

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

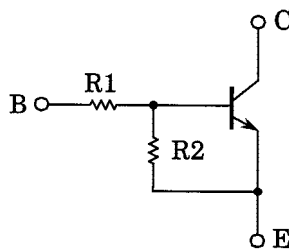
### RN2401,RN2402,RN2403 RN2404,RN2405,RN2406

Switching, Inverter Circuit, Interface Circuit  
And Driver Circuit Applications

Unit: mm

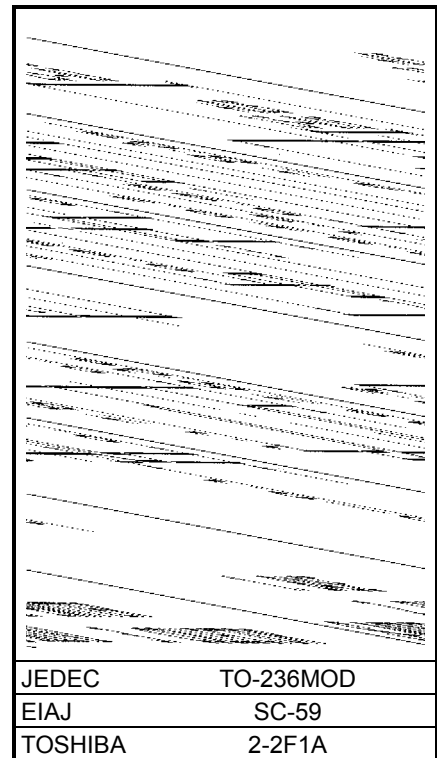
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1401~1406

#### Equivalent Circuit



#### Bias Resistor Values

Type No.	R1 (kΩ)	R2 (kΩ)
RN2401	4.7	4.7
RN2402	10	10
RN2403	22	22
RN2404	47	47
RN2405	2.2	47
RN2406	4.7	47



