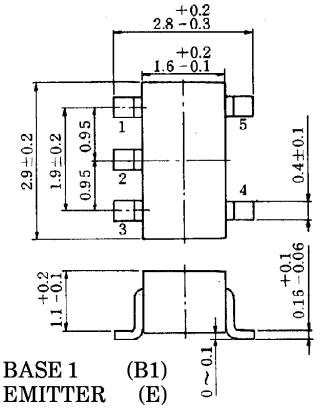
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

RN1507, RN1508, RN1509

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

- 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 RN2507~2509

Unit in mm

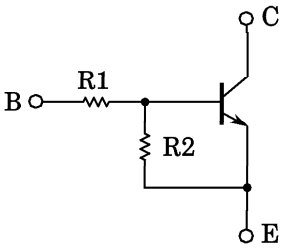


1. BASE 1 (B1)
2. EMITTER (E)
3. BASE 2 (B2)
4. COLLECTOR 2 (C2)
5. COLLECTOR 1 (C1)

JEDEC	—
EIAJ	—
TOSHIBA	2-3L1A

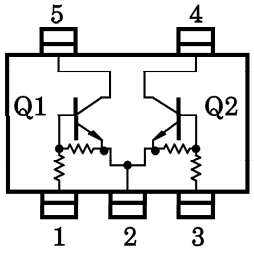
Weight : 0.014g

EQUIVALENT CIRCUIT AND BIAS RESISTOR VALUES



TYPE No.	R1 (kΩ)	R2 (kΩ)
RN1907	10	47
RN1908	22	47
RN1909	47	22

EQUIVALENT CIRCUIT (TOP VIEW)



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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage	RN1507~1509	V_{CBO}	50	V
Collector-Emitter Voltage		V_{CEO}	50	V
Emitter-Base Voltage	RN1507	V_{EBO}	6	V
	RN1508		7	
	RN1509		15	
Collector Current	RN1507~1509	I_C	100	mA
Collector Power Dissipation		P_C *	300	mW
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

* : Total Rating

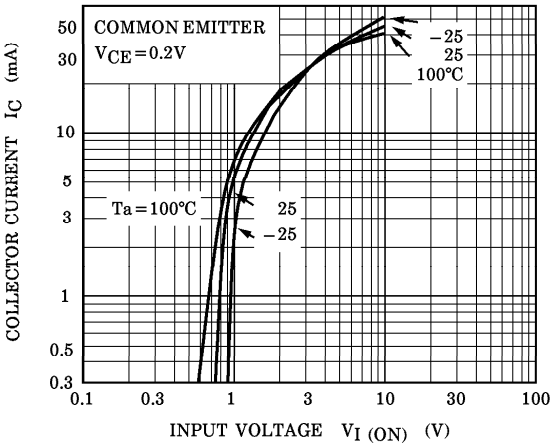
961001EAA2

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

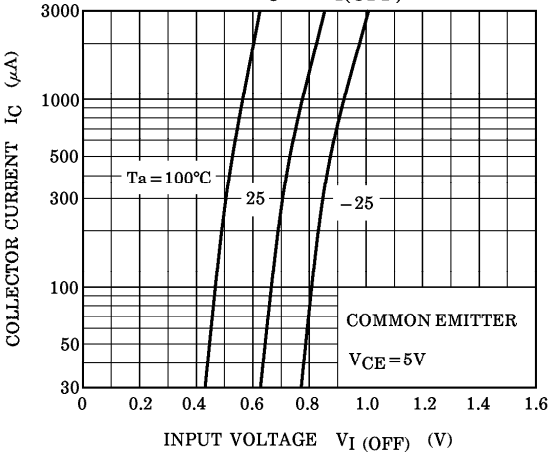
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	RN1507~1509	I_{CBO}	V_{CB}=50V, I_E=0	—	—	100	nA
		I_{CEO}	V_{CE}=50V, I_B=0	—	—	500	nA
Emitter Cut-off Current	RN1507	I_{EBO}	V_{EB}=6V, I_C=0	0.081	—	0.15	mA
	RN1508		V_{EB}=7V, I_C=0	0.078	—	0.145	
	RN1509		V_{EB}=15V, I_C=0	0.167	—	0.311	
DC Current Gain	RN1507	h_{FE}	V_{CE}=5V, I_C=10mA	80	—	—	
	RN1508			80	—	—	
	RN1509			70	—	—	
Collector-Emitter Saturation Voltage	RN1507~1509	$V_{CE\ (sat)}$	I_C=5mA I_B=0.25mA	—	0.1	0.3	V
Input Voltage (ON)	RN1507	$V_{I\ (ON)}$	V_{CE}=0.2V I_C=5mA	0.7	—	1.8	V
	RN1508			1.0	—	2.6	
	RN1509			2.2	—	5.8	
Input Voltage (OFF)	RN1507	$V_{I\ (OFF)}$	V_{CE}=5V I_C=0.1mA	0.5	—	1.0	V
	RN1508			0.6	—	1.16	
	RN1509			1.5	—	2.6	
Transition Frequency	RN1507~1509	f_T	V_{CE}=10V, I_C=5mA	—	250	—	MHz
Collector Output Capacitance	RN1507~1509	C_{ob}	V_{CB}=10V, I_E=0, f=1MHz	—	3	6	pF
Input Resistor	RN1507	R1		7	10	13	kΩ
	RN1508			15.4	22	28.6	
	RN1509			32.9	47	61.1	
Resistor Ratio	RN1507	R1 / R2		0.191	0.213	0.232	
	RN1508			0.421	0.468	0.515	
	RN1509			1.92	2.14	2.35	

