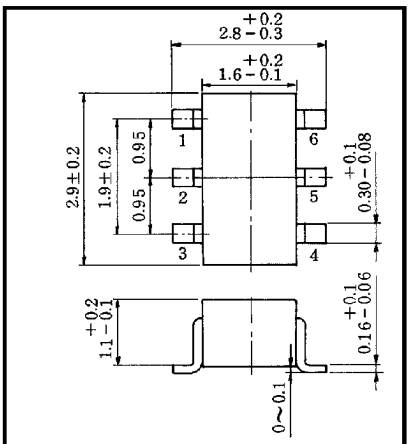
TOSHIBA TRANSISTOR
SILICON PNP EPITAXIAL TYPE (PCT PROCESS) SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

RN4612

SWITCHING, INVERTER CIRCUIT, INTERFACE CIRCUIT
AND DRIVER CIRCUIT APPLICATIONS.

- Including 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

Unit in mm



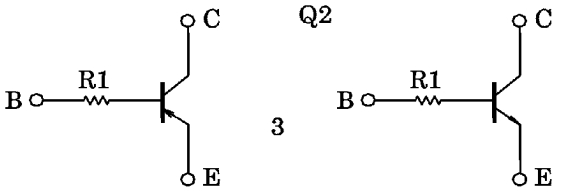
1. EMITTER 1	(E1)
2. BASE 1	(B1)
3. COLLECTOR 2	(C2)
4. EMITTER 2	(E2)
5. BASE 2	(B2)
6. COLLECTOR 1	(C1)

SM6

JEDEC	—
EIAJ	SC-74
TOSHIBA	2-3N1A

Weight : 0.015g

EQUIVALENT CIRCUIT AND BIAS RESISTOR 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)

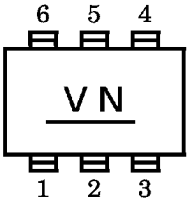
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	100	mA

Q1, Q2 COMMON MAXIMUM RATINGS (Ta = 25°C)

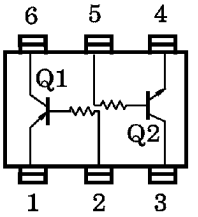
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector Power Dissipation	P_C *	300	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55~150	°C

* : Total Rating

MARKING



EQUIVALENT CIRCUIT
(TOP VIEW)



961001EAA2

Q1 ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	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	nA
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)

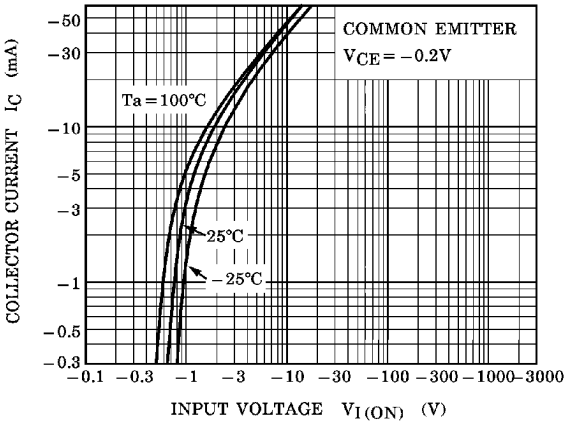
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB}=50V$, $I_E=0$	—	—	100	nA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=5V$, $I_C=0$	—	—	100	nA
DC Current Gain	h_{FE}	$V_{CE}=5V$, $I_C=1mA$	120	—	700	
Collector-Emitter Saturation Voltage	$V_{CE\ (sat)}$	$I_C=5mA$, $I_B=0.25mA$	—	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=1MHz	—	3	6	pF

Q1, Q2 COMMON ELECTRICAL CHARACTERISTICS (Ta = 25°C)

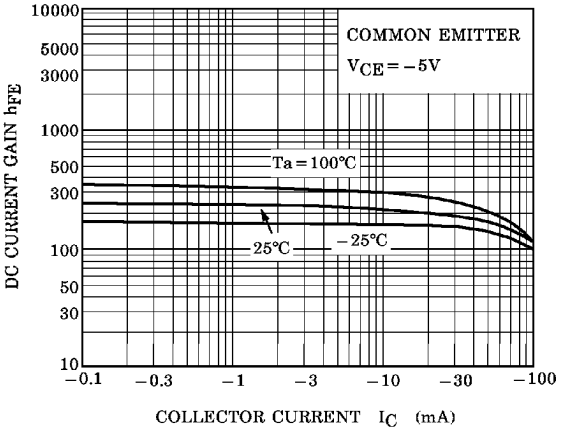
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Resistor	R1	—	15.4	22	28.6	kΩ

