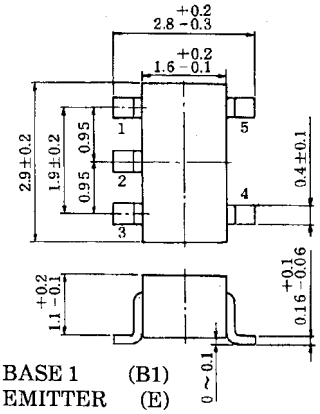
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

RN2510,RN2511

Switching, Inverter Circuit, Interface Circuit
And Driver Circuit Applications

- Including twodevices 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 RN1510, RN1511

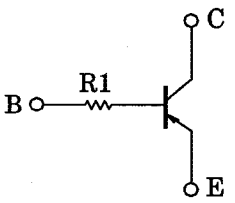
Unit: mm



JEDEC	—
EIAJ	—
TOSHIBA	2-3L1A

Weight: 0.014g

Equivalent Circuit

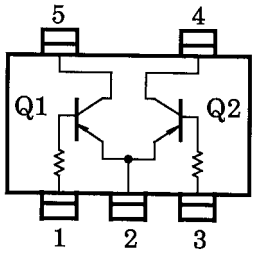


Maximum Ratings (Ta = 25°C)

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

* : Total rating

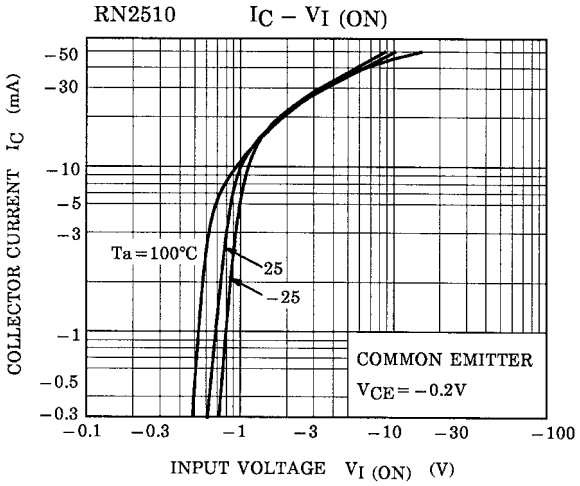
Equivalent Circuit (Top View)

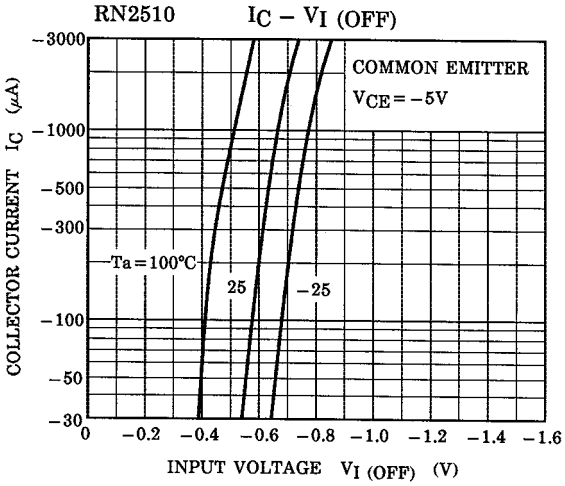


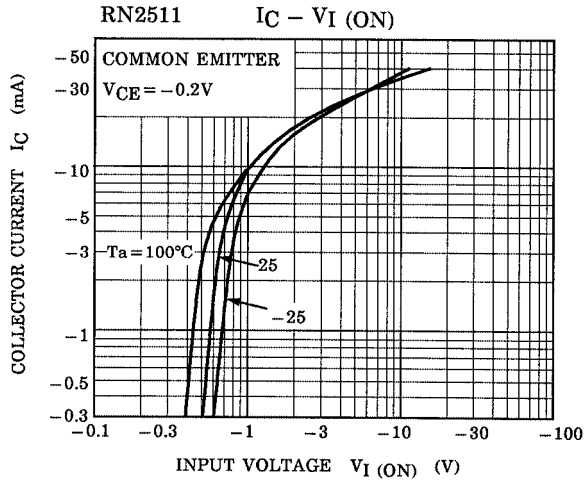
Electrical Characteristics (Ta = 25°C)

