

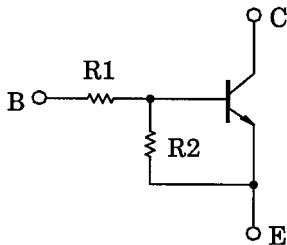
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

## RN1421,RN1422,RN1423,RN1424 RN1425,RN1426,RN1427

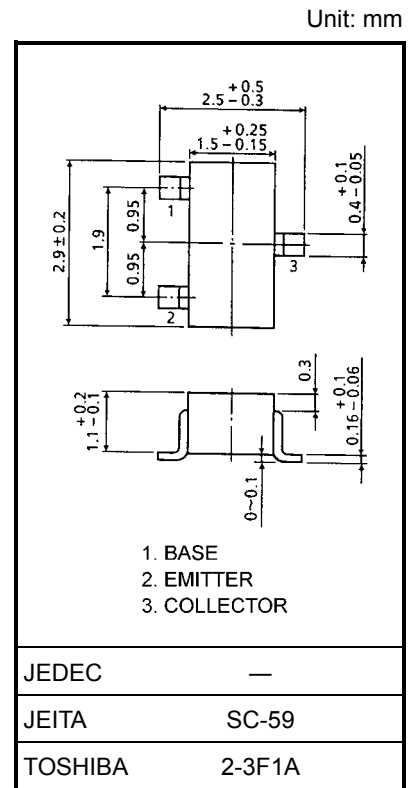
Switching, Inverter Circuit, Interface Circuit  
And Driver Circuit Applications

- High current type ( $I_C$  (max) = 800mA)
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Low  $V_{CE}$  (sat)
- Complementary to RN2401~RN2406

### Equivalent Circuit and Bias Resister Values



Type No.	R1 (k $\Omega$ )	R2 (k $\Omega$ )
RN1421	1	1
RN1422	2.2	2.2
RN1423	4.7	4.7
RN1424	10	10
RN1425	0.47	10
RN1426	1	10
RN1427	2.2	10



