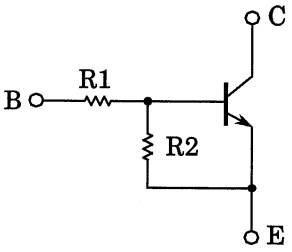
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

RN2601,RN2602,RN2603
RN2604,RN2605,RN2606

Switching, Inverter Circuit, Interface Circuit
And Driver Circuit Applications

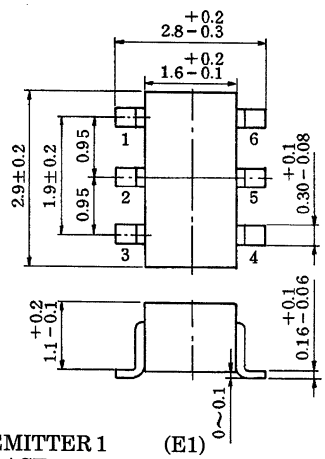
- Including two devices in SM6 (super mini type with 6 leads)
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1601~1606

Equivalent Circuit and Bias Resistor Values



Type No.	R1 (kΩ)	R2 (kΩ)
RN2601	4.7	4.7
RN2602	10	10
RN2603	22	22
RN2604	47	47
RN2605	2.2	47
RN2606	4.7	47

Unit in mm

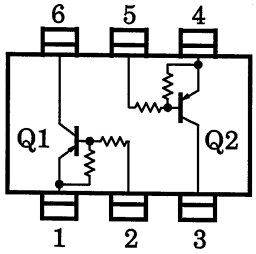


1. EMITTER 1 (E1)
2. BASE 1 (B1)
3. COLLECTOR 2 (C2)
4. EMITTER 2 (E2)
5. BASE 2 (B2)
6. COLLECTOR 1 (C1)

JEDEC	—
EIAJ	—
TOSHIBA	2-3N1A

Weight: 0.015g

Equivalent Circuit (Top View)



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

Characteristic		Symbol	Rating	Unit
Collector-base voltage	RN2601~2606	V_{CBO}	−50	V
Collector-emitter voltage		V_{CEO}	−50	V
Emitter-base voltage	RN2601~2604	V_{EBO}	−10	V
	RN2605, 2606		−5	
Collector current	RN2601~2606	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

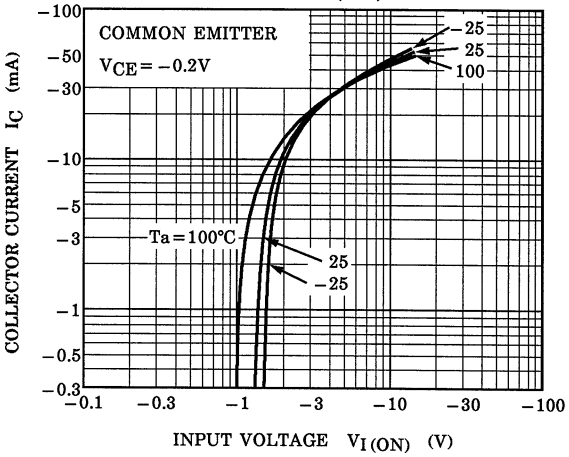
* Total rating

Electrical Characteristics (Ta = 25°C) (Q1, Q2 common)