(Q1, Q2 COMMON)

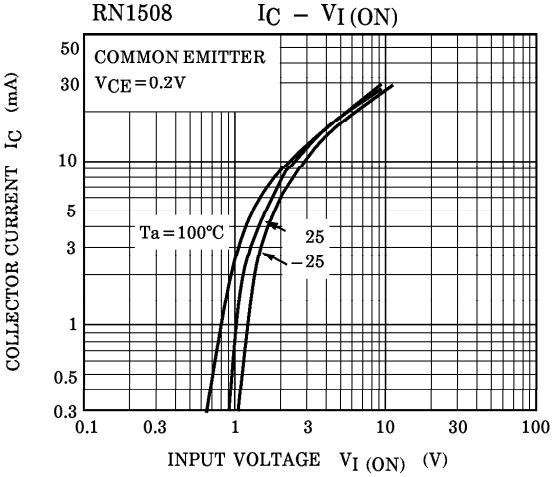
RN1507 I_C – $V_{I\,(ON)}$



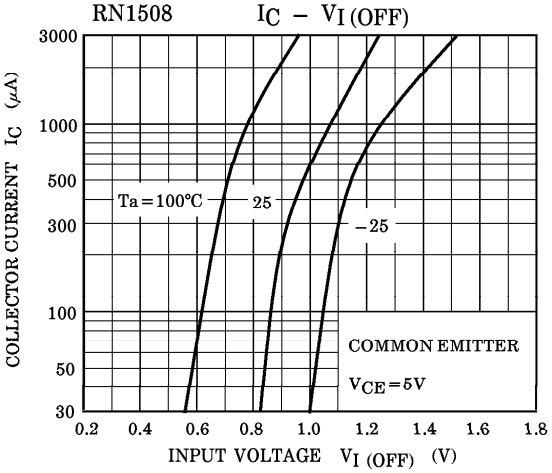
RN1507 I_C – $V_{I(OFF)}$



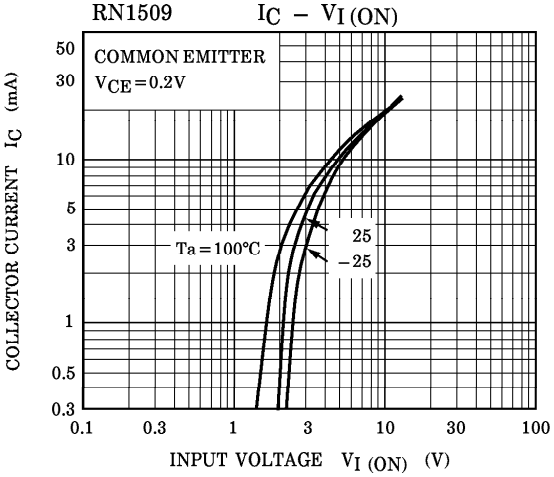
RN1508 I_C – $V_{I\,(ON)}$



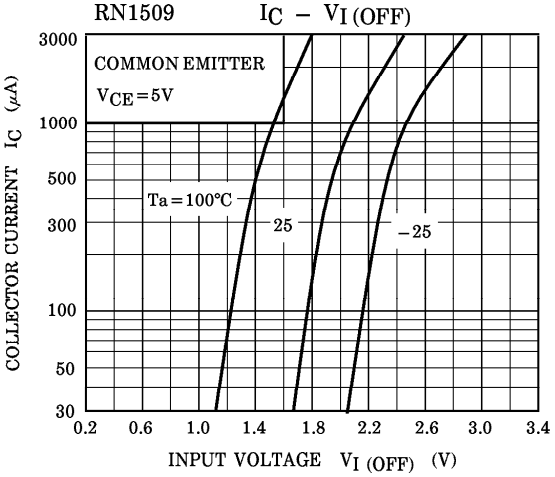
RN1508 I_C – $V_{I\,(OFF)}$



RN1509 I_C – $V_{I\,(ON)}$