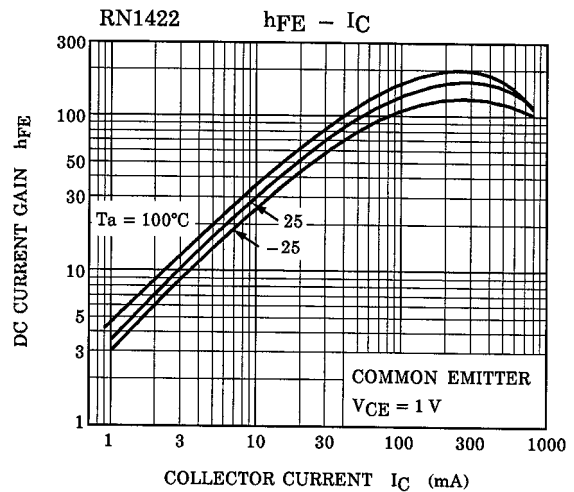
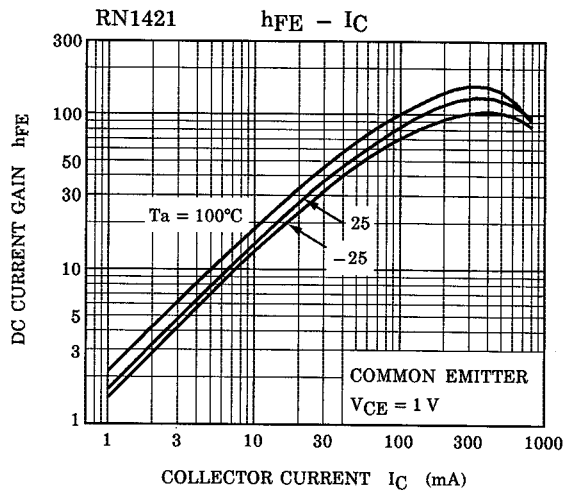
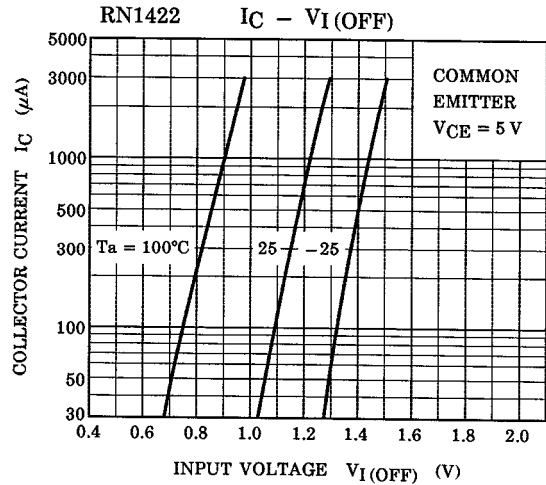
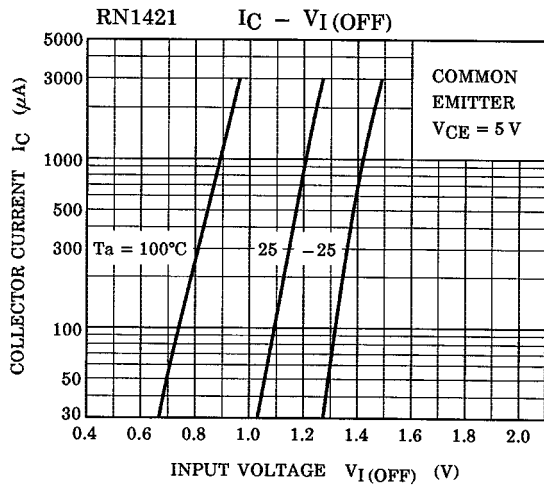
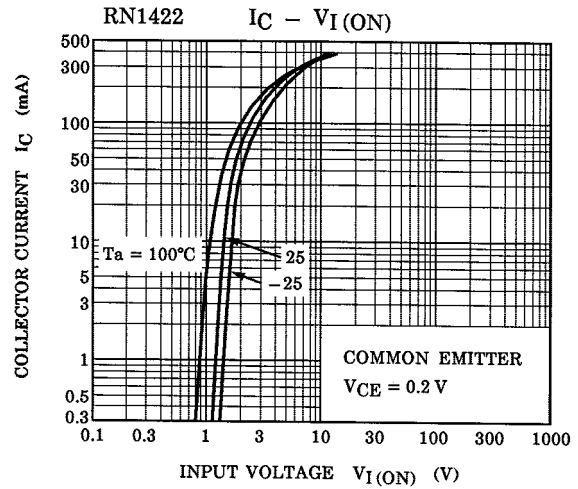
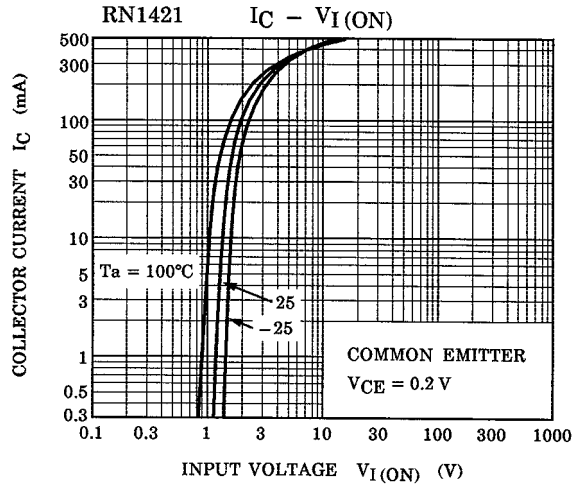
Weight: 0.012 g (typ.)

