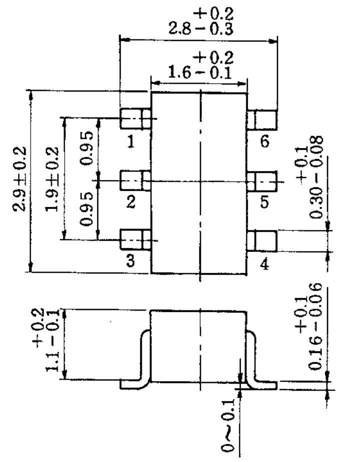
TOSHIBA Transistor
Silicon PNP Epitaxial Type (PCT Process) Silicon NPN Epitaxial Type (PCT Process)

RN4612

Switching, Inverter Circuit, Interface Circuit And Driver Circuit Applications

Unit in mm



SM6

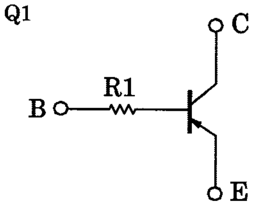
1. EMITTER 1 (E1)
2. BASE 1 (B1)
3. COLLECTOR 2 (C2)
4. EMITTER 2 (E2)
5. BASE 2 (B2)
6. COLLECTOR 1 (C1)

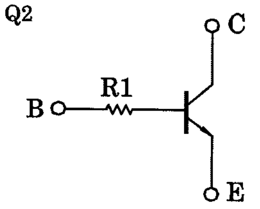
JEDEC	—
EIAJ	SC-74
TOSHIBA	2-3N1A

Weight: 0.015g

- Includeing two devices in SM6 (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: 22kΩ
(Q1, Q2 Common)

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)

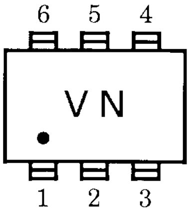
Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	50	V
Collector-emitter voltage	V_{CEO}	50	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	100	mA

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

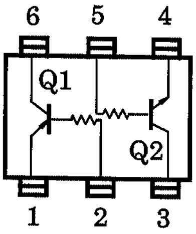
Characteristic	Symbol	Rating	Unit
Collector power dissipation	P_C *	300	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	−55~150	°C

* 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	I_{CBO}	—	$V_{CB} = -50V$, $I_E = 0$	—	—	−100	nA
Emitter cut-off current	I_{EBO}	—	$V_{EB} = -5V$, $I_C = 0$	—	—	−100	mA
DC current gain	h_{FE}	—	$V_{CE} = -5V$, $I_C = -1mA$	120	—	400	—
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	—	$I_C = -5mA$, $I_B = -0.25mA$	—	−0.1	−0.3	V
Transition frequency	f_T	—	$V_{CE} = -10V$, $I_C = -5mA$	—	200	—	MHz
Collector output capacitance	C_{ob}	—	$V_{CB} = -10V$, $I_E = 0$, f = 1MHz	—	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
Emitter cut-off current	I_{EBO}	—	$V_{EB} = 5V$, $I_C = 0$	—	—	100	mA
DC current gain	h_{FE}	—	$V_{CE} = 5V$, $I_C = 1mA$	120	—	700	—
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	—	$I_C = 5mA$, $I_B = 0.25mA$	—	0.1	0.3	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	—	—	15.4	22	28.6	kΩ