

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

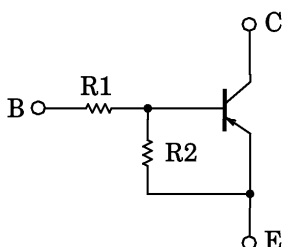
**RN2221, RN2222, RN2223, RN2224
RN2225, RN2226, RN2227**

SWITCHING, INVERTER CIRCUIT, INTERFACE CIRCUIT
AND DRIVER CIRCUIT APPLICATIONS

Unit in mm

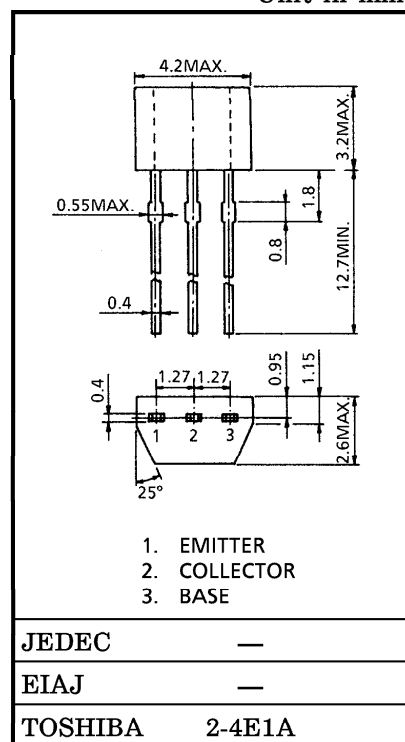
- High Current Type (I_C (MAX) = -800mA)
- With Built-in Bias Resistors
- Simplify Circuit Design
- Reduce a Quantity of Parts Manufacturing Process
- Low V_{CE} (sat)
- Complementary to RN1221~1227

EQUIVALENT CIRCUIT



BIAS RESISTOR VALUES

TYPE No.	R1 (kΩ)	R2 (kΩ)
RN2221	1	1
RN2222	2.2	2.2
RN2223	4.7	4.7
RN2224	10	10
RN2225	0.47	10
RN2226	1	10
RN2227	2.2	10



Weight : 0.13g

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	-50	V
Collector-Emitter Voltage			
Emitter-Base Voltage	V_{EB0}	-10	V
		-5	
		-6	
Collector Current	I_C	-800	mA
Collector Power Dissipation	P_C	300	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~150	$^\circ\text{C}$

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	RN2221~2227	ICBO	V _{CB} = -50V, I _E = 0	—	—	-100	nA
		ICEO	V _{CE} = -50V, I _B = 0	—	—	-500	
Emitter Cut-off Current	RN2221	I _{EBO}	V _{EB} = -10V, I _E = 0	-3.85	—	-7.14	mA
	RN2222			-1.75	—	-3.25	
	RN2223			-0.82	—	-1.52	
	RN2224		-0.38	—	-0.71		
	RN2225		V _{EB} = -5V, I _C = 0	-0.365	—	-0.682	
	RN2226			-0.35	—	-0.65	
	RN2227		V _{EB} = -6V, I _C = 0	-0.378	—	-0.703	
DC Current Gain	RN2221	h _{FE}	V _{CE} = -1V I _C = -100mA	60	—	—	—
	RN2222			65	—	—	
	RN2223			70	—	—	
	RN2224			90	—	—	
	RN2225			90	—	—	
	RN2226			90	—	—	
	RN2227			90	—	—	
Collector-Emitter Saturation Voltage	RN2221	V _{CE(sat)}	I _C = -50mA, I _B = -2mA	—	—	-0.25	V
	RN2222~2227		I _C = -50mA, I _B = -1mA				
Input Voltage (ON)	RN2221	V _{I(ON)}	V _{CE} = -0.2V I _C = -100mA	-1.0	—	-3.5	V
	RN2222			-1.4	—	-4.5	
	RN2223			-2.0	—	-6.5	
	RN2224			-3.0	—	-12.0	
	RN2225			-0.6	—	-2.0	
	RN2226			-0.7	—	-2.5	
	RN2227			-1.0	—	-3.0	
Input Voltage (OFF)	RN2221~2224	V _{I(OFF)}	V _{CE} = -5V I _C = -0.1mA	-0.8	—	-1.3	V
	RN2225, 2226			-0.4	—	-0.8	
	RN2227			-0.5	—	-1.0	
Transition Frequency	RN2221~2227	f _T	V _{CE} = -5V, I _C = -20mA	—	200	—	MHz
Collector Output Capacitance	RN2221~2227	C _{ob}	V _{CB} = -10V, I _E = 0 f = 1MHz	—	13	—	pF
Input Resistor	RN2221	R ₁		0.7	1.0	1.3	kΩ
	RN2222			1.54	2.2	2.86	
	RN2223			3.29	4.7	6.11	
	RN2224			7	10	13	
	RN2225			0.329	0.47	0.61	
	RN2226			0.7	1.0	1.3	
	RN2227			1.54	2.2	2.86	
Resistor Ratio	RN2221~2224	R ₁ / R ₂		0.9	1.0	1.1	—
	RN2225			0.0423	0.047	0.0517	
	RN2226			0.09	0.1	0.11	
	RN2227			0.2	0.22	0.24	