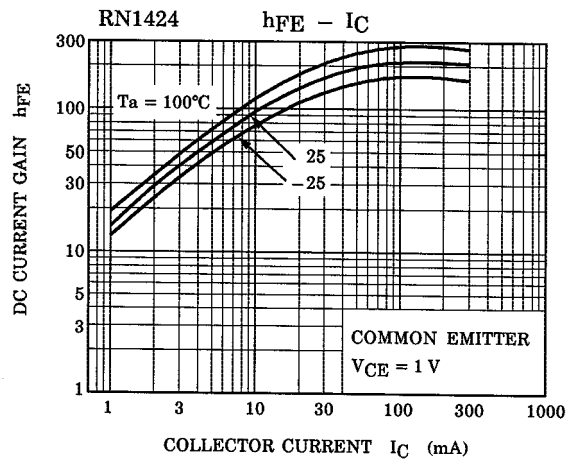
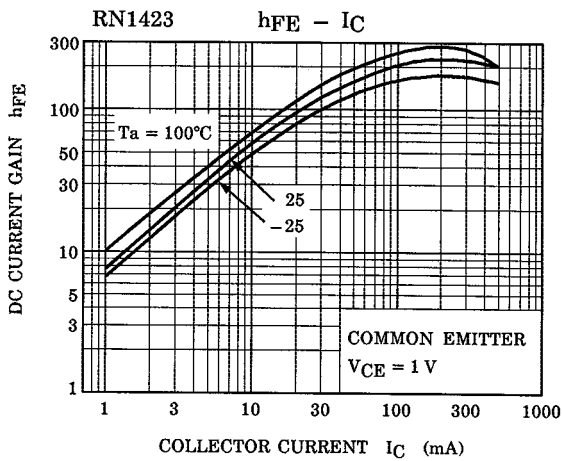
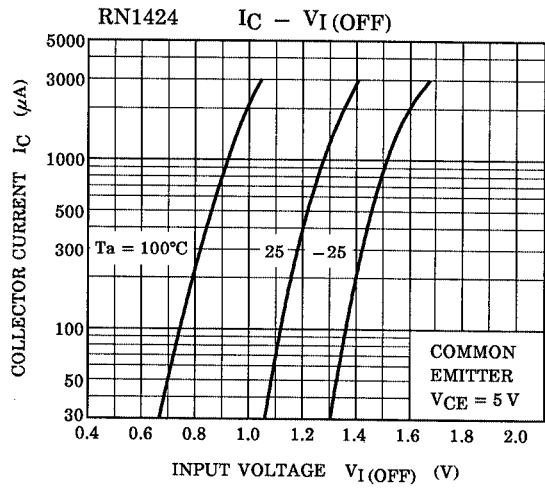
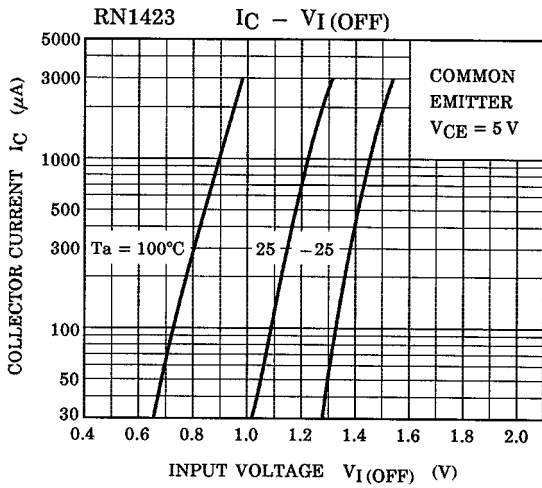
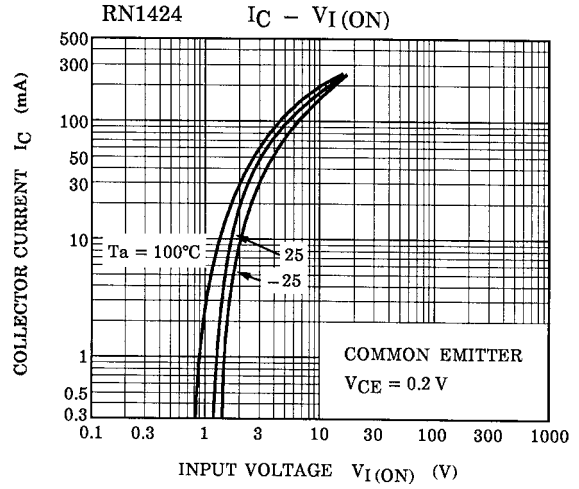
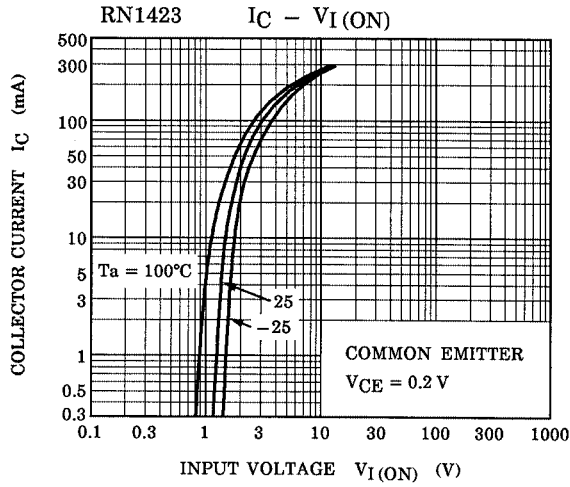
### Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