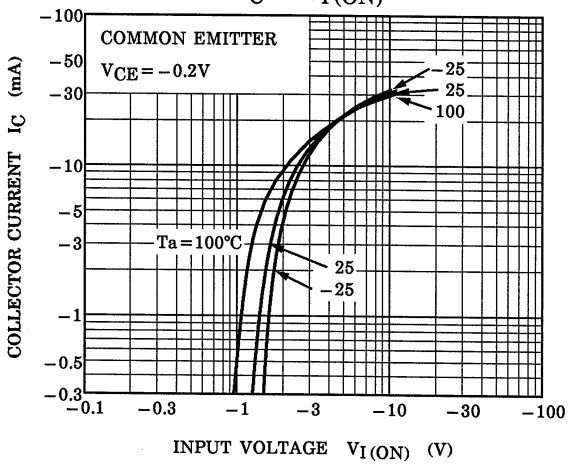
Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	RN2601~2606	I_{CBO}	—	V_{CB} = −50V, I_E = 0	—	—	−100	nA
		I_{CEO}	—	V_{CE} = −50V, I_B = 0	—	—	−500	
Emitter cut-off current	RN2601	I_{EBO}	—	V_{EB} = −10V, I_C = 0	−0.82	—	−1.52	mA
	RN2602		—		−0.38	—	−0.71	
	RN2603		—		−0.17	—	−0.33	
	RN2604		—		−0.082	—	−0.15	
	RN2605		—	V_{EB} = −5V, I_C = 0	−0.078	—	−0.145	
	RN2606		—		−0.074	—	−0.138	
DC current gain	RN2601	h_{FE}	—	V_{CE} = −5V I_C = −10mA	30	—	—	—
	RN2602		—		50	—	—	
	RN2603		—		70	—	—	
	RN2604		—		80	—	—	
	RN2605		—		80	—	—	
	RN2606		—		80	—	—	
Collector-emitter saturation voltage	RN2601~2606	$V_{CE\ (sat)}$	—	I_C = −5mA I_B = −0.25mA	—	−0.1	−0.3	V
Input voltage (ON)	RN2601	$V_{I\ (ON)}$	—	V_{CE} = −0.2V I_C = −5mA	−1.1	—	−2.0	V
	RN2602		—		−1.2	—	−2.4	
	RN2603		—		−1.3	—	−3.0	
	RN2604		—		−1.5	—	−5.0	
	RN2605		—		−0.6	—	−1.1	
	RN2606		—		−0.7	—	−1.3	
Input voltage (OFF)	RN2601~2604	$V_{I\ (OFF)}$	—	V_{CE} = −5V, I_C = −0.1mA	−1.0	—	−1.5	V
	RN2605, 2606		—		−0.5	—	−0.8	
Translation frequency	RN2601~2606	f_T	—	V_{CE} = −10V, I_C = −5mA	—	200	—	MHz
Collector output capacitance	RN2601~2606	C_{ob}	—	V_{CB} = −10V, I_E = 0 f = 1MHz	—	3	6	pF
Input resistor	RN2601	R1	—	—	3.29	4.7	6.11	kΩ
	RN2602		—		7	10	13	
	RN2603		—		15.4	22	28.6	
	RN2604		—		32.9	47	61.1	
	RN2605		—		1.54	2.2	2.86	
	RN2606		—		3.29	4.7	6.11	
Resistor ratio	RN2601~2604	R1/R2	—	—	0.9	1.0	1.1	—
	RN2605		—		0.0421	0.0468	0.0515	
	RN2606		—		0.09	0.1	0.11	

(Q1, Q2 Common)

