

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

RN2507

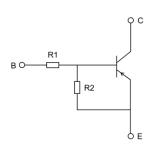
1. Applications

- Switching Inverter Circuit
- Interface Circuit
- **Driver Circuit Applications**

2. Features

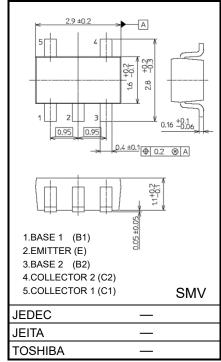
- Including two devices in SMV (super mini type with 5 leads)
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1507

3. Equivalent Circuit and Bias Resistor Values



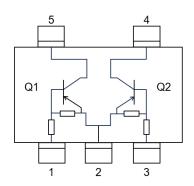
Part No.	R1 (kΩ)	R2 (kΩ)
RN2507	10	47

Unit: mm



Weight: 14mg (typ.)

4. Equivalent Circuit (Top View)



Start of commercial production 1988-10



5. Absolute Maximum Ratings (Note) (Ta = 25 °C) (Q1, Q2 Common)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V _{CBO}	-50	V
Collector-emitter voltage	VCEO	-50	V
Emitter-base voltage	V _{EBO}	-6	V
Collector current	Ic	-100	mA
Collector power dissipation	Pc (Note 1)	300	mW
Junction temperature	Tj	150	°C
Storage temperature range	T _{stg}	−55 to150	°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.

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

Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	ICBO	$V_{CB} = -50 \text{ V}, I_E = 0 \text{ mA}$	_	_	-100	π Λ
	ICEO	$V_{CE} = -50 \text{ V}, I_B = 0 \text{ mA}$	_	_	-500	nA
Emitter cut-off current	I _{EBO}	$V_{EB} = -6 \text{ V}, I_{C} = 0 \text{ mA}$	-0.081	_	-0.15	mA
DC current gain	hFE	$V_{CE} = -5 \text{ V}, I_{C} = -10 \text{ mA}$	80	_	_	_
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)}	$V_{CE} = -0.2 \text{ V}, I_{C} = -5 \text{ mA}$	-0.7	-	-1.8	V
Input voltage (OFF)	VI(OFF)	$V_{CE} = -5 \text{ V, IC} = -0.1 \text{ mA}$	-0.5	1	-1.0	V
Transition frequency	fT	$V_{CE} = -10 \text{ V}, I_{C} = -5 \text{ mA}$	_	200	_	MHz
Collector output capacitance	Cob	$V_{CB} = -10 \text{ V}, I_E = 0 \text{ mA}$ f = 1 MHz	_	3	6	pF
Input resistor	R1	_	7	10	13	kΩ
Resistor ratio	R1 / R2	_	0.191	0.213	0.232	_



7. Characteristics Curves (Note) (Q1, Q2 Common)

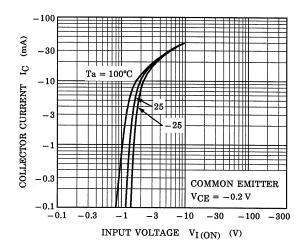


Fig. 7.1 $I_C - V_{I(ON)}$

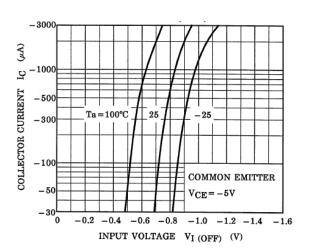


Fig. 7.2 $I_C - V_{I(OFF)}$

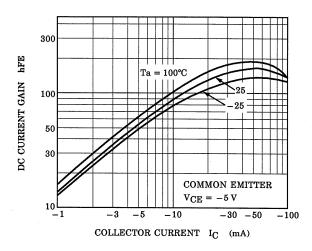


Fig. 7.3 $h_{FE} - I_C$

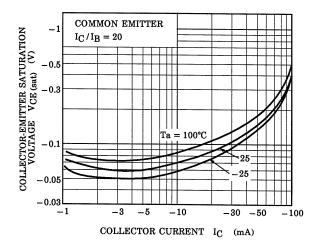


Fig. 7.4 $V_{CE(sat)} - I_C$

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



8. Marking

Part No.	Marking	
RN2507	Part No. (abbreviation code)	



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