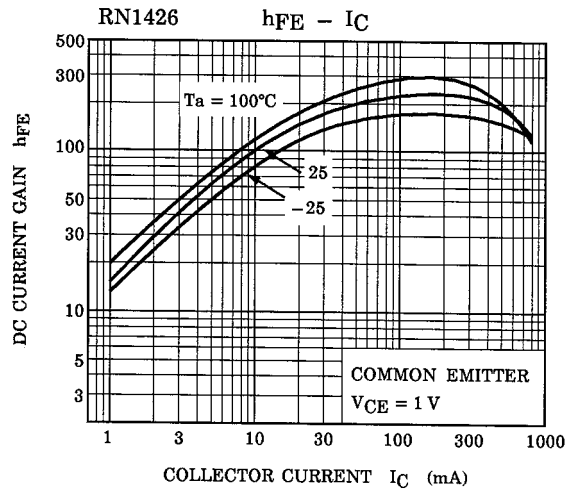
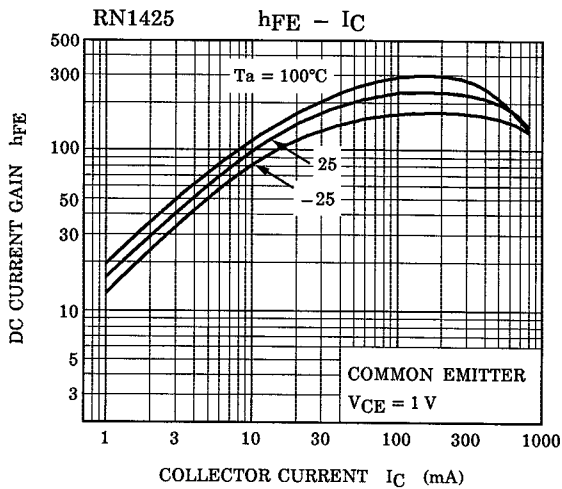
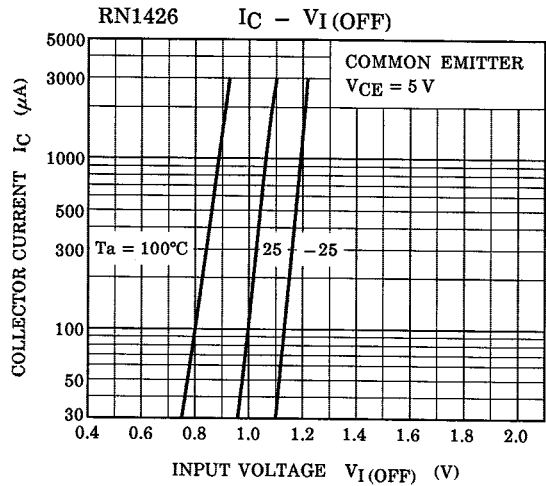
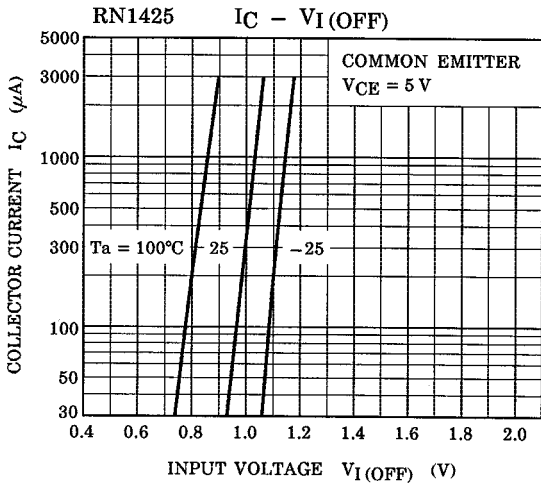
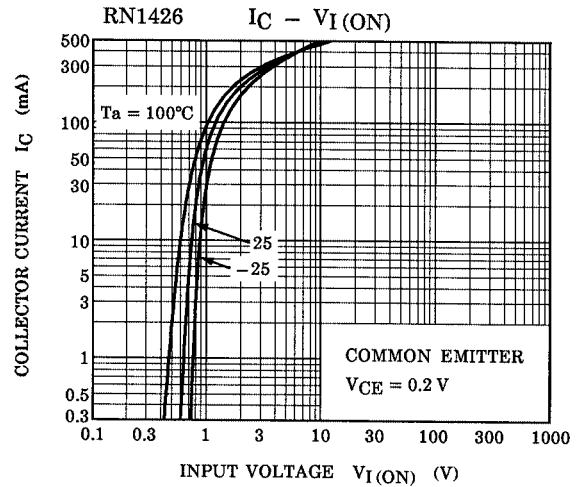
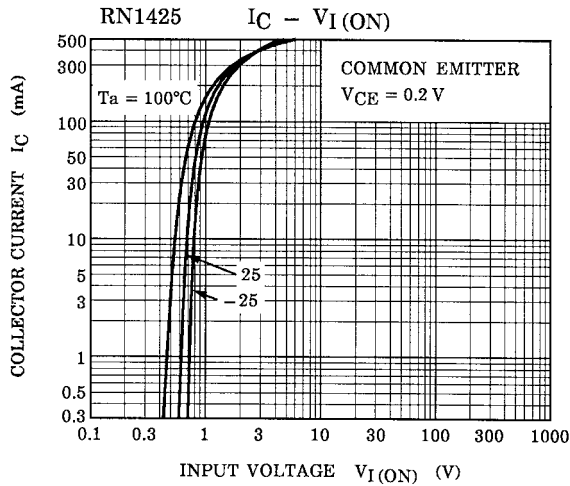
Characteristic	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	50	V
Collector-emitter voltage			
Emitter-base voltage	$V_{EBO}$	10	V
		5	
		6	
Collector current	$I_C$	800	mA
Collector power dissipation	$P_C$	200	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55~150	$^\circ\text{C}$