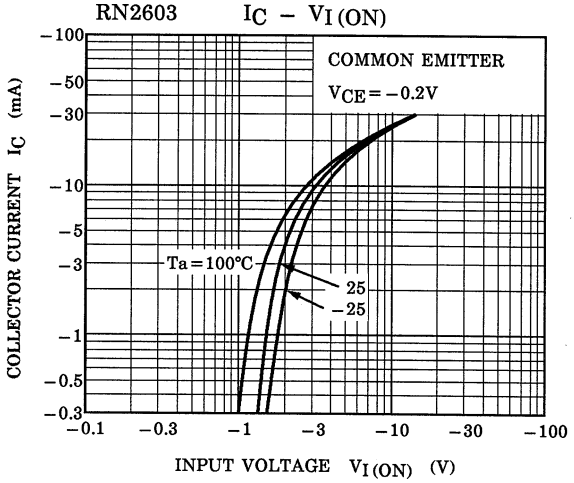
RN2601 $I_C - V_{I(ON)}$



RN2602 $I_C - V_{I(ON)}$



RN2603 $I_C - V_{I(ON)}$



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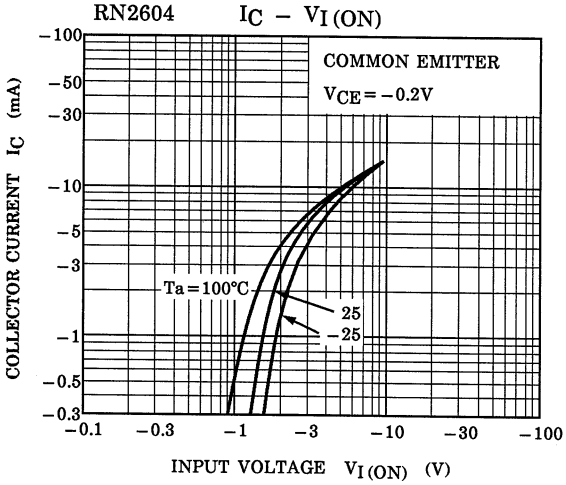
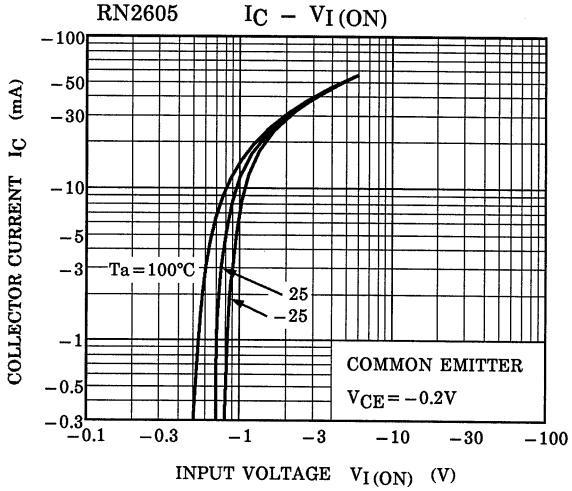
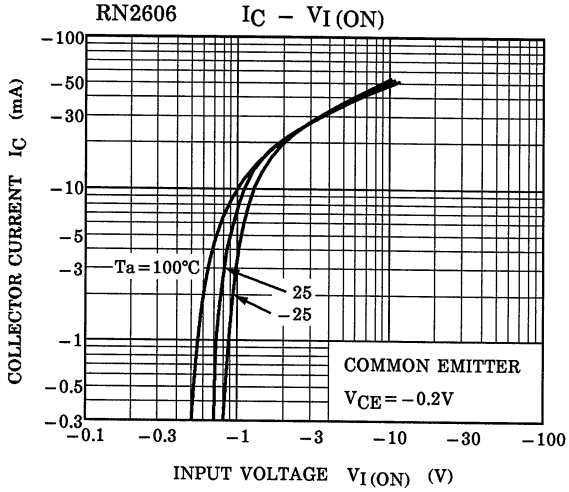


