

UNR3210/3213/3216/321L/321N

Silicon NPN epitaxial planar transistor

For digital circuits

■ Features

- Optimum for downsizing of the equipment and high-density mounting
- Contribute for low power consumption

■ Resistance by Part Number

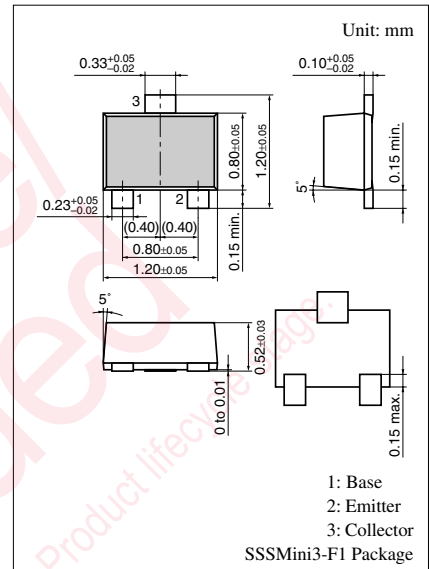
	Marking symbol	(R ₁)	(R ₂)
• UNR3210	8L	47 kΩ	—
• UNR3213	8C	47 kΩ	47 kΩ
• UNR3216	8F	4.7 kΩ	—
• UNR321L	8Q	4.7 kΩ	4.7 kΩ
• UNR321N	EX	4.7 kΩ	47 kΩ

■ Absolute Maximum Ratings T_a = 25°C

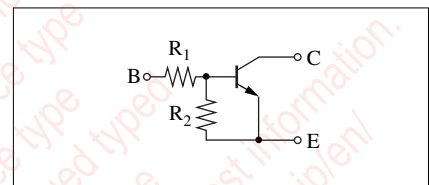
Parameter	Symbol	Rating	Unit
Collector to base voltage	V _{CB0}	50	V
Collector to emitter voltage	V _{CE0}	50	V
Collector current	I _C	100	mA
Total power dissipation	P _T	100	mW
Junction temperature	T _j	125	°C
Storage temperature	T _{stg}	-55 to +125	°C

■ Electrical Characteristics T_a = 25°C ± 3°C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	I _{CB0}	V _{CB} = 50 V, I _E = 0			0.1	μA
	I _{CE0}	V _{CE} = 50 V, I _B = 0			0.5	
Emitter cutoff current	UNR3210/3216 UNR3213 UNR321N UNR321L	I _{EBO} V _{EB} = 6 V, I _C = 0			0.01	mA
					0.1	
					0.2	
					2.0	
Collector to base voltage	V _{CB0}	I _C = 10 μA, I _E = 0	50			V
Collector to emitter voltage	V _{CE0}	I _C = 2 mA, I _B = 0	50			V
Forward current transfer ratio	UNR321L UNR3213 UNR321N UNR3210/3216	h _{FE} V _{CE} = 10 V, I _C = 5 mA	20			
			80			
			80		400	
			160		460	
Collector to emitter saturation voltage	V _{CE(sat)}	I _C = 10 mA, I _B = 0.3 mA			0.25	V



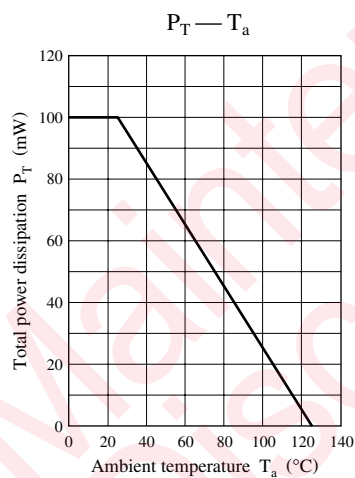
Internal Connection



■ Electrical Characteristics (continued) $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
High-level output voltage	V_{OH}	$V_{CC} = 5\text{ V}$, $V_B = 0.5\text{ V}$, $R_L = 1\text{ k}\Omega$	4.9			V
Low-level output voltage	V_{OL}	$V_{CC} = 5\text{ V}$, $V_B = 2.5\text{ V}$, $R_L = 1\text{ k}\Omega$			0.2	V
		$V_{CC} = 5\text{ V}$, $V_B = 3.5\text{ V}$, $R_L = 1\text{ k}\Omega$				
Transition frequency	f_T	$V_{CB} = 10\text{ V}$, $I_E = -2\text{ mA}$, $f = 200\text{ MHz}$		150		MHz
Input resistance	UNR3216/321L/321N	R_1	-30%	4.7	+30%	k Ω
	UNR3210/3213			47		
Resistance ratio	R_1/R_2		0.8	1.0	1.2	
	UNR321N			0.1		

Common characteristics chart



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