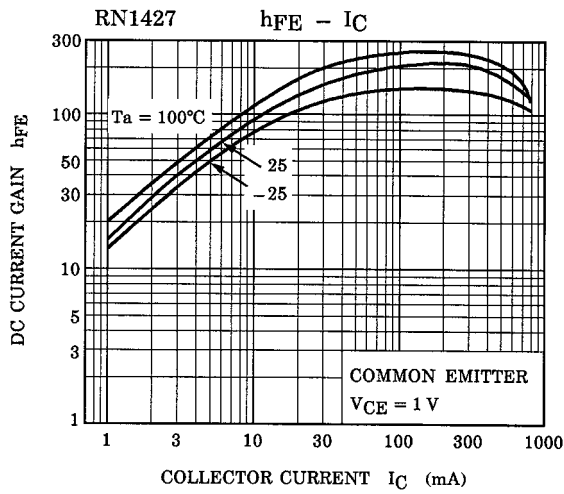
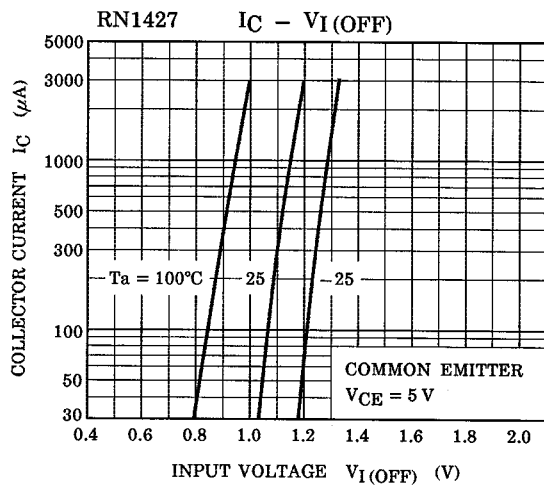
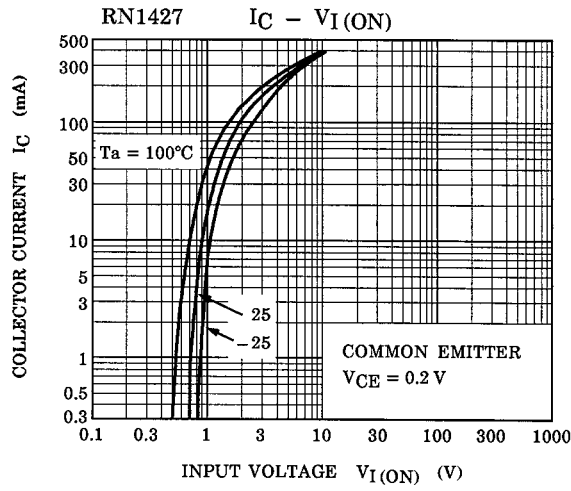
**Electrical Characteristics (Ta = 25°C)**