JEDEC	TO-236MOD
EIAJ	SC-59
TOSHIBA	2-2F1A

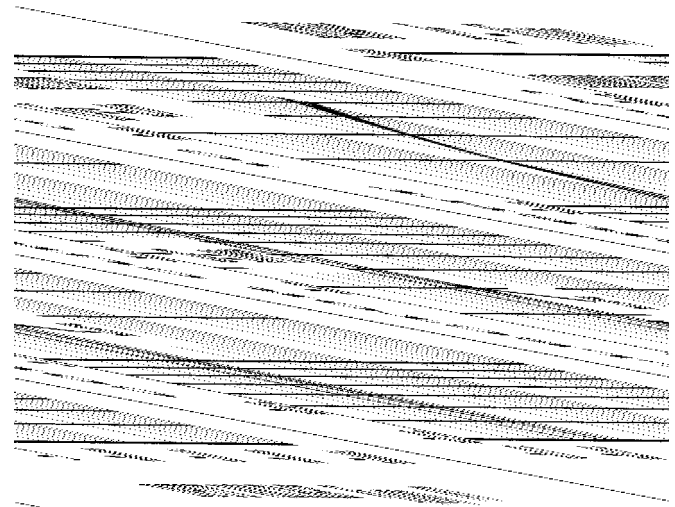
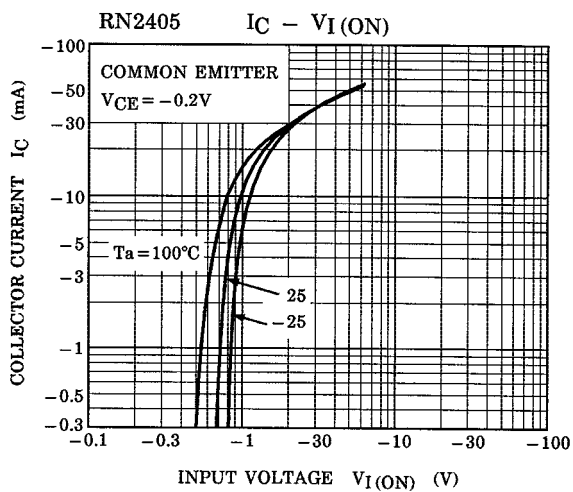
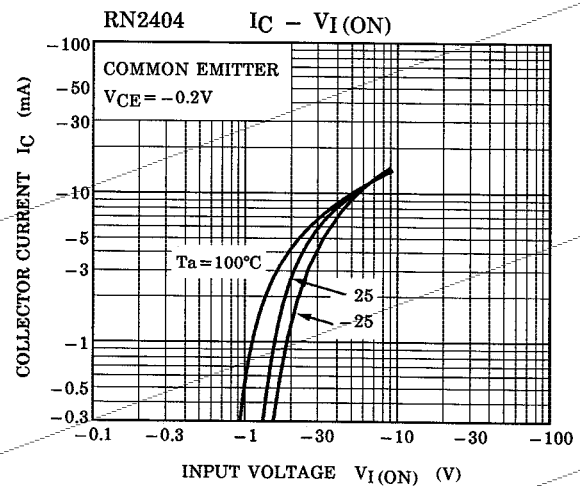
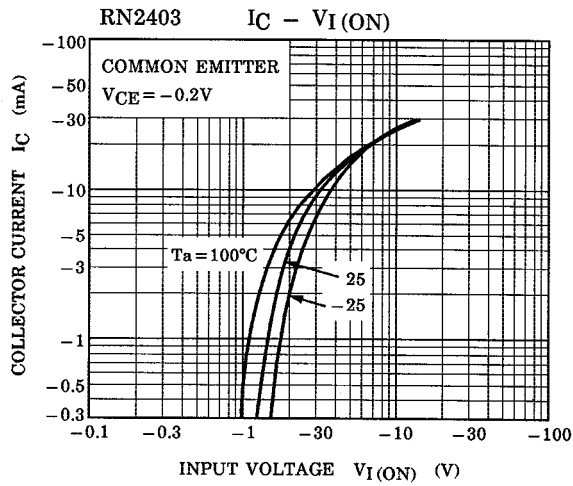
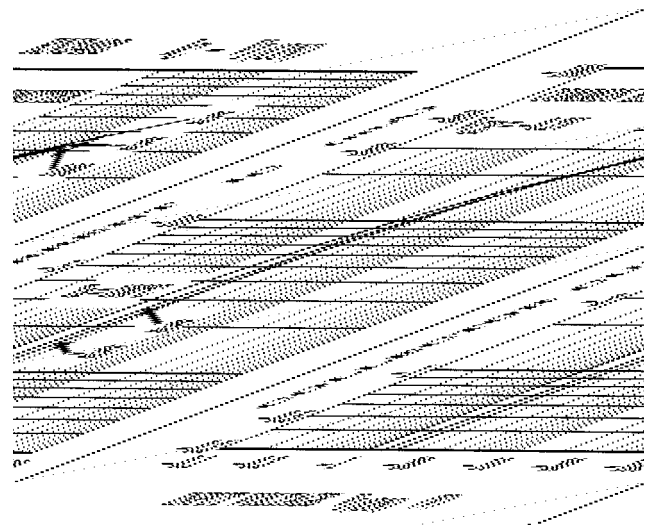
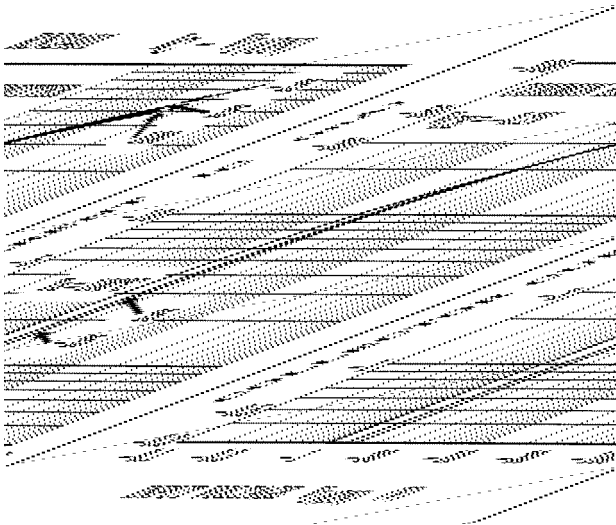
Weight: 0.012g