Q1

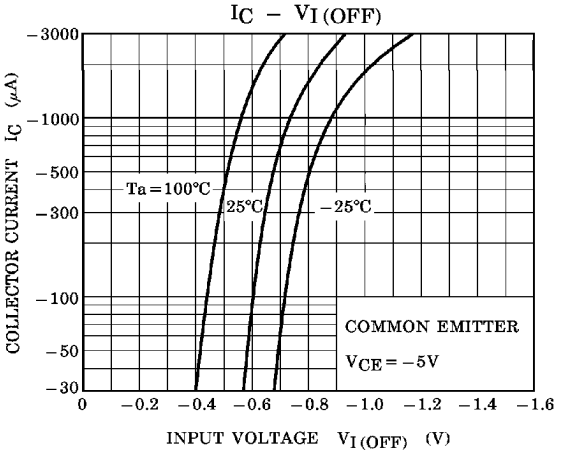
I_C – $V_{I(ON)}$



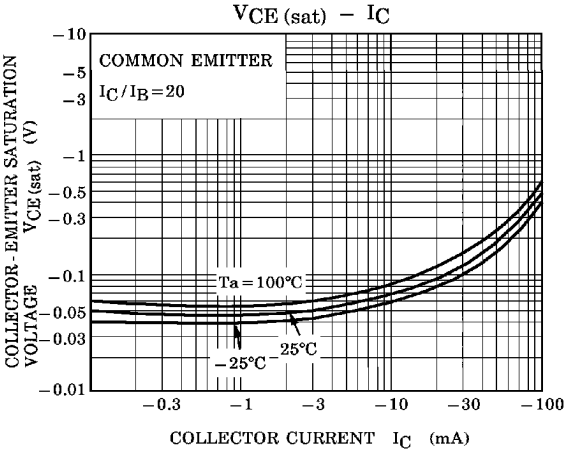
h_{FE} – I_C



I_C – $V_{I(OFF)}$

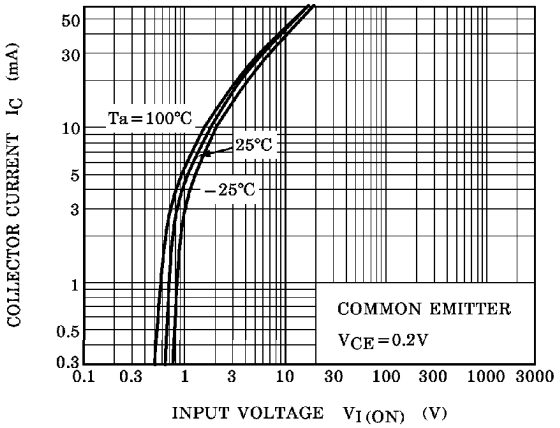


$V_{CE(sat)}$ – I_C

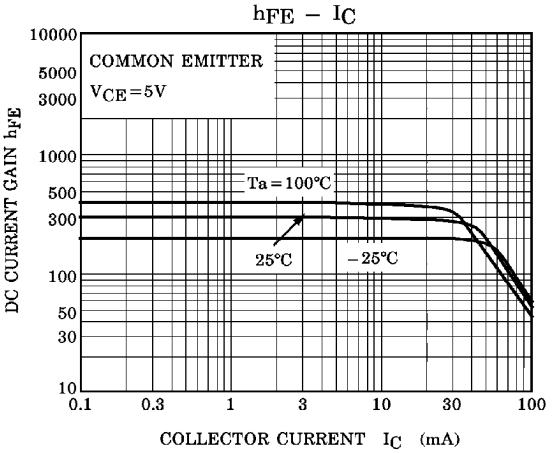


Q2

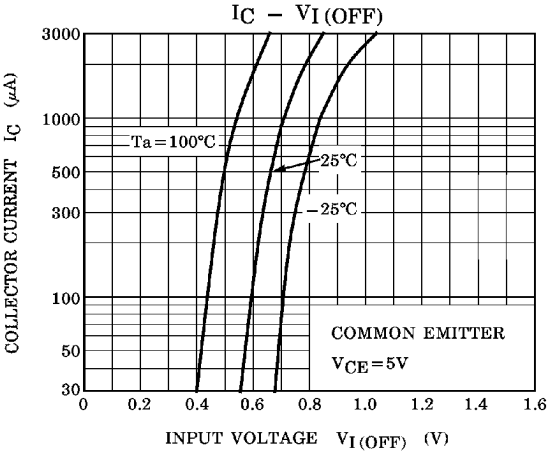
$I_C - V_{I(ON)}$



$h_{FE} - I_C$



$I_C - V_{I(OFF)}$



$V_{CE(sat)} - I_C$