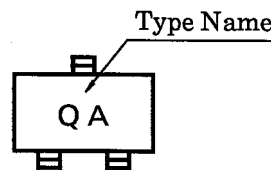
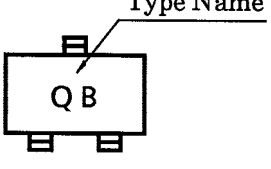
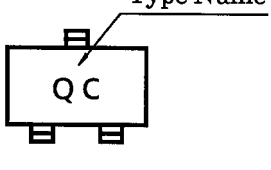
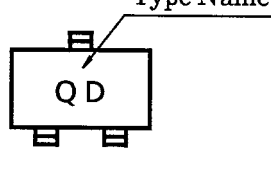
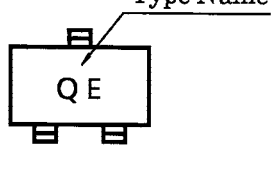
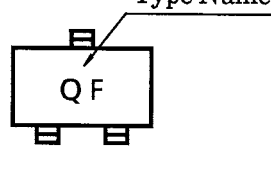
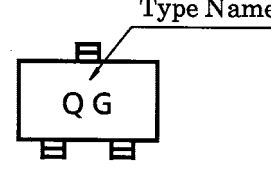
Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	RN1421~1427	$I_{CBO}$	—	$V_{CB} = 50V, I_E = 0$	—	—	100	nA
		$I_{CEO}$		$V_{CE} = 50V, I_B = 0$	—	—	500	
Emitter cut-off current	RN1421	$I_{EBO}$	—	$V_{EB} = 10V, I_C = 0$	3.85	—	7.14	mA
	RN1422				1.75	—	3.25	
	RN1423				0.82	—	1.52	
	RN1424			0.38	—	0.71		
	RN1425			$V_{EB} = 5V, I_C = 0$	0.365	—	0.682	
					RN1426	0.35	—	
	RN1427			$V_{EB} = 6V, I_C = 0$	0.378	—	0.703	
DC current gain	RN1421	$h_{FE}$	—	$V_{CE} = 1V, I_C = 100mA$	60	—	—	—
	RN1422				65	—	—	
	RN1423				70	—	—	
	RN1424				90	—	—	
	RN1425				90	—	—	
	RN1426				90	—	—	
	RN1427				90	—	—	
Collector-emitter saturation voltage	RN1421~1427	$V_{CE(sat)}$	—	$I_C = 50mA, I_B = 2mA$	—	—	0.25	V
				$I_C = 50mA, I_B = 1mA$				
Input voltage (ON)	RN1421	$V_{I(ON)}$	—	$V_{CE} = 0.2V, I_C = 100mA$	1.0	—	3.5	V
	RN1422				1.4	—	4.5	
	RN1423				2.0	—	6.5	
	RN1424				3.0	—	12.0	
	RN1425				0.6	—	2.0	
	RN1426				0.7	—	2.5	
	RN1427				1.0	—	3.0	
Input voltage (OFF)	RN1421~1424	$V_{I(OFF)}$	—	$V_{CE} = 5V, I_C = 0.1mA$	0.8	—	1.3	V
	RN1425, 1426				0.4	—	0.8	
	RN1427				0.5	—	1.0	
Transition frequency	RN1421~1427	$f_T$	—	$V_{CE} = 5V, I_C = 20mA$	—	300	—	MHz
Collector Output capacitance	RN1421~1427	$C_{ob}$	—	$V_{CB} = 10V, I_E = 0, f = 1MHz$	—	7	—	pF
Input resistor	RN1421	R1	—	—	0.7	1.0	1.3	kΩ
	RN1422				1.54	2.2	2.86	
	RN1423				3.29	4.7	6.11	
	RN1424				7	10	13	
	RN1425				0.329	0.47	0.61	
	RN1426				0.7	1.0	1.3	
	RN1427				1.54	2.2	2.86	
Resistor ratio	RN1421~1424	R1/R2	—	—	0.9	1.0	1.1	—
	RN1425				0.0423	0.047	0.0517	
	RN1426				0.09	0.1	0.11	
	RN1427				0.2	0.22	0.24	









Type Name	Marking
RN1421	
RN1422	
RN1423	
RN1424	
RN1425	
RN1426	
RN1427	

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