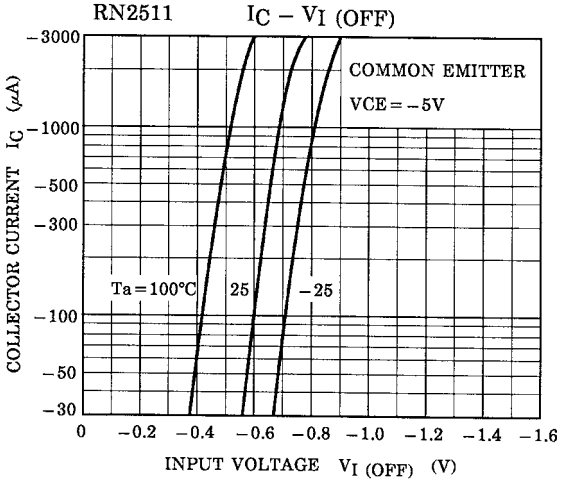
Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	—	V_{CB} = −50V, I_E = 0	—	—	−100	nA
Emitter cut-off current		I_{EBO}	—	V_{EB} = −5V, I_C = 0	—	—	−100	nA
DC current gain		h_{FE}	—	V_{CE} = −5V, I_C = −1mA	120	—	400	—
Collector-emitter saturation voltage		$V_{CE\ (sat)}$	—	I_C = −5mA, I_B = −0.25mA	—	−0.1	−0.3	V
Translation 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
Input resistor	RN2510	R1	—	—	3.29	4.7	6.11	kΩ
	RN2511				7	10	13	

(Q1, Q2 Common)

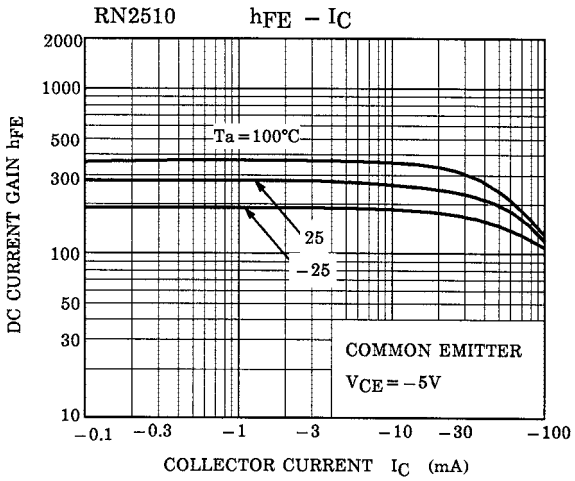

RN2510 $I_C - V_I$ (ON)
COLLECTOR CURRENT I_C (mA)
−50
−30
−10
−5
−3
−1
−0.5
−0.3
Ta = 100°C
25
−25
COMMON EMITTER
V_{CE} = −0.2V
−0.1 −0.3 −1 −3 −10 −30 −100
INPUT VOLTAGE $V_{I (ON)}$ (V)

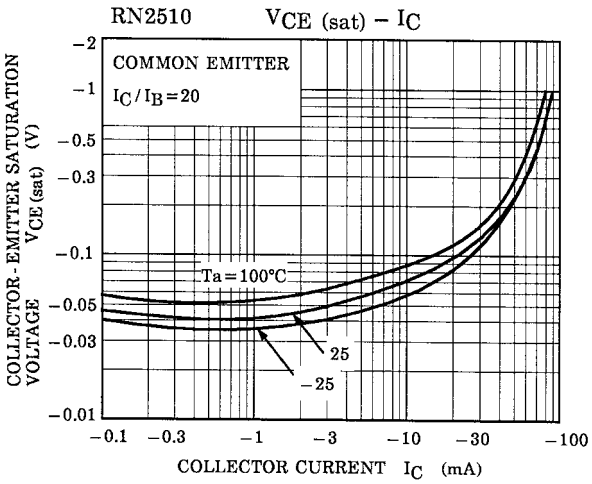

RN2510 $I_C - V_I$ (OFF)
COLLECTOR CURRENT I_C (μA)
−3000
−1000
−500
−300
−100
−50
−30
COMMON EMITTER
V_{CE} = −5V
Ta = 100°C
25
−25
0 −0.2 −0.4 −0.6 −0.8 −1.0 −1.2 −1.4 −1.6
INPUT VOLTAGE $V_{I (OFF)}$ (V)

