

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

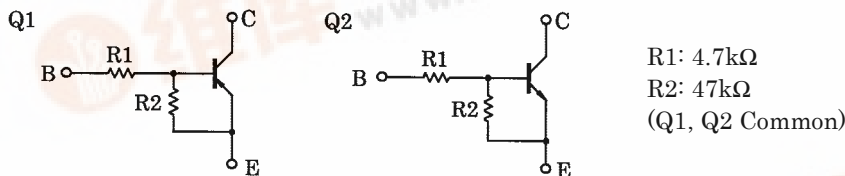
# RN4906

Switching, Inverter Circuit, Interface Circuit  
And Driver Circuit Applications

Unit: mm

- Including 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 Resistor Values

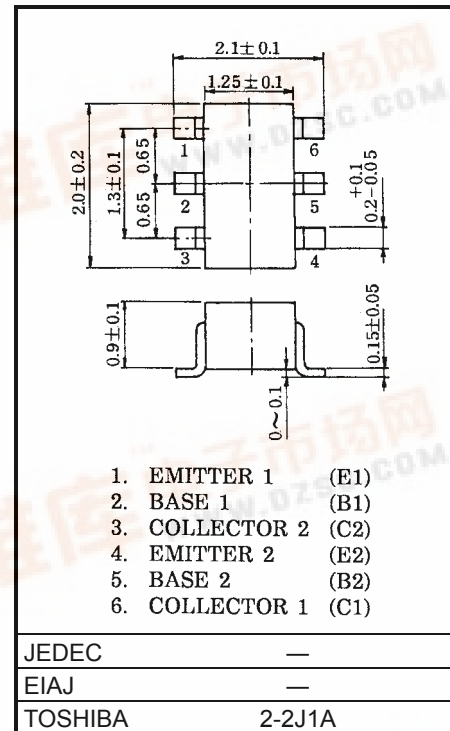


## Q1 Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	-50	V
Collector-emitter voltage	$V_{CEO}$	-50	V
Emitter-base voltage	$V_{EBO}$	-5	V
Collector current	$I_C$	-100	mA

## 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	$V_{EBO}$	5	V
Collector current	$I_C$	100	mA



JEDEC —  
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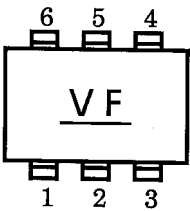
Weight: 6.8mg

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

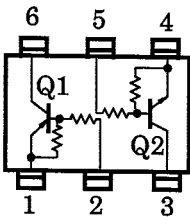
Characteristic	Symbol	Rating	Unit
Collector power dissipation	PC *	200	mW
Junction temperature	Tj	150	°C
Storage temperature range	Tstg	-55~150	°C

\* Total rating

Marking



Equivalent Circuit (Top View)



Q1 Electrical Characteristics (Ta = 25°C)