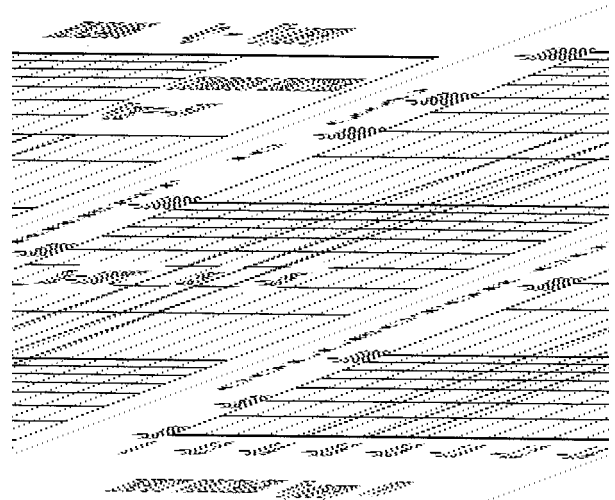
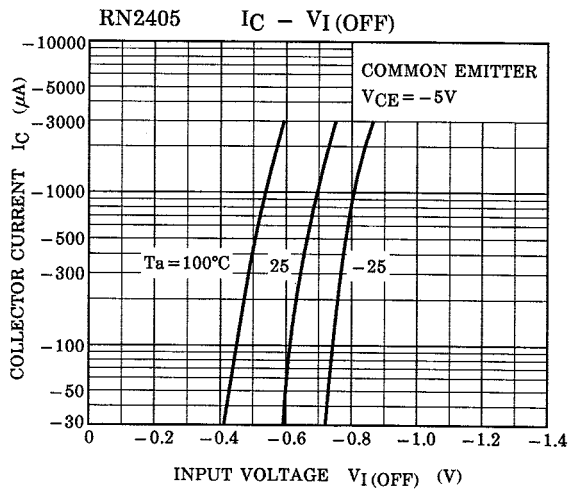
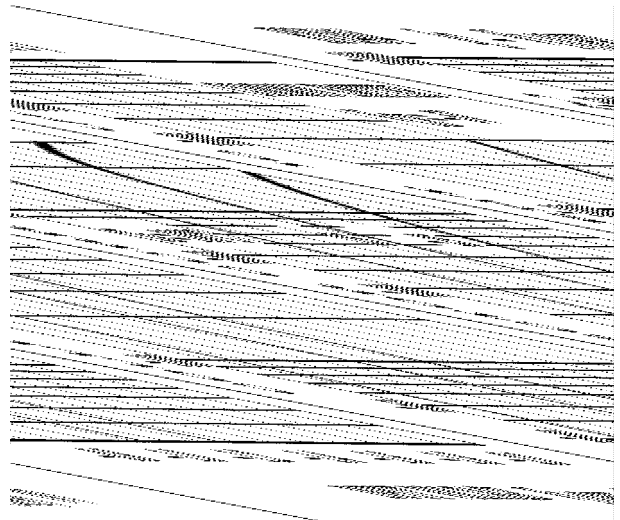
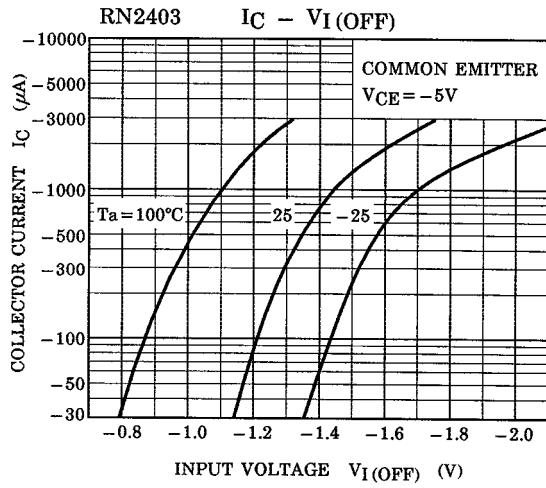
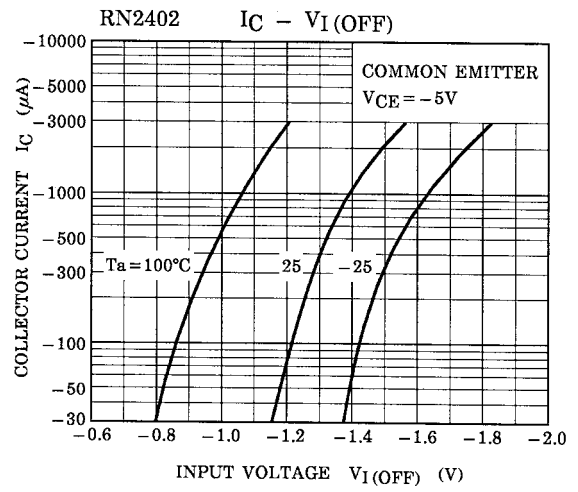
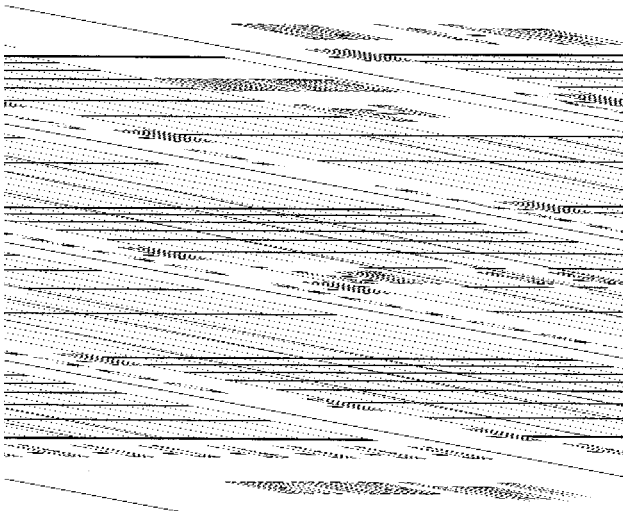
#### Maximum Ratings (Ta = 25°C)