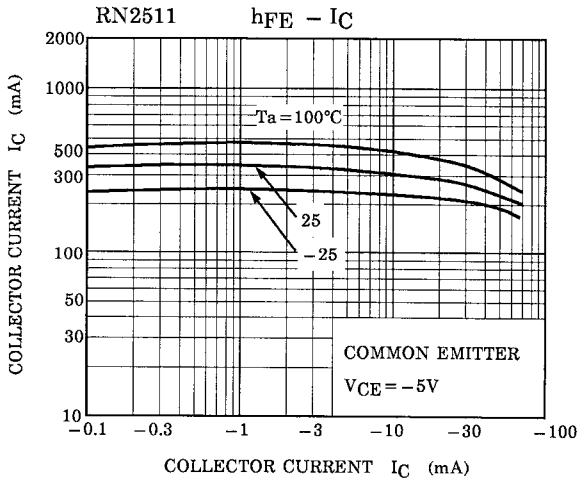

RN2511 $I_C - V_I$ (ON)
COLLECTOR CURRENT I_C (mA)
−50
−30
−10
−5
−3
−1
−0.5
−0.3
COMMON EMITTER
V_{CE} = −0.2V
Ta = 100°C
25
−25
−0.1 −0.3 −1 −3 −10 −30 −100
INPUT VOLTAGE $V_{I (ON)}$ (V)

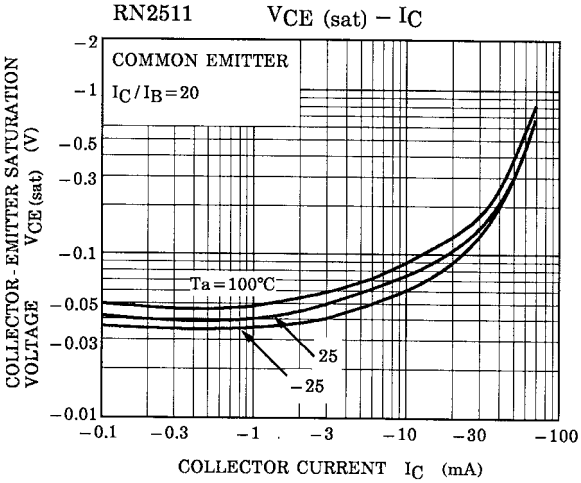

RN2511 $I_C - V_I$ (OFF)
COLLECTOR CURRENT I_C (μA)
−3000
−1000
−500
−300
−100
−50
−30
COMMON EMITTER
VCE = −5V
Ta = 100°C
25
−25
0 −0.2 −0.4 −0.6 −0.8 −1.0 −1.2 −1.4 −1.6
INPUT VOLTAGE $V_{I (OFF)}$ (V)

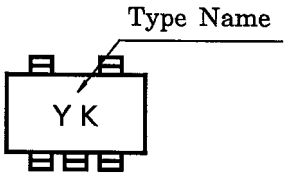
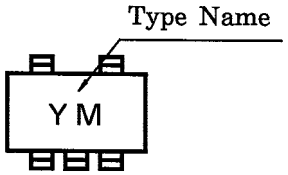
(Q1, Q2 Common)


RN2510 hFE – IC
DC CURRENT GAIN hFE
2000
1000
500
300
100
50
30
10
Ta = 100°C
25
−25
COMMON EMITTER
VCE = −5V
−0.1 −0.3 −1 −3 −10 −30 −100
COLLECTOR CURRENT IC (mA)


RN2510 VCE (sat) – IC
COLLECTOR-EMITTER SATURATION VOLTAGE VCE (sat) (V)
−2
−1
−0.5
−0.3
−0.1
−0.05
−0.03
−0.01
COMMON EMITTER
IC / IB = 20
Ta = 100°C
25
−25
−0.1 −0.3 −1 −3 −10 −30 −100
COLLECTOR CURRENT IC (mA)


RN2511 hFE – IC
COLLECTOR CURRENT IC (mA)
2000
1000
500
300
100
50
30
10
Ta = 100°C
25
−25
COMMON EMITTER
VCE = −5V
−0.1 −0.3 −1 −3 −10 −30 −100
COLLECTOR CURRENT IC (mA)


RN2511 VCE (sat) – IC
COLLECTOR-EMITTER SATURATION VOLTAGE VCE (sat) (V)
−2
−1
−0.5
−0.3
−0.1
−0.05
−0.03
−0.01
COMMON EMITTER
IC / IB = 20
Ta = 100°C
25
−25
−0.1 −0.3 −1 −3 −10 −30 −100
COLLECTOR CURRENT IC (mA)

Type Name	Marking
RN2510	
RN2511	

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000707EAA

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