

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

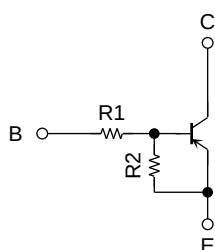
RN2714

Unit: mm

Switching, Inverter Circuit,
Interface Circuit and Driver Circuit

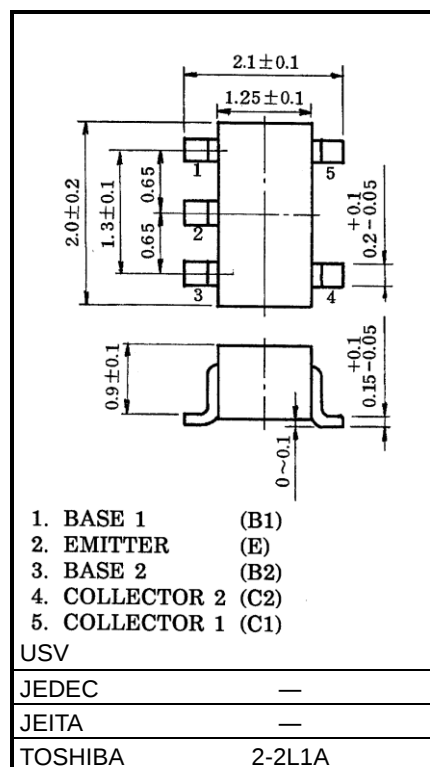
- Two devices incorporated in a USV (5-pin ultra-super-mini-type)
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process and miniaturize equipment.

Equivalent Circuit



R1: 1.0 k Ω (Q1, Q2 common)

R2: 10 k Ω (Q1, Q2 common)



Weight: 6.2 mg (typ.)

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

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
Collector power dissipation	P _C (Note 1)	200	mW
Junction temperature	T _J	150	°C
Storage temperature range	T _{stg}	-55 to 150	°C

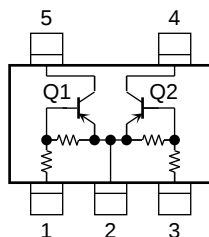
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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

Start of commercial production
2000-02

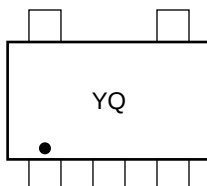
Equivalent Circuit (top view)



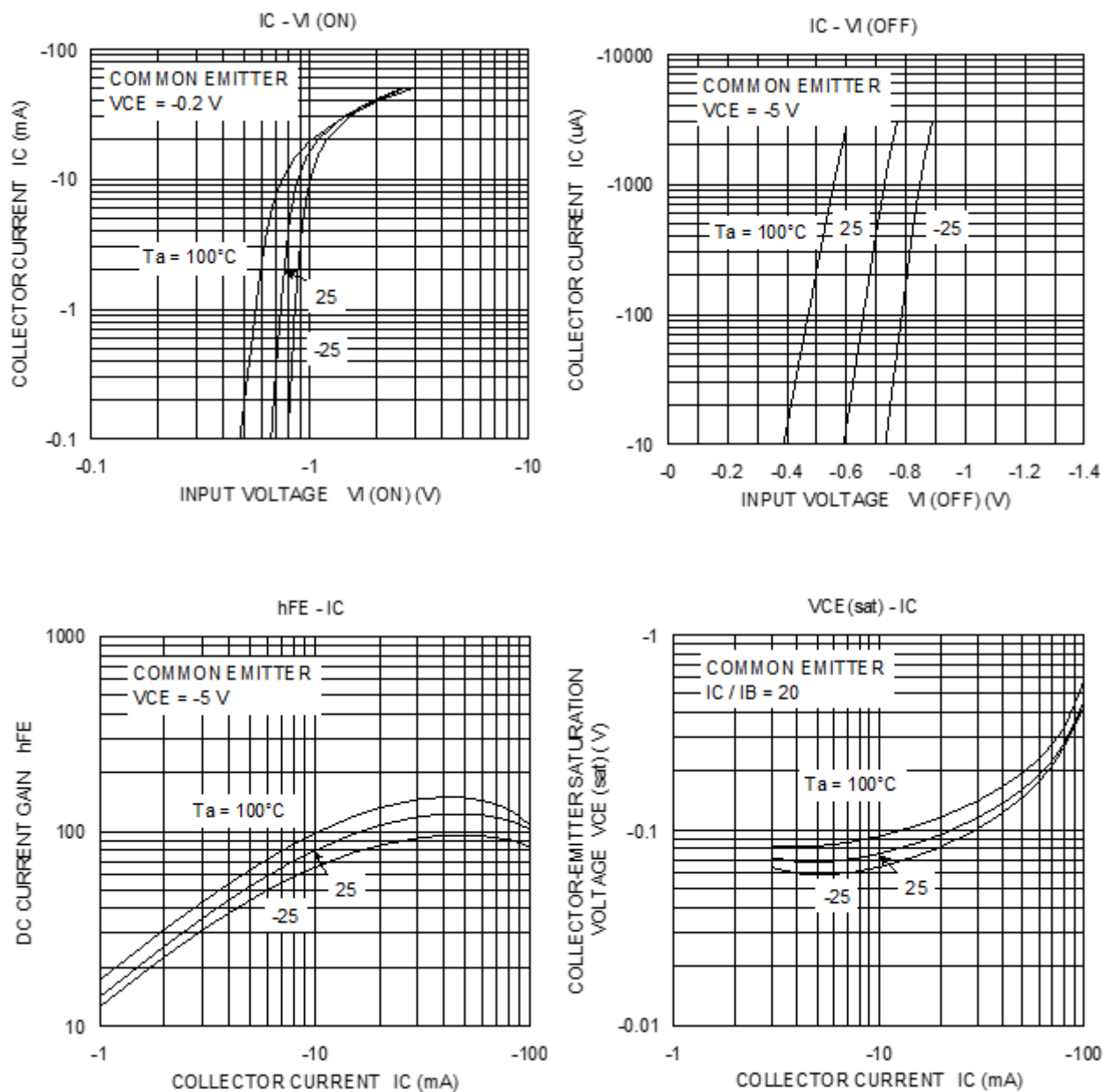
Electrical Characteristics (Ta = 25°C) (Q1, Q2 common)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = -50\text{ V}, I_E = 0\text{ A}$	—	—	-100	nA
	I_{CEO}	$V_{CE} = -50\text{ V}, I_B = 0\text{ A}$	—	—	-500	
Emitter cutoff current	I_{EBO}	$V_{EB} = -5\text{ V}, I_C = 0\text{ A}$	-0.35	—	-0.65	mA
DC current gain	h_{FE}	$V_{CE} = -5\text{ V}, I_C = -10\text{ mA}$	50	—	—	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -5\text{ mA}, I_B = -0.25\text{ mA}$	—	-0.1	-0.3	V
Input voltage (ON)	$V_I(ON)$	$V_{CE} = -0.2\text{ V}, I_C = -5\text{ mA}$	-0.5	—	-2.0	V
Input voltage (OFF)	$V_I(OFF)$	$V_{CE} = -5\text{ V}, I_C = -0.1\text{ mA}$	-0.3	—	-0.9	V
Input resistance	R_1	—	0.7	1.0	1.3	kΩ
Resistance ratio	R_1/R_2	—	—	0.1	—	—

Marking



Q1, Q2 Common



The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

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