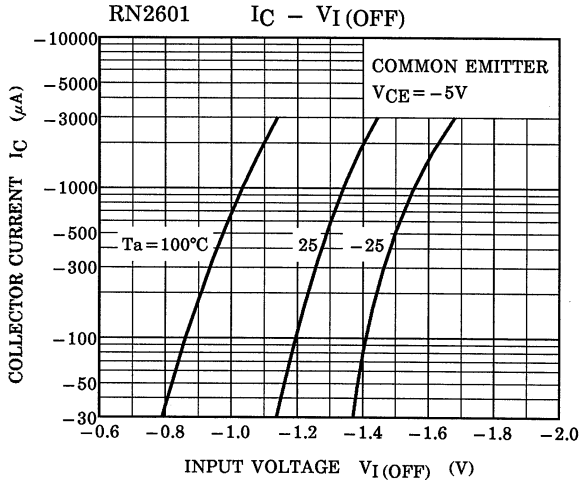
RN2605 $I_C - V_{I(ON)}$

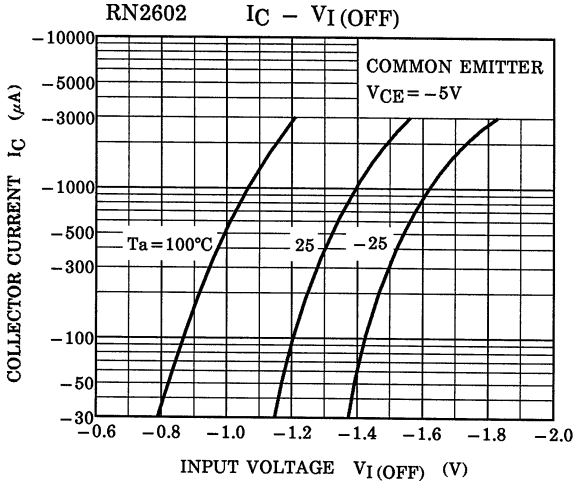


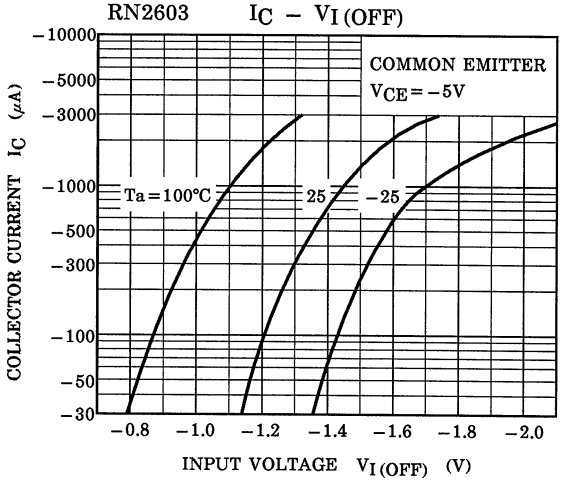
RN2606 $I_C - V_{I(ON)}$

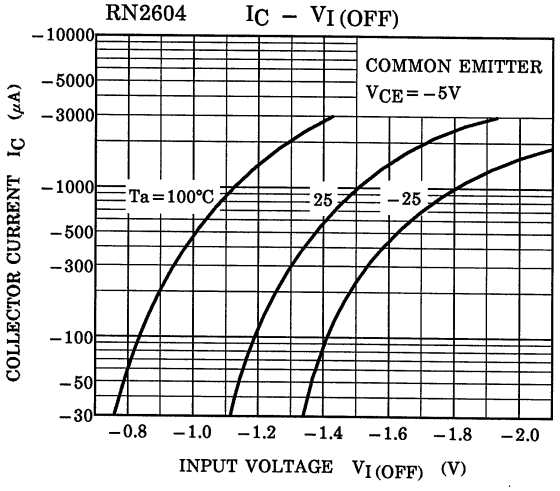


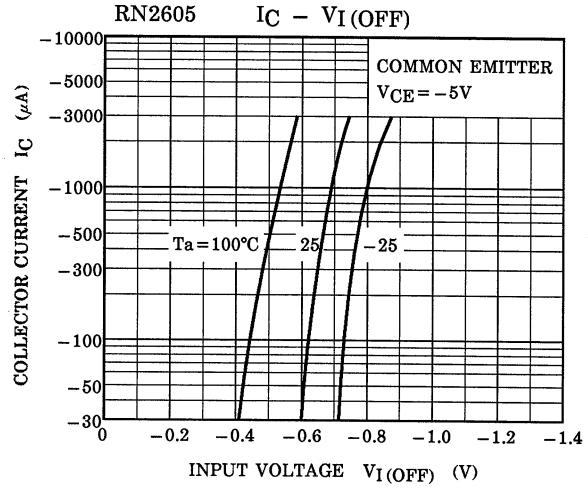
(Q1, Q2 Common)

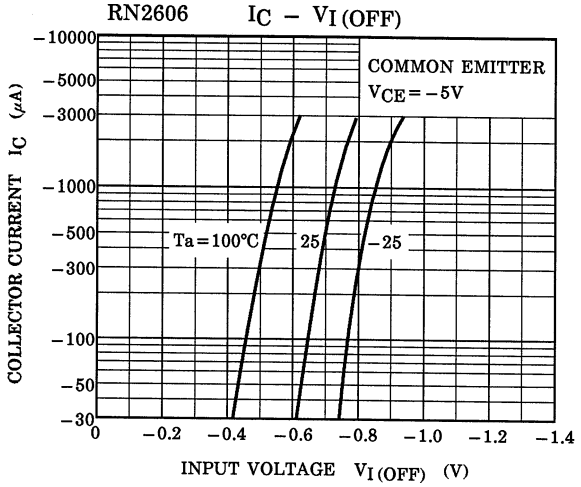

RN2601 I_C – $V_{I(OFF)}$
COMMON EMITTER
V_{CE} = −5V
Ta = 100°C
25
−25
COLLECTOR CURRENT I_C (μA)
INPUT VOLTAGE $V_{I(OFF)}$ (V)