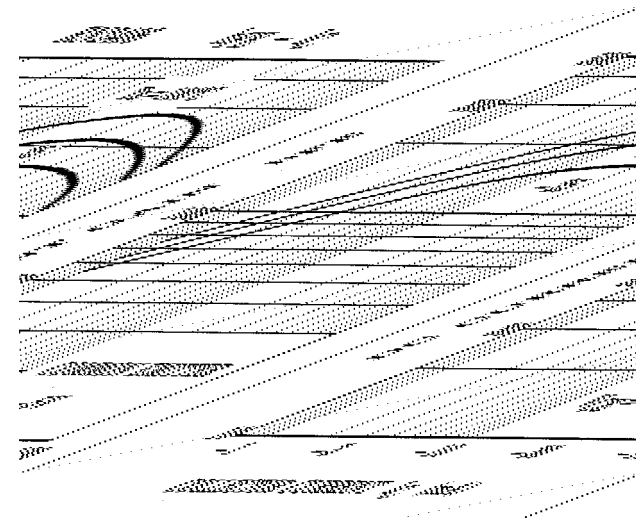
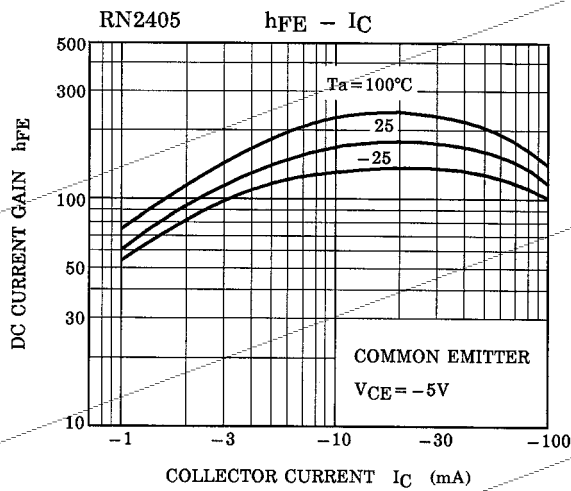
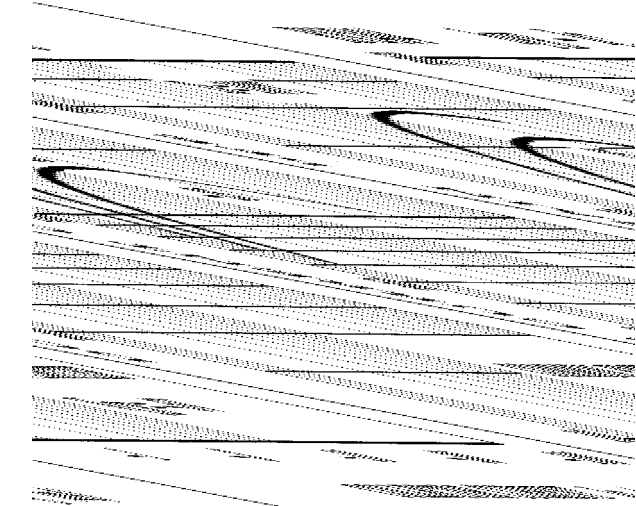
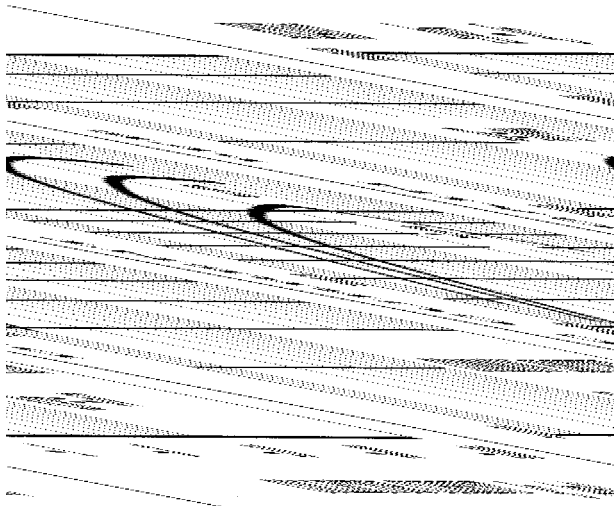
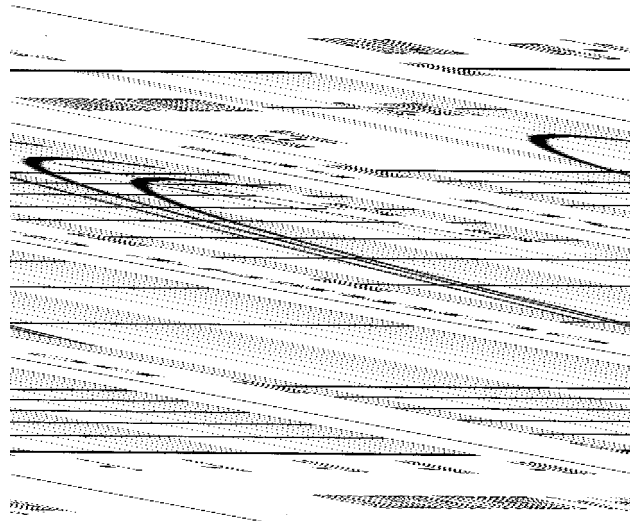
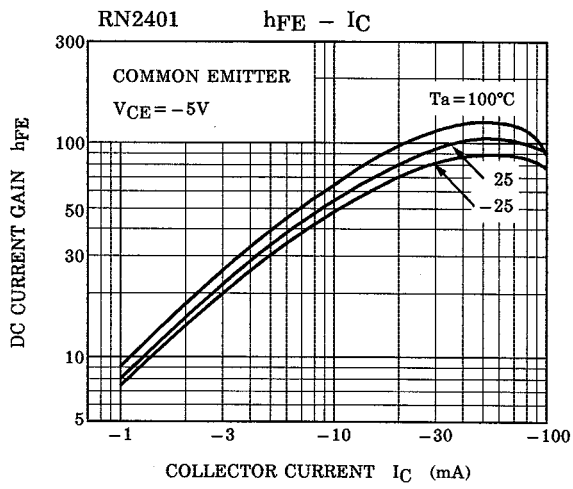
Characteristic		Symbol	Rating	Unit
Collector-base voltage	RN2401~2406	$V_{CBO}$	-50	V
Collector-emitter voltage		$V_{CEO}$	-50	V
Emitter-base voltage	RN2401~2404	$V_{EBO}$	-10	V
	RN2405, 2406		-5	V
Collector current	RN2401~2406	$I_C$	-100	mA
Collector power dissipation		$P_C$	200	mW
Junction temperature		$T_j$	150	°C
Storage temperature range		$T_{stg}$	-55~150	°C