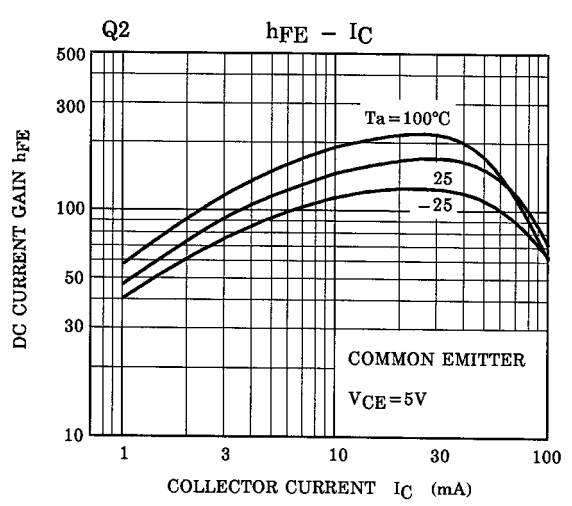
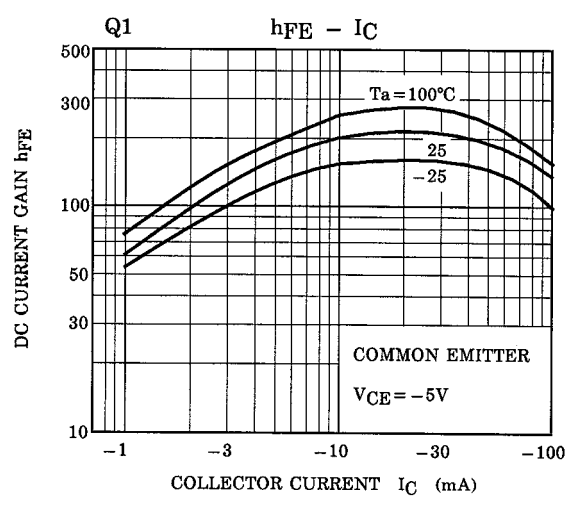
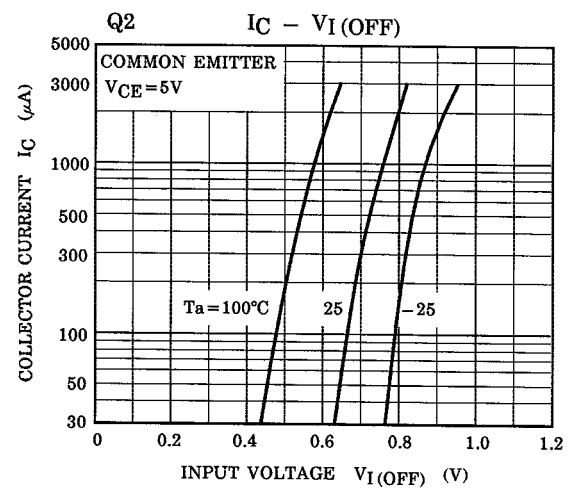
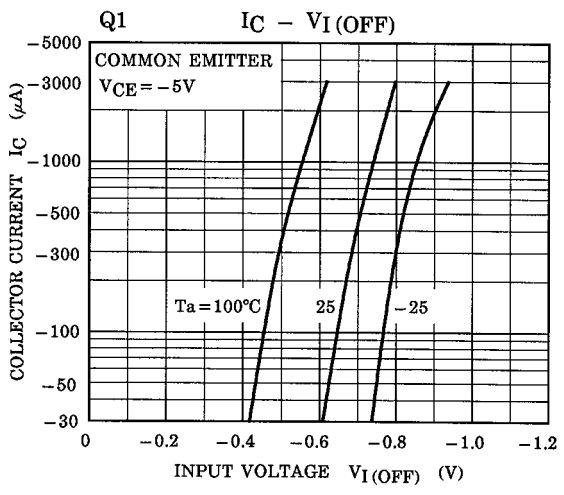
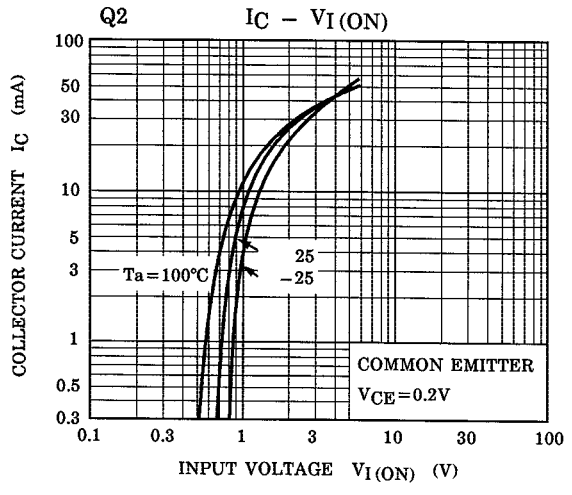
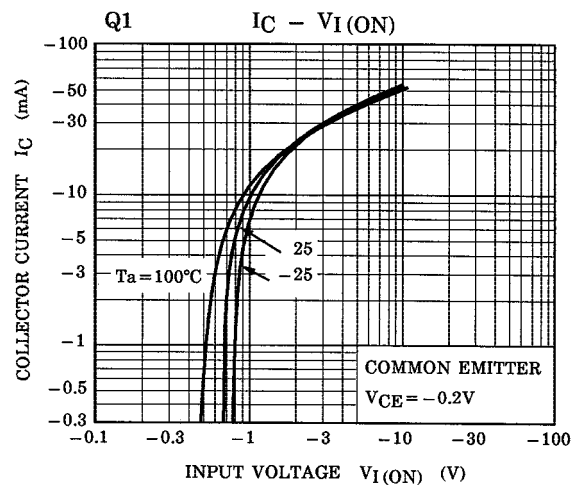
Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	ICBO	—	V <sub>CB</sub> = -50V, I <sub>E</sub> = 0	—	—	-100	nA
	ICEO	—	V <sub>CE</sub> = -50V, I <sub>B</sub> = 0	—	—	-500	
Emitter cut-off current	IEBO	—	V <sub>EB</sub> = -5V, I <sub>C</sub> = 0	-0.074	—	-0.138	mA
DC current gain	h <sub>FE</sub>	—	V <sub>CE</sub> = -5V, I <sub>C</sub> = -10mA	80	—	—	—
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	-0.7	—	-1.3	V
Input voltage (OFF)	V <sub>I(OFF)</sub>	—	V <sub>CE</sub> = -5V, I <sub>C</sub> = -0.1mA	-0.5	—	-0.8	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	—	3	6	pF

## Q2 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
	$I_{CEO}$	—	$V_{CE} = 50V, I_B = 0$	—	—	500	
Emitter cut-off current	$I_{EBO}$	—	$V_{EB} = 5V, I_C = 0$	0.074	—	0.138	mA
DC current gain	$h_{FE}$	—	$V_{CE} = 5V, I_C = 10mA$	80	—	—	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	$I_C = 5mA, I_B = 0.25mA$	—	0.1	0.3	V
Input voltage (ON)	$V_{I(ON)}$	—	$V_{CE} = 0.2V, I_C = 5mA$	0.7	—	1.3	V
Input voltage (OFF)	$V_{I(OFF)}$	—	$V_{CE} = 5V, I_C = 0.1mA$	0.5	—	0.8	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	Typ.	Max	Unit
Input resistor	R1	—	—	3.29	4.7	6.11	kΩ
Resistor ratio	R1/R2	—	—	0.09	0.1	0.11	—



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