RN2602 I_C – $V_{I(OFF)}$
COMMON EMITTER
V_{CE} = −5V
Ta = 100°C
25
−25
COLLECTOR CURRENT I_C (μA)
INPUT VOLTAGE $V_{I(OFF)}$ (V)


RN2603 I_C – $V_{I(OFF)}$
COMMON EMITTER
V_{CE} = −5V
Ta = 100°C
25
−25
COLLECTOR CURRENT I_C (μA)
INPUT VOLTAGE $V_{I(OFF)}$ (V)

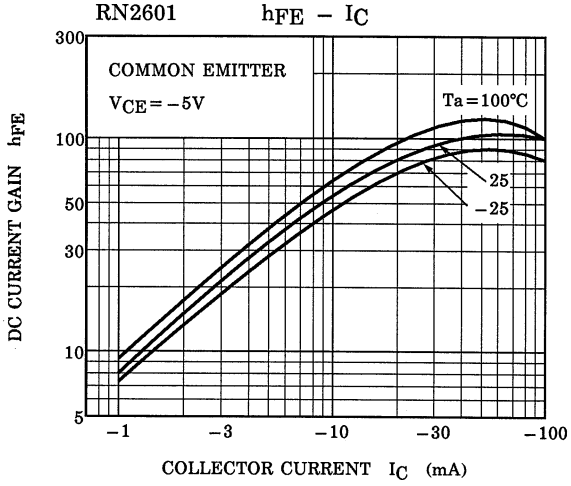

RN2604 I_C – $V_{I(OFF)}$
COMMON EMITTER
V_{CE} = −5V
Ta = 100°C
25
−25
COLLECTOR CURRENT I_C (μA)
INPUT VOLTAGE $V_{I(OFF)}$ (V)


RN2605 I_C – $V_{I(OFF)}$
COMMON EMITTER
V_{CE} = −5V
Ta = 100°C
25
−25
COLLECTOR CURRENT I_C (μA)
INPUT VOLTAGE $V_{I(OFF)}$ (V)

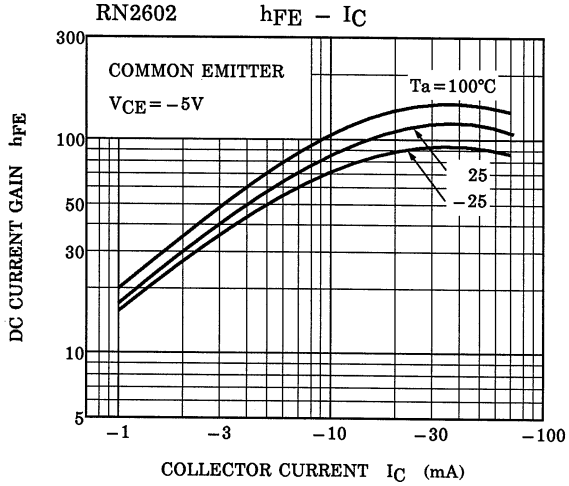

RN2606 I_C – $V_{I(OFF)}$
COMMON EMITTER
V_{CE} = −5V
Ta = 100°C
25
−25
COLLECTOR CURRENT I_C (μA)
INPUT VOLTAGE $V_{I(OFF)}$ (V)

(Q1, Q2 Common)