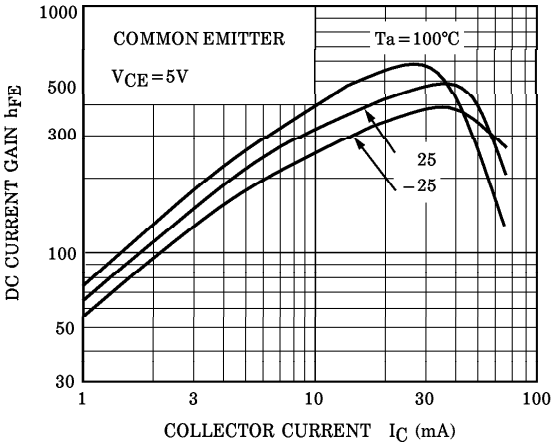


RN1509 I_C – $V_{I\,(OFF)}$

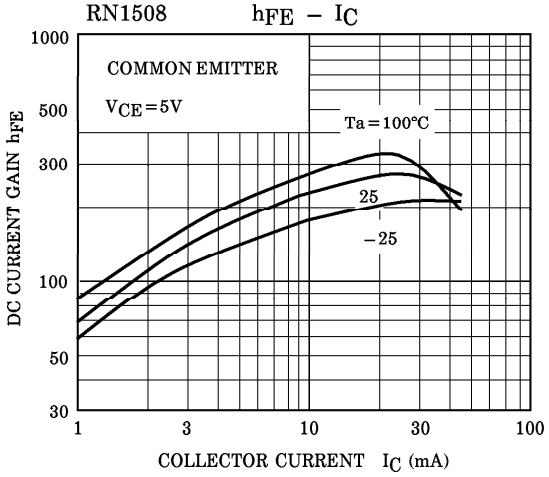


(Q1, Q2 COMMON)

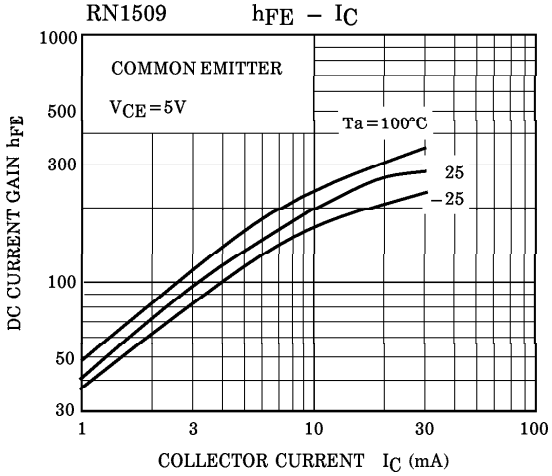
RN1507 h_{FE} – I_C

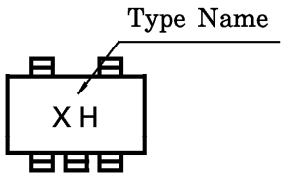
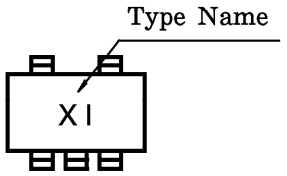


RN1508 h_{FE} – I_C



RN1509 h_{FE} – I_C



TYPE NAME	MARKING
RN1507	
RN1508	
RN1509