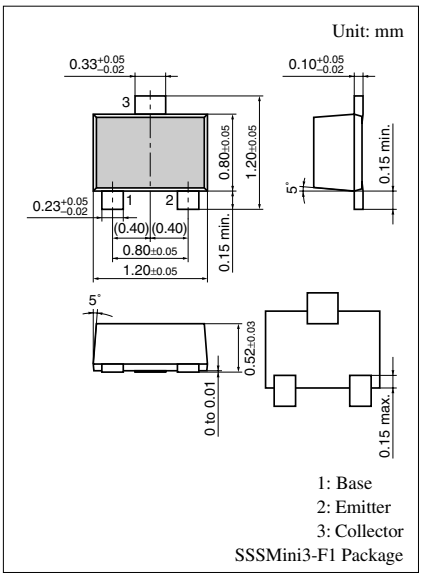
UNR3210/3213/3216/321L/321N

Silicon NPN epitaxial planar transistor

For digital circuits



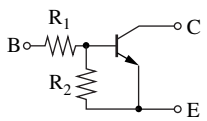
■ Features

- 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

Internal Connection



■ Absolute Maximum Ratings $T_a = 25°C$

Parameter	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	50	V
Collector to emitter voltage	V_{CEO}	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 $T_a = 25°C \pm 3°C$

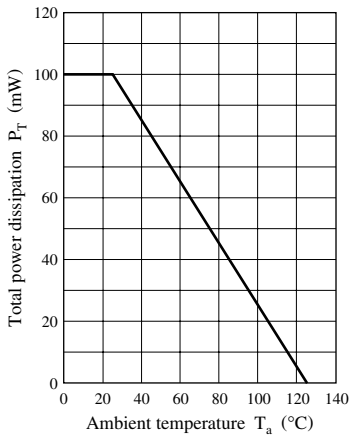
Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current		I_{CBO}	V_{CB} = 50 V, I_E = 0			0.1	μA
		I_{CEO}	V_{CE} = 50 V, I_B = 0			0.5	
Emitter cutoff current	UNR3210/3216	I_{EBO}	V_{EB} = 6 V, I_C = 0			0.01	mA
	UNR3213					0.1	
	UNR321N					0.2	
	UNR321L					2.0	
Collector to base voltage		V_{CBO}	I_C = 10 μA, I_E = 0	50			V
Collector to emitter voltage		V_{CEO}	I_C = 2 mA, I_B = 0	50			V
Forward current transfer ratio	UNR321L	h_{FE}	V_{CE} = 10 V, I_C = 5 mA	20			
	UNR3213			80			
	UNR321N			80		400	
	UNR3210/3216			160		460	
Collector to emitter saturation voltage		$V_{CE(sat)}$	I_C = 10 mA, I_B = 0.3 mA			0.25	V

■ Electrical Characteristics (continued) $T_a = 25°C \pm 3°C$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
High-level output voltage		V_{OH}	V_{CC} = 5 V, V_B = 0.5 V, R_L = 1 kΩ	4.9			V
Low-level output voltage		V_{OL}	V_{CC} = 5 V, V_B = 2.5 V, R_L = 1 kΩ			0.2	V
	UNR3213		V_{CC} = 5 V, V_B = 3.5 V, R_L = 1 kΩ				
Transition frequency		f_T	V_{CB} = 10 V, I_E = −2 mA, f = 200 MHz		150		MHz
Input resistance	UNR3216/321L/321N	R_1		−30%	4.7	+30%	kΩ
	UNR3210/3213				47		
Resistance ratio		R_1/R_2		0.8	1.0	1.2	
	UNR321N				0.1		

Common characteristics chart

P_T — T_a



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