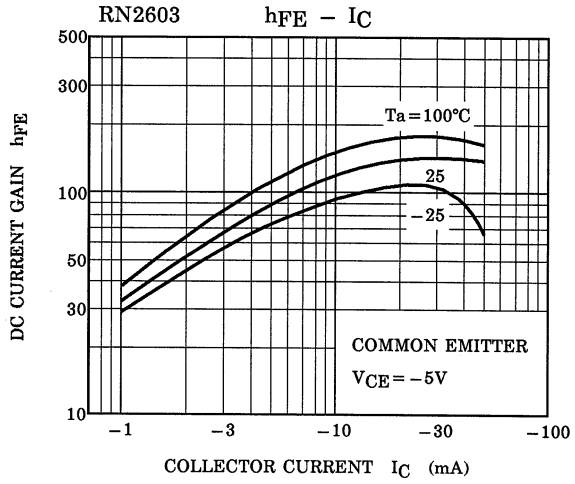
RN2601 h_{FE} – I_C



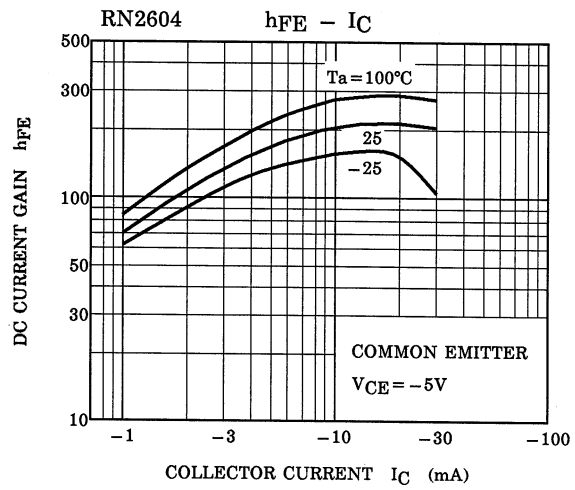
RN2602 h_{FE} – I_C



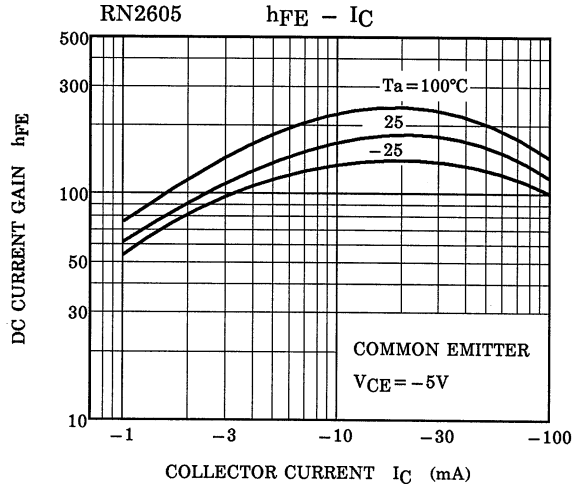
RN2603 h_{FE} – I_C



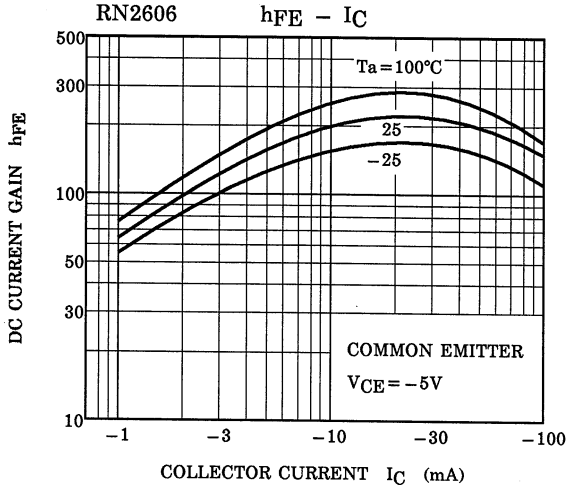
RN2604 h_{FE} – I_C

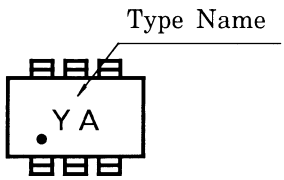
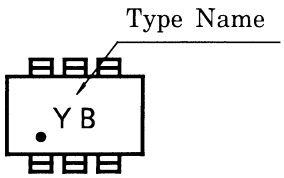
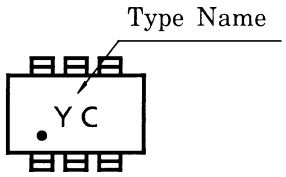
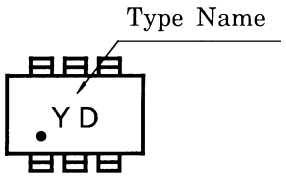
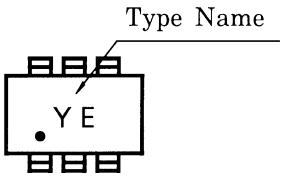
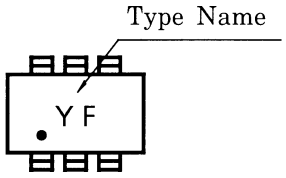


RN2605 h_{FE} – I_C



RN2606 h_{FE} – I_C



Type Name	Marking
RN2601	
RN2602	
RN2603	
RN2604	
RN2605	
RN2606	

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