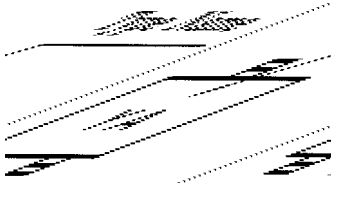
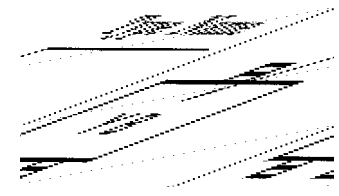
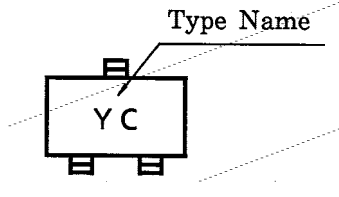
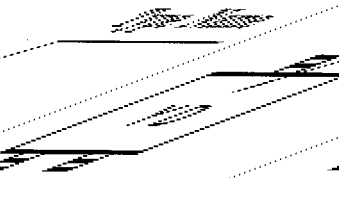
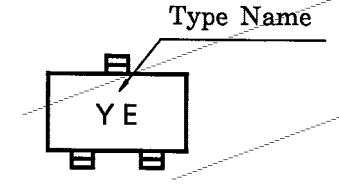
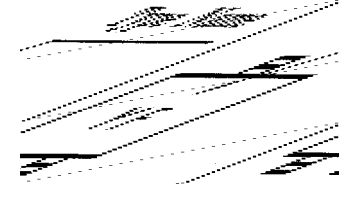
### Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	RN2401~2406	$I_{CBO}$	—	$V_{CB} = -50V, I_E = 0$	—	—	-100	nA
		$I_{CEO}$	—	$V_{CE} = -50V, I_B = 0$	—	—	-500	
Emitter cut-off current	RN2401	$I_{EBO}$	—	$V_{EB} = -10V, I_C = 0$	-0.82	—	-1.52	mA
	RN2402		—		-0.38	—	-0.71	
	RN2403		—		-0.17	—	-0.33	
	RN2404		—	-0.082	—	-0.15		
	RN2405		—	$V_{EB} = -5V, I_C = 0$	-0.078	—	-0.145	
	RN2406		—		-0.074	—	-0.138	
DC current gain	RN2401	$h_{FE}$	—	$V_{CE} = -5V$ $I_C = -10mA$	30	—	—	—
	RN2402		—		50	—	—	
	RN2403		—		70	—	—	
	RN2404		—		80	—	—	
	RN2405		—		80	—	—	
	RN2406		—		80	—	—	
Collector-emitter saturation voltage	RN2401~2406	$V_{CE(sat)}$	—	$I_C = -5mA$ $I_B = -0.25mA$	—	-0.1	-0.3	V
Input voltage (ON)	RN2401	$V_{I(ON)}$	—	$V_{CE} = -0.2V$ $I_C = -5mA$	-1.1	—	-2.0	V
	RN2402		—		-1.2	—	-2.4	
	RN2403		—		-1.3	—	-3.0	
	RN2404		—		-1.5	—	-5.0	
	RN2405		—		-0.6	—	-1.1	
	RN2406		—		-0.7	—	-1.3	
Input voltage (OFF)	RN2401~2404	$V_{I(OFF)}$	—	$V_{CE} = -5V,$ $I_C = -0.1mA$	-1.0	—	-1.5	V
	RN2405, 2406		—		-0.5	—	-0.8	
Translation frequency	RN2401~2406	$f_T$	—	$V_{CE} = -10V,$ $I_C = -5mA$	—	200	—	MHz
Collector output capacitance	RN2401~2406	$C_{ob}$	—	$V_{CB} = -10V, I_E = 0$ $f = 1MHz$	—	3	6	pF
Input resistor	RN2401	R1	—	—	3.29	4.7	6.11	kΩ
	RN2402		—		7	10	13	
	RN2403		—		15.4	22	28.6	
	RN2404		—		32.9	47	61.1	
	RN2405		—		1.54	2.2	2.86	
	RN2406		—		3.29	4.7	6.11	
Resistor ratio	RN2401~2404	R1/R2	—	—	0.9	1.0	1.1	—
	RN2405		—		0.0421	0.0468	0.0515	
	RN2406		—		0.09	0.1	0.11	







Type Name	Marking
RN2401	
RN2402	
RN2403	
RN2404	
RN2405	
RN2406	

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