CBO}	_	V _{CB} = 50V, I _E = 0	_	_	100	nA
Collector cut-on current	I _{CEO}	_	V _{CE} = 50V, I _B = 0	_	_	500	
Emitter cut-off current	I _{EBO}	_	V _{EB} = 15V, I _C = 0	0.167	_	0.311	mA
DC current gain	h _{FE}	_	V _{CE} = 5V, I _C = 10mA	70	_	_	_
Collector-emitter saturation voltage	V _{CE (sat)}	_	I _C = 5mA, I _B = 0.25mA	_	0.1	0.3	V
Input voltage (ON)	V _{I (ON)}	_	V _{CE} = 0.2V, I _C = 5mA	2.2	_	5.8	V
Input voltage (OFF)	V _{I (OFF)}	_	V _{CE} = 5V, I _C = 0.1mA	1.5	_	2.6	V
Transition frequency	f _T	_	V _{CE} = 10V, I _C = 5mA	_	250	_	MHz
Collector output capacitance	C _{ob}	_	V _{CB} = 10V, I _E = 0, f = 1 MHz	_	3	6	pF

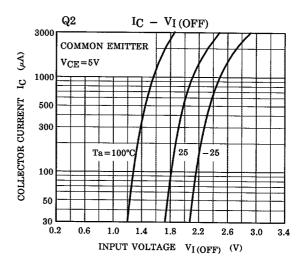
Q1, Q2 Common Electrical Characteristics (Ta = 25°C)

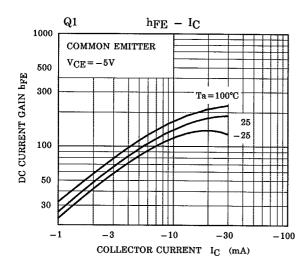
Characteristic	Symbol	Test Circuit	Test Condition	Min	Тур.	Max	Unit
Input resistor	R1	_	_	32.9	47	61.1	kΩ
Resistor ratio	R1/R2	_		1.92	2.14	2.35	_

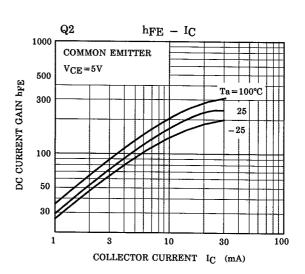












4

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